IRRESISTABLE: SERVICE MASKS, GOLDWATER-NICHOLS, AND OVERCOMING SERVICE BARRIERS TO JFACC

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For the U.S. Air Force, control of all airpower was not just a service imperative, but its *raison d'etre.* For the US Navy, sister service control of carrier aviation was not only a direct threat to the Navy's ability to execute its mission from the tactical to the strategic levels of war, it was a threat to its stature as a service. These two viewpoints conjure the analogy of an irresistible force meeting an immovable object. In order to establish a Joint Forces Air Component Commander (JFACC), US Navy and US Air Force cultural, doctrinal, technological, and threat barriers to integration had to be overcome. The Goldwater-Nichols Department of Defense Reorganization Act of 1986 set the conditions for the confluence of events that overcame these barriers and allowed for the creation of a true JFACC. This thesis examines three lines of effort: the enduring masks of the services, the origins and limitations of airpower, and the effects of Goldwater-Nichols in incentivizing the expression of service masks to jointness while overcoming the service barriers to establishing a JFACC. From this legislation, American joint utilization of airpower emerged as an integrated, fighting force capable of holding at risk nearly any target, anyplace and anytime for the duration required to meet the commander's objective.

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ABSTRACT

IRRESISTABLE: SERVICE MASKS, GOLDWATER-NICHOLS, AND OVERCOMING SERVICE BARRIERS TO JFACC, by LCDR Scott B. Mehaffey, 132 pages.

For the U.S. Air Force, control of all airpower was not just a service imperative, but it is *raison d'etre.* For the U.S. Navy, sister service control of carrier aviation was not only a direct threat to the Navy's ability to execute its mission from the tactical to the strategic levels of war, it was a threat to its stature as a service. These two viewpoints conjure the analogy of an irresistible force meeting an immovable object. In order to establish a Joint Forces Air Component Commander (JFACC), U.S. Navy and U.S. Air Force cultural, doctrinal, technological, and threat barriers to integration had to be overcome. The Goldwater-Nichols Department of Defense Reorganization Act of 1986 set the conditions for the confluence of events that overcame these barriers and allowed for the creation of a true JFACC. This thesis examines three lines of effort: the enduring masks of the services, the origins and limitations of airpower, and the effects of Goldwater-Nichols in incentivizing the expression of service masks to jointness while overcoming the service barriers to establishing a JFACC. From this legislation, American joint utilization of airpower emerged as an integrated, fighting force capable of holding at risk nearly any target, anyplace and anytime for the duration required to meet the commander's objective.

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TABLE OF CONTENTS

Page

ACRONYMS

AAF	Army Air Forces
ATO	Air Tasking Order
CAS	Close Air Support
CinC	Commander in Chief
CinCLANT	Commander in Chief U.S. Atlantic Command
CinCPAC	Commander in Chief U.S. Pacific Command
CinCSAC	Commander in Chief U.S. Strategic Air Command
FEAF	Far East Air Forces
IFR	In Flight Refueling
JCS	Joint Chiefs of Staff
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
LOC	Lines of Communication
MACV	Military Assistance Command, Vietnam
PACAF	Pacific Air Forces
PACFLT	U.S. Pacific Fleet
PGM	Precision Guided Munition
SAC	Strategic Air Command
SHF	Super High Frequency
TAC	Tactical Air Command
WWCCS	World Wide Command and Control System

CHAPTER 1

AIRPOWER FROM THE WRIGHTS UNTIL THE BOMB

Prior to the advent of airpower, grand strategic thinkers such as Carl von Clausewitz and Antoine-Henri Jomini based their theories around landpower. Seapower found its grand strategic voice in the works of Alfred T. Mahan, principally his masterwork, *The Influence of Seapower on History*, which revealed seapower as so profoundly all encompassing that it was essentially unnoticed.[1] After the advent of airpower, grand strategy had to adjust to include three dimensions: landpower, dictated by geography; seapower, which is limited in a sense by geography; and airpower, which is unbound by geography except by range.[2]

Airpower quickly became all encompassing in a way similar to seapower but with far more fanfare.[3] It also blurred the distinction between land and sea warfare, a basic organizing principal in the U.S. Constitution.[4] From nearly the advent of airpower, the U.S. Navy and the U.S. Air Force and its precursors, saw its value and sought to utilize it in support of the defense of the nation.

The forty-three-year-long effort to formally codify centralized control of airpower under a functional component commander, the Joint Forces Air Component Commander (JFACC) amply demonstrates that, for the Air Force, control of all airpower is not just a service imperative, but it's *raison d'etre.*[5] For the U.S. Navy, airpower became a critical force multiplier for seapower itself; an ability to unbind seapower from the constraints of geography. The loss of Navy carrier aviation or an independent air force's takeover of carrier aviation was not only a direct threat to the Navy's ability to execute its mission from the tactical to the strategic levels of war, it was a threat to its stature as an

independent service. For the establishment of a JFACC, these two viewpoints conjure the analogy of an irresistible force meeting an immovable object.

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 (Goldwater-Nichols) set the conditions for the confluence of events that overcame service barriers and allowed for the creation of a true JFACC. Without Goldwater-Nichols, it is doubtful that all the barriers to the JFACC could have been overcome. This change was dramatic enough that it created a fundamental shift in the relationships between the U.S. Navy and the Air Force. Therefore, the current joint conception of JFACC as well as the U.S. Navy's submission to the Air Force dominated JFACC represents the validation of the Goldwater-Nichols reforms.

To understand the conflicting views and their interplay, this thesis will examine three lines of effort. The first line, based on the work of Carl Builder, is an examination of the personalities of the services. According to Builder's research, service cultures have become so distinct that the services themselves have what can be thought of as personalities. Builder refers to these as the "masks of war[6]." Understanding these masks aids in understanding and predicting service actions. Since the services' masks are essentially unchanging and their interests are inherently self-serving, i.e. parochial, these differences are a systemic cause of problems with joint operations, and specific to this thesis, represent a barrier to the JFACC construct. The second line examines the origins of airpower as it relates to the service masks and the historically demonstrated limitations of airpower. The final line of effort examines doctrinal, technological, and threat based barriers to JFACC implementation. These lines of effort will illustrate the great variety of barriers to the JFACC concept.

Ultimately, there was no single element that overcame every barrier to the JFACC construct; this thesis instead finds a confluence of events were required. However, the Goldwater-Nichols legislation set the conditions to overcome the barriers for a JFACC. To understand what Goldwater-Nichols accomplished, it is necessary to understand the barriers to JFACC that were overcome. The masks of the services will be examined first.

Service Masks

Builder identifies five elements that constitute service masks: altars of worship; concerns with self-measurement; preoccupation with toys versus the arts; degrees and extent of intra-service distinctions; and insecurities about service legitimacy and relevancy.[7]

According to Builder, the Navy:

> more than any of the other services and over anything else, is an institution. That institution is marked by two strong senses of itself: its independence and stature . . . The Navy's stature as an independent institution is on a level with that of the U.S. government (which the Navy must sometimes suffer) . . . It is about preserving and wielding sea power as the most important and flexible kind of military power for America as a maritime nation. The means to those ends are the institution and its traditions, both of which provide for a permanence beyond the people who serve them.[8]

The Navy's altar of worship is tradition embodied by its concept of independent command at sea. This is not a quaint notion, but in Builder's words is, "a unique Godlike responsibility unlike that afforded to other service commanding officers."[9] Until the advent of over the horizon communications, a ship was a world unto itself with the captain responsible for every consequence and soul aboard.[10] As Benjamin Lambeth states in the opening of his monograph on the evolution of the relationship between the U.S. Navy and Air Force:

> for more than two centuries, the U.S. Navy was proudly accustomed to operating independently on the high seas, with a consequent need to be completely self-reliant and adaptable to rapidly changing circumstances far from the nation's shores and with the fewest possible constraints on its freedom of action. The nation's sea service was forward-deployed from the beginning of its existence.[11]

Communications have improved, but the Navy's cherished command concept is, as Builder says, "sought and honored by every true naval officer."[12]

In terms of self-measurement, the Navy more than any other service is concerned about its size. It constantly measures the number of aircraft carriers, submarines, ships, and air wings it possesses, and always comes up short.[13] Be it today's 300-ship goal, the 600-ship goal of the Ronald Reagan years, or the 1,000-ship Navy after World War II, the magic number is always just out of reach. Builder refers to the Navy as the hypochondriac of the services for this very reason. However, when it comes to toys versus arts, though many sailors are personally attached to the ships they have served on, the naval personality values the service as an institution over its equipment. This extends to Navy aviators as Navy pilots and naval flight officers tend to identify as naval officers first and aviators second.

In the Navy, intra-service distinctions reveal a definite pecking order and at the top is fixed-wing carrier aviation. Though the service is a combined arms force, a diverse background may be good but a good "bloodline" especially one involving carrier aviation or surface warfare is better.[14] Finally, the Navy is supremely confident in its legitimacy but has a far more difficult time providing metrics defining its relevance. In regards to the Navy, Builder describes a service mask that will always seek more independence, will be ever concerned about its size, and will be supremely confident in its legitimacy and

always forward deployed in defense of its relevance.[15] This is distinctly different from the Air Force mask.

In Builder's words, the Air Force:

> conceived by the theorists of airpower as an independent and decisive instrument of warfare, sees itself as the embodiment of an idea, a concept of warfare, a strategy made possible and sustained by modern technology. The bond is not an institution, but the love of flying machines and flight . . . [The Air Force] is the keeper and wielder of the decisive instruments of war—the technological marvels of flight that have been adapted to war . . . It is about ensuring the independence of those who fly and launch these machines to have and use them for what they are—the ultimate means for both the freedom of flight and the destruction of war.[16]

The Air Force's altar of worship is technology. It was the airplane that gave birth to the independent air forces of the world and it is the advancement of aviation technology that will perpetuate the air forces of the world.[17] For the Air Force, size is not so important as the quality and kind of equipment it possesses. Its possession of 187 F-22s is still a more vital metric than its far more numerous F-15s and F-16s. The age of its bomber forces is more disconcerting than the fact there are only 100 total strategic bombers in its inventory. According to Builder's argument, the Air Force, given the choice, will always choose newer and in some way more advanced equipment over a numerically superior but less capable option.

In comparison to the Navy, the Air Force is far more attached to its toys. Association with a machine trumps pride in the institution as a whole meaning the pilots are pilots first and officers second. Though there may be distinctions among the pilots about the aircraft they fly, ultimately they collectively hold the top rung of the hierarchy. Tom Clancy, in *Every Man a Tiger,* his biography of Lieutenant General Charles Horner, the JFACC during Desert Storm, describes it as an organization of knights and squires.

The knights are the pilots; the squires are everyone else, bringing the service a step away from being feudal.[18] Finally, the Air Force is supremely confident in its relevance but as the youngest service, it is very sensitive about its legitimacy. For the Air Force, legitimacy is still tied to strategic bombing because strategic bombing freed the Air Force from the Army.[19]

In regards to the Air Force, Builder finds a pilot dominated service mask that will forever seek more advanced technology, is less concerned with quantity than quality, is secure in its relevance, and will advocate for some form of strategic bombing as the go-to airpower option in defense of its legitimacy.

These masks are simply another name for service culture, and cultures develop in organizations as a means to codify previous success. How did the services develop these unique personalities? The historical experiences of the services help explain the rise of these masks and the barriers they present to JFACC.

Service Departments

Prior to 1900, there were few constraints on any service in the military at all, save for the budget. The Secretary of War was established in 1789, the Secretary of the Navy in 1798, and for over a century there were no further reorganizations. The Army organized itself by technical services such as the Signal Corps or Quartermaster Corps and the Navy by bureaus such as the Bureau of Ordnance. No one inside or outside the services had enough power to be in charge and no one coordinated the activities of the Navy and War Departments except the president.[20]

In 1900, the Navy made a small move toward centralization when the secretary created the General Board to develop plans and provide advice. In 1903, Elihu Root took

over as Secretary of War and established the Joint Army-Navy Board as well as centralized authority with the Army General Staff and its chief of staff. This was the only reorganization prior to World War II, except for the 1915 establishment of the Chief of Naval Operations.

The Navy was concerned with building the ships that would come to be known as the Great White Fleet and the Army was transforming itself from a Native American fighting constabulary to an expeditionary fighting force when the Wright brothers' first flew.[21] The services possessed almost no means of communicating with each other and operated on diametrically opposed internal structures. As airpower began to bridge the gap between landpower and seapower, the ability to operate airpower assets as the services saw fit slowly became a key existential necessity.

Airpower Begins

It was only eight years after the Wright brothers' first flight when Second Lieutenant Giulio Gavotti, an Italian pilot, dropped the first bombs from his aircraft on a Turkish camp.[22] Though a first, a strike from an aircraft was hardly a surprise. Aircraft from their birth were military machines. The Wright brothers intended for governments to be their primary customers. In1906, they offered to sell a single airplane, the rights for manufacture, and training for a single pilot to the British government for $100,000.[23] For an extra $100,000, they offered to throw in their formulas and tables.[24] The U.S. Army got a comparative bargain when the Wrights accepted $25,000 for a U.S. Army Signal Corps contract in 1908.[25] U.S. naval development was equally aggressive with Eugene Ely launching off the deck of the USS *Birmingham* on November 14, 1910, and landing on the USS *Pennsylvania* two months later. At first glance, military interest was

surprising as the sheer cost of the unproven technology was extremely expensive relative to existing capabilities. Why would the services be so keen to spend scarce dollars on ship modification and aircraft acquisition prior to World War I?

The flimsy aircraft that first flew provided little in the way of unstoppable offensive might, but they could act as force multipliers. For the Navy, aircraft could enhance the aggregate capabilities of a fleet by ranging out, detecting the enemy, and providing spotting. In the Mahanian battles envisioned, this was a decisive advantage. For the Army, airpower could provide superior reconnaissance and intelligence to ground forces. These were powerful incentives, but airpower promised even more.

Four years before the Wright brothers' first flight, the belief that air attack was not only possible, but would be both probable and devastating during war was on the minds of military officers, political office holders, and the proverbial man on the street.[26] As Walter Boyne writes in *The Influence of Airpower upon History*, airpower promised to bring an "immediate, perceivable, and intimidating personal threat to individual citizens in their homes."[27] This was a threat different in character to what seapower could provide. A naval blockade may impersonally starve people in a few months, but airpower could theoretically menace a whole population immediately. In 1907, H.G. Wells, a science fiction writer, penned *The War in the Air,* a tale of the unmerciful aerial destruction of New York City and London at the hands of German Zeppelins as a warning. His point was that war in the third dimension precluded any distinction between the military and civilians.[28] Total nuclear warfare is the only modern comparison[29] to the initial conceptualization of airpower by violent action novels, science fiction, and

propaganda of the time.[30] The Europeans did not hesitate to test the theory as the world went to war.

Airpower in World War I

The Great War was only a few days old when the French began bombing German railroads. By December 1914, the attacks extended into Germany itself with strikes on a rail station in Freiburg.[31] These initial interdiction strikes did not, and could not, provide decisive effects. In August though, airpower would provide an effect so decisive, it prolonged the war by years.

On August 22, Captain L.E.O. Charlton and Lieutenant V.H.N. Wadham detected the German First Army executing the beginning of the right wheel movement of the Schlieffen plan. This report, along with the continuous intelligence provided by the British aviators allowed the British and French armies to maneuver and survive.[32] On the Eastern Front, General Paul von Hindenburg credited aerial observation as the decisive intelligence element that allowed him to win the battle of Tannenburg.[33] This airpower couplet provided a profound influence as the survival of the English and French armies devolved the Western Front into trench warfare and the early removal of 140,000 Russians allowed Germany to continue a two front war against its weakened foes for three and half more years.

The changes were not just felt on land. By the end of World War I, the British were conducting carrier operations with aircraft that were operationally effective in shooting down enemy aircraft, conducting reconnaissance patrols, and employing bombs and torpedoes. The Royal Navy possessed 2,949 aircraft, 55,000 enlisted and 5,000

officers, and developed twelve carriers during the war, the last of which could launch and recover aircraft. Finally, the British had twelve carriers where no one else had even one.[34]

By 1918, every belligerent was putting its full weight behind aviation. British total production in the first ten months of 1918 was 26,685 aircraft,[35] the French produced 22,000 in the same time period.[36] These numbers were in addition to the combined 35,650 aircraft the two produced previously.[37] Had the war continued into 1919, the British had plans for a full-scale air campaign against Germany.[38] Thus, it was the Europeans in World War I that truly created flying machines of military utility. The American contribution was to add the colossus of scale. Billy Mitchell, a colonel at the time, though forced to rely on foreign aircraft, nonetheless set the airpower pattern of the future during the St. Mihiel aerial offensive with missions consisting of up to 500 aircraft at once.[39]

The debut of strategic attack came from the German Zeppelin attacks on London. Despite years of conditioning from German propaganda and the frequent stories written by the "penny-dreadful" press, the violent action novels of the time, the initial bombings were initially met with curiosity, not terror.[40] The actual damage from the fifty-one attacks amounted to the cost of half a day of fighting on the Western Front and total civilian casualties were 556 deaths and 1357 injuries.[41] The year 1916 bought the end of all-out Zeppelin assaults with the best and bravest crews consumed in fire, strewn about the fields outside London.[42] It was only after blackout restrictions were implemented and government censorship over air raids fed rumor and fears that the psychological aspects of the bombings took hold. By 1917, 250,000 Londoners had taken flight to avoid the bombers. The psychological effect was more of a tribute to the power of propaganda

filling an information vacuum than to military capability. The British government's blackout restrictions and insistence on secrecy combined with German propaganda and action novel fiction to generate a terror surrounding aerial bombing far beyond its real military value.[43]

By the end of the war, the belligerents developed or tested nearly every type of specialized aircraft. From reconnaissance planes to fighters, carrier aircraft to cruise missiles, the belligerents developed a full gamut of aircraft. The basic lessons of employment then learned remain relevant today.[44] Despite the exodus of Londoners, strategic attack did not slow the war effort, weaken British resolve or hasten the end of the war. In examining the development of airpower, this is a warning flag that the promises of a solitary airpower victory were overblown.

Post-War U.S. Service Conflicts

Mitchell's sinking of the *Ostfriesland* in 1921 is illustrative of the post-war Army and Navy relationship. Though authorized by the Joint Army Navy Board, the true intent of the test was subject to interpretation. Mitchell intended for a demonstration of how fast airpower could reduce a fleet, a public relations event. The Navy's intent was to provide scientifically defensible answers to very specific questions such as the effect of different weights of munitions on ships, the results of close calls versus direct hits, and other issues.[45] These investigations required time and inspections to assess, but taking measurements and assessments did not accord with the effect of an airpower demonstration. Since the Joint Army-Navy Board authorized the test, why should questions about its intent have existed? In truth, both sides were looking at the issue from

the position that would advance airpower, but neither side could see from the point of view of the other.

