



**STRATEGY
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ON POLITICS AND AIRPOWER.

BY

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ABSTRACT

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Airpower advocates point to the exponential increases in precision, stealth and power of modern air systems as proof positive of a new era in warfare. Yet such claims cannot be isolated from the political objective airpower ultimately serves. This paper explores the advantages and disadvantages of the strategic employment of airpower from a political perspective. The inherent political advantages are introduced first along with a summary of current strategic airpower theory. Next some of the limitations of strategic airpower are explored with examples. Finally, the political employment of US strategic airpower is summarized for each major conflict from World War II to Kosovo to illustrate how politics and airpower interact at the strategic level. Politics often drives strategy, playing to both airpower's strengths and weaknesses. The author concludes that while the advantages of modern US airpower make it an obvious choice for achieving national objectives, political leaders need to be aware of the long term cost and limitations of reliance on airpower as a strategic means.

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PREFACE

The many political paradoxes of strategic airpower have always fascinated me. While airpower's vision has often exceeded its strategic reach, the exponential gains we have made in targeting and precision delivery of weapons may usher a new age of less costly warfare. Unmanned vehicles, despite the ethical challenge they present, offer to take warfare even further. Yet all of this technology cannot be evaluated in isolation of the political impacts. This paper makes an attempt to balance the claims of airpower against its political limitations. Airpower, like any means, cannot be separated from the objective it serves. Therefore an evaluation of airpower must be in light of its interaction with politics at the strategic level.

I would like to express thanks to my family, particularly Miss Lisa for her support during this effort. My advisor, Col Gary Snyder, has also been a great friend and supporter. Thanks also to the US Air Force and Army for providing this unique opportunity to spend a year in the study of history, strategy and national policy.

ON POLITICS AND AIRPOWER

THE POLITICAL PROMISE OF STRATEGIC AIRPOWER

The political object – the original motive for the war – will thus determine both the military objective to be reached and the amount of effort it requires.”

- Carl Von Clausewitz, *On War*, Chapter 1

Airpower advocates are staunch in their defense of airpower as the new form of warfare. The deadly combination of US dominance in reconnaissance platforms, stealthy precision strike systems and real time information systems make possible the near-real-time targeting and all-weather destruction of targets undreamed of during the Gulf War. They argue that yet another Revolution in Military Affairs (RMA) has occurred and that has redefined warfare in the 21st century. Yet, as Clausewitz points out, it is the political object that is dominant in any consideration of utility. To consider airpower's incredible technical or military achievement in isolation from the political objective is foolishness. The claims must be evaluated in the light of their contribution to the overall political object and political utility. Airpower is therefore nothing more than a relatively new means to achieve the political objective. The decision to use airpower either alone or in combination with other means is a strategic choice. While military commanders might make this strategic choice alone, history has shown us that the strategic employment and limitation of airpower is often made at the political level. This section introduces the major claims of airpower's advantages from a political perspective. Later sections will place these claims under the harsh light of reality and explore the unstated political limitations of modern airpower. The final section will examine the politics of airpower in the major conflicts since World War II and present some lessons we can draw for the modern form of warfare.

ASYMMETRIC WARFARE AND CONVENTIONAL DETERRENCE

The combination of American precision airpower and information dominance has been hailed as the modern form of asymmetric warfare, leveraging technological superiority to achieve unprecedented military victory. The lethal combination of stealth, precision strike, satellite and airborne reconnaissance potentially allows any fixed surface target on the planet to be targeted and destroyed in a matter of hours. This uniquely American asymmetry provides such a dominant US advantage that it effectively serves as deterrence to potential enemies who might threaten US interests abroad. Air Force historian Richard Hallion calls airpower “the

Western world's asymmetric offset against opponents who are compelled by doctrinal choice, economic necessity, or the realities of technological circumstances to rely upon older and less relevant forms of warfare."¹ Some, including General Butler, former Strategic Air Command commander and General Horner, the air commander during the Gulf War believe that the US advantage is so large as to propose dismantling of US nuclear forces, arguing that conventional air forces can create near-nuclear effects at less cost and with less potential for an accident.² Politically, the US has been able to leverage the threat of US airpower credibly to deter and even coerce foes in a variety of situations. For example, the threat of airpower played a major role in convincing Milosevic to agree to the Dayton Accords.

PRECISE POLITICAL CONTROL

Airpower advocates shiver at the thought of direct political control, which brings up vivid memories of President Johnson selecting individual targets and routes to be struck at his "Tuesday luncheons" during the Vietnam war.³ Nevertheless, the susceptibility of modern airpower to political micromanagement is a significant advantage to political leaders. Airpower is centrally planned. Political leaders can centrally control classes of targets and even select individual targets tailored to limited objectives. In addition, the tempo, timing and pace of air strikes can be tightly controlled to support strategic goals. Given sufficient resources, one can increase the intensity of air strikes at will, or cut them off entirely at a moment's notice. Ground forces do not provide the same degree of direct centralized control or the ability to disengage immediately once engaged. Since airpower can be redirected at a moment's notice directly from Washington, it is possible to use airpower in areas where objectives are limited, and means must similarly be limited. This allows airpower to be flexibly applied across the full spectrum of geopolitical operations, especially where peripheral interests may not warrant the deployment of US ground forces.

FEWER CASUALTIES

Employing airpower inherently places fewer friendly forces at risk than employing conventional ground forces. A large air operation might place a few hundred airman at risk at any one time, while deploying a single army brigade potentially places thousands at risk. US technological dominance in the air further reduces this risk. As proof, both the Kosovo and initial Afghanistani campaigns are cited since no US airman lost their lives to enemy fire. In addition, airpower advocates make the claim that modern airpower results in fewer enemy civilian casualties because military targets can be directly struck with precision weapons that limit collateral damage. In contrast, a conventional ground force must defeat intervening enemy

ground forces and occupy civilian territories to destroy these same strategic targets, potentially at higher cost to the local civilian populace. Limiting friendly casualties clearly limits the domestic political cost of military action, while reducing collateral damage to the enemy provides political advantages both at home and abroad.

DIRECT ATTACK ON THE ENEMY'S WILL

Early airpower advocates such as Giulio Douhet, writing in the aftermath of the horrific First World War, proposed using the third dimension not to attack enemy fielded forces, but to bypass them and strike directly at the enemy's will.⁴ The promise of airpower is to avoid a war of attrition by striking directly at the enemy's heart, or main center of gravity. Which targets comprise the center of gravity is a matter of considerable debate to this day, and will be explored more fully in this paper. Nevertheless, airpower offers an alternative to previous forms of warfare by allowing us to strike at the enemy homeland without first destroying intervening armies. As Clausewitz notes, "...three broad objectives which between them cover everything. They are the military power, the country and the will of the enemy."⁵ Airpower can strike at all three simultaneously and immediately. From a political perspective, the enemy's war making capability and leadership can be directly struck from the very beginning of the war, creating immediate danger and political pressure on a state's leaders to erode their will.

POWER PROJECTION

Modern airpower represents the most rapid and lethal means for projecting US power globally. Whether it is a B-2 operating directly from Whiteman AFB in Missouri, or Tomahawk Land Attack cruise missiles and aviation from a carrier battle group, the US uniquely possesses the ability to rapidly project overwhelming airpower to any regional conflict. The fact that substantial land or sea-based airpower can be projected worldwide more rapidly than conventional ground forces is a significant strategic advantage for the United States. In addition to the deterrence value, rapid power projection allows limited US air forces to flexibly respond to developing political situations. The ability to project airpower globally is a unique capability of the United States, and therefore provides a unique geopolitical and strategic advantage to US forces.

