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In Search Of Quick Decision:
The Myth Of The Independent Air Campaign

A Monograph
by

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This study sought to answer the research question through the use of historical examples analyzed by an appropriate criterion. The criterion, selected from FM 100-5, gave a doctrinal and theoretical framework for the historical analysis.

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ABSTRACT

IN SEARCH OF QUICK DECISION: THE MYTH OF THE INDEPENDENT AIR CAMPAIGN by MAJ Charles H. Jacoby Jr., USA. 54 pages.

This monograph examines under what circumstances, if at all, an air campaign can achieve decisive results independent of other forces.

The recent war in the Persian Gulf has given the research question its immediate significance. Given the unprecedented nature of the allied aerial campaign against Iraq, was it reasonable to expect that the air war could force a politically acceptable decision without the need to commit US forces to a potentially costly and unneeded ground campaign? The problem is also relevant to future US doctrinal development. AirLand Battle Future is the operational concept that is expected to evolve into US Army doctrine for the 21st century. A key portion of this concept is the targeting and the destruction of the enemy by long-range air forces. Ground maneuver is conceived as a "mopping-up" phase.

The current and future relevance of this problem is part of a developing historical pattern in US military thought. There is a tension in US military thought and practice between the imperative of quick decisive results and the desire to minimize casualties. Since the advent of air power, air forces have seemed to offer a convenient answer to this dilemma. The question thus calls for a reexamination of the fundamental relationship between air and ground forces. Under what circumstances, can decisive results be attained at the operational level of war, with air power alone.

This study sought to answer the research question through the use of historical examples analyzed by an appropriate criterion. The criterion, selected from FM 100-5, gave a doctrinal and theoretical framework for the historical analysis. A synthesis of the analysis led to conclusions concerning the role of selecting the appropriate campaign end state, the sequencing of actions over space and time, and the allocation and synchronization of force types, in the creation of circumstances conducive to decisive air operations. These conclusions are applied to a tentative analysis of the Persian Gulf War and the AirLand Battle Future operational concept.

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I. INTRODUCTION

In a special issue of U.S. News & World Report dated, 11 March 1991, the bold print cover story proclaimed "KNOCKOUT". The rest of the magazine, reflecting the feelings of the nation and its press, went on to chronicle the remarkable ground component of Operation Desert Storm, the war with Iraq. The brilliance of what was quickly dubbed the "100-hour war" was described in great detail and with evident relish. The attack of the 24th Infantry Division was portrayed in epic fashion, conjuring up images of Patton's ride across France in 1944. Desert Storm was everything Americans hope for in a war: morally just, quick, nearly bloodless, and clearly decisive. Yet, for some, the ride of the 24th Infantry represented not an up-to-date American version of 21st century blitzkrieg but an anachronism. The jubilant extent of the coverage of the ground war reflected great relief and perhaps disbelief over the incredibly low number of US casualties in what was billed by Saddam Hussein to be the "mother of all battles". The ground operation, after months of uncertainty and journalistic anxiety, was incredibly swift and decisive. The apparent ease of the attack only served to underscore to many the dominant role of the military activities that preceded the breaching of Saddam's vaunted defenses. Despite protests to the contrary by Desert Storm commanders, the six week air operation preceding the ground offensive was perceived by many to be a war winning independent operation. The ground operation was more of a mop-up than a knockout. The ride of the 24th Infantry was as nostalgic and out of place on the modern battlefield as a horse cavalry charge. Ironically, tucked away on the last page of the "KNOCKOUT" edition, the magazine editor, Mortimer B. Zuckerman, reflected some of these feelings concerning the

overshadowing images of the air war when he wrote: "Contrary to the skeptics, airpower proved decisive. High-tech weapons and precision bombing have changed the face of warfare." 1 For the military man responsible for operational planning, this allegedly new relationship between the ground and air components of a campaign poses an interesting problem and demands careful analysis.

The operational planner is principally concerned with campaign design. By Army definition a campaign is: "a series of joint actions designed to attain a strategic objective in a theater of war." 2 The question for the operational planner that seems to have been resurrected by Desert Storm is not new. As seen by the definition, campaigns are conceived of as a joint activity. The relationship of the air forces and the ground forces has always been at the heart of the matter. Since the emergence of airpower in this century, there has been a continued struggle to define the role of airpower and to determine the fundamental relationships between the two services. This struggle has been further complicated by the direct impact that technological developments have on the capabilities of air forces. Are there any truths to be discovered about the dynamics between air and land power or must the planner start from scratch with each new "tweak of the microchip"?

This study will examine one portion of this large, timely question. Under what circumstance can airpower, independent of ground forces, be expected to produce decisive results? The question of independence does not imply air forces operating alone in a theater of war or theater of operations. The focus instead is on what should be the expectation for the unilateral activity of air forces in the attainment of campaign objectives. In what ways can an air operation itself provide

the way as well as the means in accomplishing campaign end states. This study will avoid focusing any one form of air activity such as strategic bombing, air interdiction, or close air support. All of the forms of airpower can be employed simultaneously in a theater. The research question deals with any of the forms of airpower that can be expected to produce decisive results at the operational level of war. To this end answering the research question will rely on the historical analysis of relevant campaigns. This analysis will provide insights to the question by determining what past circumstances allowed or prevented airpower in any of its forms from achieving decisive results in a theater of war or theater of operations. While such an analysis cannot serve as a basis for predicting the future, it may help refine the judgment of the operational planner in the manner that Clausewitz argued was the most important function of education for the soldier. 3

II. THE AMERICAN MILITARY TRADITION

The face of warfare, though constantly metamorphosing, has remained, in its basic outline, all too familiar to man. Part of what can be described as a nation's military tradition is based on long familiar perceptions of the best ways to use armed forces for advancing the interests of the state. In this regard, the notion that war has changed in some revolutionary manner by the ascendancy of airpower must impact on the way a nation conducts its military affairs. A brief look at the evolution of the American approach to war is required to place the question of change in its proper context.

The US is a nation that was born in war. It is also a nation that has grudgingly accepted the irony that the joys of liberty cannot be

guaranteed without a willingness to suffer the hardships of war. Along the way, the US, while not having adopted a formal theory of war, has nevertheless developed what Professor Russell F. Weigley has described as an "American way of war". This uniquley American approach to war contains several paradoxical views concerning the preferred use of force. Weigley argues that American military tradition has evolved along with American society and culture. 4 The wealthier the US has become, the more inclined it has been to conduct wars based on strategies of annihilation. In consonance with Delbruck, the pioneering German military historian, this view of war seeks the direct overthrow of an enemy's military power. This Napoleonic inclination has also been matched by a desire for short duration wars that culminate in a clear military decision. It is instructive that the American Civil War, a total war fought between two nations sharing a similar military tradition, ended with resounding finality only when the two major armies reached a clear military decision at Appomattox court house. Our most successful wars of the recent past seem to validate this approach, specifically World War II.

Paired with the evolving US predilection for direct conflicts that seek decision through the overthrow of an enemy's armed forces is the idea that the cost of the war, particularly in lives, must be held to a minimum. American parsimony with regards to casualties seems to be independent of the relative force ratios of the conflict and whether the war is going well or not. The pairing of these two ideas, direct decisive combat with an opponent's armed forces and the imperative to hold down US casualties, has given rise to what many consider to be a fundamental characteristic of the US military tradition, a great

reliance on firepower. In some circles, such as the Military Reform Caucus, this reliance on firepower has taken on a pejorative note from its linkage with failed military policy in Vietnam. 5 Nevertheless, an American predisposition to firepower seems to be an inevitable part of the US military tradition.