Interestingly, because Mitchell's push for an independent air force did not succeed until after World War II, the greatest beneficiary of his interwar efforts was naval aviation.[46] The threat of an independent air force taking naval aviation from the fleet, was a lesson from the British experience not lost on the leaders of the U.S. Navy,[47] helped to propel an initially disinterested U.S. Navy General Board[48] to call for complete utilization of fleet aviation in 1919, three years before the U.S. Navy even possessed a carrier.[49] In fact, The Japanese and Americans ultimately expended a higher proportion of air effort on maritime designs precisely because they did not have independent air forces.[50]

Army Aviation during the Interwar Period

In 1918, the U.S. Army, based on the potential shown in World War I, created the Air Service.[51] This was the first time aviation was recognized as a combatant branch of the Army instead of a segment of the Signal Corps. In 1926, the branch was again redesignated, this time as the Army Air Corps in recognition of its stature. Externally, the Army competed with the Navy for scarce budget dollars. Internally, the coalition advocating for an independent service was already growing. Boyne contends that the arguments for expansion of the Air Corps were very similar on both sides of the Atlantic:

> this same phenomenon would recur in every country: knowledgeable airmen would encourage reckless claims about an enemy's potential ability to inflict damage, not because they believed them, but because they knew those claims were necessary to obtain a larger budget, Mitchell did this repeatedly in the United States.[52]

The size of the military budget is crucial. Verbal eloquence does not buy military capability. Without the budget to buy equipment, nothing will happen. The fear of a surprise attack had to be announced and not countered by those knowledgeable of the situation.[53] The British had created an independent air arm during the Great War; however, its impetus was in response to the Zeppelin attacks on British soil, an experience that did not resonate with a U.S. audience.[54] For the militaries in Europe, there remained a compelling argument for an independent air force due to the proximity of other nations. The United States, with the oceans between her and the rest of the world, did not face a realistic threat, and it was left to the Navy to make this observation.

As the Army's airpower arm grew, so did its views on how it could leverage its newfound power. Airpower's erosion of the clearly defined boundaries between landpower and seapower made sister services vulnerable to budget and mission poaching during the interwar period. The Army took the opportunity to move into the traditional realm of the Navy. The concept was known as substitution and the British were displaying it across their far-flung colonies. In Iraq, the British replaced thirty-three imperial battalions with five squadrons of aircraft and no ground troops reducing costs from £20,000,000 to less than £2,000,000.[55] If the British could accomplish this, why could the U.S. Army's burgeoning airpower assets not displace the Navy as the principal guarantor of American security? In fact, that was exactly what the Army attempted, first landing an informal agreement with Chief of Naval Operations, William Pratt, in 1931 then with the Drum Board's explicit determination that the Army would replace the Navy in the mission of coastal defense. In 1938, Air Corps fliers flew 600 miles to intercept an

Italian liner and made sure that the press found out the details in a further attempt to take ground from the Navy.[56]

With increasingly sophisticated aircraft came an evolving doctrine. To the officers at the Army Air Corps tactical school seeking independence, air support of ground operations only served to legitimize the Army's institutional claim to aviation. Culturally, those seeking a separate service needed a capability that only an independent air force could provide. Strategic bombing came to represent not just that capability but also an article of faith. If the bomber could always get through and destroy the vital centers then there would be a reason for an independent air force.[57] Furthermore, strategic bombing fit nicely within the Army's productivist approach to war, which recognized the need to destroy the enemy's industrial output either before or during a ground assault.[58] It was also the beneficiary of increases in performance over pursuit aviation during an era that favored safe, reliable, and economical aircraft[59] in an austere fiscal environment.[60]

General Giulio Douhet, an Italian aviator and airpower theorist, came to renown for arguing that bombers should bring destruction directly to the heart of the enemy in the opening moments of war. Comparing his works to the common understanding of what airpower could do, his true success was in substituting the airplane for the Zeppelin when he penned 1921's *The Command of the Air*. His theoretical bombers updated the Zeppelin's weapons with poison gas and incendiaries intended for the targeting of civilians and were employed as a fully concentrated force. What made his conceptualization different from that of the penny dreadfuls was the addition of command and control. Airpower was the ultimate offensive weapon; able to prevent or decisively end wars, but only if it was handled correctly. Airpower's awesome potential required all

its powers be concentrated in the hands of a single commander. It was an early call for an airpower commander.

It is arguable that the U.S. Army saw airpower through a lens much akin to Douhet's though his name is not explicitly mentioned in any of the doctrine of the time. It appears that different thinkers independently evolved similar conclusions in the presence of common facts. The Army developed its bomber force with a series of increasingly capable aircraft arriving at the B-24, B-25, B-26, and B-17 before the U.S. entrance into World War II with the B-29, a plane as close to Douhet's vision that technology would allow, coming online soon after hostilities began.

Naval Aviation during the Interwar Period

The admirals standing in the aftermath of World War I were not blind to the potential of airpower. U.S. Admiral William F. Fullam said in 1918 on viewing an aviation flyover during the armistice:

> They came in waves, until they stretched almost from the horizon to horizon, row upon row of these flying machines. What chance, I thought, would any ship, any fleet have against an aggregate such as this? You could shoot them down from the skies like passenger pigeons, and still there would be more than enough to sink you. Now, I loved the battleship, devoted my whole career to it, but at that moment I knew the battleship was through.[61]

Unlike the U.S. Army Air Corps, the U.S. Navy saw the capabilities of airpower as inextricably linked to the fleet. For the U.S. Navy, airpower was a force multiplier for seapower and seapower had a long and demonstrated history of being able to bring strategic effects. The German turnip winter and the near strangulation of the British due to unrestricted submarine warfare are immediate examples. That airpower could augment the proven capabilities of seapower made a compelling case for acquisition.

In 1921, at the behest of the Navy, Congress authorized a new bureau, the Bureau of Aeronautics and by 1922, the U.S. Navy had commissioned the USS *Langley* (CV 1), its first aircraft carrier.[62] This is a dramatic display of belief in airpower as the service committed serious resources to field a ship prior to the creation of the bureau that would field its primary weapon system. The crucial year for the Navy was 1922, as Article XIX of the Washington Naval Treaty negotiations, known as the reinforcement clause, resulted in very constraining limitations for the shipbuilding status quo, as well as forward naval bases.

Though the capital ship holiday, a ten-year moratorium on battleship construction, and restrictions on tonnage were challenging, it was the loss of the forward bases that was the most debilitating to the Navy. The office of the Chief of Naval Operations rule of thumb for calculating the degradation of crews and equipment was a loss of 10 percent fighting efficiency for each 1,000 miles traveled from a base.[63] From this, the General Board identified the loss of the Pacific naval bases as more important than the total loss of ships from the tonnage limits and building holiday. The clause was so debilitating that its limitations forced a complete revision of the war plan against Japan.[64]

The consequence of the clause was that the General Board had to invent means to project power at very long ranges in the absence of pre-existing bases.[65] Though battleship modernization was a central piece of the General Board's post-treaty plan, naval building competition shifted decisively from battleships and cruisers to carriers by 1924 due to the United States being behind treaty limitations with Japan.[66] The further extension of the capital ship holiday to 1936 continued pressure on the Navy to innovate

classes that could be built: subs, destroyers, cruisers, dry docks, and carriers.[67] These innovations would be put to great effect during the approaching world war.

However, the fleet was first and aircraft carriers were not yet the fists of the fleet. In fact, as late as the fall of 1937, carriers were not even the preeminent weapon of the fleet. Their role remained raiding and the support of the battle line. Richmond K. Turner, a Navy captain and member the Naval War College faculty, presented a lecture that year entitled, "The Strategic Employment of the Fleet." His argument was direct: "The chief strategic function of the fleet is the creation of situations that will bring about decisive battle, and under conditions that will ensure the defeat of the enemy."[68] Turner argued that raids were "a distinct type of operation" and that raiding "occupies a tremendously important place in naval warfare" but it was still in the service of a surface force centric Mahanian battle.[69] The Army and Navy would soon have the opportunity to test their views.

Airpower Centralization in Africa

The first Mediterranean front air combat of World War II the Americans would see was during Operation Torch in northern Africa. Initially, American airpower was split into three components: fighters; bombers, controlled by an air commander; and the Air Support Command, controlled by the Army for direct support of ground forces.[70] Assessed by the Torch commanders as a "recipe for disaster," this initial disposition diluted airpower to a scale that accomplished little.[71] In January 1943, Roosevelt and Churchill met in Casablanca and reorganized the command structure. On February 23, the Northwest African Air Force, a unified force grouped by function, not nationality, under the command of a single commander became operational.[72] The near immediate reversals

displayed in the success of Allied operations after this centralization of airpower impressed the U.S. War Department[73] and the changes in organization enjoyed the support of both Winston Churchill and General Dwight Eisenhower.[74]

There were three primary lessons behind the great success of the Northwest African Air Force: the primacy of air superiority, the need for cooperation between air and ground units, and the importance of centralized control of airpower. The first priority of airpower had to be the achievement of air superiority. Once attained, then some form of strategic bombing, interdiction and CAS could be executed. This does not imply that the missions must progress in this order, only that air superiority must be the first priority. The second lesson was recognition of airpower and landpower as coequals, either being able to decisively affect the battle. As neither was an auxiliary of the other, both should serve a theater commander making cooperation vital. Finally, airpower must be commanded by a single commander and controlled to enable airpower to be used as an operational or strategic weapon. The publication of Field Manual 100-20, *Command and Employment of Air Power*, cemented these lessons into doctrine.[75]

The Navy in the Pacific

In the Pacific theater, the U.S. Navy came to the same conclusions about the importance of airpower centralization, but through a different lens. Naval operations faced unique constraints. First was the service imperative for independent command at sea. Despite over the horizon communication capabilities, radio silence remained the best way to hide naval task forces.[76] The questions of how and when to employ airpower would not and could not be dictated from afar.

Second, after Pearl Harbor, the carrier forces had assumed the mantle as the most powerful offensive component of a balanced fighting fleet, but they were still only a component of a naval task force.[77] Naval task forces were the only means to deliver combat power across the water and carrier airpower represented the only realistic means to protect those naval task forces against Japanese air strikes as without the carriers, a task force's existence, much less its striking power, was in jeopardy. Risking the carriers was risking the viability of the naval task forces, and was tantamount to risking the war. However, protecting naval task forces required the massing of airpower and massing airpower required carrier concentration. The presence or absence of carriers determined whether theater scale operations would proceed or be cancelled.[78]

This constraint was the foremost reason why U.S. Navy air power was concentrated under a single commander but not functionally centralized.[79] The survivability of the naval task forces themselves, in a significant way, rested on the naval commander's retention of control of all naval airpower. Naval task force survivability took precedence over a single commander's control of all theater airpower.

In the battles of 1942, U.S. and Japanese forces were nearly equivalent, meaning either side's offensive actions could dominate the defense of the others.[80] Because carriers under concerted air attack were almost impossible to defend, the only defense was to sink the opposing carrier first.[81] In this circumstance, there was a truly enormous advantage to the force that could strike first because a successful first strike could sink the opponent's carrier, preventing its reply. Even without a numerical advantage, as long as the numerically disadvantaged side struck first, it could theoretically offset its

disadvantages and destroy the opposing side though it would be forced to accept a loss of its own as the exchange would still result in a 1:1 carrier swap.[82]

At the Battle of the Coral Sea, the U.S. Navy began the battle with a 3:2 carrier disadvantage. The U.S. carriers were able to detect and strike the Japanese first winning the exchange at the cost of the USS *Lexington*, almost exactly as the model predicted. On the approach to Midway, the Japanese initially retained an undefeatable 8:3 carrier advantage. The plan was never to retain all the carriers, but to use half to support the diversionary raid on the Aleutian Islands and the remainder to destroy the American forces. The Americans detected the Japanese first and attacked from three carriers. Despite the Japanese 4:3 advantage, the success of the American strikes removed three carriers from the field. With only a single carrier left, the Japanese response only claimed a single American carrier prior to the decisive final American carrier and ground-based airpower response. In these battles, fleet concentration provided the necessary combat power to attain the objective. Mass, when combined with a successful first strike, counted more than the total numbers.

Defeating the threat and protecting the fleet are two sides of the same coin. In the Pacific battles of 1942 and 1943, the offense was able to dominate the defense. The next year the U.S. Navy would invert that dynamic. By 1944, U.S. capabilities in defense had become so potent that fleet concentration provided a nearly impervious defense against a symmetric threat.[83] There were two reasons for this.

The first reason was pure attrition. The constant losses to American defenses and the tightening noose of unrestricted submarine warfare had overwhelmed the Japanese ability to generate capable pilots and aircraft. This attrition was so intense that by late

1944, the American carrier airwings had more aircraft than Japan had left it its entire naval service, carrier, or ground.[84]

The second reason was improved integration. Doctrinally, the U.S. Navy did not begin World War II with a definitive guide for organizing carriers in a strike group or standardization for shipboard control of fighters. Individual commanders used their professional military judgment in positioning the ships at their command and shipboard controllers trained with the fighter elements embarked on their respective ships. Though this made for cohesive teams, it did not provide commanders guidance on how to best position ships or allow fighters to seamlessly change from one shipboard controller to another.

After extensive trials and experiments, a team of officers created by Admiral Chester Nimitz produced the doctrinal publication PAC-10, *Pacific Fleet Tactical Orders and Doctrine*. It combined existing tactical publications, tactical bulletins, task force instructions, and battle organization doctrine into one doctrinal publication that applied to the whole fleet. It provided recommendations for placement of carriers and provided standardization for shipboard controllers to communicate with fighters. This allowed for different elements, with different commanders to join at sea within a common framework. That framework was flexible enough to fit within the structure of the task force no matter its composition.[85]

Technologically, by the battle of Wake Island, radar was common and the crucial lessons of how to utilize it had been digested by the fleet. Of equal importance, by this time all ships, including non-aviation ships, possessed combat information centers, spaces that fused tactical data manned by the crew members trained to fight the ship.[86]

When combined with the doctrinal change directed in PAC-10, the result was an immensely capable defensive system.

Here the Marinas turkey shoot is the classic example. Despite the Japanese having launched first, the defense was able to decimate the attackers and defend the carriers. This was an impossible situation for the Japanese as it meant they had no viable means to conduct attacks on American naval task forces at all. Thus, much like the Germans developing the V-1 and V-2 to attack Britain, it was with a rational mind that the Japanese began to use the asymmetric kamikaze to attack the Americans. It represented the only capability they could use to reverse the calculus to the attackers. Without the kamikaze threat, 90 percent attrition of an inbound attack would be considered a very successful defense. With the kamikaze, 90 percent attrition of an inbound strike could still achieve offensive results.[87]

However, unlike the ballistic V-2 weapons, kamikazes could still be engaged by American fighters and shipboard guns. To succeed, fleet defense had to be perfect. To achieve perfection, ever-greater fleet concentration was required to mass the required fighter and ship based defenses. For the Navy, independent command at sea combined with the requirements of fleet concentration for both offense and defense necessitated naval operational control of Navy aircraft.[88]

Strategic Bombing

In light of the Northwest African Air Force's experience, it is instructive that the Eighth Air Force in England did not learn the lesson of winning air superiority before executing a strategic campaign. The overriding power of an idea, especially an idea that

cannot fail, can blind even the most results oriented individuals. Unfortunately, in war, the cost of that blindness is measured in blood.

Prior to the advent of long-range fighter escorts for daylight precision bombing raids the Luftwaffe, instead of being defeated by strategic bombing, almost destroyed the Eight Air Force. In a speech at the Air Force Academy William R. Emerson neatly summarized Operation Point Blank and the Combined Bomber Offensive in a few brutal paragraphs.

> But [POINTBLANK] was very far from being a vindication of the air force's strategic doctrine. Indeed, because of shortcomings in that doctrine, POINTBLANK came within measurable distance of being a great defeat—even a disaster—for American arms.
>
> Their symbolic effects—both on aircrew morale and on Air Force strategy—were perhaps more important. For they overthrew the very basis of American air strategy: the belief that unescorted heavy bombers, owing to their strong defensive firepower and the high altitudes at which they operated, could penetrate German airspace on daylight bombing raids without excessive casualties. After Schweinfurt, it was clear that they could not, that the major belief underlying Air Force strategic doctrine had been proven wrong in combat.[89]

In his conclusion, Emerson succinctly illuminates what the war defined as the limits of airpower:

> Making all due allowance for the difficulties and the genuine accomplishments of our air strategists, it should, nevertheless, be perfectly clear that every salient belief of prewar American air doctrine was either overthrown or drastically modified by the experience of war. Germany proved not at all vulnerable to strategic bombing. As our bombing attacks grew, so did German production. Her total armament production rose over 300% between January 1942 and July 1944. As late as November 1944, by which time the strategic bombing attacks had reached formidable proportions, it still stood at 260% of January 1942 levels.[90]

These proportions were staggering. In Germany, 20 percent, or 3,600,000 houses were destroyed or heavily damaged, 7,500,000 were made homeless, 300,000 civilians were

killed, and 780,000 wounded. The German cities targeted were largely reduced to piles of rubble and hollow walls.[91] Emerson continues with this:

> The lesson is clear. VIII and XV Bomber Commands did not destroy the German Air Force by bombing it; it came nearer destroying them . . . Despite the visions of its protagonists of prewar days, the air war during the second World War, no less than the fighting on the ground and at sea, was attrition war. It did not supplant the operations of conventional forces; it complemented them. Victory went to the air forces with the greatest depth, the greatest balance, the greatest flexibility in employment.[92]

These were not the results that would bring about an independent air force. However, what did not work in Germany might work in Japan. Though the traditional narrative claims that the nuclear bombs on Hiroshima and Nagasaki directly led to the surrender of Japan, that causal relationship is far from clear. War is an extension of politics and defeat is not synonymous with surrender. In 1945, Japan was no longer able to achieve its goals with military force. It was defeated. However, the Japanese refused to surrender. This was because suitable political options were still available for the Japanese leadership. Summarized in a *Foreign Policy* article, Ward Wilson points out the options available to the Japanese in the summer of 1945:

> They had two plans for getting better surrender terms; they had, in other words, two strategic options. The first was diplomatic. Japan had signed a five-year neutrality pact with the Soviets in April of 1941, which would expire in 1946. A group consisting mostly of civilian leaders and led by Foreign Minister Togo Shigenori hoped that Stalin might be convinced to mediate a settlement between the United States and its allies on the one hand, and Japan on the other. Even though this plan was a long shot, it reflected sound strategic thinking. After all, it would be in the Soviet Union's interest to make sure that the terms of the settlement were not too favorable to the United States: any increase in U.S. influence and power in Asia would mean a decrease in Russian power and influence.
>
> The second plan was military, and most of its proponents, led by the Army Minister Anami Korechika, were military men. They hoped to use Imperial Army ground troops to inflict high casualties on U.S. forces when they invaded. If they succeeded, they felt, they might be able to get the United States to offer better

> terms. This strategy was also a long shot. The United States seemed deeply committed to unconditional surrender. But since there was, in fact, concern in U.S. military circles that the casualties in an invasion would be prohibitive, the Japanese high command's strategy was not entirely off the mark.[93]

Neither conventional nor nuclear strategic bombing could foreclose the Japanese strategic options.[94] It was not for lack of trying. During the summer of 1945, sixty-eight of the seventy cities in Japan were either partially or completely destroyed. Prior to Hiroshima, 300,000 were killed, 750,000 wounded, and 1,700,000 were made homeless. Graphing the number of people killed, Hiroshima was second in civilian deaths. In terms of square mileage destroyed, Hiroshima fell to fourth place. In terms of percentage of the city destroyed, Hiroshima fades to seventeenth place.[95]

What Ward argued is that the bombing offensive against Japan was so successful that atomic fires were not demonstrably superior to conventional ones. More efficient, yes; effective, no. With all but two of Japan's cities nearly destroyed and one, Kyoto, not to be attacked, there were no suitable cities left for nuclear targeting. Had the United States had any more nuclear weapons, the targets would be towns. In this light, no conceivable bombing campaign could bring about unconditional surrender. This was the horror that H.G. Wells wrote of but it was not enough to end the war because it could not close political options. What did close those options; the Soviets. With Stalin's declaration of war, the possibility of Russian mediation of the conflict ended. Further, the Japanese army in Manchuria was only a shell of its former self as the best units had been redeployed to Japan. The Russian attack sliced through the remnants and continued until they ran out of gas.[96] Ward concludes:

> It didn't take a military genius to see that, while it might be possible to fight a decisive battle against one great power invading from one direction, it would not be possible to fight off two great powers attacking from two different directions.