STRATEGIC FLEXIBILITY

The ability of airpower to be reconfigured for many different kinds of missions and rapidly projected worldwide provides tremendous strategic flexibility. The same command and control plane that is monitoring drug missions in the Caribbean one day can be used a day or two later

to direct fighters in combat. Transports can be used to haul precision weapons to one location and humanitarian aid to the next. Politically this gives the President and Secretary of Defense a tremendous menu of strategic options to select from and allows the US to engage in a full spectrum of operations worldwide to enhance and protect US interests.

INFORMATION DOMINANCE

Air and Space reconnaissance platforms create a unique worldwide capability to monitor and intercept enemy deployments, movements, communications, and assess intent. In addition, the tremendous integration of these platforms with US command and control systems that has taken place since Desert Storm now allow near real-time identification and targeting of the enemy. The Open Skies treaty allows overhead systems to monitor territory that is inaccessible using other platforms. From a political perspective, the unique intelligence gathering capabilities provided by US assets provide both a peacetime and wartime advantage by increasing worldwide situational awareness and in many cases intercepting the movements and intent of the enemy before a crisis develops. The recent integration of special operations forces and CIA operatives publicized in Afghanistan provide complimentary information to enhance that gathered by air and space assets. Politically this can provide a huge advantage in negotiations, and peacetime engagement as well as military operations.

RAPID VICTORY

US airpower is an asymmetric worldwide strategically flexible force that can attack directly at the enemy's centers of gravity with minimal friendly casualties. The sum of these effects, airmen claim, is a more rapid victory than is possible using conventional forces alone. While most theorists discount the idea that airpower should ever be used alone as it was in Kosovo, many believe that the exponential growth in technical capability and capacity of US airpower reduces the role of conventional ground forces in future conflict. Applying airpower for strategic objectives decisively from the outset of a conflict will result in a short conflict with relatively few friendly casualties. Politically, a short conflict is desirable domestically, particularly in a democracy where public will must be maintained. Similarly a short war is more acceptable in the international arena where allies and coalition partners must be retained.

SUMMARY

It is clear to see why airpower offers a politically attractive alternative to conventional force. The promise of few casualties, worldwide mobility, rapid victory, precise political control, and the asymmetric US technological advantage appear to make airpower the weapon of choice

as we begin a new century. One might conclude as President Johnson did that airpower is an awesome weapon that must be tightly controlled lest it spark World War III. One might be led, as some political leaders were during the Kosovo campaign, to believe that airpower alone can win any conflict. Yet airpower does not come without strings attached. In the next two sections we will examine the basic theory of airpower and some of its limitations in an attempt to determine some of the strengths and limits of airpower application.

AIRPOWER UBER ALLES – THE AIRMAN’S PERSPECTIVE

The colossal maneuvers of the coalition armies in the deserts of Kuwait and Iraq in 1991 may in retrospect appear, like the final charges of cavalry in the nineteenth, an anomaly in the face of modern firepower.

- Eliot Cohen⁶

Some believe we have entered an era of *Airpower Uber Alles* – “*airpower above all.*” Airpower advocates provide much promise to the political leader, but to deliver on these promises they also believe airpower *must be employed in a certain way.* It is not enough to merely select targets and bomb them. The tenants of the airman prescribe how airpower should be employed, how targets should be chosen and who should be in control of aerospace assets. While the airman’s doctrine is concerned with details primarily at the operational level, their implementation has strategic and geopolitical implications. As we will see in the fourth section it is primarily this conflict between the operational doctrine and politics that fuels the fire between airmen and their political leaders. It is important, therefore, to provide an overview of the fundamental tenants of airpower employment from an airman’s perspective before examining the limitations of strategic airpower employment. The ten prepositions below are summaries of Meilinger’s Ten Propositions Regarding Airpower, which provides one of the best concise overviews of modern air doctrine.⁷

AIRPOWER IS INHERENTLY A STRATEGIC FORCE

One of the most controversial tenants of airpower is the airman’s belief in the primacy of the strategic, rather than tactical employment of airpower. Airmen argue that airpower, by exploiting the third dimension, effectively compresses the lines between strategic and tactical operations. One no longer needs to defeat an intervening army to attack the enemy capital or destroy his factories. One can strike directly at the will and capability to make war. In the extreme, airmen argue that strikes against most tactical targets such as fielded enemy forces is a waste of airpower because it dilutes the focus on key centers of gravity. Airpower should be

used to attack tactical targets only to the degree that they directly support a strategic center of gravity.

In contrast, Clausewitz argues that "...to overcome the enemy, or disarm him—call it what you will—must always be the aim of warfare."⁸ He further says that the most important act for defeating the enemy is "1. Destruction of his army, if it is at all significant."⁹ In Clausewitz's time, the enemy army was the center of gravity, the defeat of which ultimately resulted in total victory. Soldiers argue, therefore, that airpower should be used as another form of fire in support of tactical forces engaging the enemy army. The conflict between the airman's perspective and soldier's perspective over the amount of airpower to be devoted to tactical versus strategic targets is a source of constant tension that is frequently misinterpreted by political leadership.

AIRPOWER IS TARGETING, AND TARGETING IS INTELLIGENCE

If airpower possesses the potential to destroy any unburied target, the dilemma of airpower employment becomes a simple question of which targets to destroy and in which order. Since airpower is finite, targets must be prioritized and assigned to ultimately achieve the desired political objectives, and not to merely wreak destruction. This depends upon accurate and timely intelligence of large enemy systems as well as the individual targets within them. Both the importance of a target in the scheme of the military objective must be known as well as its vulnerability to air attack. Finally, intelligence must be available to accurately gauge the effects of an attack on the whole system. Without accurate intelligence one of the following will happen: the wrong target may be selected, the target struck may have no relation to the objectives of the campaign, or the right target might be struck, but damage assessed incorrectly, leaving an operational enemy. As a result, the US Air Force has invested heavily not only in reconnaissance platforms, but also the information systems needed to process and disseminate intelligence to the warfighter. While substantial strides have been made in gathering and distributing targeting intelligence in the last 10 years, assessing the real effects of air operations in terms of enemy capability and will still remains an art form.

In addition, the direct tie from tactical targets struck to meeting real strategic objectives can often be subjective and circuitous. This critical realization has led to a modification of Meilinger's propositions in the form of Effects Based Operations (EBO).¹⁰ Effects Based Operations focus not on individual targets but the strategic and operational effects that the warfighter wants to create. Using systems-based intelligence, one then determines the best targets to hit in parallel to create the desired effect on the entire system. In many cases, effects

based operations are more efficient than merely servicing a target list in priority order because all targets in a given system need not be destroyed to create a system-wide failure.

AIR SUPERIORITY IS THE FIRST PRIORITY FOR AIR FORCES

US Forces have not suffered a casualty to enemy bombing since 1953,¹¹ and with the exception of Vietnam, US forces have enjoyed a long string of victories under the cover of friendly air forces. Since airpower came of age in WWII, whoever controlled the air battle would also shortly win the land or sea battle. There are two basic impediments to achieving control of the air, namely enemy air forces and air defense systems. To achieve local air superiority, both must be defeated over the intended area of operations. Achieving air superiority is therefore a prerequisite to engaging in a large-scale air offensive, so air superiority is the first priority for airmen. If sufficient forces are available, other targets may be struck in parallel, but the defeat of enemy air forces and air defenses is always paramount in the airman's mind.