Also growing from the desire to strike at the enemy's forces decisively, at low cost, and with fire when possible, is the American reliance on technology. This portion of the evolving US military tradition is also a phenomenon of the 20th century and reflects the same societal and cultural forces Weigley alluded to earlier. The US, since the turn of the century, has been a leader in technological and industrial development. Americans and their military are comfortable with the idea that most problems have a technological fix. This theme has been reinforced by the cold war experience and in particular the successful deterrence of the Red Army in central Europe. Far outmatched in troops and gross numbers of machines of war, the US came to rely on a qualitative technological edge to offset its enemy's overwhelming quantitative superiority. "Fighting out-numbered and winning" was more than just a slogan, it even permeated the world of nuclear strategy. The US confidence in technology remains a critical factor in the American approach to war, despite some notably unhappy experiences in the recent past, again represented by the Vietnam war. 6

Thus, the research question is placed in the context of the evolution of the US military tradition. Airpower, despite a rocky start, has found a congenial niche in the American perception of the nature of warfare. Firepower from the heavens, the ability to strike directly at enemy forces, marvelous physical expression of American technological

prowess, and the promise of low casualties. All the important elements of the American approach to war can be addressed by airpower. The only question remaining is decision. What ends can be met.

Finally, in the process of establishing the proper context for the examination of the question, a quick look at projected Army trends in doctrine, force structure, and weapons system acquisition is required. Perhaps the most significant trend in the Army is the inevitability of significant downsizing. In the 1991 DOD, Annual Report to the President and the Congress, a new defense strategy was outlined that called for a cut in the Army force structure of six active duty divisions. This strategy also calls for the smallest defense budget, as a percentage of GNP, since before the attack on Pearl Harbor. All of the changes in the defense strategy are predicated on the reduced Soviet threat and the end of the cold war. 7 The impact of a reduced threat perception, smaller force structure, and shrinking budget has had a significant impact on future Army doctrinal issues.

General John D. Foss, Commander of TRADOC, has led the Army charge to match doctrine with the realities of the budget process. The result has been the controversial follow-on to the AirLand Battle doctrine, AirLand Battle Future (ALB-F). This new doctrinal concept meets the imperatives of downsizing by adapting the Army to non-linear warfare. General Foss' approach to nonlinear warfare is divided into four phases that contain a six step cycle of combat. 8 Less one confuse this with a version the of pre-World War II French doctrine of the methodical battle, it is possible to distinguish long familiar roots of the American military tradition.

Summarizing those roots, ALB-F relies extensively on high technology target acquisition and surveillance systems for real time ground truth of enemy activities out to 400KM. It relies on high-tech firepower to destroy enemy forces at extended ranges. By its very nature ALB-F seeks to avoid attrition battles and significant casualties. 9 In fact, as described by one retired Army general officer, ground maneuver is conceived of as mopping-up the remnants left by long-range fires. When challenged on the point, the response was in the form of an oxymoron "of course it will be decisive mopping-up". 10 The long-range fires in ALB-F are primarily provided by airpower. The question now gains added relevance for the Army in terms of emerging doctrine: can airpower provide the decisive, long-range, low cost fires expected of it in interpretations of ALB-F?

Desert Storm is over and the efforts of the post Vietnam military reformers, mostly from within the military, have been validated. However, the question remains unanswered. An unprecedented air operation was conducted against a virtually undefended enemy. The air operation was followed by a spectacular ground offensive against a virtually impotent enemy army. Throughout the conflict the nations highest military leaders stressed repeatedly that it was all one integrated campaign. In the background, military pundits such as Ed Luttwak and legitimate policy makers such as Richard Perle argued that airpower could do the job alone. 11 The relationship of the ground and air components still remains at the forefront of military and national concern.

III. AIRPOWER THEORY

Before launching into the development of criteria to serve as a framework for historical analysis, it is necessary to discuss some of the broader themes in airpower theory. Current Army doctrine and the study of operational art is based on classical military theory. Of particular importance are the writings of the interpreters of the Napoleonic era, Clausewitz and Jomini. Though not fully incorporated in American thought, honorable mention is also given to other theorists such as Sun Tzu and Mao. If one of the the goals of the operational planner is to formulate the appropriate balance of air and ground capabilities, it is important to understand the theoretical basis of airpower as well.

Airpower has has been a part of the panoply of war for a very short time. It is not surprising that few efforts have been made to articulate a formal theory of airpower. In fact, the Italian airpower enthusiast Giulio Douhet is perhaps the best, if not the only, writer to offer a comprehensive theory on the role of airpower as an instrument of national power. Drawing from his observations of World War I, Douhet was to become influential in the development of the air forces of most major powers during the interwar years.

Douhet's most basic construct was the idea of command of the air. Much akin to Mahan's command of the sea, command of the air represents the cornerstone of the Douhet model of airpower. More than the present day concept of air superiority, command of the air implies that airpower is a necessary and in fact the required element of national defense. The importance of command of the air provided the first key step in the argument for the formation of independent air forces. Simply put command of the air was: "to be in a position to prevent the enemy from flying

while retaining the ability to fly oneself". 12 Douhet argued that from command of the air flowed overwhelming advantages that in the final analysis rendered land and even naval forces largely irrelevant.

The greatest advantage to be accrued by command of the air was in the ability of the force that held command of the air to devastate the heart of an opponents country through aerial bombardment. Douhet believed that in modern war the entire enemy state, to include its infrastructure and population, was a legitimate target. Additionally, Douhet believed that these essential elements of a nation's fighting power were particularly vulnerable to air attack. Such an attack would be the decisive action of the war. Air attack would also reduce the misery and horror of war by rendering it mercifully short once the population recognized its inevitable destruction. Thus, Douhet established the intellectual basis for strategic bombing. With the efficacy of strategic bombing as his centerpiece, Douhet developed several important supporting arguments.

Douhet posited that if strategic bombing could bring the rapid, decisive end to a war then efforts that did not contribute to its prosecution detracted from it. This argument formed the basis for several of Douhet's most influential positions. The need for independent air forces, the wasteful nature of auxiliary air arms in the sister services, the dominance of the bomber in air force organization, and the the role of airpower in the political and economic development of the state, all of which stem from this controlling idea of strategic bombing. 13 Though events during World War II soon demonstrated that many of his suppositions were wrong, his articulation of a comprehensive

theory of airpower found wide acceptance among aviators of the interwar years.

It is always difficult to measure the influence a theorist may have on the events or personalities that follow them. In the case of Douhet there is evidence of both his direct and indirect influence on the aviators of the interwar period. In particular, concepts of the primacy of strategic bombing and the need for independent air forces were particularly attractive to the airmen who would lead their nations air forces in the second world war. In Europe this effect was marked in the development of the air forces of Great Britain and Germany.

The British, though perhaps reluctant to admit to the direct influence of Douhet, clearly reflected many of his essential arguments in the organization and missions of the RAF during the war. Even before World War I ended, the Smuts report advocated and directly contributed to the creation of the Independent Bombing Force. This force was soon followed by the autonomous Royal Air Force (RAF). 14 The robust development of the pre-war British strategic bomber force, under the leadership of "Bomber" Harris and others, incorporated many of the Douhet's ideas concerning the use of airpower. 15 Even Winston Churchill, a politician with strong ties to both the Royal Navy and the Army, by 1934 was arguing that the principal duty of the government was to see to the appropriate strength of the nation's air force. 16 Viscount Trenchard, the father of the RAF, perhaps a more reasonable air advocate than his colleague Harris, concluded in his analysis of the Second World War that joint cooperation between the services was a key element in the victory. However, even Trenchard, when calling for smaller though more highly trained armies, couched the role of the army

in terms that amounted to base defense forces for the RAF. Of most importance was the maintenance of a single service for all air activity. All of this is pure Douhet. 17