> The Soviet invasion invalidated the military's decisive battle strategy, just as it invalidated the diplomatic strategy. At a single stroke, all of Japan's options evaporated. The Soviet invasion was strategically decisive—it foreclosed both of Japan's options—while the bombing of Hiroshima (which foreclosed neither) was not.[97]

This does not argue that the bomber offensive did not contribute to Japan's surrender. From the Japanese perspective, the atomic bombing and Soviet entrance constitute twin shocks that are both mentioned in the same breath.[98] What it points out is that there is no single service or even element that wins wars. Strategic bombing alone did not defeat the Japanese. The bomber offensive burned Japan's cities while unrestricted submarine warfare strangled nearly all of Japan's material imports. The Soldiers and Marines that won the island hopping campaign defeated the garrisons left to hold the outlines of Japan's abortive empire. Japanese options were systematically eliminated by the relentless pressure of these elements. However, diplomacy brought in the Soviets and closed Japan's options. Perhaps the best lesson World War II teaches is that no matter how successful the tactical and operational results are in warfare, at the strategic level, a single country fighting two superpowers simultaneously is a losing proposition.

Summary

The pre-World War I history of U.S. airpower is its development in isolation by the Army and Navy air arms. Post-World War I, it is a history of internecine conflict and mission and budget poaching. For the Navy, increasing capabilities of carrier airpower quickly extended from scouting, to raiding, ultimately resulting in carrier aviation becoming the principal power projection capability of the fleet. However, naval aviation did not divorce itself from the Navy because at all stages it was seen as a critical piece of a balanced fleet. In Builder's terms, the personality was one of aviators being naval

officers first, and pilots second. Airpower became central to the Navy's conception of how it would combat its primary maritime adversary, Japan. A long range, balanced fleet able to sustain itself without fixed bases became the blueprint for the fleet that would ultimately help bring about the defeat of Japan. The threat of an independent air force taking control of Navy carrier aviation was therefore a direct and existential threat to the Navy's conception of how it would execute its responsibilities for national defense.

During the war, the very survivability of the fleet required that carrier aviation be controlled by the Navy for use by the Navy. Be it early in the war or late, the ability to mass aircraft was the key to fleet survivability and offensive power projection. In Builder's terms, the Navy remained staunchly independent, secure it its legitimacy with doctrine and technology appropriate to dominate the most significant naval threat in the world. To win its war, it did not require an independent air force and its victory was a victory for the Navy as a whole.[99]

For the Army, the siren call for an independent air force was a significant internal struggle. Aviators were pilots first, soldiers second. However, those same burgeoning capabilities offered opportunities to poach on Navy missions. The primary debates internal to the Air Service and later Air Corps were the development of doctrine appropriate for strategic attack, the necessity of fighter protection for those forces, and the relative importance of ground attack in the service of ground forces.

Technological development favored the heavy bomber helping to cement a doctrine that, by all appearances, finally had the right weapon to become practical. For the Army Air Forces (AAF), the nuclear-armed B-29 finally provided the necessary weapon to legitimate both strategic attack and the necessity of a separate service. The

AAF too celebrated a victory, but its victory was an AAF victory, not a victory for the Army as a whole.[100]

Culturally, the tone of the services was set. With both services having won their respective wars, independent of each other, there was no obvious impetus for joint interoperability. Thus, there was no cause for the services to create a doctrine that would necessitate a single airpower commander. The Navy and the AAF found that concentrating airpower into the hands of a single commander was the best solution of how to utilize their respective airpower capabilities but were at odds as to who that airpower commander would be. For the survival of the fleet, naval commanders felt Navy carrier airpower had to be commanded exclusively by the Navy as a seapower force multiplier lest the dilution of capability result in the loss of its naval task forces. For the AAF, battlefield experience showed that a single commander utilizing airpower yielded the greatest effects across the battlefield and prevented the dilution of airpower effectiveness.

However, the AAF was of two minds itself on the issue. FM 100-20 may have called for a single airpower commander but the AAF overcame its own service to execute the Combined Bomber Offensive as an independent entity. The AAF hinged its argument for independence on strategic bombing. As a parochial doctrine, it would not be allowed to fail. After the relatively poor showing in Europe, the Pacific theater presented the opportunity for a do over to see if it would turn out better the second time. From these lessons, the services would begin their fight in Korea. The foundation of airpower was total war ending in a nuclear blast. The next chapter would open on the limited wars of the twentieth century.

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CHAPTER 2

LITERATURE REVIEW

The masks of the services presented a distinct barrier to the establishment of a JFACC, but other barriers existed. Those barriers were not simply cultural; there existed other real and legitimate doctrinal, technological, and threat issues between the services that opposed a JFACC construct. To be successful, all of these barriers to integration had to be overcome.

Primary Research Question

To what extent did the Goldwater-Nichols legislation contribute to the Navy's submission to the JFACC construct? Why did the U.S. Navy so quickly submit to the JFACC structure during Operation Desert Shield and Operation Desert Storm when it had resisted the construct for so long? What was the cultural aversion to a single airpower commander? What were the service barriers to the concept?

Secondary Research Questions

Did the U.S. Navy's submission to the JFACC structure during the first Gulf War in fact represent a decisive change in the U.S. Navy's historical outlook on joint operations? Has the change been absorbed into Navy culture?

Methods and Sources

Service cultures presented a significant barrier to JFACC implementation. Three works specifically support this argument. Carl H. Builder wrote arguably the most significant work on the subject *The Masks of War: American Military Styles in Strategy*

and Analysis.[1] His thesis is that U.S. military services have enduring cultures that are distinct enough to constitute recognizable personalities. He refers to these personalities as the masks of war. Understanding those personalities allows one to understand how they have behaved and will continue to behave. It is important to note that his work does not reference the Goldwater-Nichols legislation as the work began prior to the Goldwater-Nichols legislation but was published after its passage.

To examine Builder's thesis in the post-Goldwater-Nichols military, Joyce DiMarco's monograph "Service Culture Effects on Joint Operations: The Masks of War Unveiled,"[2] continues Builder's work. DiMarco examines specific cultural elements of the services in the post-Goldwater-Nichols period to illustrate the persistence of distinct military cultures and their barriers to effective joint operations in the post-Goldwater-Nichols military.

Further supporting Builder's thesis, Lieutenant Commander Michael S. Choe's Master of Military Arts and Sciences thesis, "Achieving Cross Domain Synergy: Overcoming Service Barriers to Joint Force 2020,"[3] argues that the primary barriers to joint operations are cultural differences between the services. Choe examines the origins of service cultures, current symbols used by the services that identify their culture, and lays out cultural life in the services. He then identifies four specific barriers to joint integration by the services: mission, identity, budget, and institutional inertia.

However, in the face of service cultures, there are still many instances of joint cooperation. Peter M. Swartz's "U.S. Navy – U.S. Air Force Relationships 1970-2010,"[4] surveys both the rivalry and the cooperation between the U.S. Navy and the U.S. Air Force since the beginning of the twentieth century. His work seeks to identify and

analyze the principal drivers toward cooperation and rivalry. He concludes those drivers are conceptual, operational, organizational, material, and personal. He argues that though aspects of intense inter-service rivalry between the Navy and the Air Force have been ingrained in each service, a long history of close cooperation is also available. The most important example being Operation Desert Storm, as it was the watershed event that changed the relationship between the services. This report helps to illuminate the other barriers to the JFACC process and sources for positive interactions between the services prior to Goldwater-Nichols.

Captain Wayne Hughes, Dean Emeritus of the U.S. Naval Postgraduate School, was a nuclear-trained surface warfare officer. He served as Commanding Officer of the USS *MORTON* (DD 948), Executive Assistant to the Under Secretary of the Navy, and Dean of the Graduate School of Operational and Information Sciences at the U.S. Navy Postgraduate School. His classic on naval strategy, *Fleet Tactics and Coastal Combat*[5] argues that naval warfare has fundamental differences with land warfare demanding different conceptual models for understanding the environment. To make his examination, he reviews battles from the time of Admiral Horatio Nelson through modern exchanges and concludes with an imagined future scenario based on a seapower exclusive fight. The results of his investigation documents changes and enduring similarities in naval combat both in the age of sail and today. By means of comparison and contrast, he broadly identifies critical differences between the nature of naval and land based actions. This is another enduring work useful for identifying how airpower came to be such a divisive issue when it began to blur the distinctions between landpower and seapower. It helps to identify the World War II origins of naval barriers to JFACC.

Walter J. Boyne's *The Influence of Air Power upon History*[6] takes its title directly from Mahan's *The Influence of Sea Power upon History: 1660-1783.* His work does not compare and contrast seapower and airpower but instead examines the theory and practice of airpower across the spectrum from politics, to mass culture, diplomacy, and beyond.[7] The focus is on the personalities that build and develop the technology and thus their impact on history. This broad review serves to help anchor developments in airpower to broader changes in world history. It is beneficial in illumining historical roots of airpower and thus the origins of some of the barriers the services will later experience.

Robin Higham's and Mark Parillo's *The Influence of Airpower Upon History: Statesmanship, Diplomacy and Foreign Policy Since 1903,*[8] collects examinations of ten scholars on how states viewed and shaped airpower and how those decisions in turned shaped political efforts. Again, in echoes to Mahan's work, geographic elements as well as national interests and economics combine to shape the view of airpower in different states of the world.

U.S. Air Force Lieutenant Colonel Stephen Mcnamara's School of Advanced Airpower Studies thesis, "Airpower's Gordian Knot: Centralized Versus Organic Control,"[9] is a critical piece that details historical interactions among the services for how and why they developed their concepts for either the centralization or organic control of airpower. His argument concludes that the historical experiences of the service are more important as the source of service opposition to the JFACC concept than mere service parochialism. His excellent explanation of the origins and historical viewpoints of the services' use of their airpower connect critical dots for understanding how the services arrived at their differing conclusions.

During the interwar period of the 1920s, Dr. John T. Kuehn's *Agents of Innovation: The General Board and the Design of the Fleet That Defeated the Japanese Navy,*[10] plays a role. Dr. Kuehn was a naval aviator and is a current professor of military history at the U.S. Army Command and General Staff School. He argues that though, in general, naval cultures worldwide are conservative in outlook, given the right impetus, their leadership can become very innovative and accepting of new technologies and thoughts. Dr. Kuehn's book helps to illuminate one of those times in the interwar period when the continued development of the carrier became a bedrock requirement for U.S. Navy force projection capabilities in the Pacific. His argument that the Washington Naval Limitations treaty, and specifically the reinforcement clause, were agents necessitating innovation in the Navy ties directly into doctrinal, technological, and threat barriers to the JFACC in the pre-World War II interwar period.

With the creation of the independent Air Force in 1947, the Air Force immediately found itself in conflict with the other services. Herman S. Wolk's, *The Struggle for Air Force Independence,*[11] details the struggles the service went through prior to its organization in 1947 and immediately after to create the Air Force necessary to provide security and warfighting capability to the nation. The work supports arguments for barriers to the JFACC based on historical experiences of the Air Force cemented into doctrine.

Though much is made of airpower's ability to bring effects via the third dimension, it is no more decisive by itself than any other capability. Savvy foes have both countered and even defeated airpower. Eduard Mark's, *Aerial Interdiction in Three Wars,*[12] argues airborne interdiction campaigns succeed through a combination of

attrition, blockage, and the forcing of the enemy into systemic inefficiencies. Those campaigns can fail due to factors such as lack of air superiority, lack of sustained pressure, insufficient intelligence, insufficient detectability of targets, low target concentration, and low rate of consumption by the enemy. It is the ability of the attacker to utilize the combination of airpower effects that will make interdiction succeed, while managing the negative factors that will cause its failure, which results in successful interdiction.

However, interdiction is not the only place where airpower can fail. Strategic campaigns based solely on airpower are not a guarantee for success. Editor Harry R. Borowski, in *The Harmon Memorial Lectures in Military History, 1959–1987,*[13] reprints a speech given by William R. Emerson detailing the near failure of Operation Point Blank, the AAF strategic campaign against Germany, in the face of determined air defenses. Though the doctrine of the time was nearly unequivocal that unescorted bombers would be able to deliver strategic effects in daylight with acceptable losses, this was not the reality. Air superiority was the most important element in making strategic bombing effective and that superiority was achieved by fighter attrition and attacks on bases, not by strategic bombing. It is a classic case of the sometimes-difficult time militaries have in rejecting cherished doctrine in the face of inconvenient realities. It also aptly demonstrates the lengths leaders are willing to go to support a failing ideology or doctrine in support of a parochial goal. This again will serve to supplement the argument of the inseparability of Air Force culture from strategic bombing.

Korea was the first conflict the United States fought after World War II. Despite the supposed effectiveness of the Joint Chiefs of Staff (JCS) system and some truly

remarkable tactical victories, the war ultimately ended at the same place it began and culminated with an armistice, not a surrender. Malcolm Cagle's and Frank Manson's, *The Sea War in Korea,*[14] analyzes the performance of the U.S. Navy during the Korean War across numerous mission sets, afloat and ashore from the beginning to the end of the war. Of note to this thesis are the numerous charts detailing the comparative effects of air interdiction and CAS. Cagle and Manson argue U.S. Navy/U.S. Marine Corps CAS operations were a more effective and destructive use of airpower than U.S. Air Force interdiction efforts in Korea despite the far greater number of interdiction missions. This work helps demonstrate some of the barriers to the JFACC concept experienced by the Navy during the war.

Continuing the case against airpower as a unique war winning capability, Earl Tilford Jr.'s thesis, "Setup: What the Air Force Did in Vietnam and Why,"[15] examines the air war in Vietnam prior to Rolling Thunder through the end of Linebacker II. His conclusion is that airpower not only failed to defeat the North Vietnamese, the American conception of interdiction and strategic attack requires an enemy formed in the image of a western military, meaning airpower would be equally ineffective in any future war similar to Vietnam. This helps to illuminate both the Air Force culture as well as the limits of airpower.

In the same vein, Colonel Dennis M. Drew's, "Rolling Thunder 1965: Anatomy of a Failure,"[16] is another thesis examining the failure of the Rolling Thunder campaign, narrowly focused on its first year. His argument supports Tilford's in that the campaign did not fail for political reasons, but because Air Force doctrine did not conceptualize an enemy such as the North Vietnamese, and therefore was inadequate to the task of

defeating it. His work again points to the limits of airpower and the preeminence of the strategic bombing concept in Air Force culture.

As Commander in Chief, U.S. Pacific Command (CinCPAC), Admiral U.S.G. Sharp's "Report on the War in Vietnam (As of 30 June 1968 Section I: Report on Air and Naval Campaigns Against North Vietnam and Pacific Command-Wide Support of the War June 1964- July 1968),"[17] serves as primary source material for the perspective of the commander of the air war in Vietnam. His strategic outlook and understanding help show how the lack of appropriate doctrine prevented airpower from achieving the goals set forth by its proponents during the Vietnam War.

While the Cold War continued to be the primary conflict brewing in the background, the U.S. Navy and the U.S. Air Force lacked common requirements for interoperability and so diverged in developing equipment and tactics to combat the threat most critical to the combat they expected to fight. Terrance J. McCaffery's, *What Happened to Battlefield Air Interdiction?: Army and Air Force Battlefield Doctrine Development from Pre-Desert Storm to 2001,*[18] provides a detailed doctrinal analysis of how Battlefield Air Interdiction, a doctrinal airpower mission for the U.S. Army, U.S. Air Force, and the North Atlantic Treaty Organization, designed to facilitate ground commander targeting of enemy forces, came into doctrine, was ignored during the Gulf War and was written out of doctrine immediately after that. His argument is that Battlefield Air Interdiction's demise was primarily due to service self-interest and doctrinal differences, not due to lack of necessity.

As the thesis crosses into the period of the Goldwater-Nichols, James R. Locher's, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon,*[19] provides the

reform movement's viewpoint for unifying the military. Written by one of the drafters of the bill, it details the bureaucratic infighting, political maneuvering, and JCS opposition that occurred prior to the bill's passage. This work helps to demonstrate the level of power the individual services held at the JCS prior to Goldwater-Nichols and the lengths the service leaders went to in opposing the legislation.

Articles from the U.S. Naval War College publication *Proceedings* and the U.S. Air Force *Air University Review* will be used to provide a thermometer for the changes in the military environment occurring over time. Specifically, articles about changes to the JCS system and joint interoperability will be examined to identify the particular service objections to or support of the Goldwater-Nichols legislation.

Approaching the first Gulf War, Rand Corporation writer Benjamin S. Lambeth's monograph, "Combat Pair: The Evolution of Air Force–Navy Integration in Strike Warfare,"[20] argues Operation Desert Storm was a repudiation of Navy doctrine in the post-Cold War world. This repudiation began a process where the U.S. Navy and U.S. Air Force shed the differences born from differing physical and conceptual worlds to create an interservice relationship that represents a model for jointness. He describes the evolving changes in the relationship of the U.S. Navy and U.S. Air Force from Vietnam where coordination was non-existent until the current highly integrated conflicts.