AIRPOWER IS PRIMARILY AN OFFENSIVE WEAPON

Airpower turns on its head the concept of force ratios and the inherent advantage of the defensive. While in conventional land warfare the defense is always seen as stronger form of warfare, in the air this is not so. The aerospace sphere is large and an attack may be mounted at any point from any direction potentially with one's entire force simultaneously. It becomes impossible to defend all areas equally without dispersing and diluting one's force. Defending in such a manner would give the enemy de-facto local air superiority through massed offensive forces. In addition, airpower knows no front lines, there are no flanks to turn, and there is no terrain to channel an enemy's forces along. The advantage in air is gained by taking the offensive and striking first. Therefore air forces operate with no reserve, and are used offensively to strike an enemy's critical targets from the outset. To employ airpower in defensive positions awaiting an enemy attack is a dangerous and potentially fatal mistake.

AIRPOWER PRODUCES PHYSICAL AND PSYCHOLOGICAL SHOCK BY DOMINATING THE FOURTH DIMENSION TIME

Massed airpower can create devastating physical destruction over a fairly broad tactical area in literally an instant of time. A single B-52 carrying 2000lb Joint Direct Attack Munitions (JDAMs) can precisely destroy over a dozen targets in a single pass with no warning and leaving no trace other than a trail of destruction in its wake. Planes operating in mass in a coordinated attack can create havoc over an area and be timed within seconds of each other. The tremendous psychological impact of these precisely timed yet unwarned attacks can be

overwhelming. The ability of airpower to operate with great speed and surprise over at any point at any time over the battlefield can sometimes substitute for mass. If force can be unexpectedly applied at precisely the right place and moment with complete surprise it can often overwhelm an unprepared foe. As airpower legend John Boyd said in his unpublished but widely circulated theory, the goal is to get inside an enemy's *OODA* (observe, orient, decide, act) loop by observing, deciding and acting faster than the enemy can react to create a crushing psychological strain on the enemy mind. The goal is to overcome the will to fight by dominating time. Airmen will therefore seek to create an extremely rapid, high tempo air operation that masses effects in time as well as space for maximal erosion of the enemy's will.

AIRPOWER CAN CONDUCT OPERATIONS AT ALL LEVELS OF WAR SIMULTANEOUSLY

The inherent flexibility of airpower allows it to be used for a variety of missions simultaneously including air superiority, strategic attack, interdiction, close air support and many others. Airpower can conduct these missions simultaneously across the entire spectrum of a conflict as long as air superiority is established over the operating area. Airpower, unlike ground forces, need not engage in a counterforce battle as a prerequisite to strategic attack. This simultaneous, or *parallel attack* can create parallel effects, leaving the enemy with multiple crises to deal with. The goal of parallel attack is to create *strategic paralysis* wherein an enemy faced with simultaneous breakdowns at the strategic, operational and tactical level loses its effectiveness and ceases to operate as a coherent force. Given sufficient airpower and targeting carefully designed to create certain effects, it is theoretically possible to create total strategic paralysis, effectively breaking an enemy's will to fight. Airmen will seek to simultaneously strike key strategic, operational and tactical targets in the hope that combined effects will create strategic paralysis in the enemy.

PRECISION AIR WEAPONS HAVE REDEFINED THE MEANING OF MASS

The concentration of force and fires to break through an enemy defense is called mass. An inherent advantage of airpower is its ability to concentrate or mass on virtually any point in support of operational or tactical objectives. Unfortunately, airpower is a precious resource and early airpower required a substantial number of airplanes to destroy a single target with high probability and acceptable losses. The ability to mass was limited by lack of precision and capable enemy defenses. For example in World War II, to destroy a single small house with high probability required a force of 4500 medium bombers accounting for both the high loss rate and low precision.¹² By Vietnam this number had dropped significantly to approximately 95 aircraft. By the time of Desert Storm, a single stealth aircraft carrying two bombs could

accurately hit the same target with very low probability of loss. Since Desert Storm, the JDAM precision satellite guided weapon has proliferated to many US airplanes, and now a single aircraft such as the B-2 and B-52 can actually destroy a dozen or more targets in a single pass. This unique ability to mass airpower with high precision at any point with no warning has substantial strategic, operational and tactical application since any target is potentially held hostage to mass air attack.

AIRPOWER SHOULD BE CONTROLLED BY AIRMEN

Airmen believe that the unique characteristics of airpower and its employment mean that airmen should control it. Just as developing professional ground or naval commanders requires 20 years or more of specialized training, the development of an air commander is equally difficult. In addition, since airpower is used centrally at the operational and strategic level, an air commander must have a broad perspective of air weapons and their employment. Airmen also believe in centralized control and decentralized execution. The disaster of decentralized air control in North Africa in WWII adequately demonstrated this. Though airmen may deploy in wings or squadrons, they do not fight in wings or squadrons, but in ad-hoc packages tailored individually for each operation and each target. Air assets that may be launched from anywhere in the theater, fly to orbit points to refuel, and travel varied routes to precisely strike a target, all the while providing overlapping support for each other. Coordination of this delicate ballet is best centrally planned by airmen. Airmen therefore wish to centrally plan and execute all air operations in a given theater.

TECHNOLOGY AND AIRPOWER ARE INTEGRALLY AND SYNERGISTICALLY RELATED

Airpower has its roots in technology and depends more than other services on the synergistic relationship between the two. Technology to a very large degree determines the precision, effectiveness and survivability of air platforms. In the era of beyond visual range sensors and air weaponry technology's influence is preeminent. Considering the increases in technology since WWII with the introduction of space assets, precision weaponry, stealth, missiles, it is impossible to separate the development or employment of airpower from technology. The preeminence of the US Air Force is built largely on superior technology, and all US airmen have an interest in maintaining this technological edge.

AIRPOWER INCLUDES NOT ONLY MILITARY ASSETS BUT ROBUST CIVILIAN AVIATION

Airpower cannot be isolated to the military alone. As Billy Mitchell said in 1921, "Transportation is the essence of civilization."¹³ A robust military air force requires both a robust

aviation industry and a strong civilian aviation element. These create the technological and industrial base needed for peacetime and wartime production. They also supply a civil aviation fleet to supply trained pilots and surge capacity transport necessary for war. The US Civil Reserve Air Fleet provides 90 percent of the wartime passenger capability and 30 percent of the cargo hauling capability.¹⁴ The dominance of the US commercial aerospace industry in no small way corresponds directly to US dominance in military airpower. U.S. civil aviation supported a \$151B industry in 2001, of which only \$34B were foreign or domestic military sales.¹⁵ The civilian and military arms of the US work synergistically to enhance the technology and capability of our airpower and airmen.

SUMMARY: THE AIRMAN'S PERSPECTIVE

Meilinger's 10 propositions listed above, modified with the addition of Effects Based Operations, provide a summary of current thought in airpower theory. Airpower is considered an extremely powerful weapon for breaking the will of the enemy, but it must be used in a certain way. Airpower must be used offensively, and not defensively. Airpower should be reserved for strategic purposes and not wasted on indecisive tactical action. Airpower relies very heavily on intelligence because without it no connection can be made between bombs dropped and the strategic object. The mission of Air Superiority is a prerequisite to unrestricted air action. Airpower cannot be deployed piecemeal or in an escalating manner. To produce shock and dominate the fourth dimension of time, airpower must be used overwhelmingly from the start of conflict. Slow escalation only dulls airpower's sharp edge. Airpower should attack targets at all levels of war in parallel to create strategic paralysis. The thousand-fold plus gain in strike precision have redefined what it means to mass airpower, in some cases requiring only a handful of planes to create dramatic effects. Airpower, and indeed targeting should be controlled and employed by airmen that understand its strengths and weaknesses. Airpower and technology are intrinsically and synergistically linked. US dominance in the air is a direct result of its technological advantage. Finally, robust commercial and industrial aviation is critical for a strong Air Force.