Elsewhere in Europe, the Germans were busy developing their own version of airpower and once again there is evidence of Douhet's influence. Under Herman Goering's leadership, the Luftwaffe gained political if not actual military autonomy as a service. Goering, in themes reminiscent of Douhet, emphasized airpower as a moral imperative for the developing new Riech. 18 His concept of Luftwaffe control of all things associated with the air (anti-aircraft artillery and airborne forces) was a step farther towards the Douhet absolute than any other air force. Also of great importance to the Luftwaffe was the influence of its first Chief of Staff, Max Wever. Wever was instrumental in the development of Luftwaffe doctrine that in some ways deviated sharply from Douhet. Wever believed in the utility of air forces in support of the army both in interdiction and close support. However, he was also known to be a disciple of Douhet. Wever pressed hard for the development of a German strategic air arm. It is probable that the German failure to create such a force was primarily the result of his untimely death in 1936. 19

In the US, airpower also received considerable attention during the interwar period. Much of the debate surrounded concepts that were at the heart of Douhet's model. The best known American airman of this period was General Billy Mitchell. More an advocate of airpower than a theorist, Mitchell brought the debate concerning the role of airpower in national defense to public attention the hard way ..by being court martialed. Mitchell was not just a strategic bomber advocate, though he

certainly helped that cause. Mitchell was primarily interested in an independent multi-role air force. 20 Mitchell was giddy with hopes for the dominant role of airpower in the future. He also believed the conservative army hierarchy was unfit to develop the wide open field of airpower. 21 The US Army Air Force went into the Second World War with a clearly Douhet-like doctrine, a force structure for precision daylight strategic bombing, and a bent for independence that would not be satisfied until after the war. Apparent success would encourage many air leaders like Arnold, Spaatz, and LeMay to carry much of the same doctrinal baggage into the nuclear age.

If adding a third dimension to the puzzle of war was not enough for the twentieth century, the creation of nuclear weapons has further confused the formulation of a modern theory of airpower. The pioneer in the intellectual attempt to deal with the integration of nuclear weapons into the intellectual framework of classical strategy and pre-Hiroshima airpower theory was Bernard Brodie. Brodie developed his own theories concerning the nuclear deterrence model and ventured ideas that would eventually evolve into the concept of national security through flexible response. Brodie built his concepts on a foundation based on the analysis of the classical theorists and pre-nuclear airpower theory.

Brodie, a renowned student of Clausewitz, believed in the continued relevance of his construct of the nature of war. While nuclear weapons were revolutionary in their military effect and their relationship to national policy, he felt the study of man's earlier experiences with war retained value. Brodie did not feel Douhet stacked up well against Clausewitz but recognized his contributions. Douhet appeared more of an air advocate in the Mitchell vein than a theorist.

Brodie proposed that nuclear weapons have resurrected Douhet from the theoretical dust bin. 22 Brodie took exception to the optimistic claims of decisiveness attributed to airpower in the US Strategic Bombing Survey. Extended from this analysis Brodie concluded that it remained unproved and probably unprovable that airpower alone can achieve decisive results in a non-nuclear conflict. 23

One of the greatest obstacles for the operational planner is the lack of study, both in theoretical and practical terms, directed at the operational level of war. In the case of airpower this gap has been addressed by a number of students of future war concepts such as Richard Simpkin and Chris Bellamy. Both Simpkin and Bellamy deal with the conduct of large conventional wars at the end of this century. Both write across the levels of war but acknowledge and directly address the operational level of war. Bellamy and Simpkin treat air and ground forces as inextricably linked in the conduct of war at the operational level. Simpkin in particular has extended the fusion of ground and air action in multi-dimensional combat through his concept of air mechanization. 24 Bellamy on the other hand addresses the air/ground question more directly and in a more predictive fashion. Bellamy sees the role of airpower as somewhat tied to a dynamic cycle of technology. Ascendancy of airpower over air defenses is problematic. Bellamy predicts it is just as likely that missiles will replace manned aircraft in many of its traditional attack roles. In general, Bellamy is critical of deep air interdiction and views the best use of air is its role in support of maneuver forces. 25 Bellamy is of particular value because of his in-depth knowledge of current and emerging munitions and platform

technologies. Unfortunately, both Simpkin and Bellamy have buried nuggets of operational analysis in a broad field.

The most comprehensive translation of airpower theory and history into the operational context has been accomplished by Colonel John Warden in his book, The Air Campaign. Warden has used historical analysis and the vocabulary of the operational level to provide insights for the operational planner. Central to Warden's thesis is the idea that air superiority is essential in war. No state has won a campaign without it, and no state has lost one while possessing it. 26 This is a concept not far from Douhet's command of the air. Warden develops subordinate themes such as the idea that war can be won from the air, the relationship between the offense and the defense, and the criticality of the identification and striking of the correct enemy center of gravity. Though nowhere does Warden suggest that army or naval forces may be obsolete, there is a conspicuous lack of jointness in the proposed framework for air operational planning. This is in marked contrast to the Army conception of the operational level of war as being joint in nature.

Warden implies, through the structure of his air superiority argument, that an air campaign can be conducted in isolation from the rest of the military activities in a theater of war. The primacy of the air superiority contest leads to the conceptualization of five cases of campaigns all based on the relationships between contesting air forces. Centers of gravity are not defined in the Clausewitzian sense but as a series of target types that lend themselves to airpower. Warden identifies enemy command as the true center of gravity in his operational model. 27 What Warden has identified as centers of gravity,

Army thinkers describe as decisive points. At the operational level, the center of gravity is still generally thought to be the mass of the enemy's combat power. This mass is expressed as an aggregate of all types of forces in the theater of war. 28 Warden's definitions suggest that a war must begin with an air campaign and that the air campaign, by its unique ability to independently strike true centers gravity, can reach decision on its own.

Despite Warden's thorough analysis, he does not specify under what circumstances airpower can achieve a decision independent of the ground forces. All of his historical examples are couched in terms of airpower and the struggle for air superiority. Once that superiority is gained the inevitable victory is assured almost without regard to the efforts of the other elements of military power. Perhaps the greatest void in the work, for the operational planner, is the shallow linkage between ends, means, ways and risk. This relationship is the essential calculus of the operational planner. Warden's failure to adequately address this relationship leaves critical operational questions unanswered. How does the interaction between air and ground forces change as the ends change in the theater of war? Can air efforts culminate short of their expected outcome, and what is the effect on the ground component? Theater commanders and their staffs need to deal with these issues to effectively integrate the means at their disposal to accomplish the desired ends. Most theater commanders will be land warriors and as the DRAFT 1992 FM 100-5 states, "...because man lives on land, all wars are ultimately determined by ground operations supported by air operations that are completely integrated". 29

IV. CRITERIA DEVELOPMENT

To effectively answer the research question, a criterion for the analysis of representative campaigns needs to be established. This criterion will provide a framework for judging the effects of air activity in a campaign given the circumstances that existed at the time. The criterion also needs to be framed in an operational context to establish clear linkages for the operational planner. To achieve these ends a criteria has been chosen from FM 100-5; the modification of the three questions that are the essence of operational planning. The three questions essentially outline the earlier mentioned ends, ways, means calculus crucial to operational design. Slight modifications to these questions will help focus the historical analysis in a way that will help answer the research question. 30

The first question is what military condition must be produced in the theater to achieve the strategic goals. It is important to remember when posing this question that goals or ends, as Clausewitz cautions, change during the conduct of the campaign. 31 Objectives may ebb and flow with the fortunes of the campaign. However, this question does establish the expected end state for the campaign. It places the goals of the campaign in the overall strategic context and therefore links them to the political policies they seek to support. In particular, this question will help to define the the nature of the campaign in terms of limited versus unlimited aims for the major antagonists. In a real sense the question helps to define what is decisive, in terms of political acceptability, and what is not.

The second question is what sequence of actions were envisioned as the most likely to produce the military end condition in a decisive manner. This question addresses the ways in campaign design. Specifically, answering this question will describe the planned and the actual framework of the campaign. Intermediate campaign objectives and centers of gravity will be examined.