Lambeth continues with a follow on monograph, "American Carrier Air Power at the Dawn of a New Century."[21] He argues that Operation Enduring Freedom demonstrated Navy carrier aviation as capable of providing sustained overland presence at great distances from the carriers, disproving assertions that carrier airpower was

incapable of such a capability. He brings to light the vast disparity of U.S. Navy/ U.S. Air Force interoperability prior to Operation Desert Storm and the current conflicts.

The "Gulf War Airpower Survey,"[22] was a report commissioned by the U.S. Air Force to thoroughly examine its effects during the Gulf War whose drafters had direct access to classified data with which to base their conclusions. It will serve as a primary source on which to base some of the conclusions of this thesis.

The Governmental Accountability Office's Report to the Ranking Minority Member, Committee on Commerce, House of Representatives entitled, *Report to the Ranking Minority Member, Committee on Commerce, House of Representatives Operation Desert Storm: Evaluation of the Air*,[23] will also serve as primary source material. Unburdened by military service loyalty, it accesses the "Gulf War Airpower Survey" database, as well as other classified sources to further examine the results of the airpower fight during Operation Desert Storm. It serves to challenge service assertions about the effectiveness of a wide variety of platforms and weapons including the stealthy F-117 and the Tomahawk land attack cruise missile. It will serve to demonstrate again the limits of airpower.

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[1] Builder.

[2] Joyce P. DiMarco, "Service Culture Effects on Joint Operations: The Masks of War Unveiled" (Monograph, School of Advanced Military Studies, Ft Leavenworth, KS, 2004), accessed January 7, 2016, http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll3/id/97.

[3] Michael S. Choe, "Achieving Cross Domain Synergy: Overcoming Service Barriers to Joint Force 2020" (Master's thesis, U.S. Army Command and General Staff College, Fort Leavenworth, KS, 2014).

[4] Swartz.

[5] Hughes.

[6] Boyne.

[7] Ibid., 11

[8] Higham and Parillo.

[9] Mcnamara.

[10] Kuehn.

[11] Wolk.

[12] Mark.

[13] Borowski, 415-435.

[14] Malcom W. Cagle and Frank A. Manson. *The Sea War in Korea* (Annapolis, MD: United States Naval Institute, 1957).

[15] Tilford.

[16] Colonel Dennis M. Drew, *Rolling Thunder 1965: Anatomy of a Failure*, CADRE Paper, Report No. AU-ARI-CP-86-3 (Maxwell Air Force Base, AL: Air University Press, October 1986), 59, accessed 13 February 2016, http://www.au.af.mil/au/awc/awcgate/readings/drew2.htm.

[17] Admiral U.S.G. Sharp, *Report on the War in Vietnam (As of 30 June 1968 Section I: Report on Air and Naval Campaigns Against North Vietnam and Pacific Command-Wide Support of the War June 1964-July 1968* (Washington, DC: Superintendent of Documents, U.S. Government Printing Office, 1969).

[18] Terrance J. McCaffrey III, "What Happened to Battlefield Air Interdiction?: Army and Air Force Battlefield Doctrine Development from Pre-Desert Storm to 2001" (Thesis, Air University, Maxwell Air Force Base, AL, 2004).

[19] Locher.

[20] Lambeth, *Combat Pair*.

[21] Benjamin S. Lambeth, *American Carrier Air Power at the Dawn of a New Century,* Monograph (Santa Monica, CA: Rand Corporation, 2005).

[22] Eliot A. Cohen, ed., *Gulf War Air Power Survey*: *Volume II Operations and Effects and Effectiveness* (Washington, DC: U.S. Government Printing Office, 1993); Eliot A. Cohen, ed. *Gulf War Air Power Survey: Volume IV Weapons, Tactics, and*

Training and Space Operations (Washington, DC: U.S. Government Printing Office, 1993).

[23] Henry L. Hinton Jr., *Report to the Ranking Minority Member, Committee on Commerce, House of Representatives Operation Desert Storm: Evaluation of the Air Campaign* (Washington, DC: General Accounting Office, June 1997).

CHAPTER 3

AIRPOWER COMMANDER IN KOREA AND VIETNAM

The National Security Act of 1947 made the JCS position official and granted the Air Force status as an independent service. With the JCS, the nation had, in theory, an organization that would provide unity of purpose to the military. It proved to be inadequate for the task. The first Secretary of Defense, James Forrestal, in his first annual report to Congress stated that finding a balance between the Navy and the Air Force was the "most difficult task of the Secretary of Defense."[1]

However, not all issues related to a JFACC construct were due to service parochialism. Below the level of the JCS, there existed real and legitimate doctrinal, technological, and threat issues between the services that frustrated a JFACC construct. Korea and Vietnam put those issues on display.

Joint Force Air Component Commander in Korea

On June 25, 1950 at 4:00 a.m., the North Koreans began artillery preparatory fires followed by infantry and armor advances across the 38th Parallel. In terms of service mask, doctrine, technology, and in relation to the North Korean threat, the Navy was as prepared for this war as could be expected. The Navy, shortly following the end of World War II, identified the Soviets as the primary threat but retained capabilities appropriate for limited war. The close relationship between the Navy and the Marine Corps allowed quick and unhindered support. U.S. Navy aircraft and aviators overmatched the North Korean threat and an abundance of seapower denied any level of North Korean resupply

by sea effectively canalizing resupply for North Korean forces to land lines of communication (LOCs), vulnerable to interdiction by naval surface fires and air.

Amphibious warfare proved to be the critical capability in the first year of the war. The capability not only saved the beleaguered defenders of the Pusan salient, it also allowed the Inchon landings to happen. As Admiral Arleigh Burke said, "*without* the capability to use the seas, the decision to intervene on a rocky peninsula half-a-world away would have been meaningless and unenforceable. *With* control of the seas, the decision was sound and reasonable (emphasis in original)."[2]

In terms of service mask, doctrine, technology, and in relation to the North Korean threat, the Air Force was completely unprepared for the Korean War. It too identified the Soviets as the primary threat and labored under the belief that a well-planned and well-executed air offensive would be the deciding factor in future wars.[3] However, the Air Force had focused its efforts on building capabilities to fight a total nuclear war against the Soviets. Conventional war requiring close ties with the Army and air interdiction against an eastern army did not accord with these efforts. The Air Force mask dictated strategic bombing and neglected capabilities more appropriate for limited and conventional war.

If Air Force interest remained on strategic attack, the primary problem was that there were almost no strategic targets in North Korea. As M.J. Armitage and R.A. Mason wrote:

> At Hiroshima and Nagasaki the doctrine of strategic air bombardment seemed to be fully vindicated, but within only six years, the Korean War showed not only that the US strategic bombing resources were inadequate for the magnitude of the task that theory seemed to indicate, but that were also totally

> inappropriate to that type of peripheral conflict, Thus the whole strategy with which the Second World War was ended was undermined.[4]

Centralizing Control of Airpower

Once the Air Force assets began to arrive in theater, the Far East Air Forces (FEAF), the air component of Far East Command moved to control all airpower in Korea.[5] The U.S. Navy however, retained control of its aircraft. This was a technological and threat based service barrier that served a cultural mask. The barrier resulted from the nature of the U.S. Navy tactical aircraft flying off the carriers. The USS *Valley Forge's* embarked Air Group 5 contained propeller and first-generation jets. In the days before in-flight-refueling (IFR), these aircraft could only manage a modest range meaning that the carriers had to reposition themselves to support strikes. Air Force operational control over tactical aircraft would be tantamount to operational control over the carriers and, by extension, the whole of Task Force 77, the overarching naval task force supporting the war.[6] At this early date, there was no certainty that the Communist attack across the 38th Parallel was not part of a greater coordinated attack by the Soviets or the Chinese. In the case of the Soviets, the threat could very well be a nuclear one. A naval task force restricted in its movements by a commander unaware of the naval situation was vulnerable.[7] Against such a threat, fleet defense required both fleet concentration as well as fleet movement in accordance with the Pacific war lessons learned. Thus, Navy control of naval task forces was crucial and could not be surrendered to a sister service.

However, even if the threat did not necessitate independent Navy control of the carriers themselves, FEAF may not have been able to utilize a single air commander. This was because neither the Commander in Chief United Nations Command, nor Commander Far East Command had combatant command authority over the carriers. The carriers

were combatant command to CinCPAC who was a Navy admiral. Though the Korean War was in CinCPAC's area of responsibility, CinCPAC had to retain the ability to move the carriers to respond to any threats across the area of responsibility. The Navy had to retain control of its forces to be responsive to any CinCPAC tasking. By July 16, a compromise was made: FEAF would only utilize coordinating control with Navy tactical aircraft.[8]

By early 1951, FEAF and TF 77 evolved an agreement where TF 77 aircraft were assigned to coastal areas. This was a precursor to the route system of Vietnam, but during the Korean War could not be thought of as an area of responsibility or boundary because the FEAF also flew missions there.[9] In fact, naval aircraft continued to strike deep into North Korea as late as 1952. The .destruction of the Aoji oil refinery was conducted by Navy tactical aircraft as it was out of reach of land based Air Force aircraft. Two B-29 raids on Kowan were escorted by Navy fighters as well.[10] For the JFACC concept, this was a two edged sword. With Navy cooperation, the U.S. Air Force did almost succeed in establishing an air component commander. However, it also maintained the cultural barrier between the services by proving that the Navy could contribute to the effort while retaining its independence.

Interdiction

Though not truly centralized, responsive and flexible airpower effects contributed directly to the reversals experienced by the military effort. Facing the Chinese however, the limits of airpower began to reveal themselves in the failure of the interdiction effort. Eduard Mark, in *Aerial Interdiction in Three Wars,* argues that interdiction succeeds in a combination of three elements: blockage, attrition, and induction of systemic

inefficiencies in the logistical system.[11] Encompassing the three elements are eight conditions that affect the outcome of interdiction operations: three characterizing the situation of the attackers, and five characterizing the targets.[12] Targets must be sufficiently detectable, concentrated, channelized at a choke point, at a high rate of consumption or with inadequate logistical arrangements.[13] Interdictors require air superiority, sufficient intelligence about LOCs, tactical dispositions, and sustained pressure.[14]

The list above reveals that successful interdiction efforts require an enemy that looks very much like a western military. In the summer of 1950, interdiction was very successful because the North Koreans were on the offensive, using vast quantities of supplies in good summer weather without air support of their own. The North Korean LOCs were detectable, concentrated, and their army required a high rate of consumption.

With the Chinese entrance into the war, the interdiction campaign faltered because United Nations forces could no longer guarantee air superiority though the Air Force and Navy did fight for it tenaciously. Deteriorating weather prevented target acquisition, and airpower alone could not overcome the efficiencies of the Chinese and North Korean logistical system. These efficiencies were found in the vast difference in supplies required for the United Nations forces compared to the Communist forces. The Chinese and North Korean forces simply did not need a smoothly functioning supply line as a Chinese division's total logistical burden was about fifty tons or twenty-five truckloads a day.[15]

Cagle and Manson succinctly summarized the issue for the Navy. How could Task Force 77:

> Operating an average of 150 naval aircraft in the northeast area of Korea three days out of four, hinder (and if possible prevent) the movement of enemy supplies through an area the size of the state of Minnesota, opposed by an energetic and ingenious enemy operating some 6,000 to 8,000 trucks and hundreds of trains, dispersing and camouflaging his supplies, working only at night and opposing our air attacks with the ever increasing antiaircraft fire?[16]

Despite the all-out United Nations effort focused on the two rail lines into North Korea, the Chinese could still supply approximately half of their needs by rail alone.[17] They avoided concentration by diversifying supply networks, concentrated anti-aircraft-artillery at choke points, moved at night and in bad weather and maintained a phenomenal capability to reconstitute railways, bridges, and material.[18]

Close Air Support

Doctrinally, both services agreed that air superiority was most important in accord with their experiences in World War II. The primary differences in the services was in the relative priority of interdiction or CAS. Influenced by the Marine Corps, the Navy favored CAS over interdiction in the beginning of the war and utilized the same exquisite CAS system developed during the island hopping campaign in World War II. The basis of the system was air controllers spread throughout the ground force down to the battalion level. The system was built to respond quickly to ground requests and was able to reliably respond to calls in just five to fifteen minutes.[19] The downside of this system was the number of trained personnel required to control aircraft delivering fires. Lacking the density of heavy artillery of the Army, the Marine Corps was prepared to provide the equipment, specialists, and detailed integration to utilize the system. At the beginning of the war, it was in place and ready to fight.[20]

The Air Force system was neither in place or ready to fight because the Air Force had not erected a tactical air control system, trained liaisons, or stockpiled equipment.[21] This is not surprising, as the Air Force doctrine at the time not only emphasized the relative importance of interdiction over CAS, the service itself actually stopped training to CAS due to the Air Forces' expected role in employing nuclear weapons.[22] The Army/Air Force system used the European model of rapid movement and fluid front lines. The AAF, already straining for independence, was reluctant to embrace any concept, which would tie them closer to the parent organization and built a system requiring an airborne controller in a liaison-type plane to spot enemy targets and direct fires.[23] This system was easily overwhelmed and delivered very slow response times for requests for fires, from a minimum of thirty minutes up to nearly four hours.[24]

Furthermore, four wartime evaluation boards declared that the system was never operational during the war as the Air Force had not allocated forward air controllers and the Army not furnished equipment to support it[25]. However, during Korea, the Air Force successfully forced the other services to utilize its system. Though individual pilot ability to execute CAS improved during the course of the war, systemic problems with the Air Force system caused the Navy to eventually give up on CAS to pursue interdiction.[26]

During the Korean War, the Air Force did almost succeed in establishing a single airpower commander, but multiple barriers prevented a true JFACC from emerging. Further, while it greatly benefited the ground fight, airpower did not win the war or break the stalemate. Though it was pivotal in reversing the initial tide of battle, the signing of the armistice did little to vindicate the preeminence of airpower.

Interwar

The Air Force retreat into its strategic bombing doctrine after Korea was entirely in keeping with its service mask. Strategic bombing was still the doctrine that provided the legitimacy and relevance to the service. In 1955, the Air Force conducted Exercise Sagebrush, a thirteen-state joint exercise with the Army. The number of simulated nuclear weapons employed was so large that both sides were destroyed in days, leaving the Air Force to openly question the necessity of maintaining conventional weapons at all.[27] Many Air Force leaders felt that its nuclear capability was so overwhelming that it would deter even limited war.[28] Crucially, during the early 1960s, the Air Force was dominant in the budget battles as Strategic Air Command (SAC) alone consumed 20 percent of the defense budget.[29] Tactical Air Command (TAC), the fighter-centric and more conventional Air Force command had also molded itself as a nuclear delivery source to maintain its funding. All told, the Air Force wielded 90 percent of the nuclear striking power in the free world, assuring its relevance and legitimacy.[30]

The Navy took the position that limited war was more likely and that the United States was not ready to fight small-scale conflicts. It continued to procure aircraft such as the light attack A-4 and much heavier A-6 to allow for rapid conventional attacks of targets ashore and the F-4 Phantom optimized for endurance and heavy load to protect the fleet from enemy bombers.[31] The service remained forward deployed securing both its Navy legitimacy and relevance.

Vietnam

If Korea represented the near achievement of an air component commander, Vietnam represented its repudiation. Resolutely focused on its doctrine of nuclear

strategic attack to reassure its legitimacy and dismissive of any lessons taught by the Korean War, it should not come as a surprise that the Air Force did not have the right combination of doctrine, equipment, or training at the beginning of the Vietnam War. To its credit, the Air Force relearned the lessons taught in Korea and more during the course of the war. Navy carrier aviation, in contrast, was well suited for the war, given the limitations of the rotation of task force assets and the requirements for self-defense.[32] It had virtual immunity from North Vietnamese or Viet Cong attack and possessed aircraft tailored for Navy taskings. Again, the Navy was ready to fight a limited war but was unwilling to allow its aviation to be controlled by another service.

The nature of the conflict has to be understood properly in any war. For the United States, the war was a limited one of limited means. For the North Vietnamese, it was a revolutionary total war with elements of a civil war. In Peter Paret's words, the North Vietnamese were "prepared to go to any limits—of sacrifice, of manpower, of space and of time which the United States was not."[33] In the opening of his *Report on the War in Vietnam,* CinCPAC Admiral Sharp writes:

> Every war has its own distinctive features. The Vietnam War has been characterized by an invading army that denied its own existence, by guerrilla fighters who lived among the people they threatened, by the employment of highly sophisticated modern Communist weapons systems, and by carefully controlled limitations on the activities of American field commanders imposed less by the capabilities of their own forces and weapons that by considerations of international politics.[34]

The considerations of international politics were not simply trifles but were serious efforts by the United States to intervene in Vietnam while preventing World War III. In the words of Air Force Colonel Dennis Drew, "the byzantine-political machinations

within and between Saigon, Hanoi, Washington, Peking, and Moscow nearly defy description."[35]

However, not only was the international political arena complex, within the U.S. military there existed a nightmarish command and control hierarchy. There were no less than six commanders in charge of the war: the Pacific theater commander, CinCPAC; the Commander in Chief U.S. Strategic Air Command (CinCSAC); the sub unified command Military Assistance Command Vietnam (MACV) in charge of forces in Vietnam; and the ambassadors of South Vietnam, Laos, and Thailand. Military command and control extended from the JCS to the theater commander, CinCPAC, a Navy admiral who retained control of U.S. Pacific Fleet (PACFLT), as well as the Pacific Air Forces (PACAF). CinCPAC retained control of the carriers and PACAF retained its control of non-SAC aircraft with the 13th Air Force instead of assigning them to the commander in Vietnam. The heavy bombers of SAC were controlled by CinCSAC, CinCPACs coequal. CinCSAC's objectives were independent of both CinCPAC and MACV objectives.