Adhering to these propositions should result in success for the airman. Air theorists are quick to point out that places where airpower failed to achieve its objective, such as the Rolling Thunder campaign in Vietnam, are marred by one or more violations of these propositions. They are also quick to point to the politician, President Johnson in this case, as the source of failure. As we will see in the coming analysis, airpower theory, while it captures some of the inherent pitfalls in air employment, has some inherent assumptions that often go unwritten by

leading theorists. Next we will examine some of the limits inherent in the practical employment of airpower.

THE LIMITS OF AIRPOWER

Bombing is often called 'strategic' when we hit the enemy, and 'tactical' when he hits us, and is often difficult to know where one finishes and the other begins.

-Air Vice-Marshal J. E. 'Johnnie' Johnson, RAF

THE TRUE MEASURE OF AIRPOWER

Airpower is only effective if it supports the political objectives of the state. As Clausewitz says "... it is clear that war should never be thought of as *something autonomous* but always as an instrument of policy; otherwise the entire history of war would contradict us."¹⁶ Airpower as a means cannot therefore be separated from its object. Alternatively, as Clodfelter puts it, "... the supreme test of bombing's efficacy is its contribution to the nation's war aims."¹⁷ The effectiveness of airpower is therefore not measured in numbers of targets, tanks or buildings destroyed. Even the Air Force's concept of "Effects Based Operations" may miss the mark if the effects produced are not related to the object of bending enemy will. Creating "Strategic Paralysis" and getting inside the enemy's OODA loop may be insufficient if it does not compel an enemy to do our will. An air operation, whether done jointly or alone, can only be measured in terms of its contribution to the overall objective. Airpower must be directed at the enemy's will. Its effectiveness can only be evaluated by assessing airpower's contribution to achieving that objective. This is the political value of airpower that will form the basis for the analysis that follows.

In the same passage as the quote above, Clausewitz introduces a second and critical point: "The first, the supreme, the most far-reaching act of judgment that a statesman and commander have to make is to establish by that test the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature."¹⁸ This concept will become central to the political analysis that follows. We will find that airpower most often reaches its limit as a means when it is applied to a type of war for which it is ill suited. Airpower is capable of many things, but airpower alone is no panacea. Just as individual instruments of power each have limits on the grand strategic level, airpower too has its limit at the strategic level. Airpower alone cannot achieve even many military objectives

much less all political objectives. Airpower must be employed on the grand strategic level in combination with other forms of military, diplomatic and economic power.

POLITICAL LIMITS ON AIRPOWER

The "Airpower Uber Alles" doctrine previously discussed points to a critical limitation of airpower as a means. To be used "properly" airpower must be employed in certain ways. Airpower must be employed strategically against enemy centers of gravity. It must be concentrated in space and time to produce psychological as well as physical shock. Airpower should not be employed by gradual escalation, but should be massed and used at all levels of war simultaneously to produce strategic paralysis. Airpower should be used offensively and not defensively. Airpower should be used to strike directly at the will of the enemy, and John Warden points out that it should strike enemy leadership directly if possible.¹⁹ Yet what is the outcome if political objectives do not support the immediate overwhelming strategic application of airpower? As Clausewitz points out, "War is never an isolated act."²⁰ Political will and the political objective often work to limit war and carry it away from the extremes of the ideal case. Limited wars, for example, are executed to achieve limited objectives short of total enemy destruction. These limits, by their very nature, inhibit the application of military force often in negative ways. Even worse, if the political leadership fails on the grand strategic level to correctly determine "the nature of the war," they risk applying entirely the wrong military means to achieve their objectives. Never was there a better example than the Rolling Thunder Air operation executed by the United States in Vietnam from 1965-1968.

Clodfelter, in his analysis of the Vietnam War titled The Limits of Airpower argues that airpower's failure in Rolling Thunder is due in no small part to the excessive use of "negative" objectives or restrictions. He carefully defines "positive" objectives as "those that were obtainable by applying military power" while "negative" objectives are those obtainable only by restricting military power.²¹ In detailed analysis, Clodfelter demonstrates how President Johnson's negative objective of avoiding escalation with China and Russia comes to overshadow the positive objective of winning the war in Vietnam. Johnson's now legendary restrictions include not only types of weapons and targets, but also sortie rates, bomb loads and even routes of approach to individual targets.²² Targets near Hanoi and Haiphong were totally excluded and B-52 strikes were almost totally limited to tactical air support at or below the demilitarized zone. Tight control on the pace of the operations resulted in a very gradual escalation that robbed airpower of its psychological shock. The net result was not strategic paralysis of the enemy but a paralytic and ineffective air campaign. Airpower advocates point

quite correctly at Rolling Thunder as a prime example of how to politically assure that an air campaign will fail. Yet Johnson did not initiate and tightly control Rolling Thunder to assure its failure. Rather President Johnson weighed the political risk of the unrestricted bombing of North Vietnam and assessed that military failure was perhaps more acceptable than the potential escalation a superpower confrontation. In addition, Johnson feared diverting political capital away from his "Great Society" domestic program. Military means were simply subordinated to the political objective.

Rolling Thunder is by no means the last example of political objectives interfering with the effectiveness of an air campaign. In the 1991 Gulf War, though relatively few limits were placed on airpower, one saw a politically directed immediate halt on bombing around major Iraqi cities after the February 13th raid that destroyed a civilian bomb shelter.²³ The objective to avoid civilian casualties outweighed the military objective of bombing Baghdad. Even when bombing of targets near cities resumed, each target had to be approved in Washington by political leaders. Political leaders put even more extreme limits in place during the Kosovo campaign. Targets had to be approved by a joint board of all 19 NATO nations, and a strategy of gradual escalation reminiscent of Rolling Thunder was used to slowly step up the pressure on Milosovich. Bombing around urban targets was severely limited due to European memories of capitals burning during WWII. Like Rolling Thunder, this completely eliminated the psychological shock element from the campaign, significantly drawing it out. Like the Iraqi campaign, political leaders determined at the time that the negative object of limiting civilian casualties outweighed the positive military object of winning by bombing near urban targets.

AIRPOWER DEPENDS UPON THE VULNERABILITY OF THE ENEMY

Airpower alone cannot achieve all objectives. Carl Builder in his book The Icarus Syndrome introduces a simple but valuable concept of airpower's limitations. He states concisely "Airpower can be employed decisively in war when an enemy's essential means for waging war are vulnerable to attack from the air."²⁴ His analysis is part of his chapter examining airpower's failure in Vietnam, but the axiom is universally applicable. Airpower is an industrial age weapon. Strategic airpower originally was focused on the vulnerable industry and cities created by the industrial revolution. As Builder points out, Air theory had its infancy in the post World War I era where theorists were searching for an alternative from the devastating trench warfare. Entering World War II, US air theorists focused on transportation and industrial targets precisely because these were perceived as vulnerable and supplied the nation's means for war.