The third and final question is how the air and ground forces available to the theater commander were integrated and applied to the sequence of actions discussed in question two. This portion of the criterion will fully develop the relationship between the air and ground forces in the planning and execution of the campaign. Within the selection of representative campaigns, there will be examples where the participation of either service was minimal. This should serve to test the null hypothesis. Within the question, the nature of the command relations will be examined along with the roles and missions for the various forces. A key step in answering the research question, this final element of the criteria will determine if the ground and air forces were sequenced to achieve some synergistic effect or if they played discrete roles. Finally, this question will ascertain whether the various forces were used in accordance with their accepted service doctrines.

IV. HISTORICAL ANALYSIS

The following campaigns have been selected for analysis to assist in highlighting various aspects of the research question. Conflicts across the operational continuum are examined to reveal the effects of limited verses unlimited aims, long and short durations, primary and

secondary theaters, and fully joint as well as largely single service campaigns. The criteria will be applied to each campaign to establish a framework for the historical analysis. From this analysis a determination will be made of the role and effectiveness of airpower and the circumstances that made its use decisive or not.

Because of the limited nature of this study, the number of campaigns subject to analysis must be restricted. For this reason, as well as for historical relevance, the campaigns in the body of the study are selected from the post World War II era; Korea, Vietnam, and the Cold War. However, to further validate the criteria as an analytical tool and to broaden the historical base for the conclusions, an additional campaign analysis is included as Appendix A. The Battle of Britain is analyzed in this Appendix in order to represent World War II airpower experiences. This campaign also provides a unique set of circumstances that will enrich the study and more completely exercise the criteria.

THE KOREAN WAR

The Korean War consisted of several campaigns and major operations in which US airpower played a critical role. The war was fought at the high end of the operational continuum although the existence of nuclear weapons had redefined the parameters of that continuum. Despite the severity of the fighting, the objectives of the US, and later the United Nations (UN), were limited. The US sought the restoration of South Korea at the 38th parallel and briefly pursued the reunification of the Korean peninsula. On the other hand the North Koreans sought the domination of South Korea and later the survival of the North Korean state. After

their intervention, the Chinese sought to insure the survival of North Korea and later to score propaganda victories at the negotiating table. The war in Korea represented the only combat theater for the US but it was not the principle theater of interest. The Soviet threat to Western Europe remained the greatest concern for US leaders. Confined to the Korean peninsula, US operations were both combined and joint throughout the war. However, expectations for airpower to achieve unilaterally decisive effects existed and were generally unfulfilled. The period of the war to be examined will focus on the spring and summer of 1951. This was the time when Chinese offensive operations culminated south of Seoul and UN forces were able to transition to offensive operations. The period also encompasses the first phase of the truce talks which began in July, 1951. The principal air effort during this time was Operation Strangle.

1. End Conditions:

As mentioned, the strategic objectives for the Korean theater of war varied over time and thus required different military end conditions. For the time period in question, US goals had been attenuated by the Chinese intervention in November, 1950. Euphoric hopes for Korean reunification had been replaced by the far more modest goal of restoration of South Korean sovereignty on defensive terrain in the vicinity of the 38th parallel. However, more important than the changing of the positive goals for the campaign, the negative goals remained paramount. The US still sought to limit the conflict to the Korean peninsula and to prevent the widening of the war beyond the levels already reached by the Chinese Communist Forces (CCF). 32 Additionally, precluding Soviet entry into the war remained a critical

US objective. A restrained military end condition thus required securing suitable terrain for the defense of the South Korean border. Furthermore, military forces were expected to provide an effective element of persuasion, through attrition, to propel the truce talks forward. 33 The US Air Force (USAF) was expected to play a major role in these efforts.

2. Sequence of Actions:

The sequence of actions designed to achieve the necessary military end condition involved joint and combined operations. After the defeat of the fifth CCF offensive in May, 1950, UN ground forces attacked north to exploit the exhausted CCF forces. The counteroffensive, in essence, compelled the CCF to agree to negotiations. The UN offensive halted along what General Ridgway determined to be a suitably strong position. The next phase featured small bloody engagements as each side sought to jockey for better defensive positions. Ridgway sought to keep pressure on the CCF while keeping UN casualties down. No major ground offensives were planned or executed. 34 The campaign in summary was: 1) UN transition to the offense. 2) Securing a defensive line. 3) Inflicting punishment on the enemy in order to influence the truce talks.

3. Force Application:

Air forces played a significant role during this period, but did not achieve the desired effect. Throughout the campaign close air support remained an important adjunct to ground operations. However, close air support was just one aspect of air activities in the theater at this time. Reflecting the strong strategic bombing tradition of the USAF, General Hoyt Vandenberg, Chief of Staff of the USAF, and Lt. General George Stratemeyer, commander of Far East Air Force (FEAF),

continued to use B-29 bombers to destroy industrial and military targets in North Korea. In keeping with the desire not to widen the war, these strategic strikes were prevented from hitting targets on the Chinese side of the Yalu. Thus, a sanctuary for CCF forces was established out of theater by the political goals and circumstances of the campaign. This situation had several effects. US strategic bombers were unable to pound targets of strategic significance to the Chinese. Communist fighter aircraft, operating out of their Chinese sanctuary, by October, 1950, were able to contest the heretofore unchallenged US air superiority. Bombing and interdiction missions in the northern reaches of the Korean peninsula became prohibitive in terms of casualties. Most of the air activity in this region became confined to ineffectual night operations. As the number of suitable targets dwindled and the casualties mounted, the strategic bombing and deep interdiction portions of the campaign failed. 35

In the second and third phases of the campaign, air planners sought a more direct impact on the CCF in the field. Beginning with the Eighth Army counteroffensive in May, the USAF launched Operation Strangle. This effort was designed to interdict communist rail communications on the peninsula. Expectations were that the air operation, although corresponding to a halt in major ground operations, would force the CCF to withdraw to within 100 miles of the Yalu. 36

Operation Strangle turned into a ten month interdiction effort that eventually failed to influence the intransigent communist negotiators. Operation Strangle was followed by a similar sequel and later with another interdiction plan called Operation Saturate. None of these air operations, conducted over an extended period of time, were

able to keep an adequate flow of supplies from reaching CCF forces at the front. Relatively uncontested airpower was also unable to force a brisker pace of negotiations. It is clear that the combination of sanctuaries, political restraints, and a ground lull prevented UN forces from hurting the people who counted at the truce table.

These air interdiction operations failed for a variety of reasons. The first being an overestimation of communist reliance on rail networks. Coupled with this first reason was a similar overestimation of the air force's ability to strike these seemingly fixed and vulnerable targets effectively . The communists also showed a remarkable ability to improvise despite the canalizing nature of the severe Korean terrain. Major bridges had multiple bypasses and rail repair units restored broken lines in under eight hours. Finally, communist air defense eventually established itself and the effects of attrition began to seriously erode the capabilities of the UN air forces. 37 Despite the commitment of almost half of the available UN sorties for air interdiction, the effect was not decisive. 38

Circumstances in Korea during the period studied conspired to limit the effectiveness of UN airpower. This was true despite the UN's general mastery of the air. Political restraints, limited strategic goals, and a failure to synchronize air and ground activity denied the advantages Douhet and Warden claim are automatically gained by the side possessing command of the air. The USAF came into the Korean war with doctrine and equipment that matched its post-World War II perception of warfighting. Air Force leaders remained firm believers in the efficacy and independence of strategic bombing. MacArthur's early insistence on the use of B-29s in direct support of ground troops was met with serious

opposition from airmen. 39 Despite failures in the interdiction campaigns, the USAF remained convinced of the decisive potential of this form of air activity. What was not acknowledged were the effects of enemy countermeasures, time, and attrition. 40 General Ridgway was quick to applaud the contribution of airpower to the overall UN success. Airpower, according to Ridgway, was instrumental in averting disaster in the bleak days of the first year of war. However, he recognized a failure to realize the limitations on airpower's ability, through bombardment alone, to isolate the battlefield and create decisive effects. General Ridgway was concerned that a failure to learn those lessons would have an important impact on the conduct of the war in Vietnam. 41

THE VIETNAM WAR

The next campaign to be analyzed is the USAF bombing of North Vietnam in 1972, Operation Linebacker II. This operation, also known as the "Christmas bombing", is unique amongst the campaigns selected for study. Although less than a month in duration, Linebacker II can certainly be characterized as having been conducted at the high end of the operational continuum. Following years of complex air warfare that featured primarily close air support and interdiction operations such as Rolling Thunder, Linebacker II was essentially a strategic bombing effort. Despite the continued presence of US ground troops in South Vietnam, the total defensive posture and continued withdrawal of US troops made Linebacker II a nearly pure air campaign. After initial problems with North Vietnamese surface to air missiles (SAMS), the USAF was able to gain complete air superiority and bomb, once highly defended targets, with near impunity. While the fury of the B-52 strikes near

previously off limits population centers might indicate near total objectives for the campaign, both sides were fighting for very limited ends.