The commander in South Vietnam was Commander MACV. MACV itself was a joint sub-unified command but it was Army dominated and essentially focused on the land component of the war leaving CinCPAC to fight the air war. MACV was not totally without fixed wing aircraft as it did have the Marines and their aircraft reporting directly, first as the naval element, and then as a separate service component. It also, eventually, contained an air component with the 7th Air Force. The Army component of MACV also had a service reason for retaining control of its airpower: CAS. By 1966, an agreement between Generals John P. McConnel and Harold K. Johnson allowed the Air Force to be the single commander of the Army's fixed wing cargo assets while relinquishing all

claims to Army rotary wing aviation. The lack of foreknowledge that armed helicopters would become the ubitiquous vision of the Vietnam War prevented the Air Force from ever controlling them.[36] As Mcnamara concludes, the bottom line was that "three service components existed at two different command levels."[37]

Politics

It would be impossible to discuss the air war in Vietnam without at least a casual discussion of the political situation in which the war was prosecuted. Colonel Drew summarized it like this:

> The American perception, right or wrong, placed the Vietnam War in the context of a worldwide struggle with communism, a struggle controlled and directed by Moscow and Peking. The struggle in Vietnam was not, at least in the State Department's view, a civil war for control of a nation that had been artificially divided by foreign powers in 1954. Rather than facing an enemy in Vietnam motivated by the passions of nationalism, the United States and its allies were facing a coldly calculating enemy operating as part of a much larger struggle for world power, again in the State Department's view.[38]

Politically, this led to collisions that continue to color the perception of the White House's close control over the military. Tilford summarizes the military and civilian strategy divide succinctly: "Prompting North Vietnam to negotiate a settlement that would preserve the right of South Vietnam to exist as an independent political entity was the primary goal of the president and his civilian policymakers . . . In contrast, the military defeat of North Vietnam seemed to be the goal of the JCS, CinCPAC, and the generals in Vietnam."[39]

The conflict led to a military objective that was to neither defeat nor destroy the enemy. The objective was to convince a belligerent involved in a total, civil war that it could not win.[40] How could the United States defeat the North Vietnamese without

defeating the North Vietnamese?"[41] The JCS desired to execute a strategic bombing campaign that would impair the North Vietnamese ability to continue as an industrially viable state. The strategy was to transplant the World War II bombing campaign in Europe to North Vietnam.[42] It should not be surprising, in light of the failed Korean War strategic bombing and interdiction campaign, the air strategy floundered.

For the president, the lack of options poisoned trust in his military advisors. "Bomb Bomb Bomb, that's all you know" the President is said to have complained.[43] Tilford notes that because of this hole in doctrine, the generals "could not devise a strategy applicable to the war at hand—a war they claimed to be winning in any event."[44] It should not be a surprise then that other airpower missions would be similarly disjointed.

Interdiction

As early as March 1964, planning efforts were under way for an air campaign against North Vietnam. The three-phased effort, OPLAN 37-64, called for air strikes against North Vietnam, Cambodia, and Laos. Part of the plan called for targets selected based on "(a) reducing North Vietnamese support of communist operations in Laos and South Vietnam; (b) limiting North Vietnamese capabilities to take direct action against Laos and South Vietnam; and finally (c) impairing North Vietnam's capacity to continue as an industrially viable state.[45] These targets were collectively known as the 94 target list.

To review Mark's conditions for successful interdiction, the effort must provide a combination of blockage, attrition, and induction of systemic inefficiencies. Targets must be sufficiently detectable, concentrated, channelized at a choke point, at a high rate of

consumption, or with inadequate logistical arrangements.[46] Interdictors require air superiority, sustained pressure, and sufficient intelligence about LOCs and tactical dispositions.[47] General Vo Nguyen Giap fought on the tactical defensive where he could regulate the consumption of his light forces. The Vietcong and North Vietnamese forces needed only 100 tons of supplies a day to sustain their operations in South Vietnam, or about fifty trucks worth, a trickle too small for airpower to stop.[48] For the fixed targets on the original 94 targets list one last element must be accounted for: interdictors must be able to hit their targets. With the Air Force's pre-war emphasis on nuclear bombing, that was not guaranteed. The reprisal Operations Flaming Dart I and II in February 1965 had directed 267 sorties against fixed targets. The bomb damage assessments of the attacks against 491 buildings showed that only forty-seven were destroyed and twenty-two damaged. Again, Colonel Drew wrote:

> A later analysis indicated that at least part of the problem stemmed from aircrew training. Fighter-bomber crews were very proficient in the techniques required for the delivery of nuclear weapons, but far less practiced and proficient in the delivery of conventional munitions. When the Rolling Thunder campaign began, the average circular error probable (the radius of a circle centered on the target within which half of the bombs will fall) was nearly 750 feet. It took several years to increase bombing accuracy and achieve a circular error probable of 365 feet. Although 750 feet may be an insignificant inaccuracy when using nuclear weapons, it becomes very significant when dropping conventional explosives on small targets such as individual buildings or bridges.[49]

One major technological barrier to the JFACC was the inability to de-conflict Vietnamese airspace for the massive American air presence. The solution for the hazardous airspace condition was the route package system developed as the masses of American airpower arrived in 1965.[50] Though route packaging was successful in de-conflicting airspace, it also served to create a service barrier as it obviated Navy coordination with the Air Force.

A second major technological barrier to a centralized air commander was IFR. The Air Force developed a very complicated flying boom system aboard specially modified cargo aircraft. A boom operator maneuvered the boom into the refueling plug on the receiving aircraft flying in formation with the tanker. Given SAC's primacy, this choice of technology is entirely understandable. Strategic bombers are not very nimble and require immense amounts of fuel and high rates of refueling. A boom operator flying the boom negates the requirement for large movements by the receiver and the big pipe and high flow rate provide fuel at an adequate rate to refuel a bomber in flight. This was the system the rest of the IFR capable Air Force aircraft used as well.

The Navy, lacking heavy bombers, built a system capable of utilization by carrier aircraft. The probe and drogue system is nearly an inversion of the Air Force design with the receiver, not the tanker, maneuvering to intercept a hose strung behind the tanker aircraft. The impetus of the design is the ability to launch a smaller tanker from the carrier to provide extra fuel immediately after launch or before recovery. The flow rates of fuel are not as rapid as with the boom, but fighter sized aircraft of either service are unable to take on fuel at the rate of the heavy bombers meaning there is no truly distinctive difference in fuel provisioning for fighters with either system. However, the two systems, each optimized for the capabilities of their respective service aircraft, are incompatible. At the time, there was only a small experiment to fuel Navy aircraft from Air Force tankers but there were not sufficient numbers to operationalize the concept.[51] This means that there was no true way to concentrate the entirety of airpower across the whole of the country. With only the A-6 able to range sufficiently deep into Vietnam,

neither the Marines nor the Navy could directly support Air Force airpower operations with the mass of their airpower assets.

The threat to aircraft changed dramatically over the course of the war. At the beginning, there was little to no air-to-air threat. The gradual introduction of MiG-17s, MiG-19s and ultimately missile armed MiG-21s challenged both services, while the increasingly dense and radar directed anti-aircraft artillery and the SA-2 radar guided surface-to-air missile (SAM) meant that air supremacy could not be assured in North Vietnam or along the Ho Chi Minh Trail.

The Air Force, with its route packages in North Vietnam, began to meet an integrated air defense system that by the end of Rolling Thunder was able to fuse communication intercepts, radar data, SAMs and airborne fighters enabling engagement of U.S. fighters by a variety of means. Though unable to entirely shut down the massive strikes the Americans threw daily at North Vietnam, the system was able to bleed nearly every strike, the cumulative effect being the loss of about one out of every forty aircraft going north.[52]

For the Air Force, this demanded extensive technological solutions and massive strike packages of sixty or more aircraft operating in a multitude of specialized and extensively briefed roles. Aircraft lacking these capabilities and aircrew unable to brief face-to-face could not be involved in the strike precluding involvement by sister service aircraft. For the Navy, strike packages simply flew below radar fence necessitating no dramatic change in either tactics or aircraft capability. The addition of Air Force style packages would decrease the effectiveness of these tactics either by highlighting the ingressing package by radar detection or radio chatter or by making timing so important

that any delays could cancel the strike. These all worked to obviate any realistic sister service involvement.

Close Air Support

The masks of the Navy and Air Force remained essentially unchanged from Korea and the results showed. Despite the loss of the Navy from the CAS fight in Korea, the Air Force retained the same CAS construct it utilized in Korea and was pleased with its dismal twenty- to forty-minute response times.[53] The Navy and Marine Corps continued with the system developed in World War II while helicopters assumed more responsibility for Army CAS.[54] This put the Air Force into a quandary because of the dominance of SAC. The Air Force did not want to lose the CAS mission, but to retain it, TAC would have to expand and retrain aircrews to execute both the conventional and nuclear roles. However, reorienting away from the "junior SAC" orientation might come at the expanse of SAC.[55]

In other words, part of the reason for the Air Force's poor CAS responses was its disinterest in the CAS mission, entirely justifying the Army's concerns. However, the Air Force could not afford to lose the mission either lest another service encroach on what it felt was its domain, so it did only as good as necessary. Doctrinally, the situation was not much different from Korea. The capability to perform CAS in a different manner existed, but there was little impetus on the Air Force side to change methods. As for the effects on the threat, they were seemingly irrelevant. For the Army, its perception of Air Force disinterest in CAS had two effects: first was to arm every helicopter it could in order to provide for itself, if not CAS, then something like it; second, it was to actively fight any Air Force attempts to take control of that rotary wing aviation.

For the Navy, the CAS fight was not much different from the situation found in Korea. However, with the advent of the route package system, the service found itself rarely in need of executing CAS within the Air Force structure. Because of the stationing of the carriers in relation to the tasked route packages, the service was far better positioned to execute interdiction than CAS in any case.[56]

Rolling Thunder

Until February of 1965, all U.S. strikes against the North Vietnamese were reprisals against attacks on U.S. forces. CinCPAC directed planning be executed for air strikes outside of the reprisal mindset.[57] Rolling Thunder began as a campaign of strategic persuasion. It switched very quickly to interdiction, a tactical mission.[58] Colonel Drew wrote:

> Rolling Thunder would continue through 1966, 1967, and most of 1968. Gradual escalation would continue, although the reins on the campaign would remain tightly held in Washington. By October 1968, Rolling Thunder attacks were reported to have destroyed 77 percent of all ammunition depots, over 60 percent of all POL storage facilities, nearly 60 percent of North Vietnamese power plants, over 50 percent of all major bridges, and 40 percent of all railroad shops. In addition, 12,500 vessels, 10,000 vehicles, and 2,000 railroad cars and engines were reported destroyed. And yet, the North Vietnamese did not waver in their ability or will to continue. In contrast, the costs to the United States mounted and the American will to continue began to crumble.[59]

The tightly held reigns that the military so objected to are often blamed for the failure of Rolling Thunder. However, over the course of time not only were rules relaxed but also the target list expanded from ninety-four to 359. Although the generals complained that the targets were doled out too slowly, they also claimed Rolling Thunder to be a success.[60] The problem was again, those unstruck targets were not major industrial targets in any meaningful way. The Secretary of Defense was able to point out in

testimony to the Senate Armed Service Committee in 1967, that only fifty-seven targets of the expanded list remained unauthorized for attack. These included a battery factory that could produce 600 tons of batteries a year, a tire factory that could produce 600 tires a day and a warehouse in heavily defended Hanoi comparable to a "Sears and Roebuck warehouse in Washington."[61] Given targets like this, it is understandable to question how attacks on these targets would advance strategic goals. Later that year, a report commissioned by the Secretary of Defense concluded that they could not "devise a bombing campaign in the North to reduce the flow of infiltrating personnel into SVN[South Vietnam]."[62]

Linebacker

Prior to the Tet Offensive of 1968, the war was primarily between the regular U.S. and South Vietnamese forces against the irregular Viet Cong supported by the growing presence of the People's Army of Vietnam units. After Tet, with the lack of a general uprising and the Viet Cong suffering debilitating attrition, the war became more regular.[63] In 1972, the North Vietnamese finally launched the conventional attack that the Americans had been awaiting since 1956.[64] President Richard Nixon decided to resume the bombing of North Vietnam to stop the invasion. Now faced with the more conventional threat that the U.S. military had been built to defeat, the results were markedly different.

> By 1972, the conflict had the familiar trappings of a conventional war involving large numbers of North Vietnamese regular army units brandishing the implements of mechanized warfare, all demanding considerable logistical support from North Vietnam. In 1965, by contrast, direct North Vietnamese involvement in the South was much more limited and the indigenous Viet Cong comprised the bulk of the hostile forces (and would continue to do so until the Tet Offensive in

1968). In short, the situation in 1965 was very dissimilar to the situation in 1972.[65]

By the end of June, the Navy and Air Force had destroyed 400 bridges in North Vietnam. The Air Force, now wielding precision guided munitions (PGMs) in the form of the Paveway laser guided bomb and Walleye optically guided bomb were able to hit even small targets, opening interdiction options such as attacking dispersed petroleum supplies in built up areas or small repair factories in villages or city neighborhoods.[66] During Linebacker, the use of PGMs changed the way airpower was used. However, that alone did not compel the North Vietnamese to stay at the bargaining table.

In December, Linebacker II began attacking targets in Hanoi and Haiphong harbor. Linebacker I focused more on PGM usage, while Linebacker II resorted to massed dumb bomb attacks by B-52s and A-6s. These attacks first hit targets such as rail yards that had been hit in Linebacker I, and then shifted to air defenses. With the loss of air defense capabilities, the loss of marshalling yards, storage areas and ports as well as the constant pressure on its conventional army what was left for the Americans to bomb? If this was a question that brought the North Vietnamese back to the bargaining table, it was not one that ended the war. It was cease-fire terms so favorable to the North Vietnamese that it jeopardized the existence of South Vietnam, not the threat of more bombing that ended the war for the United States.[67]

Consequences to the Air Commander

During Vietnam, the concept of a single air commander was nearly in shambles. Elements of airpower were centrally controlled at the strategic, operational and tactical levels, but not in a cohesive manner. Not only did the Navy retain operational control of

its aircraft, the U.S. Army controlled its rotary wing aviation. The Air Force itself did not even control all of its own aircraft, as SAC remained independent of PACAF and MACV.[68] The dominance of the Air Force strategic bombing doctrine caused the service to be at war with itself over its ultimate goals. In Vietnam, the Air Force continued to advocate for a single air commander but could not bring its own service into submission. Thus, at the end of the Vietnam War, the services were nearly as far apart on the issue of a single operational commander as could be imagined.

Summary

In Korea, the Air Force almost succeeded in establishing an overall theater air commander and was successful in controlling all Air Force assets including SAC bombers as well as U.S. Marine Corps tactical aircraft after the retreat from the Chosin reservoir.[69] Despite this achievement, airpower did not yield the effects they desired. While it greatly benefitted the ground fight, it did not win the war or break the stalemate.

With the Chinese entrance into the war, the prohibition on striking targets in China and the prohibition against nuclear weapons in order to prevent the possible expansion of the war into World War III meant the Air Force was ultimately frustrated in its inability of prosecute the war as it saw fit. Despite its failed strategic bombing campaign, failing interdiction campaign, and an unresponsive CAS system, the Air Force was almost willfully insistent that no lessons could be learned and returned to its doctrine of strategic bombing. The official Air Force policy was to cast the Korean War as an anomaly. In the words of former Secretary of the Air Force, Thomas Finletter, Korea was a "special case, and airpower can learn little from there about its future role in United States foreign policy."[70]

For the Navy, Korea justified its culture of independence and demonstrated its ability to project power across multiple domains in both limited and total war. Doctrinally, forward deployed naval forces were able to be the first on scene and provided sufficient combat power to help delay the North Korean advance. For the Navy, the war justified the necessity of the carrier, as carrier airpower was able to defeat the North Korean air threat prior to the Air Force's arrival then shift to other power projection roles. While the Air Force was able to claim a great increase in CAS as compared to World War II, the Air Force CAS system was less responsive and more easily overwhelmed than the Marine system. Despite this system becoming the standard over the course of the war, the Navy was so frustrated by the Air Force system that it gave up providing the capability in favor of interdiction.

Technologically, the lack of IFR and limited communication capabilities with the carriers worked against a JFACC construct. Though airpower flexibility was demonstrated frequently with the changes in focus from CAS to interdiction and back, coordination of forces was difficult and the limited range of early jet aircraft meant that massing of airpower was difficult to achieve. The range issue led to the geographic separation of the Navy and Air Force. That separation was not a boundary, but more a planning matter of convenience as Navy aircraft flew in Air Force areas and vice versa. On many occasions, aircraft of one service flew in support of the missions of another. In dealing with the Navy though, the system worked far more because of the relationship between the two commanders than because of doctrinal or organizational reasons.[71]

The threat posed by the identified enemy was the next barrier to JFACC integration. The Cold War backdrop of the era forced the services to build capabilities

sufficient to defeat the Soviet threat, but service threat environments were so dissimilar that no single environment necessitated an agreement across all the services to implement the JFACC concept or even high levels of interoperability. The Navy prepared both for limited and total war and brought a conservative mix of conventionally armed propeller and jet aircraft to the fight. The Air Force found, only after hostilities began, that its jet forces were frequently inappropriate for the task and actually returned to World War II era P-51s in some cases to bring back the right mix of capabilities for the fight.

Countering a threat not molded on a western conception proved to be cultural gap that no service successfully bridged. During the Korean War, the Air Force did almost succeed in establishing a single airpower commander, and airpower did avert defeat three times. However, it did not win either making it pivotal but never decisive.[72]

The masks of the services cemented themselves in the time between the National Security Act of 1947 and the end of Korea. Using Builder's framework, one would expect an Air Force forever seeking more advanced technology, sensitive about its legitimacy and relevance and advocating a strategic bombing option as the universal solution. All these elements are present during the Korean War. For the Navy, Builder argues for a service mask seeking more independence, supremely confident it its legitimacy and always forward deployed in defense of its relevance.[73] With the Korean War, all these elements exist as well.

Prior to Vietnam, the services had not moved significantly in their masks. The war would not change them. The Air Force returned to nuclear strategic attack as its pre-war doctrinal answer to the spectrum of conflict. The Navy retained its independence and capabilities useful for limited and conventional war. During Vietnam, the ability to

fight a conventional war was immediately valuable while strategic nuclear doctrine was immediately irrelevant. However, the importance of strategic bombing to the Air Force kept SAC independent of MACV. Navy route package operations allowed the Navy to fight the war while retaining its independence. Service masks and doctrines presented insurmountable barriers to a true JFACC.

Technologically, it took years before the Air Force recovered its ability to strike point targets. By investing in technology, it did develop the PGMs that revolutionized the Linebacker operations and dominated modern airpower capabilities. The Navy made halfhearted attempts to harness this capability but did not equip any aircraft with these weapons for nearly twenty years. The true technological barrier to a JFACC was incompatibility of IFR techniques between services. IFR incompatibility prevented a realistic ability to mass airpower and took nearly fifteen years before a joint compatible system would be widely fielded.

The threat was the final piece that prevented the development of a JFACC. Prior to the war, the Navy and Air Force contemplated entirely different threat environments, each unique and demanding specialization. As the war in Vietnam wore on, the Air Force found its workhorse F-4s to be the jack-of-all-trades best suited to the war and its conventionally armed B-52s to be the preeminent airpower weapon. For the Navy, the specialized F-8 Crusader became its preeminent MiG killer but more useful were the heavy ground attacking A-6s and multi mission F-4s. The true threat was anti-aircraft artillery, even more so than the SAMs. For the Air Force, this demanded extensive technological solutions and massive strike packages. Aircraft lacking these capabilities would not be involved in strikes, precluding involvement by sister service aircraft. For

the Navy, strike packages simply flew below radar fence necessitating no dramatic change in either tactics or aircraft capability. The addition of Air Force style packages would decrease the effectiveness of these tactics obviating a sister service involvement. These forces could not cohesively function together, under any imaginable circumstances.