Several corollaries follow from this vulnerability theory. Industrialization, how easy it is to target the enemy, and terrain all play a significant role in the effectiveness of airpower as a means. The centralization of resources, population and industry make an industrial state much more vulnerable than an agrarian state. A state such as Germany in World War II is therefore much more vulnerable to air attack than an agrarian enemy such as Korea or North Vietnam. The ease of target identification from the air is also critical for airpower. A conventional mechanized army is much more vulnerable to air attack than an unconventional guerilla army. Vulnerability also plays a key role when we consider terrain. A dispersed enemy in difficult terrain may be nearly impossible to target solely from the air, while on open terrain he may be extremely vulnerable. The corollaries that can be derived from Builder's vulnerability theory are nearly endless, but they all focus on two key capabilities required for airpower: first, the ability of airpower identify a target and second the ability of airpower to destroy it. If both cannot be done reliably, then airpower cannot be effectively employed.

Applying this vulnerability theory to the failure of Vietnam, one readily arrives at the second major conclusion regarding Rolling Thunder. As introduced at the beginning of this section, Clausewitz says that the most far-reaching judgment to be made at the outset of a conflict is the nature of the war to be fought. In the Rolling Thunder period of 1965-1968, US forces were engaged primarily in a guerilla war against a limited number of Vietcong supported by North Vietnam. Not until the later Tet offensive did the nature of the war change to a more traditional conflict involving conventional North Vietnamese forces. Despite the fact that the Vietcong required meager supplies and had multiple routes to conduct their guerilla war, airpower was used in a tactical and interdiction role to attempt to intercept these supplies and bomb guerilla forces. A conventional air strategy was adopted against an agrarian and unconventional enemy. The enemy proved largely invulnerable to either strategy. It was not possible to interdict the small amount of ammunition and supplies that sustained the Vietcong. Since the Vietcong were indistinguishable from the local population and engaged in hit and run tactics, it was also very difficult to effectively apply tactical airpower in all but the most limited of circumstances. In short, the enemy and his supply lines could not be reliably located or targeted, so airpower was an inappropriate means for this stage of the war.

The apparent invulnerability of certain targets to airpower continues to plague airpower application to this day. Mobile targets pose a particularly vexing problem. For example in Desert Storm, the negative political objective of keeping Israel out of the war drove what became "the great scud hunt," consuming 1,460 strikes and a large percentage of the precious F-15E night sorties as well as a number of Special Operations teams. Nevertheless, a post war

survey by American intelligence concluded that there is no proof "that CENTCOM succeeded in destroying a single SCUD."²⁵ Similar failures occurred when we attempted to use airpower alone to stop the ethnic cleansing in Kosovo. Despite the bulk of the air effort originally concentrated on Serbian forces deployed in Kosovo, the US was unable to stop mobile Serbian forces armed with small weapons from evicting and burning the houses of ethnic Kosovars. From high altitude it was impossible to accurately identify and target mobile infantry forces acting unopposed against unarmed civilians. This process, called Time Sensitive Targeting, has improved in the air operations over Afghanistan, but only with the presence of ground forces to confirm and mark targets.

ATTACKING AN ENEMY'S WILL DEPENDS ON HIS POLITICAL VULNERABILITY

Extending Builder's theory on vulnerability to the political sphere we come up with the interesting assertion that *Airpower is effective when an enemy is politically vulnerable from the air*. Because an attack on the enemy's will is as much political as physical, physical vulnerability alone is insufficient. Thus Douhet's 1921 vision²⁶ of flying beyond directly at the enemy's heart to break his will to fight depends heavily on the political vulnerability of the enemy regime to air attack as well as the willingness of the attacker to accept collateral damage. This could explain, in part, the relative invulnerability of the British facing the German Blitz in 1940 as well as strength of the Japanese and Germans in the face of brutal allied bombing from 1944-1945. In each case despite horrific damage to both civilian and industrial targets these nations not only persevered but remained an effective fighting force. Churchill, Hitler and the Japanese Emperor managed to retain resilient political systems and effective control despite the severity of air attack. Their political systems were not particularly vulnerable to conventional air attack.

If we look at the recent example of Afghanistan, one might surmise that the Taliban government was politically vulnerable to US air attack. After a relatively short US air and special operations campaign, the Taliban government and forces collapsed overnight. Major Taliban commanders and their forces switched sides in large numbers as they saw the political winds begin to change. Though the attacking coalition ground forces played a major role, it appears from initial reports that the Taliban capitulation was more of a political collapse than a military defeat. The Taliban were politically vulnerable to US attacks, resulting in a relatively quick US victory.

AIRPOWER LACKS PERSISTENCE

One of the truly innovative strategic thinkers in recent times is Archer Jones. Jones, a scholar of ancient warfare largely untrained in modern doctrine puts forth an interesting set of

observations based on the breadth of history from ancient times to the present.²⁷ Jones argues that there are four fundamental strategies that have been pursued in all wars and that these four can be differentiated along two axes (Table 1). First, Archer introduces what he calls a “raiding” strategy, where the basic objective is not to permanently occupy the enemy territory, but rather to temporarily enter enemy territory to achieve one’s objective and then return to one’s home when the raid is complete. The counter strategy is a “persistent” strategy where one aims to occupy enemy territory and either control it for a purpose or annex it. These two strategies form the first axis in Jones’ matrix, and answer the “how” of the strategy. A strategy may either be raiding or persistent.

	<u>Persisting</u>	<u>Raiding</u>
<u>Combat</u>	Persistent-Combat	Raiding-Combat
<u>Logistics</u>	Persistent-Logistics	Raiding-Logistics

TABLE 1: ARCHER JONE’S STRATEGY MATRIX

The second axis in Jones’ strategic matrix determines the “what” to attack. One option is to engage directly in a “combat” strategy aimed at destroying the enemy’s force. The second option is to engage in a “logistic” strategy that is aimed at denying the enemy the means for war. These correspond surprisingly well with Liddle-Hart’s direct and indirect strategies from his book *Strategy*,²⁸ with the direct being combat and indirect being logistical. The cross of these two axes allows four fundamental grand strategies as shown in table Table 1. For example, destroying an enemy army and permanently occupying its capital is a persistent-combat strategy, while a guerilla raid on an arms depot is a raiding-logistics strategy. Each strategy has advantages and disadvantages depending on the objective to be reached. Persistent strategies, for example, are strategically more decisive but also generally more costly than raiding strategies. Similarly, direct combat strategies are generally more costly than logistics strategies. Jones argues that histories greatest captains prefer the indirect logistics strategies to combat strategies primarily because they require less effort. The selection of strategy is determined by the strategic art that links the strategic objective to its means.

Airpower can engage in a policy of raiding but not persistence. Raiding and persistent strategies each have their strengths and weaknesses. While a raiding strategy such as

airpower can freely destroy targets to attempt to persuade an enemy to take a certain action, it cannot control an enemy's future action. It can persuade an enemy, even decisively coerce or compel an enemy but it cannot permanently assure that the enemy will not alter his course in the future or engage again in undesirable action. The closest airpower can come to a persistent strategy is a strategy of "air occupation" where one attempts to approximate persistence by a series of raids. The limits of a non-persistent strategy are best described by Clausewitz, who states:

"If the enemy is to be coerced you must put him in a situation that is even more unpleasant than the sacrifice you call on him to make. The hardships of the situation must *not be merely transient*—at least not in appearance. Otherwise the enemy would not give in but wait for things to improve."²⁹

The strategic employment of airpower is essentially a raiding-logistic strategy. Its aim is not to directly destroy enemy combat forces but to deny the enemy the means to fight. This strategy traces right back to the "industrial web" theory developed by the Air Corps Tactical School (ACTS) in the interwar years and follows through as an unbroken thread to today's airpower doctrine.³⁰ The goal is to create losses in industry, infrastructure and national command targets that are so damaging that continuing the conflict is futile. The limits of such a strategy are obvious. First, it does not destroy the enemy's combat forces, and therefore the enemy retains at least part of his capability to fight. Second, as noted above it is not a persistent strategy.