The Vietnam war was the longest in our nation's history. Throughout its course political goals and strategic objectives eluded civilian and military decision makers. The elusive nature of our national purpose was the root cause for many of the seemingly directionless campaigns and major operations that comprised the US war effort. This lack of clarity in defining US war aims had a significant impact on the conduct of air operations preceding Linebacker II. A brief review of the principle application of airpower prior to 1972 underscores the significance of Linebacker II.

1. End Conditions:

Rolling Thunder, the principal air interdiction effort during the Vietnam war, began in early 1965 and continued in a fitful fashion until 1968. From the outset, Rolling Thunder suffered from ambiguous and shifting strategic goals that defied translation into suitable operational objectives. Preventing the collapse of South Vietnam, gradually increasing the cost of the war for the North while keeping the conflict limited, and reducing the flow of support to the South highlighted what Mark Clodfelter describes as a mixture of positive and negative objectives. 42 Rolling Thunder also suffered from a failure to synchronize air operations with ground operations, even though ground activity was confined to the south. General Ridgway's fears concerning the failure to learn interdiction lessons from Korea was confirmed. Gradual escalation of the bombing allowed the North time to adjust and did not undermine their will to continue the war. The duration of the

operation created significant attrition effects. Besides the loss of hundreds of expensive airframes and air crews, the extended time period of the bombing had a corrosive effect on US will. As was the case in Korea, the North was generally an agrarian society. Both agrarian societies exhibited limited vulnerability to the bombing of their military-industrial base as a way to cut the flow of supplies. The North had numerous politically safe havens from the US bombing effort. Finally, without a synchronized ground effort to exploit interdiction effects, communist forces in South Vietnam remained capable of conducting offensive operations at times of their choosing. 43 Rolling Thunder was thus considered a failure by most airmen and of limited value by the most optimistic observers. 44

Linebacker II did not suffer from the same set of circumstances that conspired against Rolling Thunder. Establishing a clear military end condition for Linebacker II was far easier than it was for the compromise ridden Rolling Thunder. In the fall of 1972, the Nixon administration was faced with the dilemma of a war weary nation, a shaky South Vietnam government, and a methodical dwindling of US combat power in the theater. Hopes for the long awaited Paris peace agreement seemed on the verge of being dashed by a sudden North Vietnamese intransigence in October of 1972. Irrevocably committed to Vietnamization and the rapid completion of the pull-out of US troops, Nixon retained few options for applying pressure to the North. Nixon needed a quick, massive, low cost display of US strength that would accomplish his limited political objective of keeping the peace talks on track. Specifically, Nixon sought to convince the North that they must rapidly proceed towards a settlement within the agreed upon October framework.

Forcing the North in such a manner would demonstrate US resolve to the South, and avoid a congressional vote in January, 1973, that was likely to end war funding. 45 The military end condition required was an unprecedented, unrestrained use of airpower in a short period of time.

2. Sequence of Action:

Because of the limited amount of time available for the operation the sequence of events for the achievement of the military end conditions were telescoped into an eleven day period. During the planning phase, the unique strategic objectives led to the decision to use B-52 strategic bombers above the 20th parallel and against military and industrial targets in the heart of Hanoi and Haiphong. The use of B-52s demonstrated US resolve and provided a massive, accurate, all-weather, day-night capability not previously used that far north. Tactical air forces using LORAN, new precision munitions, and electronic warfare (EW) capabilities would support the B-52 operations. Also prior to the start of the operation, the mining of Haiphong harbor would multiply the effects of the destruction of the North's logistics infrastructure in a way not possible in earlier campaigns.

Based on the experience of Linebacker I, in the spring of 1972, the first phase of Linebacker II saw tactical air forces concentrating on the destruction of the communists' highly capable air defense system. Air superiority was a must for achieving the desired effects. While Migs were less of a threat than in earlier operations, because of the many night sorties, SAMs and AAA remained a great threat to the lumbering, heavy ladened bombers. Because of the density of the defenses, faulty tactics, and the need to bomb while the contest for air superiority took

place, bomber losses were initially high. However, by the tenth day of the campaign the bombers went virtually unchallenged. 46

During the bombing itself, there were three major shifts in targeting designed to create political effects. The first phase of the bombing, 18-24 December, was a massive round-the-clock pummeling of rail yards, power plants, and oil facilities in and around Hanoi. High B-52 losses forced some re-targeting to Haiphong. These strikes were meant to demonstrate a real threat to the economic, political, social, and military life of North Vietnam. 47 After this phase Nixon declared a 36 hour bombing halt for Christmas and offered to resume negotiations. Receiving no response from the North Vietnamese, the bombing was resumed on a similar scale on 26 December. On 27 December, the North expressed a willingness to resume serious talks. In the final phase, from 27 to 29 December, the attacks continued on a somewhat reduced scale to insure that the North did not have second thoughts. The operation ended on the 29th of December with the Communists acceding to Nixon's conditions for further talks. 48

3. Force Application:

Linebacker II was nearly an independent air campaign. Because of the short duration of the operation and the circumstances that curtailed US ground activity at the time the only joint activities were the integration of USAF and naval aviation. As mentioned earlier, the mining of Haiphong harbor in May, 1972, helped to amplify the effects of the B-52 strikes on the North's military-industrial infrastructure. These effects helped delay the North Vietnamese conventional ground offensive against the South until the spring of 1975. This gave the ARVN a well needed but forlorn breathing spell. In effect, Linebacker II allowed for

the continued withdrawal, not under pressure, of US ground forces. Nixon had given the military its chance to conduct an air operation the way many had desired all along. In a rather heavy-handed manner, SAC cut across the in-place unified command structure and conducted what was perceived to be a doctrinally sound and decisive use of strategic bombing. The finest traditions of Mitchell, Douhet, and Harris had been upheld.

In the end, the North Vietnamese returned to the talks with the serious attitude desired by Nixon. The peace agreement was signed on 15 January 1973. The operation was a success and it was conducted within the parameters of the US military tradition. Airmen hailed Linebacker II as a complete vindication of their belief in the decisive potential of airpower:

> The concentrated application of airpower produced the disruption, shock, and disorganization, that can be realized only by compressing the attack and striking at the heart with virtually no restraints on military targets which influence the enemy's will to fight. 49

Though it can be argued that Linebacker II produced decisive results, Kenneth Werrell reminds us that the campaign was not fought for decisive ends. 50 As outlined above, the campaign was conducted for very limited and politically-oriented objective. For the North Vietnamese, the stake in the campaign was essentially limited. As described by George Herring, the North was compelled to sign an agreement they had basically accepted back in October 1972. The changes adopted after Linebacker II were largely "cosmetic". 51 Additionally, the North was concerned that the destruction wrought by Linebacker II was eroding military resources being husbanded for conventional battles to be fought in the south after the US withdrawal. 52 In this scenario of maximum pressure for limited gain, bombing did produce a decisive

result. It is not clear that such bombing begun earlier in the war would have brought a decisive victory. Bombing the North did little to help fix the government in South Vietnam. Unfortunately, it is the perception of Clodfelter and others that the final victory of Linebacker II may have colored the thinking of post-war airmen. Leaders such as Momyer, LeMay, and others deduced that unrestrained airpower could still answer all political requirements, even in a limited insurgency type war. Clodfelter cautions that it is a unique set of circumstances when limited political goals call for the removal of political restraints on the use of force.