In regards to the limits of airpower, though the Air Force was able to claim a strategic effect at the end of the Linebacker II, the claims that such an effort earlier in the war would have produced a victory do not hold true. In World War II, the British, Germans, and Japanese all faced extensive bombing campaigns and suffered greater hardships than the North Vietnamese due to the industrialized nature of the countries. There is no guarantee that an earlier sustained effort in Hanoi would have had a different result. Further, an invasion of the North by the South supported by U.S. airpower might have resulted in a sequel of the Chinese intervention in Korea opening Pandora's box to World War III. It was the favorable peace terms the United States offered, not the bombing, which ended U.S. involvement. In the end, airpower was used by the services for nothing more that the support of their unique service objectives.

Despite a total of ten years of limited war, the services were no closer to interoperability or agreement on a single airpower commander than in World War II. Yet, somehow, one piece of legislation changed all this. The next chapter will shed light on what happened and how the barriers to service acceptance of a JFACC fell away during the first Gulf war.

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[1] Cagle and Manson, 14.

[2] Ibid., V.

[3] Tilford, 7.

[4] M. J. Armitage and R. A. Mason, *Airpower in the Nuclear Age* (Chicago: University of Illinois Press, 1983), 227.

[5] Mcnamara, 79.

[6] Ibid., 81.

[7] Ibid.

[8] Ibid.

[9] Ibid.

[10] Cagle and Manson, 459.

[11] Mark, 1.

[12] Ibid., 3.

[13] Ibid., 5.

[14] Ibid.

[15] Drew, 19.

[16] Cagle and Manson, 223.

[17] Ibid., 232.

[18] Tilford, 18, 19.

[19] Mcnamara, 86.

[20] Cagle and Manson, 51.

[21] Ibid., 49.

[22] Mcnamara, 85.

[23] Cagle and Manson, 49, 50.

[24] Mcnamara, 86.

[25] Ibid., 87.

[26] Ibid., 84.

[27] Ibid., 99.

[28] Tilford, 49.

[29] Ibid., 48.

[30] Ibid.

[31] Ibid., 51.

[32] Boyne, 328.

[33] Peter Paret, *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Princeton, NJ: Princeton University Press, 1986), 787.

[34] Sharp,. 1.

[35] Drew.

[36] Mcnamara, 113.

[37] Ibid., 101.

[38] Drew.

[39] Tilford, 138.

[40] Drew.

[41] Tilford, 138.

[42] Drew.

[43] Tilford, 147.

[44] Ibid., 146.

[45] Drew.

[46] Mark, 5.

[47] Ibid.

[48] Tilford, 112.

[49] Drew.

[50] Mcnamara, 105.

[51] Swartz, 33.

[52] Tilford, 131.

[53] Mcnamara, 110.

[54] Ibid., 100.

[55] Tilford, 49.

[56] Mcnamara, 105.

[57] Sharp, 16.

[58] Tilford, 106.

[59] Drew.

[60] Tilford, 142.

[61] Ibid., 145.

[62] Ibid., 148.

[63] Colin S. Gray, "Irregular Enemies and the Essence of Strategy: Can the American Way of War Adapt?" (Monograph, Strategic Studies Institute, U.S. Army War College, Carlisle, PA, 2006), 8.

[64] Tilford, 225.

[65] Drew.

[66] Tilford, 237.

[67] Stanley Karnow, *Vietnam: A History* (New York: Viking Press, 1983), 19.

[68] Mcnamara, 56.

[69] Ibid., 79.

[70] Tilford, 21.

[71] Mcnamara, 89.

[72] Boyne, 294.

[73] Builder, 29.

CHAPTER 4

POST-VIETNAM INTERWAR PERIOD

Air Force leadership should have learned a lesson from the failure of airpower to not only not win the war in Vietnam but to be unable to even effectively interdict the flow of supplies into South Vietnam. Yet again, following Vietnam, the Air Force retreated into its strategic nuclear mission and ignored the outcome of the war. It was not the World War II generation of Air Force leadership that finally made the service face the defects the war exposed, it was the rise of the generation that fought Korea. By 1982, there were no bomber pilots left in any key staff job and this brought about a radically different Air Force.[1] Doctrinally, the Air Force moved from a mentality of nuclear weapons as the answer to the spectrum of conflict, to one predicated on fighting conventional conflicts. This realignment resulted first in the co-development of AirLand Battle and culminated in the Gulf War victory.

Technologically, the Air Force developed the very highly capable air superiority F-15s and the less capable but numerically dense F-16s, in a high-low mix with the A-10 dedicated to a ground support mission. In light of the lessons of the 1973 Israeli War with Egypt, the service began work on its technological answer to the problem of surface to air missiles: stealth. It also searched for a replacement for its already aging B-52s, with the program that would become the B-1. The Soviet hoards poised to overrun Europe ever remained the threat.

The Navy changed little in the aftermath of Vietnam. It remained forward deployed with its battle groups symbolizing American global commitment and military power. This forward deployment continued to reinforce the importance of the ability to

respond conventionally across the range of military options. By the early 1980s, the Navy had also concluded on how to defeat the Soviet threat. The Maritime Campaign became the Navy's offensive sea control strategy. This strategy focused on open ocean engagements around the world. Actual force employment was typically for one-shot demonstrations such as against the Syrian forces in Lebanon and the Operation El Dorado Canyon strikes against Moammar Ghaddafi in 1986.[2]

AirLand Battle versus the Maritime Campaign

Despite a lackluster reception by the airmen of the service, 1979's Air Force Manual 1-1, *Basic Aerospace Doctrine of the United States Air Force* (AFM 1-1), was a step toward tighter ties between the Army and the Air Force.[3] AFM 1-1 debuted the concept of battlefield air interdiction. This concept allowed corps-level control of target nominations short of the fire support coordination line, a fire support coordination measure that separates the areas where fires are either unrestricted or coordinated, but beyond the range of normal CAS. This was the key enabler for AirLand Battle as it closed a doctrinal gap between the fire support coordination line and CAS where the possibility of an unintended no strike zone existed.[4]

Another key piece of the U.S. Air Force turn to conventional weapons was the 1982 British war in the Falklands. Unlike Korea or Vietnam, Argentina, a non-nuclear state, deliberately invaded the territory of a nuclear-armed state. This was not an irrational move but a fully rational decision. Robert Farley, senior lecturer at the Patterson School of Diplomacy and International Commerce at the University of Kentucky argues that by the early 1980s, stigma against nuclear fires was so high that Argentina's assumption that nuclear weapons would not be considered was reasonable.[5]

In a world where nuclear weapons invalidated themselves, the only answer was better employment of conventional fires.

Though on the surface, the Air Force move toward the Army was indeed a cultural change, service masks are difficult to change. In AirLand Battle, the Air Force's primary role was to attack strategic targets and interdict follow on echelons of Soviet forces, not necessarily CAS.[6] Though battlefield air interdiction was a shaping element for the landpower fight, it was to occur far beyond the forward line of ground forces. Doctrinally, Air Force portion of AirLand Battle emphasizing high tech interdiction beyond the forward line of ground forces was solidly rooted in the Air Force mask.

The Navy had no foreseeable role in AirLand Battle other than to fight a third battle of the Atlantic to maintain the sea lines of communication and so focused its efforts, technology, and strategic thinking on how to attack the periphery of the Soviet Union. An offensively oriented Navy was crucial because in the view of the Secretary of the Navy, John Lehman Jr., "it was conceivable that the United States could lose the battle for Europe and still not lose the war, but it was inconceivable that the United States could lose at sea and avoid losing the war."[7]

Without any impetus to develop joint capabilities, the Navy and Air Force behaved as if the other did not exist. In times of war, such as in Operation Urgent Fury, the focus was not interoperability but force deconfliction. In the separate and distinct operating environments of the Air Force and the Navy, operational synergies between the services were not even sought, much less produced.[8]

This can be seen even in the pages of the professional journals of the time. Prior to Goldwater-Nichols, articles in the journal *Proceedings* that mention U.S. Air Force

contributions are either missing or negative. Following Goldwater-Nichols, positive references to the possibility of U.S. Air Force contributions begin to appear. In a somewhat dramatic illustration, the first counter argument against Navy procurement of the F-35C Joint Strike Fighter is precisely because the Air Force would be present and fighting together with the Navy.[9] A shocking turn of events indeed.

While the services were pleased with the state of affairs, members of the legislature were not. James Locher III, the senior reorganization staff member for both Goldwater and Nunn writes in his book, *Victory on the Potomac:*

> the Pentagon needed reform badly. The bureaucracy had outright lost Vietnam, lost the *USS Pueblo*, botched the Desert One Raid and lost 200 marines in the Khobar barracks in Beirut. The Korean war was an armistice and Grenada were hardly a stunning victory. Decision making was convoluted, lines of authority confused, and fiefdoms so powerful that the hierarchy had repeatedly failed the nation.[10]

In the reformers' view, this was solely due to the JCS:

> The JCS is a microcosm of the overall military bureaucracy, but it is a very intense microcosm. It is specifically designed to be an arena where the services log-roll their parochial interests. The dual-hatting of service chiefs as members of the Joint Chiefs, the requirement for unanimous decisions, a joint staff made of officers who must return to their parent services—all these things not only perpetuate but intensify bureaucratic behavior. That the decisions and recommendations from such a body are frequently of little use in the outside world should not be surprising. The focus on intra-institutional concerns is built into the system.[11]

By the early 1980s, the power of the services was all out of proportion to their legislated responsibilities. The system ultimately valued service independence above joint warfighting and wielded its power far more to protect service parochial interests than to wage modern warfare.[12] This was understandable because the services controlled the JCS. They did so by limiting the authority of the unified commanders (the CinCs) and keeping the service component commanders independent.[13] General David Jones'

comments on his experience as the Air Force Commander in Europe provides an example of the difficulty this created:

> When I was the Air Commander in Europe, I had two bosses, the Chief of Staff of the Air Force and the Unified Commander-the Commander-in-Chief, U.S. European Command who is over all U.S. theater forces. The Chief of Staff of the Air Force assigned me all my people, gave all my rewards to my people, controlled all my money, gave me all my equipment. Obviously, he had nine times the influence over me than my Unified Commander had. So, he who controls the resources can have a tremendous impact.[14]

Despite the twenty major reorganization studies that occurred in the proceeding thirty-eight years, it was the Chairman of the JCS, General David C. Jones, which brought about the movement that would finally change the JCS. In 1982, General Jones began to argue before Congress that the JCS was ineffective and required reform.[15] In seeing the possibility of losing the most important element to its institutional mask—independence —the U.S. Navy was the most outspoken service opposing what became the Goldwater- Nichols reforms.[16]

Reform and anti-reform camps formed and both followed the same general strategy of mobilizing intellectual supporters and retired military officers. The pro-reformers primarily used political scientists examining a relatively short period of American history, usually from the end of World War II, while the anti-reformers primarily employed historians exploring the whole of U.S. military history.[17]

In 1985, that reform became a true possibility. The intersection of three key changes, one in each of the executive, legislative, and military areas essentially cleared the path for reformers to argue their case. President Reagan appointed a blue ribbon commission headed by former Secretary of Defense, David Packard. Barry Goldwater

replaced Senator John Tower, and Admiral William Crowe, who could be called a cautious reformer, replaced General John Vessey.[18]

As the legislation approached, the Navy launched a blitz of negative articles in the Naval Institute journal *Proceedings*, including an article by former Chief of Naval Operations, Arleigh Burke, as well as a joint separatist article by Army Colonel William Hanne. The articles centered on several criticisms of unification: the system itself, the threat of a powerful chairman, and the efficacy of the JCS. In arguing for maintaining the status quo, the articles describe the JCS system as imminently American, built around an open forum where all members were able to fully air their viewpoints. It allowed for civilian control of the military by limiting the power of any single individual as might occur with a Prussian style general staff and gave decision makers differing viewpoints from which they could make a decision.[19]

The articles continued by arguing that a powerful chairman in charge of a general staff would be a threat to civilian control of the military. Civilian policymakers desire options, not a single course of action no matter how feasible, and a single voice constitutes a de-facto decision.[20] The final line of the argument was that the JCS system had deterred World War III. Not only that, but also fewer service members had died during the forty years of JCS leadership than any period of comparable length.[21]

The Air Force countered this with a blitz of articles of its own found in the pages of its *Air and Space Power Journal*. Where the Navy brought in uniformed writers, both naval and Army, the Air Force led with a U.S. senator and a representative, as well as other supporters. The arguments centered heavily on concerns familiar to the Air Force

but were far broader as they examined the concept of military reform from multiple angles.

Representative Denny Smith, the co-chairman of the Military Reform Caucus wrote criticisms that seemed very valid on their face but are difficult to support when examined deeper. He writes of the failure of the F-111 to meet the criteria for a fighter aircraft for either the U.S. Air Force or Navy. He fails to note that the F-111 was designed as a single purpose penetrating nuclear strike aircraft that the Navy had no desire or requirement for and that the Air Force hated.[22] It was Secretary of Defense McNamara that foisted it upon the services. Ultimately, in its role as a strike aircraft during Operation Desert Storm, the F-111 successfully delivered more bomb tonnage against offensive counter air targets than any type aircraft.[23]

Representative Smith bemoaned the loss of capability that the "overlarge" F-15 radar brought to the fight, but does not mention that the same radar is the basis for the beyond visual range missile capabilities that made the F-15 the single most dominant fighter jet since its inception.[24] Senator Gary Hart argued for reform in procurement but towards simpler more rugged systems more certain to work in combat. He mentioned the F-16 as a prime example of a fighter jet but only discussed the A model, failing to mention that by 1985 the design was upgraded to act as a strike fighter, capable in the air-to-air and air-to-ground arenas. He mentions the AIM-7 Sparrow missile specifically as a weapon unable to achieve a rapid effect as it is guided by the shooting aircraft until it impacts its target. His reasoning is that by making a faster weapon in greater numbers, the overall cost would be less.[25] However, to make a Sparrow capable of achieving this

rapid effect required either some manner of next generation propulsion, requiring immense fiscal resources, or to change the guidance system to an actively guided missile. This second option involves installing a radar on the missile itself which is doubly expensive as it necessitates replacing both the missile and the radar on the launching platform. This is the model that the currently fielded AIM-120 AMRAAM uses, a weapon that was in development at the time the article was written and fielded in 1991 at a per unit cost of nearly double the Sparrow.

Reading the arguments, the articles by the congressmen displayed a high level of awareness on procurement issues and an affinity for Boyd's observe orient decide act cycle, known as the observe, orient, decided, act loop, but little real criticism of the JCS system itself. The actual criticism of the JCS is left to William Lind, advisor to Senator Hart, and his ultimate position is an explicit call for a Prussian style general staff, an option Congress itself denied in section 143 of Title X. [26] Overall, the volleys fired by the Navy were far more compelling, and their description of the JCS was one that was, if not ideal, then one that needed few changes. The arguments by the congressmen were procurement-centric and while interesting, not entirely relevant to the issue at hand. However, in the end, the reforms would pass.

Goldwater-Nichols Department of Defense Reorganization Act of 1986

The Goldwater-Nichols reforms in broad terms did several things: they established the position of the vice chairman, made joint experience a pre-requisite for promotion to General and emphasized joint operations in training, doctrine, education and readiness.[27] Finally, the legislation "Require[s] all combatant forces of the military departments to be assigned to combatant commands,"[28] and took the JCS out of the

operational chain of command. This broke the power of the services. The combatant commanders were now the warfighters while the services became more the force providers. In other words, the incentive structure for the services now revolved around meeting combatant commander requirements. Thought of in another way, meeting combatant commander requirements became the way for the services to express their masks. Because the combatant commanders did not seek single service answers but required joint and interoperable capabilities, the legislation moved the issue of jointness from an afterthought in military operations to the absolute center of military warfighting philosophy.[29]

Joint Force Air Component Commander Defined

The year 1986 was very significant in the development of the JFACC. In this year, the first publication to explicitly define a JFACC, Joint Publication 26 (JP), *Joint Doctrine for Theater Counterair Operations (from Overseas Land Areas)*, was published. The first formal definition of the JFACC follows:

> The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation and tasking based on the joint force commander's apportionment decision). Normally, the joint force air component commander will be the Service component commander who has the preponderance of air assets to be used and the ability to assume that responsibility.
>
> The tactical and strategic forces that may be committed to counterair operations, as well as other contributing forces such as SOF, elements of Army, Navy, Air Force, and Marine aviation, surface air defense, and EW forces, remain under the command of their respective components.[30]

The formal defining of the JFACC itself did not solve the problem of employing it in combat. Even with the JFACC cemented in joint doctrine, key differences in how the

U.S. Air Force and U.S. Navy executed command and control shaped their views of the concept. For the U.S. Air Force, the key element of command and control was centralized control, decentralized execution. This means that planning will be done centrally with the actual decision of whether or not to employ weapons made at the lowest level based on mission planning factors. If the threat was greater than planned for or something changed with the target, the strike lead had the authority to cancel the strike or select a different target.

For the Navy the command and control concept was command by negation.[31] This was similar to mission command in that it required mission type orders with the expectation that subordinates would take initiative to accomplish the commander's intent. The difference was in the level of autonomy provided to subordinates. Where mission command will vest all the ultimate planning into the hands of the commander, command by negation takes mission command and adds to its independent command at sea. This results in subordinates at a lower level creating and executing plans in accordance with the commander's intent, which a senior can negate should the necessity arise. These two distinct worldviews, entirely founded in the masks of their progenitors, complicated any vision of how to implement a JFACC.

Further complicating the idea was the question of whether a JFACC was a coordinator or a commander. In the Navy view, there was only one path of operational control: a senior commander to the subordinates. Because the JFACC was not in that operational path, the JFACC was merely a coordinator of air operations executing policy prescribed by the Joint Force Commander (JFC). In the Air Force view, the JFACC was a commander who initiated operations autonomously as the functional commander of

assigned joint force assets. Further compounding the issues was the term functional. The Air Force continued to see air power as the primary force by which it will influence the battle and thus as a functional command. For the Navy, airpower is simply one tool of many, which the service can use to meet JFC objectives.[32]

These issues were crucial because joint doctrine designed the JFACC construct to provide the maximum flexibility to the CinC. However, that very flexibility created a situation where their services had no clear vision of what a JFACC was to look like because the JFC or CinC had the option to reinvent the wheel for every conflict. Thus, there was little impetus for services to develop common systems when the CinC could be making case by case decisions on JFACC involvement.[33] The result of this was that the different viewpoints worked to prevent the services from developing easily integrated systems, and it further stymied Navy development of a capacity to execute large-scale planning.

