

The Decisiveness of U.S. Air Power

by

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A Thesis submitted to the Faculty of Graduate Studies of

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Abstract

Air power's use in recent conflicts has shown a clear evolution in its lethality, reliability, utility, and most importantly, its decisiveness. More specifically, American air power has increasingly been able to demonstrate an ability to fight and win wars, not by supporting surface forces, but by being supported by them. Air power has become America's "tip of the sword" and is the primary military tool in its arsenal. This has far-ranging political ramifications they may not only affect the way the US wages war, but also how often it decides to do so.

This thesis explores the evolution of modern US air power by examining its use in three modern conflicts. These specific cases have been chosen as they represent conflict across the conventional spectrum of conflict and demonstrate air power's decisiveness at all levels of combat operations. The Gulf War is an example of a conventional inter-state, high intensity war, employing air power in strategic, operational, and tactical roles. UN/NATO missions over Bosnia were a Chapter VII UN operation and represent medium to high intensity conflict, since it evolved from a police action into an application of coercive force. The invasion of Afghanistan in 2003 is clearly high-intensity conflict, but differs from the Gulf War in that there was little to no strategic operation and air power was employed primarily against opposing ground forces. It is also distinctive due to the uniqueness of Afghanistan which caused great difficulty to the US deploying and employing forces, this resulted in only a minimal deployment of ground forces coupled with overwhelming air power, developing a new air-ground synergy, in reference to proxy and special forces.

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Chapter 1 – Evolution of American Air Power

A well-organized, well-planned, and well-flown air force attack will constitute an offensive that cannot be stopped. Lieutenant Colonel Kenneth Walker, USAF (retired).¹

Air power theorists have long made predictions about what air power can do for states in the future.² As one sees it, “the ultimate effect will be to diminish greatly the frequency of wars and to substitute more rational methods of settling international misunderstandings. This may come to pass... because no part of the field will be safe, no matter how distant from the actual scene of conflict.”³ More often than not, expectations have far exceeded actual ability and air power proponents have been criticized for being overly ambitious and air-centric. However, the advent of modern technology, such as intelligence, surveillance, and reconnaissance (ISR) systems⁴, precision munitions, stealth, and greatly improved C³I (Command, Control, Communications and Intelligence) capability, has vindicated some of the ideas of air power enthusiasts. These technologies, coupled with a shift in operational doctrine, have made air power not only the most formidable weapon in the United States arsenal, but also the most politically useful and decisive. Its use in recent conflicts shows the utility of the shift from army-centric to air-centric planning and execution.

¹ Quoted from Walter J. Boyne, *The Influence of Air Power upon History*, (Gretna: Pelican Publishing Company, 2003) p. 238.

² In the words of Air Commodore Jasjit Singh, “In the context of military power, and as distinct from land and sea power, *air power denotes the ability to project force by or from a platform in the third dimension above the surface of the earth*; and in its totality, involves manned aircraft, missiles, electronic warfare, command, control and communications systems, remotely piloted vehicles, and terminally guided weapons. (Italics are Singh’s).” Quoted from Jasjit Singh, *Air Power in Modern Warfare*, (Delhi: Lancer International, 1985) p. xvi.

³ David MacIsaac, “Voices from the Central Blue: The Airpower Theorists”, *Makers of Modern Strategy*, ed. Peter Paret. (Princeton: Princeton University Press, 1986) p. 626.

⁴ ISR includes AWACS (Airborne Warning and Control System), JSTARS (Joint Surveillance and Target Attack Radar System), satellites, and UAVs (Unmanned Aerial Vehicles). These systems, used in an integrated manner provide real-time intelligence of enemy locations and movements in the air and on the surface over the area which they are deployed.

While air power, and in particular the United States Air Force (USAF) has become increasingly useful to decision makers as a military tool, it may be hasty to predict that there will be less international conflict because actors fear the effects of air power. But as former USAF Chief of Staff General Ronald R. Fogleman pointed out, in the twenty-first century, “it will be possible to find, fix or track, and target anything stationary or moving on the surface of the Earth,” to which he added that modern air forces “can touch 100 percent of the population of the Earth...at any time.”⁵ This has made possible a greater use of air power in conflicts in such far-off and land-locked places as Afghanistan, where there were no nearby US military installations.⁶ This greater flexibility has also allowed it to dominate these conflicts such as it never has before.

Conventional technology has developed such that air power has become the preeminent military arm when used jointly. This thesis examines the use of American air power in three modern conflicts and demonstrates that air power can be used decisively to end conflicts quickly, either through coercion or outright destruction. Used jointly, surface forces have increasingly become the supporting element of air power. The focus here is on American air power, and not air power in general, as no other state in the world can credibly claim to be as capable in the air as the United States. The rapid advancement of American air power technologies and the sheer size of its joint air assets gives it a clear preponderance of superior air power, even when compared against many of the other great powers. As the focus is on American air power, it is only the American experience and perspective being examined.

⁵ Quoted from: *Global Engagement: A Vision of the 21st Century Air Force*, found at <http://www.au.af.mil/au/awc/awcgate/global/nuvis.htm>.

⁶ Establishment of forward operating bases (FOB) came during and after the conflict.