EL DORADO CANYON

The last campaign to be analyzed is the 1986 bombing of Libya, Operation El Dorado Canyon. El Dorado Canyon was a joint USAF and USN air operation conducted at the low end of the operational continuum. A brief look at this campaign will be made to reinforce some of the points made in the earlier campaigns.

1. End Conditions:

The military end conditions for El Dorado Canyon flowed clearly from very discrete and limited strategic objectives which in turn were closely linked to US policy. Throughout the 1980s, there was a growing body of hard evidence linking Libya and its fanatical leader, Colonel Mohamar Gadhafi, with state sponsored international terrorism. The Reagan administration waited patiently until 1986, gathering the evidence necessary to take military action against the Libyan terrorist threat. The objectives for the operation were beyond mere retribution, although in Reagan's mind the 1986 bombing of the Berlin disco and the bombing of TWA Flight 840 called for such measures. The President

established objectives for military action that offered minimum risk to US servicemen, with minimum collateral damage, to provide maximum destruction of as much of the Libyan terrorist infrastructure as possible. The hope was that such action could preempt a long expected terrorist campaign against the US. It was also hoped that the operation would perhaps foment insurrection against the Libyan dictator. 53 These limited objectives fit within the national strategy regarding international terrorism; they also nested comfortably within the American military tradition.

2. Sequence of Actions:

The responsibility for military action against Libya came under US European Command (USEUCOM). As the planning commenced, time, the nature of threat, and the constraints and restraints of the mission, ruled out the use of ground forces. The inherent flexibility of airpower made it the ideal choice for the operation. In sequencing the action to create the military end conditions, it became apparent that carrier air from the Sixth Fleet would not be sufficient. Limited collateral damage, all-weather and night capability, as well as a sophisticated air defense made the integration of USAF F-111F, EF-111, and SAC tankers an imperative. As in the case of Linebacker II, the compressed nature of the campaign made the sequencing of the activity appear more a phasing of tactical events. Carrier based F-14s gained immediate air superiority over the battle groups and target areas. A-7 and F/A-18 aircraft, firing anti-radiation missiles, along with EF-111 Ravens, blasted holes through the Libyan defensive belts. Precision attack aircraft, the A-6E using TRAM and F-111F using Pave Track targeting systems, attacked the major military and terrorist facilities. 54 In one short night, with the loss

of one F-111F, USAF and USN aircraft hit 98% of the planned targets while causing limited collateral damage to the nearby urban areas. 55

3.Force Application:

This was in fact, a successful independent air operation. Once again, it relied primarily on the speed, flexibility, and discrimination of airpower and not its potential massive lethality. As opposed to Linebacker II, the politically restrained use of airpower accomplished significant, but carefully limited political objectives. In El Dorado Canyon there was a close nesting of strategic, operational, and tactical objectives. As Mark 84 Paveway laser guided bombs slammed into the Murat Sidi Bilal terrorist camp, the effects were felt up the operational continuum. Despite the misgivings of many political commentators, there was not a wave of terrorism in response to the bombing. Quite the contrary, Gadhafi seemed to get the idea quite clearly.

V. CONCLUSIONS

Historical analysis, as argued earlier, cannot prescribe the best use of airpower in some future war scenario. It can provide insights to the past, identify trends, and develop the process of thinking about related issues. A synthesis of the historical analysis, conducted within the framework of an operationally focused criteria, should provide those insights for the operational planner.

The effectiveness of airpower at the operational level is closely linked to the strategic goals of the campaign. In the cases where there was a failure to establish clearly defined, attainable goals for a campaign there was difficulty translating those goals into military end conditions that could be effectively met with airpower. During the Vietnam War the Rolling Thunder campaign suffered from the overall

ambiguity of US policy in Vietnam. From that policy it was difficult to envision what military end condition was sought and how a gradual interdiction campaign could attain that end condition. On the other hand in the examples of Linebacker II and El Dorado Canyon limited yet specific strategic goals were readily translated into attainable operational objectives, In the case of Linebacker II the rapid and relentless destruction of North Vietnam's military-industrial infrastructure clearly accomplished Nixon's goals. In the case of El Dorado Canyon the surprise destruction of specific terrorist training facilities met that administration's strategic goals.

It has also been demonstrated in the examples analyzed above, that air operations seem to benefit when circumstances find a nesting of strategic, operational, and tactical objectives. In Linebacker II, the physical destruction of previously untouchable rail yards in downtown Hanoi was not just the tactical mission for a specific B-52 sortie. It was also an operational objective that helped achieve the limited strategic and political goals of the overall Linebacker II campaign. Similarly, in El Dorado Canyon, the destruction of the specific terrorist camps in Libya served operational and strategic objectives. This set of circumstances lends itself to the inherent flexibility, speed, and reach of airpower.

The successful application of airpower also seems to be aided when the campaign or operation is of short duration. The rapid and or simultaneous phasing of the operation accrues certain advantages for the air forces involved. In the examples studied, air portions of campaigns that extend over unexpectedly long periods of time suffered from several inhibiting effects. In the cases of Rolling Thunder in Vietnam,

Operation Strangle during the Korean War, and the Battle of Britain (Appendix A), all of the air forces suffered from the effects of attrition. For the US, this factor of attrition eroded combat power and will despite relatively unchallenged air superiority. Additionally, the overarching strategy of gradual escalation appears to have had a particularly deleterious effect on the effective application of airpower in Vietnam. Also in terms of campaign duration, in the three examples mentioned above, time allowed the enemy to adapt to airpower. This adaptation is reflected in intangible factors in the morale domain, such as a hardening of the popular will under bombing as evidenced in Great Britain and North Vietnam. Campaign duration also has effects in the physical domain. Over time, air defenses in Great Britain, North Vietnam, and North Korea, all improved to the point that they became major factors in degrading the effect of air operations. In contrast, rapid or simultaneous execution of airpower achieved surprise, shock, and denied the enemy the chance to learn and adapt to the air operation. This ability to adapt is particularly important in the electronic warfare spectrum where air defenses, when given the chance, can rapidly develop countermeasures to various attack techniques. Linebacker II and El Dorado Canyon both demonstrate this advantage to be gained in a high tempo, short duration operation. It should be noted that this type of operation is greatly aided when the objectives are limited and, as mentioned earlier, objectives across the operational continuum tend to coincide.

The question of the proper allocation of types and numbers of military resources reveal equally important conclusions concerning the decisive use of airpower. Airpower, like all forms of power, works best

when the circumstances permit the synchronization of all types of power. In this case, synchronization refers to the full integration of all forms of power and there simultaneous or sequential application throughout the enemy's depth. Synchronization also means creating an effect with the various forms of power that is greater than the sum of their individual parts. With airpower this synergistic effect can be created not only with ground and naval power but with forms of political and economic power as well.

In the examples of the Rolling Thunder, Operation Strangle, and the Battle of Britain, the inability to link air action with ground action over time contributed to the extended natures of the campaigns and their disappointing results. This is particularly, true as indicated by the examples studied, when the air operation is an interdiction program. Although, similar results would probably bear out in the analysis of extended strategic bombing campaigns such as the strategic bombing of Germany. As concluded by Mason:

> If the enemy holds the initiative on the ground, then he can either reduce his ground activity so that the level of consumption of supplies is below that which is evading the air interdiction campaign, or he can cease operations until his reserves have increased to the level for a new offensive. 56

Though not a statement of USAF doctrine, Thomas Runge of the Airpower Research Institute writes in a recent publication concerning the concept of Follow-On Forces Attack, that one of the most significant lessons of historical analysis is, "Air interdiction operations should not be conducted alone or in isolation from the aspect of pressure on the enemy. Alone it becomes attrition by air which is not profitable." 57 This study has validated this point as the Luftwaffe found with the Wermacht standing idle in France while the Battle of Britain raged, and

as the USAF found with the Army "shadow boxing" the CCF while Operation Strangle fizzled.