Technologically, even if the Navy had in place an adequate planning process, the ships lacked the onboard connectivity to distribute the plan across the theater. That connectivity gap also prevented digital receipt of JFACC mission planning documents. This was not due to an independent Navy carelessly letting details slip but due to the real-life difficulties in adding electronic equipment to ships at sea.

On land, emplacing a new antenna or installing some new system is a straightforward process. If one desires a new satellite communications antenna, once procured, installation and placement is little trouble. To install that same antenna onboard a ship is an immense challenge. First, an antenna capable of operating effectively in a highly corrosive and dynamic environment must be procured. These requirements

typically mean there is little chance such an antenna can be purchased off the shelf. Even more important is where to locate the antenna. Space is at a premium because locations with a relatively uninterrupted view of the sky are scarce. Because of this scarcity, there is great competition between systems. The system the antenna supports must be more important than any other system that could be installed in the same location.

Because of the proximity of an enormous number of other antennas operating nearby, the frequency used by the new system has to be carefully considered so that it does not either interfere or receive interference from the other antennas. The mount for the antenna has to meet the necessary criteria. Equipment has to be brought onboard and deconflicted from other existing equipment. Wiring has to be strung which is an expensive and time-consuming process that also requires updates to the blueprint of the ship and can only be done during maintenance availability in port. Finally, this process has to be repeated for every ship that will receive that specific antenna. Because ships are not uniformly constructed, there is no one size fits all solution for installation across the fleet. In short, putting new equipment onboard is an expensive and time-consuming task.

An example of these known difficulties occurred in 1987 and again in 1989 during Exercise Solid Shield, a CinCLANT JFACC exercise. The Air Force was designated the JFACC service for Exercise Solid Shield 1987 and in Solid Shield 1989 the Navy assumed the role. During Solid Shield 1987, the services planned to communicate via message traffic utilizing AUTODIN, the system of record for joint message traffic transmission and receipt. The system's low bandwidth did not provide the needed flexibility to integrate the service assets on an ad-hoc basis. In light of this,

CinCLANT planners began to search for different communication technologies for future exercises.

Solid Shield 1989 saw some of the same difficulties as in 1987. With the Navy designated as the JFACC and the planning teams to be afloat on the USS *Mount Whitney* (LCC 20) a specialized command and control ship, the planners decided that the World Wide Command and Control System (WWCCS) would be the primary communication path with AUTODIN as the backup. This was due to the *Mount Whitney* being the only CinCLANT ship with a Super High Frequency (SHF) satellite antenna connectable to the WWCCS system. This meant the other services had to procure equipment and lease telephone lines to connect to WWCCS instead of their own systems. Even the USS *Eisenhower* (CVN 69) had to temporarily install the same equipment to allow for battle group connectivity, as it did not possess a SHF antenna.

Even this did not connect the Navy to the Joint Communication system. The Marine Air Combat Element commander aboard the USS *Saipan* (LHA 2) did not have WWCCS access and until a WWCCs node was established at his headquarters, he had no JFACC connectivity at all. Joint service liaison officers brought portable satellite phones in attempts to maintain their own connectivity with little success. Finally, had the war been real, no other strike group would have had access to Navy planned JFACC products as they lacked SHF antennas. The Navy recognized the utility of the SHF system and planned immediate procurement after the exercise. Highlighting the difficulties in integrating such equipment, the first deliveries did not arrive until 1993.[34]

Joint Forces Air Component Commander Ascendant

On August 2, 1990, Iraqi forces invaded neighboring Kuwait. Iraq had the fourth largest army in the world with 1,000,000 men, 5,000 tanks, 8,000 armored vehicles, and 700 tactical aircraft including Mig-29 Fulcrums.[35] Against this force, General Norman Schwarzkopf, the CinC, dual-hatted as the Joint Force Land Component Commander, lacked sufficient ground power to resist an Iraqi advance into Saudi Arabia. Airpower was his only option. Lieutenant General Chuck Warner, the U.S. Central Command designated JFACC, developed a plan known as Operation Instant Thunder that required all available airpower to execute. Though comfortable with his landpower role, Schwarzkopf was not nearly so comfortable with the airpower aspects of the planning.[36] Schwarzkopf decided the JFACC role would be exclusively Lieutenant General Warner's to craft. All the components were now in place for an irresistible argument for a single commander to assume operational control of airpower.

This was a defining moment in the history of the JFACC, not because it answered the doctrinal question of JFACC responsibility for the war, but because it created the mold, into which the JFACC concept now fits. Though the JFACC continues to be doctrinally constructed in whatever manner the CinC sees fit, this decision established the JFACC as a semi-autonomous component commander that exclusively meets the CinC's airpower intent. Put another way, the JFACC staff crafts the air war, not the CinC staff.

Though this flew in the face of the Navy mask, the barriers to a JFACC had fallen. With the establishment of a powerful JFACC uninterested in any dilution of airpower, Warner's determination to maximize the punch of all the airpower available meant independent Navy air operations were not in the cards. The Navy had no system

analogous to the Air Tasking Order (ATO) process with which it could challenge the Air Force system and lacked the communication infrastructure to execute JFACC planning. Without a competing system, the Air Force, which had planned for the JFACC to be a more autonomous component, had the upper hand. Joint interoperable IFR was available for both Navy and Air Force planes and the ATO system effectively de-conflicted airspace eliminating the primary barriers to massing airpower at any place on the battlefield.

Doctrinally, as the CinC, Schwarzkopf had combatant command not just over the supporting naval task force in general but over the carriers. As go the carriers, so goes the fleet. Unlike Korea and Vietnam, where the CinC was a Navy admiral, as an Army general, Schwarzkopf had no interest in supporting Navy independence. The final Navy barrier to the JFACC was the threat. However, with the collapse of the Soviet Union, there was no compelling threat that could draw the Navy from the fight. The confluence of events drew an irresistible conclusion; the Navy had lost the means to independently control the totality of its airpower. The Navy would submit to the JFACC.

The Naval Threat in the Gulf

Though the Soviet naval threat had evaporated, the Iraqi naval threat was quite real and not all critical targets received the attention on the ATO they merited. Despite the success in bringing the Navy to the JFACC table, interdiction against the Iraqi Navy was not considered by the JFACC and an amphibious landing remained a valid and continuing possibility until the end of the war.[37] Naval support for these missions came from Navy JFACC liaison cell members and the Anti Surface Warfare Commander's creative use of the planning system outside of the ATO process. Over 180 A-6 strikes

against individual ships, boats, port facilities, and Silkworm anti-ship missile sites were required to negate the threat to naval operations.[38] By February 17, the Iraqi Navy had ceased to exist[39] though coastal defense Silkworm sites remained a threat until the end.[40]

The primary Iraqi threat to naval forces was from mines and anti-ship cruise missiles. Neither of these threats was new to the Navy. All five ships lost in the Korean War were lost to mines.[41] In 1987, during Operation Earnest Will, the U.S. support of Kuwaiti tanker operations in the Persian Gulf during the Iran/Iraq War, the single greatest threat to the reflagged tankers were mines. In the first month of the operation alone, three ships escorted by U.S. forces struck mines. In 1988, the USS *Samuel B. Roberts* (FFG 58*),* was nearly torn in half while when she struck a submerged Iranian mine. She was returned to service and in fact supported the Maritime Interception Force during Desert Storm but it took seven hours for the ship to be stabilized after the strike.[42] Ultimately, the mine threat became the most significant threat of all, with mines striking the Aegis cruiser USS *Princeton* (CG-59) and the amphibious assault ship USS *Tripoli* (LPH 10) which was, embarrassingly, the mine countermeasure flagship.

The anti-ship cruise missile threat was also one with which the U.S. Navy had sour gulf experience. In 1987, two Iraqi Exocet anti-ship cruise missiles struck the USS *Stark* (FFG 31). Though the Iraqis claimed the attack was accidental,[43] the frequent use of these weapons by the Iraqis during the tanker war proved them a real and difficult to combat threat. The Iraqis made multiple attempts to attack coalition ships with anti-ship cruise missiles. The first was by a pair of Iraqi Exocet armed Mirage fighters. Luck was not with this pair as the coalition had six separate combat air patrols airborne between the attackers and the fleet. A single Saudi F-15 killed both Mirages.

The second and far cleverer attack came from a pair of surface launched Iraqi Silkworm missiles fired at the USS *Wisconsin* (BB 64). Fired down a coalition aircraft safe return route, the missiles mimicked friendly aircraft. Fortunately, one of the weapons fell in the water and HMS *Cloucester,* the *Wisconsin's* British escort, shot down the other missile.[44]

The Limitations of Airpower

As effective as the air campaign was, it did not win the war alone. In fact, several glaring issues reflected the limitations of airpower even in the face of an embarrassment of airpower riches. Because of the generally favorable conditions, some air war planners hoped the air war with its targeting of regime's political and military elite, could compel the Iraqis to leave Kuwait. Despite the thirty-eight-day fury of the air war, it was not until the ground assault began that the Iraqi forces began to move out of Kuwait.[45] The strategic bombing campaign failed to affect the population's will or the political stability of Saddam's regime. Although coalition forces achieved considerable disruption of command and control to Saddam's forces, coalition forces did not succeed in completely severing his communications with the Kuwaiti theater of operations.[46] The attacks on Khafji, though a defeat for Iraqi forces, illustrated that even in the face of determined airpower and excellent intelligence, the Iraqis were able to maneuver division-sized elements and achieve surprise. Saddam was also able to continue radio broadcasts to his subjects throughout the war. As noted by the *Gulf War Air Power Survey* team, Iraq's military forces proved to be the weak link—not its political regime.[47]

The effects of actions taken to reduce the impact of strategic bombing such as cover, concealment, dispersal, deception, hardening, redundancy, and improvisation

remained effective in Desert Storm. These counters, as old as World War II, were employed repeatedly in Desert Storm.[48] The best illustration of these actions comes from the Iraqi employment of Scud missiles during the war. Iraqi Scuds were political weapons[49] that targeted coalition unity and will.[50] The Iraqis only launched eighty-six Scud missiles during the entire conflict, yet they inflicted the bloodiest incident of American casualties with the Al Khobar barracks strike killing twenty-eight and wounding ninety-seven. By January 24, the JFACC directed 40 percent of coalition sorties to suppress the Scud threat, seriously diluting offensive airpower operations. Ultimately, the effort ended in failure.[51]

The massive force unleashed on Saddam's forces ultimately destroyed twenty-four Iraqi divisions costing them 3,847 tanks, better than half of the 2,880 armored personnel carriers, and almost all of their 3,100 artillery pieces. Only five to seven of forty-three combat divisions remained capable of offensive operations by the close of the ground war.[52] Most of these losses were inflicted by U.S. Army and Marine divisions. The VII Corps alone destroyed 1,300 tanks, 1,200 armored personnel carriers and infantry fighting vehicles, 100 air defense systems and captured 22,000 prisoners in ninety hours.[53] The mass surrenders and ultimate destruction of the Iraqi war machine did not occur until the ground war. Warfare is a team effort in which no single element uniquely wins alone.

After the Storm

Despite transporting 95 percent of the eighteen billion pounds of equipment brought to the Gulf and naval aviation flying 25 percent of the 103,000 sorties,[54] almost

immediately after Desert Storm, the Navy faced huge challenges. The only notable air-to-air kills the Navy received were by two F/A-18 Hornets who continued on to drop dumb bombs on their targets after successfully engaging their aerial adversaries.[55] Though this was a notable accomplishment, it paled in comparison to the thirty-one kills F-15 Eagle fleet achieved, many in beyond visual range engagements.[56] The vaunted Tomcats with their long-range Phoenix missiles had no kills at all. This was primarily due to the restrictive rules of engagement necessary to prevent fratricide. Neither the F-14 nor the F/A-18 had an identification friend or foe system. The open ocean combat envisioned for the Maritime Campaign did not necessitate it and the requisite system existed on the organic E-2 or the U.S. Air Force E-3 AWACS. Yet, because the fear of fratricide was greater than the trust in a system of systems approach, the preeminent Navy interceptor was not stationed to engage in beyond visual range combat. The A-6E was the only precision guided munition capable aircraft in the Navy inventory at the time but it dropped the fewest of those munitions of any of the aircraft carrying them.[57] As noted, the Navy had no analogue to the U.S. Air Force ATO process. Finally, the Navy, as a whole, did not operate independently but shared operating areas with the Army and U.S. Air Force.[58]

The opening sentence of James L. Georges' 1991 prize winning *Proceedings* essay criticized the Navy for still clinging to "the old Maritime Strategy."[59] Though successful, Desert Storm in no way resembled the open-ocean slugfest for which the service spent the last two decades preparing.[60] For the Navy, Desert Storm forced them to see that the basic operational concept driving its planning did not fit the new post-Cold War world.[61] As Dr. John Kuehn wrote in his book, *Agents of Innovation*, navies are very

conservative institutions but are very capable of decisive action when dramatic problems are identified. The U.S. Navy changed rapidly in the aftermath of Desert Storm. With the consequences of the Navy's lack of interoperability starkly demonstrated, the service responded with changes to equipment and operating practices to work more closely with the U.S. Air Force and the joint force. In particular, the Navy upgraded its precision strike capability to Air Force levels[62] acquiring a degree of flexibility it did not possess prior to the war.[63] There was even an emergent acceptance of the value of strategic air campaigns or at least a thought that the Navy had to be a part of them. As noted by Admiral William A. Owens in 1995, "the issue facing the nation's naval forces is not whether strategic bombardment theory is absolutely correct; it is how best to contribute to successful strategic bombardment campaigns."[64]

For the Air Force, Desert Storm was a vindication of the changes made since the early 1980s. The service almost immediately began to distance itself from the Army, going so far as to disband the TAC and stand up Air Combat Command in its place. Airmen such as Major General Charles D. Link made bold claims such as, "The fact of the matter is that air power is the valuable commodity of combat,"[65] and "campaign success now depends on superiority in the air more than it does on surface superiority."[66] Some went much further than that in asserting that airpower now was the ultimate U.S. arbiter in defeating enemy armies. In all this euphoria over U.S. Air Force commanded victory, nowhere did calls for the absorption of sister service airpower appear. Even while declaring airpower to be the valuable commodity in combat, General Charles D. Link stated that the Air Force "has no designs" on sister service aircraft, dismissing them built only to support specific niche areas.[67]

Summary

After Vietnam, the services retreated into their unique worldviews and fought budget battles over parochial interests while generally ignoring the sister services. When the time for combat emerged such as during Operation Urgent Fury, the services primary interest was de-confliction between themselves, not in finding synergies and increases in effectiveness. However, the world was changing around them. For the Air Force, the leadership that emerged in the World War II era was retiring and the Falklands demonstrated that the stigma against nuclear use was at such a high degree that lesser powers were free to act as if they did not exist. Nuclear weapons had lost the power to deter limited war, at least between greater and lesser powers.

For the Navy, the writing was on the wall that its historic independence was ending. Though it fought with extreme tenacity against not just the creation of nearly every unified command but against Goldwater-Nichols, it ultimately lost the argument. Jointness would carry the day and with that, jointness would come a JFACC. The maddening lack of clarity on what a JFACC should look like, or even what responsibilities it would have would shape U.S. Air Force and U.S. Navy decisions on how to treat it.

For the U.S. Air Force, doctrinal acceptance of a JFACC was the culmination of forty-three years of effort. The U.S. Air Force expended great effort to develop systems, communications, and planning capabilities that would allow it to fight the totality of joint airpower at the operational level. For the Navy, the JFACC was much more a coordinator, a manager who would do the CinCs bidding. Since the CinC was free to create and recreate the JFACC to suit the local situation, the Navy did not feel compelled

to go for broke in developing and fielding the same communications and planning capabilities afloat. The technological challenges of doing so combined with the uncertainty of the shape of the JFACC did not make a compelling argument.

General Schwarzkopf's decision to allow Lieutenant General Warner to fight the JFACC as the U.S. Air Force saw fit decisively answered the question of what a JFACC would look like. In a single stroke, every barrier, from service mask, doctrine, technology, and threat were overcome. As the CinC, Schwarzkopf had combatant command of the carriers and the fleet. Uninterested in Navy independence, he insisted that anyone who wanted to fight the airpower fight in the Gulf would do so on Warner's terms. The Navy lacked the technology and planning system to counter the ATO system that Warner already had in place, and the other world threat, the Soviets, had melted away just a year ago.

The masks of the services are largely immutable and continue to drive service desires. However, with the power of the services to independently control their own destinies thwarted by Goldwater-Nichols, joint interoperability filters the expression of service masks. Alternatively, thought of another way, only by maximizing joint interoperability can the services express their interests. Because a CinC, now termed a geographic combatant commander, requires joint warfighting capabilities, the less interoperable a service capability is, the greater its detriment to the service becomes. For the U.S. Navy, the push to modernize its airpower capabilities was a direct reflection of the realization that only joint interoperable capabilities allow the Navy the opportunity to meaningfully be forward deployed. Carrier airpower unable to organically solve rules of engagement criteria, unable to hit a target with a precision guided weapon, or more

recently, utilize a common network for identification, is irrelevant. The absence of fully engaged Navy personnel in JFACC planning could preclude the airpower roles that justify the existence of Navy carrier aviation. The threat was no longer that another service would take carrier aviation away; it was that carrier aviation would become irrelevant to the future fights if it did not interoperate jointly. This was truly a brave new world for the U.S. Navy.

It is a truism that battlefield victories are not as instructive as defeats and that Navy treated the victory of the Gulf as a defeat of its entire Maritime Strategy. However, from that defeat the Navy quickly recreated itself as a forward deployed, joint interoperable fighting service that could hazard any target with a full range of precision effects.[68] The demise of the Soviet Navy allowed the space to shift interest from counter sea and sea control to shore targets.[69] This would be borne out during the years of conflict that followed Desert Storm.

If Desert Storm was the end of the Maritime Campaign, its airpower replacement was found in the crucible of ten years of steady state air policing. Operations Northern Watch and Southern Watch found U.S. Air Force and U.S. Navy aircraft flying and fighting together on a daily basis. This continuous interaction allowed a merger of cultures and styles to emerge.[70] The integration of the two services is now such a part of the culture of both services that as Benjamin Lambeth writes:

> one today might easily encounter an Air Force F-15 or F-16 pilot, a Navy F/A-18 pilot, and a Marine Corps AV-8B pilot in an animated three-way conversation about strike-force employment tactics at Nellis Air Force Base, Nevada, Naval Air Station Fallon, Nevada, or Marine Corps Air Station Yuma, Arizona, and be unable to tell which pilot was from which service without looking at the nametags and unit patches on their flight suits.[71]

The result of this was that Navy carrier aviation no longer operates as an individual and autonomous capability but as a massed force capable of generating and sustaining as many sorties a JFACC may require to meet campaign goals.[72] Ultimately, Goldwater-Nichols combined with the victory of Gulf War I was more successful in integrating the U.S. Navy and U.S. Air Force than the entirety of World War II.