Interestingly a "raiding-logistics" strategy fits perfectly with US national strategy. First, it is an "economy of force" approach that is minimalist in nature. Raiding is inherently less costly in blood and treasure than persistent strategies, and indirect logistic strategies are also less costly than combat strategies. Using airpower before engaging in other forms of combat therefore minimizes the risk for US forces. This minimalist approach also reduces, though it does not eliminate, the need for a large standing army. The US has historically opposed a large standing army both on constitutional and economic grounds. Second, since US national strategy emphasizes the expansion of democracy and free markets rather than US territory, a raiding strategy prevents any misperception that US forces may persist. Through raiding, the US can engage an enemy for limited objectives where important US interests are not necessarily at stake. If a persistent strategy were used for these lower priority national interests, public sentiment might turn against action. Airpower, therefore, lowers the threshold of pain to give political leaders more freedom in engagement overseas.

POLITICS AND AIRPOWER IN PRACTICE

When my brother and I built the first man-carrying flying machine, we thought that we were introducing into the world an invention which would make further wars practically impossible.

- Orville Wright, 1917

Airpower in practice is a synthesis of political promise, theory and harsh reality. Few would argue against airpower as a critical arm of the joint force. Yet airpower's claim as a strategic force of choice, and some airmen's claims of what airpower can accomplish strategically face a mixed record of both stunning success and probing failure. This section will explore in brief the major US conflicts and air strategies in an attempt to explain how policy and air strategy cooperate and collide in the US system.

WORLD WAR II: US STRATEGIC BOMBING

What is remarkable about WWII was the ability of Army Air Corps leaders to persuade US political leaders to engage in a large-scale strategic air campaign at the expense of Army ground forces. Airpower would be the only means in the initial phases of the war due to the time required to develop sufficient ground and amphibious forces needed for major land action in Europe. The planned cross channel invasion, dubbed operation Bolero, would be delayed first to 1943 and then again until June of 1944 while the mass of landing craft and material necessary for D-Day was built up in southern England. This factor, perhaps more than any other, gave US air forces the unprecedented opportunity to test their theory of daylight precision bombing over Europe.

US airpower strategy as stated in Air War Plans Division-1 (AWPD-1) of August 1941 was aimed squarely at the German war-making capability, a logistic-raiding strategy. The primary objectives defined in the original plan were: first, the disruption of German electrical power, second the disruption of German transportation, third the disruption of the German oil and petroleum system, and finally neutralization of the German Air Force as a prerequisite.³¹ The writers of the plan believed that victory could be achieved primarily through an air offensive lasting 6 months after sufficient airpower was built and deployed. A force of 207 groups, or 11,853 combat aircraft could be needed along with 37,051 training aircraft to back it up.³² Including support personnel this amounted to nearly 2.1 million men in the Army Air Corps alone!

Political leaders placed few if any restrictions on airpower employment during WWII. The grand strategic objective of unconditional surrender virtually eliminated negative political

objectives. Early employment of airpower against civilian targets in London and Berlin resulted in the intentional bombing of civilians by all sides. While the US use of daylight precision bombing initially precluded intentional attacks on civilian targets, in February of 1945 Dresden was firebombed and shortly after additional cities in Germany and Japan were intentionally firebombed by the US creating casualties in the hundreds of thousands. The only significant restriction that was adhered to by all sides was the prohibition against chemical weapons.

Despite the huge scale of US strategic bombing in Europe, it did not have the decisive political effects that many air theorists expected. The effect of the US "industrial web" attacks is still a matter of some dispute. While the US Strategic Bombing Survey concluded that allied bombing did have a major effect on Germany's economy, much of that effect came late in the war. This was due to lack of sufficient airpower mass, training, and precision in the early war, as well as the lack of fighter escort. In part this was also a failure of US intelligence. US planners assumed that 1941 German industry was straining significantly under the load of global war. In fact, Germany's wartime economy was not significantly mobilized until 1944. Until that time it was relatively easy to absorb the limited scale and precision of US strategic attacks. By the time US air forces reached critical mass and achieved air superiority in mid-1944, Germany was already suffering from major strategic setbacks on the Eastern front and a breakout by allied forces in the West. It therefore becomes difficult to separate the effects of US strategic bombing from the general strategic collapse of the Third Reich in 1944 and 1945. Airpower played a critical role in the German defeat, but did not complete the job alone.

In Japan we see a similar trend. While airpower was the critical tactical element in all of the Pacific naval campaigns, Japan showed significant resilience to strategic bombing. Japan enjoyed relative security until November of 1944, when B-29's launched their first raid from the Marianas.³³ The Japanese economy, unlike those of Europe, relied heavily on small family owned businesses to provide much of their wartime production. As a result there were fewer large industrial targets. To attack Japanese "industry" the US therefore engaged in a rather brutal policy of firebombing Japanese cities starting in the Spring of 1945. The result was the wanton taking of civilian life on an unprecedented scale. In total 330,000 civilians were killed and 8.5 million left homeless.³⁴ Despite repeated raids, with some more damaging than the atomic bomb, Japan did not capitulate until atomic weapons were actually used at Hiroshima and Nagasaki.

This resiliency of the civilian populace to strategic bombardment was another surprise of the war. Air theorists such as Douhet and Trenchard had based their projections of quick civilian surrender on the massive panic that set in after the German Zeppelin raids over England

in World War I. Yet Japan did not surrender to firebombing, nor did Germany fall to the combined bomber offensive. Both were politically resilient to strategic bombing. The enemy strength can be ascribed to at least two factors. First, the US was using a raiding-logistics strategy to achieve the unlimited objective of unconditional surrender. One could argue that achieving unconditional surrender required a persistent strategy. Second, as was mentioned earlier, both Germany and Japan retained strong and tightly controlled political structures to the bitter end of the war. Neither was politically vulnerable to air attack.

A final paradox from World War II is that of the atomic bomb. Why, after enduring multiple firebomb attacks equal in scale to the atomic attacks did Japan suddenly surrender to atomic air attack? The Pacific Strategic Bombing Survey supports the idea that firebombing was having a substantial effect. In March of 1945 when firebombing began, only 19 percent of the populace believed Japan could not win the war. Just prior to surrender in August, that percentage had risen to 68 percent "of which more than one-half of the individuals interviewed credited air attacks, rather than atomic raids, as the principal reason for their beliefs."³⁵ The survey concludes that the atomic bomb merely accelerated the forthcoming Japanese surrender by several months, even absent a US ground invasion. Aside from firebombing, one must consider the whole of the Japanese strategic situation at the time of the atomic weapons. By the time the last atomic weapon was dropped, the bulk of the Japanese army was trapped in China, and cut off from the Japanese homeland. Nearly 250,000 Japanese troops were trapped in Manchuria alone facing near certain extinction at the hands of the newly entered Russians. US naval forces surrounded the Japanese islands, and even inter-island traffic had effectively come to a halt. The US ended the war with over 70 carriers in the Pacific to Japan's four. As an island nation with few indigenous resources, Japan faced a bleak future that included widespread starvation, total destruction of her armies, and the continued firebombing and eventual invasion of Japan itself. Add to this the demonstrated possibility of continued atomic destruction and the surrender of Japan in 1945 seems less of a paradox.