Within this study there are several examples of the utility of synchronizing air and naval forces. This is not just restricted to the combining of USAF and naval aviation assets. In the case of Linebacker II, the mining of the Haiphong harbor combined with the massive bombardment of sustainment facilities created a much greater interdiction effect than previously achieved through the bombing of LOCs alone. In El Dorado Canyon the Sixth Fleet components in the Gulf of Sidra provided EW support, SEAD, and command and control for an effective use of joint airpower. In the case of the Battle of Britain, Germany could have made better use of naval and air assets to strike in a coordinated fashion at both the British merchant fleet and the Royal Navy.

Finally, airpower can accrue great advantages when its efforts are synchronized with other elements of national power, beginning at the strategic level. This is particularly true when combined with the circumstances of clearly defined but limited objectives. In the example of Linebacker II, President Nixon effectively integrated diplomatic offensives against both the North and South Vietnamese throughout the conduct of the air operation. In the case of El Dorado Canyon, President Reagan integrated economic pressure through the international blockade on Libya, as well as a "full court" diplomatic press, with the precise use of airpower to make a compelling argument to Libya against state sponsored terrorism.

Summing up the findings concerning the integration and allocation of forces in search of operational decision, the question of air

apportionment must be briefly addressed. In all of the case studies where ground forces played a role, close air support was considered an indispensable use of airpower. In the cases where air interdiction and strategic bombing took place over an extended period of time, such as the Battle of Britain and Korea, airpower failed to provide the expected decisiveness. Where strategic bombardment and deep interdiction were applied over a short period of time with few restraints and where objectives tended to coincide across the levels of war, decision was achieved. This was the case in Linebacker I and II, and in El Dorado Canyon. This point, if it proves nothing else, argues for the balanced flexible organization of air forces that Mitchell advocated so long ago.

From this study certain theoretical concepts can be re-examined. The evidence suggests that air operations or campaigns can culminate in much the same way as other military activities. Attrition of all types, lengthening LOCs, and enemy resilience can all act to bring about the culmination of an air operation. Air operations can also culminate within the morale domain. As noted earlier, populations seem to adapt to destruction brought from the heavens when given the time and opportunity. This can be true whether the population is harnessed under the yoke of totalitarianism as in Nazi Germany or uplifted by the democratic spirit as in Britain. For the future operational planner this effect once again calls into question the persistent legacy of Douhet concerning the vulnerability of a nation's will to airpower. There is a constraint on how long the effects of a bombing or interdiction campaign, despite possessing command of the air, can take place before the effort culminates and the results trail off.

Regarding the question of center of gravity, Colonel Warden is accurate in his assessment of the obvious, it is important to identify the correct center of gravity. However, at the operational level of war the search for the center of gravity should start with the mass of the enemy's combat power. A center of gravity is more than a target type that lends itself to attack from the air or has impact on air activities, such as air defense command and control. Even in the cases where the campaign or operation were compressed into a short period of time for limited objectives the operational analysis o centers of gravity has utility. In Linebacker II, the destruction brought down on the North hit decisive points such as military stores, sustainment facilities, and LOCs that were critical to the North Vietnamese Army's ability to conduct future offensive operations against the South. In El Dorado Canyon, airpower was able to strike directly at the source of terrorist activities by hitting training camps and facilities. This was a strike on an operational center of gravity. The 2,000 lb. bomb that landed in the vicinity of Gahdafi undermined his will to sponsor further terrorism, and therefore hit a decisive point for upcoming terror campaigns.

VI. IMPLICATIONS

In the conclusions section the research question has been answered by suggesting the circumstances that have allowed or denied the decisive use of airpower. The range of possible circumstances has been limited by the campaigns selected and by the criteria that was designed to focus the question at the operational level. This study is just a piece of what must be a more comprehensive answer to the question. The role of

airpower and its relationship to the other forms of military power remains a central question in our national security debate. This importance has been highlighted by the recent war in the Persian Gulf.

The role of airpower in the Persian Gulf war will take on added and passionate significance as the the services gear-up for the bloodiest round of budget cutting in decades. Was airpower the decisive factor in the war? Airpower was applied in what was a classic application of the American military tradition: rapid, firepower-oriented, low-cost in terms of casualties, and with dazzling technological prowess. As the Army moves toward the adoption of AirLand Battle Future, does airpower answer the bill for the deep-fires and maneuver concepts envisioned for the new doctrine? A quick application of the criteria can reveal some of the circumstances surrounding the use and effectiveness of airpower in the Persian Gulf.

The end state for the coalition forces was clear and harmoniously articulated from the beginning. The centerpiece for the end state, as embodied in the UN resolutions, was the unconditional withdrawal of Iraq from Kuwait. This was a limited goal for Iraq, the US, and the coalition partners. There were no provisions for the dismemberment of Iraq or the disposal of Saddam. When the use of force was sanctioned by the UN, the military end condition fell out clearly: the Iraqi army was to be ejected from Kuwait. The only issue that muddied the waters was the future status of Iraq's weapons of mass destruction. For the US this end state was clear, they would cease to exist.

The sequence of action for the campaign reflected the joint US approach to warfare. The plan was an integrated air/sea/land campaign that sought a synergistic effect from the application of all types of

forces throughout the enemy's depth. Air superiority was gained quickly although simultaneously with strikes throughout all of the enemy's domains as was the case in Linebacker II and El Dorado Canyon. Throughout the air portion of the campaign, sorties were apportioned for strategic bombing, air superiority, interdiction, and close support in a manner that focused on the military end condition, the destruction of the Iraqi army in Kuwait.

The air operation was not allowed to culminate. Before the Iraqis were able to adapt to the bombardment through bypasses, decreased activity, attrition of coalition airpower or will, or through the recovery of their air defense system, the coalition kept the initiative by transitioning to the ground phase. Airpower struck the decisive points of support, command and control, and morale that exposed the Iraqi center of gravity, the Republican Guard divisions, for the "KNOCKOUT" blow. All the circumstances were either present or created for the successful use of airpower. Of course, the same can be said for army heavy forces, army aviation, and naval carrier and battleship battle groups. This campaign will long be studied for its planning and setting the conditions for battle as well as for its synchronized execution.

This cursory look at the Persian Gulf war can surely be greatly revised and enriched as we learn more about the conflict. Perhaps the question of the decisiveness of airpower, as Barry Watts and Bernard Brodie argue, defies resolution. In terms of the military pundits such as Luttwak, who declared that airpower could do it alone, it appears to be a rather silly statement in hindsight. The presence of 400,000 ground troops made it more than an air show from the beginning. This study

argues that it was the synchronization of all of the elements of combat power, the proper management of the circumstances, and the environment of combat that made each one of the services so effective. Yet, the inevitable raising of the question can certainly provoke unhealthy parochial connotations for the services. However, understanding the nature of airpower, its historical relationship with the other forms of power, and the circumstances that have led to its successful and unsuccessful use, can only aid the operational planner in the design of future campaigns. This study should also aid the airman in achieving what Watts calls an organic, less mechanistic and deterministic approach to warfare. 58 Such a understanding would be a significant step in reaching a true joint approach to war.

APPENDIX A: The Battle Of Britain

THE BATTLE OF BRITAIN

The Battle of Britain represents what can be considered a significant air campaign that sought to achieve strategic goals in a theater of operations. In this campaign the German air force, through unilateral, activity was expected to accomplish decisive results. The campaign continued throughout most of the war. It was conducted at the high end of the operational continuum, being an issue of national survival for the British and European domination for the Germans. The Battle of Britain was the German main effort at the time. Great Britain and western Europe however, did not comprise the principal theater of operations, that being in the east against the Soviets. The campaign eventually became an independent air effort although, in its fullest development, it was conceived as an integrated air/sea/land campaign. The air battle was designed to support an eventual ground campaign.