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[44] Cohen, *Gulf War Air Power Survey: Volume IV*, 36.

[45] Hinton, 30, 31.

[46] Ibid., 153.

[47] Dr. Herman L. Gilster, "Desert Storm; War, Time and Substitution Revisited," *Airpower Journal* 10, no. 1 (Spring 1996).

[48] Ibid.

[49] Jeffery J. Clarke, *War in the Persian Gulf Operations Desert Shield and Desert Storm August 1990–March 1991* (Washington, DC: Center of Military History U.S. Army, 2010), accessed March 20, 2016, http://www.history.army.mil/html/books/070/70-117-1/CMH_70-117-1.pdf, 29.

[50] Cohen, *Gulf War Air Power Survey: Volume IV*, 35.

[51] Clarke, 32.

[52] Ibid., 56, 63.

[53] Ibid., 62.

[54] Michael A. Palmer, "The Navy Did Its Job," *Proceedings* 117, no. 5 (May 1991): 88-93. 92.

[55] Cohen, *Gulf War Air Power Survey: Volume IV*, 59.

[56] Ibid., 107.

[57] Hinton, 70.

[58] Lambeth, *American Carrier Air Power at the Dawn of a New Century*, 2.

[59] James L. George, "A Strategy in the Navy's Best Interest," *Proceedings* 117, no. 5 (May 1991): 114.

[60] Lambeth, *American Carrier Air Power at the Dawn of a New Century*, 2.

[61] James M. Smith, "Service Cultures, Joint Cultures, and the US Military," *Airman-Scholar* 4, no. 1 (Winter 1998): 3-17.

[62] Swartz.

[63] Lambeth, *Combat Pair*, vii.

[64] Lambeth, *American Carrier Air Power at the Dawn of a New Century*, 4.

[65] Charles D. Link, "The Role of the US Air Force in the Employment of Airpower," in *The Future of Air Power in the Aftermath of the Gulf War*, eds. Richard H. Shultz, Jr. and Robert L .Pfaltzgraff (Maxwell Air Force Base, AL: Air University Press, 1992), accessed March 23, 2016, http://aupress.maxwell.af.mil/digital/pdf/book/b_0048_shultz_future_of_airpower.pdf, 86.

[66] McCaffrey, 59.

[67] Shultz and Pfaltzgraff, 85.

[68] Swartz, 62.

[69] Ibid., 51.

[70] Lambeth, *Combat Pair*, vii.

[71] Ibid., 2.

[72] Lambeth, *American Carrier Air Power at the Dawn of a New Century*, XV.

CHAPTER 5

CONCLUSIONS

Airpower in the popular imagination, even before the Wright brothers' first flight, brought about a change in warfare so total that it fundamentally altered the experience of war. From its early beginnings, both the U.S. Navy and U.S. Army recognized the value of airpower and sought to utilize it in the defense of the nation. However, it also brought the services into conflict by blurring the distinction between landpower and seapower.

For the Army, airpower initially was a force multiplier for landpower. However, the experience became divisive as airpower advocates quickly began to call for an independent service. For the Navy, there was no call for airpower independence. Instead, airpower became an inseparable, combined arms enabler of seapower. This inseparability meant sister service control of Navy carrier aviation represented an existential threat to both Navy missions and stature. With the establishment of the U.S. Air Force, control of all airpower to maximize its effect became a U.S. Air Force service imperative. These conflicting views on the utilization of joint airpower came to a decision during the first Gulf War.

The success of the JFACC during Operation Desert Storm was due to a confluence of events enabled by the Goldwater-Nichols reforms and was best represented by the U.S. Navy's submission to the Air Force dominated JFACC structure. This thesis focused on three lines of effort to examine airpower and the JFACC concept. The first was an examination of the masks worn by the services. Services have personalities that are relatively fixed despite changes in leadership and will seek parochial solutions to service problems in the absence of an integrating force. Builder identified five patterns

that helped describe the personalities of the services: altars of worship; concerns with self-measurement; preoccupation with toys versus the arts; degrees and extent of intra-service distinctions; and insecurities about service legitimacy and relevancy.

In the words of David C. Jones, the Department of the Navy is the most strategically independent of the services—it has its own army, navy and air force. It would prefer to be given a mission, retain complete control over all assets, and be left alone."[1] This directly connects to its alter of worship; independent command at sea. This being Builder's "Godlike responsibility[2]" vested in a commander directly responsible for all aspects of the mission, born from a time when a ship's captain was totally out of communication once the ship crossed the horizon. The U.S. Navy's primary concern with self-measurement comes from the size of the fleet. Whatever the number specified, be it 1,000, 600, or 308, the Navy will constantly measure itself against this baseline and fret that it has yet to achieve it. In the toys versus arts aspect, the Navy overall values the institution of the Navy over its individual components. Though sailors may be attached to their ships, it is the institution that is most valued, not the equipment. Inside the service, there is a definite pecking order with fixed wing aviation owning the top rung of stature.

Finally, the Navy is supremely confident in its legitimacy, but has a far more difficult time providing metrics defining its relevance during interwar periods. With the U.S. Navy mask, there will always be elements of a search for independence, an oft-stated concern about its size, a loyalty to the institution over equipment, a definite hierarchical pecking order, and a definite sense of legitimacy.

The U.S. Air Force is a service obsessed with technology, an obsession that borders on possessing technology for technology's sake. Technology is the altar of

worship for it was technology that gave the Air Force its existence and it is what sustains the interest in the service by those who join it. This helps to explain how the service views its size. For the U.S. Air Force, numerical size is not nearly as important as the quality of the equipment. A handful of F-22s counts far more than the enormous number of older F-16s. The Air Force mask also identifies its equipment as its focal point, even over the service itself. Pilots are not just pilots, but pilots of particular aircraft first and Air Force officers second; and it is pilots who own the top rung of the service pecking order. The service has no question of its relevance but it is in legitimacy that the Air Force finds itself deficient. Strategic bombing is what gave the Air Force its independence and that is where it finds that legitimacy. To defend that legitimacy, the U.S. Air Force will advocate for some version of strategic attack as its primary answer for combat operations because that was the impetus for its independence. In light of these masks, the decisions and conflicts between the services become very understandable and to a degree, predicable.

The second question this thesis examined was the historical interactions between the services to illustrate the origins of airpower, historically demonstrated limitations of airpower and the origins of these masks of war. Though the U.S. Army was the first military service to procure an aircraft, the first great test of airpower came from the Europeans during World War I. The belligerents during that war defined the path of airpower. The majority of airpower mission recognizable today were pioneered during the war, including reconnaissance, close air support, interdiction, and bombing. Specialized aircraft types from fighters to primitive cruise missiles were all created during the war. Despite the weight of effort dedicated to the production of aircraft and the

search for offensive uses of airpower, strategic attack was the one capability that airpower could not deliver. Though conceived as independently war winning, airpower during World War I did not accomplish that goal.

During the interwar period, the British experience distinctly shaped American expectations. The British created an independent air force early after World War I in response to the wartime Zeppelin bombings and the enduring proximity of a foreign air threat. The Royal Air Force also absorbed British naval aviation, and did not return it to the British Navy until nearly the beginning of World War II. For the Army Air Corps, heavier, more capable bombers became the focal point of interest and design as the doctrine of strategic attack became the dominant idea for a path towards independence.

Due in great part to the Washington Naval Limitation treaty limitations, carrier doctrine developed organically as fleet exercises brought increasingly capable carriers and aircraft farther into the forefront of operations. However, it was not until the Pearl Harbor attacks that carriers became the principal offensive weapon of the Navy's combined arms task forces.

The first real test of U.S. Army airpower in World War II was during Operation Torch in North Africa. Initially, planners split airpower assets into three components, ultimately controlled by a ground commander. Reorganized by Franklin Roosevelt and Winston Churchill after a poor performance, the Northwest African Air Force grouped forces by function, not nationality and placed them under a single commander. The near immediate success these changes brought about impressed the U.S. War Department, Churchill, and Eisenhower.

The three primary lessons of the airpower experience in Operation Torch were the primacy of air superiority, the need for cooperation between air and ground units, and the importance of centralized control of airpower. The publication of FM 100-20 cemented these lessons into doctrine.[3] Despite the change in doctrine, the Eighth Air Force successfully argued Combined Bomber Offensive assets should be both centrally controlled above the theater level and operated prior to achieving air superiority. The decision to send unescorted bombers into Germany, in daylight, prior to achieving air superiority, was made precisely because daylight precision bombing was the advertised key to achieving the war winning effects of strategic bombing.

Instead of crippling the German war effort, this unescorted bombing nearly resulted in the total destruction of the Eighth Air Force. It was not until the near total attrition of the Luftwaffe by drop tank equipped P-47s and P-51s that the Combined Bomber Offensive could continue. Even after the air-to-air threat was eliminated, the much hoped for strategic effects of the bombing did not cause Germany to fold. The collapse of Germany ultimately required the ground invasion of the Soviet and American forces.

The Pacific theater was the last opportunity for the AAF to prove that airpower alone could decisively end a war. However, by the time the AAF began to bomb mainland Japan, the Japanese no longer had the military means to achieve national goals. Militarily, the Japanese had been defeated but the government had not surrendered. In an effort to compel unconditional surrender, the AAF destroyed nearly every major city in the entire country. However, this did not limit the political options available to the Japanese. Only the Soviet declaration of war closed the political options and forced the

Japanese into surrender. Thus, despite its material contributions toward the downfall of Japan, even nuclear-armed airpower was shown to be unable to independently decide a conflict.

Since the end of World War II, the door to great power total war has remained closed. The newly established U.S. Air Force argued the nuclear dominance enjoyed by the United States could not only prevent war between major powers but also deter wars by lesser powers as well. As both Korea and Vietnam showed, this was not to be the case.

The Navy entered the Korean War prepared both in mask and doctrine. The service retained the capabilities necessary to fight a conventional war. The relationship between the Navy and Marine Corps was effective, Navy carrier aviation provided a capability overmatch against the North Korean air threat and the total dominance of sea control canalized North Korean resupply lines entirely to land lines of communication. The Navy was initially ambivalent about whether CAS or interdiction would be the most important element, which it could bring to the fight but initially selected CAS. Due to the retention of the exquisite CAS system developed in World War II, the Navy and Marine Corps team was able to deliver immediate effects to the front lines from day one. The Navy ended the CAS fight only after being forced to use the Air Force system. At the end of the war, the service was pleased by both its performance and its retention of independence.

The U.S. Air Force was unprepared, both in mask and doctrine, for the Korean War. The service had focused nearly exclusively on developing itself into a nuclear strategic bombing force. The problem was, there were simply no strategic targets such a campaign could target. Not only was nuclear strategic bombing inadequate for the task, it

was also inappropriate because even if strategic targets existed, the chance that the president would authorize nuclear fires was zero. Yet, the U.S. Air Force remained frustrated at its inability to use nuclear weapons during the Korean conflict. It was in this light that the Secretary of the Air Force insisted that the Air Force had nothing to learn from the conflict.

The Air Force insistence that there was nothing to learn carried directly into the Vietnam conflict, as the U.S. Air Force again emerged unprepared in mask and doctrine for conventional limited war. Ever searching for the elusive strategic targets, the high tech and extremely capable service was still unable to thwart the efforts of individuals pushing bicycles down the Ho Chi Minh Trail. Though the Linebacker II raids forced the North Vietnamese back to the bargaining table, it was not because those strikes destroyed previously off limits targets. The targets of Linebacker II were the same ones as in Linebacker I and the general effect were to move the rubble around. It was the threat of "what do they bomb next" that brought the North Vietnamese back to the bargaining table and it was cease fire terms so favorable to the North Vietnamese that it jeopardized the existence of South Vietnam that ended U.S. involvement. With the departure of American forces, the North completed the invasion and takeover of South Vietnam.

It was the change of the World War era leadership with the fighter pilots of Korea that brought about the most significant changes in the Air Force. The TAC began to tie itself to the U.S. Army and created the AirLand Battle concept. Airland battle utilized the U.S. Air Force as a shaping tool for Army maneuver, attriting follow on echelons prior to their engagement by ground forces. The U.S. Air Force used this doctrine in the first Gulf War. The Navy did not significantly change in mask and developed the Maritime

Campaign, focused on open ocean combat and attacking the periphery of the Soviet Union as its doctrinal focus.

Coalition forces in Operation Desert Storm amassed an immense airpower armada, utilizing doctrine very appropriate to the threat, in an environment almost ideal for the employment of airpower. That airpower, in nearly ideal circumstances, was unable to defeat the Iraqis demonstration of the hard stops of conventional airpower. Despite both the coalition and Iraqis battling over limited objectives, the coalition's asymmetric airpower overmatch did not compel the Iraqi army to quit the field much less affect the political stability of Iraq, or affect the population's will to continue. These examples do not support the argument that airpower alone provides a unique war winning capability.

Third, this thesis looked at service interaction after Goldwater-Nichols to demonstrate how the legislation incentivized the services to express their masks differently while enabling the services to overcome the doctrinal, technological, and threat based opposition to JFACC. The JCS system, invented during World War II, vested an enormous amount of power in the hands of the top leadership of the military. The JCS system placed service chiefs in the operational chain of command of their respective forces at a level above the ostensible senior warfighters, the CinCs. The service chiefs used their power to build entrenched fiefdoms working toward parochial interests. Because a service mask is the expression of the service culture, and the service chiefs retained their core service identities, parochialistic results were inevitable. The JCS system, beholden to the service masks worn by the service chiefs, ultimately valued the independence of the individual services over that of joint warfighting.

The success of Goldwater-Nichols was that it transferred the service's expression of its mask from primarily parochial to joint interests. This was due to the elevation of the CinCs as the senior warfighters. With the service chiefs relegated to manning, training and equipping the forces for the CinCs, service value to the CinCs became the overriding priority. Jointness does not mean, or at least should not mean, that every service is equally important and equally used in every operation. This exact situation was occurring before Goldwater-Nichols. However, it does mean that the CinC has the option of using a variety of interoperable capabilities from across the force to accomplish the mission. In order to be part of that force accomplishment, service capabilities had to interoperate. In other words, expression of service culture now had to support jointness or it would not be used.

Nearly concurrent with the passage of Goldwater-Nichols was the publishing of JP 26, the first explicit definition of a JFACC. This definition of JFACC did not initially clear up what a JFACC should do because its processes were defined in a way that allowed maximum flexibility for tailoring by the CinC, making processes and technology initially more difficult integrate. With these questions in mind, the Navy and the U.S. Air Force took different tracks on how to implement the JFACC construct based on service views. For the Air Force, a JFACC was an airpower commander capable of providing centralized command while allowing decentralized execution was the goal. To this end, the U.S. Air Force developed a planning process, network connectivity, electronic tools, and products such as the ATO, which would allow the JFACC to act in such a capacity. As a shore-based element and in keeping with the historical U.S. Air Force understanding of a single air power commander, this was an entirely sensible track.

The Navy did not build an analogous system. The difficulties of duplicating the planning process, network connectivity and tools aboard ship was an extremely expensive and difficult process. The Navy's command and control construct, command by negation, differed significantly from the Air Force command and control philosophy and the services were at odds about whether the JFACC would be an airpower commander or simply a coordinator. Finally, since the CinC had the freedom to redefine JFACC in any way for any conflict, the entire investment may have gone unutilized. That the Navy's view of a JFACC may well have resulted in a repeat of the Vietnamese route packaging system represented, in the Navy's view, another sensible approach to JFACC.

It was the Iraqi invasion of Kuwait that set the stage for the decision on joint airpower utilization. The CinC, who also operated as the Land Component Commander, initially lacking the landpower means to defend Saudi Arabia, required a robust airpower response to defend against further Iraqi aggression. Though knowledgeable on landpower, he was sufficiently unsure of how to utilize airpower that he gave broad discretion to Lieutenant General Horner, his JFACC, to craft the airpower fight. As the CinC had control of the carriers as well as the fleet, there was no operational means by which the Navy could contest the decision. The Navy did not possess an ATO equivalent planning and communication capability and could not provide a competitive planning capability for the air war. Warner was not going to allow for a route package system analogous to Vietnam, which forced the Navy to interoperate. The interoperability provided by U.S. Air Force tankers to provide IFR to Navy and Air Force receivers, and effective airspace de-confliction, guaranteed maximum airpower presence at any point over the battlespace. Finally, the fall of the Soviet Union eliminated the threat to carriers

by a third party actor. There were no cards left to play for the Navy to resist the JFACC and so the service submitted to the construct.

For the U.S. Air Force, Desert Storm represented a fantastic victory, one that allowed the service to claim legitimacy, relevance, and further separation from the Army. For the Navy, the war displayed that the operational concept, which drove its planning, was no longer relevant for the post-Cold War world. The Navy achieved only two air-to-air kills, lacked the appropriate weapons to attack select high value targets[4], and did not operate independently.

The U.S. Navy is a conservative organization to be sure, but just as the General Board made decisive changes to that reshaped the Navy in light of the reinforcement clause, so too did the leadership following the Gulf War. The Navy quickly shifted interest from sea control missions to becoming a joint interoperable fighting service that could hazard targets ashore with a full range of precision effects.[5] The crucible of ten years of steady state air policing in Operations Northern Watch and Southern Watch forced a continuous interaction between the U.S. Navy and U.S. Air Force allowing a merger of cultures and styles to emerge.[6] The fruit of this was seen in Operations Enduring Freedom and Iraqi Freedom. Unlike the short-range and small-scale strikes launched into Lebanon and Libya in the 1980s, carrier aviators routinely flew ten-hour long missions that ranged deep into the heart of Afghanistan and Iraq, the first of which was landlocked in the most remote part of Central Asia as part of a joint force.[7] All of these would have been unthinkable before Desert Storm and are the expected norm today.

This thesis examined three lines of effort: enduring masks of the services; the origins and limitations of airpower; and the effects of Goldwater-Nichols in incentivizing

the expression of service masks to jointness while overcoming the doctrinal, technological, and threat barriers to the establishment of JFACC. The Goldwater-Nichols legislation set the conditions that decided the current understanding of JFACC. From this legislation emerged American joint utilization of airpower as an integrated, fighting force capable of holding at risk nearly any target, anyplace and anytime, for the duration required to achieve the commander's objective.

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[1] David C. Jones, "What's Wrong with our Defense," *New York Times*, November 7, 1982, accessed February 20, 2016, http://www.nytimes.com/1982/11/07/magazine/what-s-wrong-with-our- defense.html.

[2] Builder, 18.

[3] Mcnamara, 20-22.

[4] Hinton, 140.

[5] Swartz, 62.

[6] Lambeth, *Combat Pair*, vii.

[7] Lambeth, *American Carrier Air Power at the Dawn of a New Century*.

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