KOREA

Unlike World War II, in both Korea and Vietnam the negative political objective of limiting the scope of war prevented large-scale strategic use of airpower. Though airpower played a major role in both conflicts, its impact was primarily felt at the tactical rather than strategic level. In addition, the vulnerability of two largely agrarian societies to strategic air attack was limited. Korea and Vietnam did not have the large industrial Rhine valley or vast cities of Japan to attack. Strategic airpower therefore played a subsidiary role in both conflicts.

In the initial phase of the Korean War, the focus of US airpower was almost purely tactical. Available air forces were dedicated solely to slowing the North Korean advance and supporting the meager forces remaining at Pusan. President Truman, fearful of drawing the Chinese into the war, limited both ground and air forces in Korea to those necessary to repel the North Korean forces. Pursuit of the negative objective limited the employment of US force. Restrictions lifted in September of 1950 after the successful Inchon invasion when the President and the UN supported the reunification of Korea by force. The US struck the small number of important industrial targets in North Korea. By October, B-29's had "paralyzed" North Korean industry.³⁶ Negative objectives entered again in November of that year when China entered the war. The Sino-Soviet Defense Pact fed Truman's fears resulting in a stagnated front for the remainder of the war. Airpower continued to support tactical forces and maintain air superiority, but did not engage in strategic action.

The air strategy in Korea can accurately be classified as a raiding-combat strategy. Limited by politicians from attacking the logistic bridgeheads North of the Yalu river, US air force could only interdict and directly bomb Chinese and Korean combat forces. Further, since all US forces were prevented from doing anything other than restoring the 38th parallel line after China's entry into the war, no positive military progress could be made. A stalemate was the best possible outcome given the negative political object. Finally, one might note that airpower had relatively few "strategic" targets in North Korea. Korea was primarily an agrarian state, and not particularly vulnerable to US strategic airpower. Since North Korea was also totalitarian and faced with near annihilation before China's intervention, it appears that the regime was politically resilient.

The decision to handle the Chinese with kid gloves was clearly a political decision made by Truman. It is interesting to note the radically different political approach of his successor, the General turned President Eisenhower. Eisenhower covertly threatened to bring the war to China and even intimated that nuclear weapons were a possibility. This threat is widely credited with bringing North Korea to sign a reluctant but lasting truce.

VIETNAM

The interference of political leaders in military employment in Vietnam is legendary, and requires little further explanation here. Clearly the negative object of avoiding a war with China or Russia outweighed the positive political object of winning the war in Vietnam. What Johnson called "that little bitch of a war" became a symbol of the limits of American military power for a

generation, and led to a political transformation in the United States so large that its full impact is still being evaluated.

For air leaders, President Johnson's interference forms a classic study in how not to do business. Johnson approved the targets to be hit, how often they would be hit, what weapons to use and in some cases even the route to be used by the airplanes. The Rolling Thunder campaign designed to compel North Vietnam to stop supporting Viet Cong guerillas in the South, was the almost the antithesis of the strategic bombing principles explained in section 2. Rather than an intense campaign to maximize political shock, Rolling Thunder was a graduated campaign to slowly build political pressure. The strategy was primarily a raiding-combat strategy, since key logistic targets around Haiphong and Hanoi were specifically excluded from attack. Enemy vulnerability to air attack was questionable, since Viet Cong guerilla forces and logistics routes were well hidden within the jungles or civilian population centers and almost impossible to detect from the air. Military leaders also played a role by inflating claims of early success and refusing to alter the course of an increasingly bankrupt strategy. Johnson, politically unable to withdraw, was also politically unable to engage fully lest it "distract" attention from his "Great Society" domestic program. The net result was a lot of bombs dropped to little effect.

The air war entered a new phase with Linebacker I and II under President Nixon. These efforts had the much more limited aim of forcing North Vietnam to negotiate in good faith. The huge B-52 raids were strategically focused on Hanoi and Haiphong, and eventually forced North Vietnam to negotiate and sign an agreement. Strategy shifted to a raiding-logistic strategy, designed in part to maximize psychological impact. Some saw this as a reaffirmation of strategic airpower theory and refutation of the Rolling Thunder approach. Others point out, quite correctly, that the political situation under Nixon had changed significantly. The US was already unilaterally pulling troops out in large numbers under a program of "Vietminization," and it was only a matter of time before the US troop withdrawal would be complete. The North Vietnamese correctly calculated that the US would not return to save South Vietnam in the future. In addition, the enemy's vulnerability had changed. The Viet Cong were no longer a viable force after the failed Tet Offensive, and North Vietnam had turned to its conventional army to press its attack. These forces were much more susceptible to US airpower and a counter-logistics strategy. A combination of increased vulnerability, limited US objectives, and the ongoing US ground withdrawal aided the Linebacker I and II campaigns in achieving their political objective.

THE PERSIAN GULF WAR

The Persian Gulf War, as the first major post-cold-war conflict, gave the US its first opportunity to stake its place in the new world order. It also marks a major turning point in US air strategy and doctrine. A significant power shift had occurred within the US Air Force after Vietnam. The fighter pilots that flew in Vietnam gradually replaced the strategic bomber pilots that had led the Air Force since the Second World War. This "hostile takeover" as it is sometimes called, led to a tactically focused Air Force. This permeated the entire Air Force. Nuclear strategic interceptors were replaced by multipurpose fighters. A nuclear-heavy strategic doctrine was replaced by the army led doctrine of "Air-Land battle." As Carl Builder put it "The contributions of air power to Operation Desert Storm, the Vietnam War and Korean War were dominated by tactical air power."³⁷

To a large degree, the combat-raiding strategy of the Gulf War reflected that approach. Of the 35,000 strikes flown, 23,430 were against Iraqi ground forces, and another 6,800 against other Iraqi combat forces.³⁸ The political shackles on airpower were largely removed. Except for some limitations designed to minimize civilian casualties and mass civilian suffering, few restrictions were placed on weapons or tactics. Conventional Iraqi forces in the desert were exposed and vulnerable to identification and air attack. US precision weapons, significantly enhanced from their early Vietnam days, played a prominent role in the dismemberment of Iraqi military forces.

Despite the sortie counts, airpower over Desert Storm was not completely focused on combat forces. In fact the early focus of airpower in the war was strategic targets. This second major revolution was the revival of strategic bombing theory. Initiated by Col John Warden of the USAF's Checkmate planning cell and proliferated by the Black Hole cell in Riyadh, a bombing campaign called Instant Thunder was the centerpiece of the Air Force's early war strategy. In a throwback to the foundations of industrial web theory of the Air Corps Tactical School from before WWII, Warden proposed creating strategic paralysis in the enemy by simultaneously striking key targets such as command and control nodes, leadership centers, electricity and other infrastructure. The target of these attacks was strategic and political, and the aim was to destroy the enemy's will to fight. Warden, like earlier theorists, overestimated the effects of his campaign by guaranteeing an Iraqi collapse after only 10 days of bombing with airpower alone. In practice, airpower created devastation on an unprecedented scale, but did not overcome Saddam Hussein's political will. He was physically but not politically vulnerable. Nevertheless, many of Warden's resurrected strategic theories would form the foundation of air theory for the modern Air Force.

The political legacy of the Persian Gulf War is worth noting. Though airpower alone did not force Iraq's withdrawal from Kuwait, the daily gun camera videos showing the deadly accuracy and effectiveness of modern airpower firmly established airpower as a potent weapon in the minds of US policymakers. Airpower could be used separate from and in advance of ground forces. Airpower can be deployed quickly in defense of hot spots. Modern airpower is extremely precise and capable of wreaking great destruction. Airpower can be employed with few losses and causes fewer civilian casualties than other means. These lessons, which form the modern political legacy of airpower, were all firmly established during Desert Storm.