1. End Conditions:

Before the outbreak of hostilities in World War II, Hitler had already considered the broad strategic requirements for conducting the Battle of Britain. In April 1939, Hitler had decided that while Poland and France could be dealt with through the defeat of their armies. The Luftwaffe would be relied upon to bring about the desired end state with Britain. Hitler envisioned a total air and sea blockade of Britain that would bring about her capitulation. For Hitler this was not necessarily an unlimited objective. British impotence was required not, subjugation. The blockade, and its supporting strategic bombing of industrial and

military targets, contrary to the beliefs of some Luftwaffe officers, was expected to obviate the need for a formal invasion of the island kingdom. 59 A blockaded, bombarded, and starving Britain was expected to be taken out of the fight leaving Germany free to concentrate on the Soviets.

This end state of a defeated Britain would change as the war progressed and would require a different military condition to achieve it. During the months of the sitzkrieg and following the fall of France, it became apparent that Britain would not accept the logical inevitability of its defeat and capitulate under the pressures of air and sea blockade alone. This uncooperative attitude on the part of the British resulted in Hitler's decision in June, 1940, to prepare for an invasion of Britain, code-named Sealion. A defeated and occupied Britain was an unlimited objective and required different military conditions to be attained by the Luftwaffe. Seemingly, the Luftwaffe was going to be employed in its more congenial role of supporting offensive ground operations. 60

2. Sequence of Actions:

The military condition that was foremost in the accomplishment of both of the desired end states was air superiority. Although important for the effective close-in economic blockade of Britain, air superiority took on a far greater importance with the contemplation of invasion. In this unique set of circumstances, a decisive ground operation depended on limited command of the sea (the channel) which depended on limited command of the air over the same space at the same time. Thus, the sequence of actions that were thought to be most likely to produce the appropriate conditions were, at the operational level, joint in nature.

However, within the campaign, the contest for air superiority took on a special independent quality of its own. In the campaigns of Poland and France, the Luftwaffe's struggle for air superiority was aided by the continuous advance of the ground forces which denied enemy air forces forward bases and provided short ranged German airplanes a continuous series of advanced bases. The rapid collapse of France and Poland, as well as the general inferiority of their air defense systems, precluded the need to target all of the components of airpower such as aircraft and petroleum industries. In the case of Britain, the Germans were faced with a highly capable air force and a robust air defense system. Without the advantages of earlier continental campaigns, the Luftwaffe required a thoroughly crafted sequence of actions to accomplish the desired condition of air superiority.

Germans actions reflected the ambiguity of the changing nature of their end states. During the period of time that the Luftwaffe's principle mission was the economic blockade of Britain, the targeting emphasis was on the destruction of British merchantmen and port facilities. After Hitler's decision to prepare Sealion, the Luftwaffe shifted to the destruction of the RAF to gain the required air superiority for the invasion. During the contest for air superiority, the Germans phased their operation by target types. Initially attacking radar stations and airfields, the Luftwaffe fortuitously switched to the aircraft industry and eventually to city bombing. The historical consensus appears to be that the RAF was on the ropes as a result of the German concentration on RAF bases and aircraft production. The German switch to the bombing of London and other population centers, though consistent with Douhet's premise, gave the RAF the breathing space. In

the interim the RAF was able to recoup its loses and maintain the command of the air required to prevent Sealion. 61

The German switch to night city bombing reflected a reaction to the Luftwaffe's own heavy loses but, it was also the result of an overall intelligence failure. The inability to conduct battle damage assessment prevented an accurate estimation of the capabilities, strengths, and weaknesses of Britain's fighter command. The failure to gain the condition of command of the air led to the abandonment of Sealion, but not an end to the Battle of Britain. Once again the Luftwaffe's objective changed. Without the promise of a decisive ground attack, Hitler hoped to neutralize Britain by a continued aerial bombardment that eventually included the unmanned V weapons. This phase amounted to little more than a terror campaign. The failure of the "blitz" on British population centers, to decisively impact on Britain's will to fight, has long been considered the classic refutation of Douhet's supposition concerning the inherent vulnerability of civilian populations to air attack. 62

3. Force Application:

It is clear that this campaign never took on the characteristics of a fully integrated joint operation. During the blockade phase there was only lose coordination between the Luftwaffe and the German Navy. There was apparently no contemplation of German surface action in support of Sealion. The German U-boat campaign proceeded at its own pace and with its own set of military end conditions. There was no concerted effort against the Royal Navy in the theater of operations. During the phase of the campaign that incorporated Sealion, the imperative for coordination between the three services demanded a closer planning

effort than what actually took place. 63 It was Sealion that gave meaning to the Luftwaffe's fleeting success against fighter command. Attrition of the RAF held significance only with respect to gaining command of the air to the extent required for the crossing of the army poised in France. Once Sealion was abandoned the Luftwaffe was again completely at its own devices, seeking ways to blockade or terrorize the British population. Attrition of the RAF became of secondary importance. It also became clear that attrition was a two edged sword as the grievous Luftwaffe loses mounted throughout the campaign.

Part of the problem in attaining a coordinated effort against Britain came from the overall German failure to achieve unity of command. Paradoxically, in Hitler's totalitarian state, there was little unity of effort and much competition between the services and the various staffs. Goering's political position that guaranteed the independence of the Luftwaffe also guaranteed the Luftwaffe's isolation from the other services and prevented a unified joint effort. Hitler himself muddied the waters with his vacillation concerning how to deal with Britain. Hitler always harbored hopes of reaching some agreement with the British and his commitment to Sealion was thus suspect. Before Sealion planning was even off the ground, Hitler had the Army turning its attention towards the Soviets.

Finally, the Luftwaffe itself was organizationally ill prepared for the Battle of Britain. Conceived as an independent air force with its roots in Douhet, the Luftwaffe in practice was the flying artillery for the blitzkrieg. 64 The light two-engined bombers, dive bombers, and short ranged fighters of the Luftwaffe were excellent for the support of ground offensives. However, German aircraft were generally inadequate

for strategic bombing, commerce interdiction, and air superiority operations over Britain. 65

The Luftwaffe failed during the Battle of Britain to achieve the military conditions required by the campaign's shifting end states. This failure occurred despite the massing of four-fifths of the Luftwaffe's combat power. Warden in, The Air Campaign, attributes failure specifically to the Luftwaffe's inability to achieve air superiority. He goes on to identify the root cause to be the German failure to strike at the British center of gravity, fighter command's command and control, specifically the radar network. 66 While this is true up to a point, it is only part of the story.

The Germans also failed because they were unable to either strangle or defeat the British in a way that would would make them quit fighting. The navy and the Luftwaffe could both cripple commerce and the air force could strike at Britain's will through the populace. However, neither of these targets turned out to be decisive points. Britain perceived its fight to be one of national survival. To win, the German's had to invade and subjugate Britain. In this regard air superiority was not an end but a critical piece of the whole. Warden argues the center of gravity as fighter command C2. However, in line with current Army thinking this is a decisive point. The center of gravity, or the hub of all power, was that which prevented the German Army from crossing the channel and decisively defeating the British. It could be argued that the Royal Navy was thus the center of gravity. Air superiority was required to clear the Royal Navy from the channel for the time required to land the force.

The Luftwaffe and the other services failed to integrate there planning in a way that would create a synergistic effect. The air phase of the campaign was conducted not as a prelude or complement to other service operations, but with the hopes that it could achieve some unilateral decisive results. The circumstances were not present, either inherently in Luftwaffe organization and equipment, German campaign objectives, or in the condition of the enemy to expect such decision.

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