AIRPOWER OVER KOSOVO

In Kosovo, the vision of modern airpower introduced in Desert Storm was forced to face its limitations, both at the political and military level. General Wesley Clark, NATO commander, was quoted as saying "This was not, strictly speaking, a war."³⁹ Kosovo was the first ever NATO led operation, and subject therefore not to the loose coalition rules of Desert Storm, but the strict political limits of the NATO charter. These political limits were to prove a major stumbling block, yet by coincidence also play a major role in NATO's success.

The military strategy in Kosovo was not that of Desert Storm. Kosovo was at its heart a political war. Ground troops were ruled out from the start. Rather than adopt the rapid decisive paralysis of Serbian leadership, NATO adopted a strategy of graduated pressure, reminiscent of the Rolling Thunder campaign of President Johnson. Airmen jokingly called the campaign "Constant Drizzle" to contrast it with Warden's "Instant Thunder" plan from Desert Storm. The reasons were many. First, NATO believed Serbian leader Milosevic would quickly start to negotiate once bombs actually started falling, so they limited the scope to limit damage. Secondly, many in NATO had vivid pictures of the cities of Europe burning to the ground in World War II and wanted to avoid that political perception in Belgrade. Third, NATO at its essence is a consensus organization so any strategy had to reflect the "lowest common denominator" of the nineteen member nations. In many cases all 19 nations had to approve key targets. The strategy was therefore a raiding-combat strategy, but one more like Vietnam than Desert Storm. With no ground force to tie down or identify enemy forces, the Serbians were able to easily move small units from house to house to continue their campaign against the largely defenseless Kosovar civilians. These small units were hard to identify and target from the air. Milosevic, reading NATO's slow campaign as a sign of weakness, decided to instead accelerate his process of ethnic cleansing in Kosovo.

Ironically, the political weakness of NATO was also its strength. The one point that all member nations were able to agree upon was that they could not lose the war. The political price of having the NATO alliance fail in its first ever military operation was higher than any of the member nations could bear. A series of public relation disasters such as the accidental bombing of the Chinese embassy and the bombing of refugee convoys started to erode public support for the war. As public support ebbed, political leaders pressed for a quick end and the political limits were eased. In late May, General Clarke was finally given permission to take out the power grid and key national command and control centers. The shift from tactical to strategic targets was seen as critical for winning the war. The increased military pressure combined with political pressure coming now from both Russia and the NATO countries ultimately forced Milosevic to negotiate a settlement. The limited objective was achieved and peacekeeping forces were moved in to stabilize Kosovo.

The war over Kosovo remains a military and political enigma. NATO's 19 countries went to war without UN sanction to stop a civil war with few if any national interests at stake. The bloodless airpower-only NATO win would appear to be a great victory both from a political and airman's perspective. Though the political objective was limited, it was not trivial. Serbia in effect ceded control of the province of Kosovo to NATO forces; marking the first time in history that airpower alone forced a state to give up some of its sovereignty. Why then is there so much political discomfort? First, it is clear that Kosovo brought to light some political cracks in the NATO alliance and military structure that politicians would prefer remained hidden. Second, the air operation did not end the ethnic cleansing, but instead accelerated it. Not until peacekeeping forces entered Kosovo did ethnic cleansing actually end. Third, Kosovo revealed that consensus based coalition targeting can result in a random application of airpower that does not necessarily support the strategic objective. Finally, Kosovo represents a politico-military ethical threshold that neither the US nor its allies were prepared to deal with. If war can now be fought entirely from the air using perhaps only 1,000 pilots without a single loss, then the friendly political cost approaches zero. It is what Michael Ignatieff describes as a *Virtual War*. As he puts it "...war without death -- to our side -- is war that ceases to be real to us: *virtual war*. If Western nations can employ violence with impunity, will they not be tempted to use it more often?"⁴⁰ Will we enter wars we cannot get out of? Will the ease of employing airpower result in the overextension we have seen in all great empires of the ancient world? Only the future will tell.

CONCLUSION

But I have seen the science I worshipped, and the airplane I loved destroying the civilization I expected them to serve.

- Charles A. Lindburgh

Modern US airpower is a potent and lethal political weapon for supporting US objectives worldwide. The inherent political advantages are many including flexibility, speed, ability to project power globally, fewer friendly and collateral casualties, informational dominance and in many cases a rapid victory. Airpower also has the advantage of offering a high degree of political control. Yet airpower is not an all-purpose tool. Airmen believe airpower should be used in certain ways to achieve key military objectives, and they also believe that to use it otherwise is not only wasteful but also counterproductive.

The challenge of grand strategy is to connect the political objective to military and other means while still balancing the needs of a variety of other, often conflicting political objectives. The politician is not as concerned with the technology or doctrine of warfare as its contribution to the grand set of competing political objectives. The politician may therefore choose to limit in various ways the employment of airpower to achieve other objectives. Airpower, by itself, also has inherent limitations. As a creation of the industrial age, airpower depends on the vulnerability of the enemy. If the enemy cannot be identified and targeted from the air, it is difficult to effectively employ airpower alone. Similarly, even if an enemy is physically vulnerable, he may not be politically vulnerable to airpower.

A survey of major US air engagements of the 20th century shows both promise and cause for caution. Though airpower played a critical role in every conflict, the role of airpower applied strategically has been mixed. When unfettered from major political restraint, airpower has created some spectacular military results, but these have not always translated directly to political results. The political vulnerability appears again to be at least as important as physical vulnerability. Translating physical vulnerability into political vulnerability from the air is not an easy task. Further, airpower appears better suited to achieving limited political objectives alone than unlimited ones. This may have to do with the inherent limitations of a non-persistent raiding strategy.

The political implications of the virtual war from the air seen in Kosovo are both breathtaking and scary. Modern airpower, if perceived by politicians as a low cost means to political ends, is remarkably cheap in its entry cost. Yet, if the last 60 years of airpower has taught us anything it is that airpower is not an all purpose solution. It can achieve many objectives alone, but it is not capable of achieving all objectives alone. That is why the US

maintains a full spectrum balanced military force. The risk, then, is that we may cheaply enter a "virtual war" that turns into a much more costly real war.

Finally, as was covered earlier, even when airpower is effective it is not persistent. Though it can be used to compel an enemy to achieve a variety of objectives, it cannot do so on a persistent basis unless it is constantly re-employed. In each of the wars mentioned above including Kosovo, substantial ground forces were required to garrison the region and maintain the peace once the air war ended. The broader use of airpower for economy may therefore have the unintended consequence of increasing, rather than decreasing the role of ground forces. If the US engages in the unrestricted use of "virtual war" to protect non-vital interests, she may be engaging in a policy of over-extension. These political objects, once achieved by military force, must be garrisoned. This would put the US on a historical path of over-extension and decline similar to that seen in formerly great empires such as Rome, Byzantium and Great Britain.

Despite airpower's limitations, the current US advantage in airpower may indeed usher a brief period of "airpower uber alles." Nevertheless, it is clearly in the best interests of the United States to create a balanced armed force capable of addressing the full spectrum of political objectives. Even in an ideal world, the US technological advantage cannot last forever. The proliferation of technology throughout history has shown us that eventually our enemies will match our capability. Until that happens, the application of airpower must proceed along sound political lines, with eyes fully open to potential long term military and political pitfalls.

Word Count = 11,739

ENDNOTES

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