The frequency of small wars since the end of the Cold War has not abated and increasingly the Western World, led by the United States, either are being asked to intervene or are taking the reigns themselves, as with the war on terror. Indeed,

there are at least 100 nations in the world that face major ethnic, sectarian, demographic, and religious problems. About 30% of the nations in the world have at least one disputed boundary, and about 30% have serious ethnic or religious difference. In most nations, there are growing economic problems, problems with social change, population pressures, water and other sources of conflict.⁷

Examples of conflicts involving US intervention include the former Yugoslavia, Kosovo, Somalia, East Timor, Kuwait, Iraq, Haiti, Afghanistan, and Liberia. The cost to the US in terms of funds and manpower is great in interventions where a massive build-up of surface forces and a ground campaign are necessary. Conversely, the loss of innocent lives that results from non-intervention due to potential risks and costs is even more troubling.

Air power has begun to replace surface forces as the tool of choice for managing conflicts, and it can be the decisive element in many conventional conflicts. The United States has such a preponderance of superior air power that no state or actor can hope to confront it. The use of air power as the weapon of first choice, with the support of surface forces, to subdue enemies will drastically reduce the length of conflicts, the collateral damage caused during war, the risk to American lives, and the overall cost of participation. This is not to say that infantry and armor will become obsolete. Rather, the historical role of air power supporting the ground forces has been reversed. Air power supported by surface forces ensures victory Americans desire; on the cheap, at least in

⁷ Anthony H. Cordesman, *Beyond Bosnia: The Need for Realism in Using American Military Force*, (Washington, DC: Center for Strategic and International Studies, 1996) p. 2.

terms of the size and length of deployments, and with as little bloodshed and damage as possible.

The three case studies in the following chapters were chosen for their recentness and their demonstration of air power used in varying circumstances and across differing areas of the conflict spectrum. The Gulf War and Bosnia establish that air power can be used decisively to accomplish traditional land force roles and for coercive diplomacy respectively. In Afghanistan, the US demonstrated a new relationship between the land forces and air power that exploited the advantages of the overwhelming technological superiority of US air power coupled with the presence of a small, maneuverable ground force that fixed and flushed the enemy so they could be hit by air power. It is air power used in this manner, when supported by land forces, where it is most decisive. As the conflict in Afghanistan is not yet over, the Afghanistan case study examines only the invasion and not the subsequent US and NATO occupation operations. To be topically relevant, the conflict must be looked at in two distinct parts where the invasion is separate from the counter-insurgency operations.

Evolution of Air Power Theory from WWII to the Gulf

Air power theory is only one hundred years old, as opposed to the many centuries old study of army and naval theory, and what little there is has been criticized consistently. The theoretical study of air power in warfare largely began after WWI, when airmen thought they had a solution to the bloody attrition and stalemate of trench warfare. Three men were most influential to the early development of the body of theory: Giulio Douhet, Hugh Trenchard, and William “Billy” Mitchell. The works of Douhet seems to have influenced both Trenchard’s and Mitchell’s thinking. He wrote the first

strategic theory of air power. Trenchard's most noteworthy accomplishment was the first head of the Royal Air Force (RAF), the first independent air force in the world. His political arguments for the use of air power as an independent and co-equal force eventually became the standard for nearly every state armed force in the world. Mitchell's contribution actually put theory into practice through demonstrations and influenced greatly the next generation of airmen who applied his ideas during WWII.

Douhet's definition of the "command of the air" is as relevant today as when he wrote it in 1927:

To have command of the air means to be in a position to wield offensive power so great it defies human imagination. It means to be able to cut an enemy's army and navy off from their bases of operation and nullify their chances of winning the war. It means complete protection of one's own country, the efficient operation of one's army and navy, and peace of mind to live and work in safety. In short, it means to be in a position to win. To be defeated in the air, on the other hand, is finally to be defeated and to be at the mercy of the enemy, with no chance at all of defending oneself, compelled to accept whatever terms he sees fit to dictate.⁸

In Douhet's view, the future of air power was the bomber, or rather a massive bomber force. He believed a state would never possess enough fighters to protect its entire airspace from attacks by large amounts of bombers carrying huge loads of munitions. This bomber force would concentrate on the enemy's ability and will to wage war by targeting primarily infrastructure and industrial capability.⁹ Air power could win the war on its own, with no contribution from the Army or Navy, who were restricted by time and space to what they could attack. It is this view that became central to the argument between air power proponents and critics; air power the strategic weapon capable of

⁸ Boyne, p. 138.

⁹ Boyne, p. 139. Douhet's sixth tenet of commanding the air is to target five basic systems – "communications, government, industry, transportation, and (the most nebulous of all) the will of the people."

ending conflicts on its own through strategic bombing, as in Douhet's view, or the alternative view as merely flying artillery, an aerial scout, or a flying bus supporting the army with close support firepower, reconnaissance, and mobility.

Douhet's belief stemmed from the limitations of pre-WWII fighter technology and the lack of an early warning capability, resulting in a lack of ability to find, track, and intercept bombers effectively. The focus on strategic rather than tactical military targets was due, in part, to the inaccuracy of bombing. It was much more difficult to hit individual military units than it was to hit a building or piece of infrastructure. Regardless, it was unnecessary to go through the trouble of attacking the enemy's military, when one could attack key strategic targets and win the war.

Despite the logic of Douhet's strategic theory, the critics' argument, reflecting the Army and Navy view was no less sound. Air power should be used to support surface forces, attacking those military targets at the direction of the surface force commander to facilitate the surface campaign, eliminate the enemy's opposing forces, and thereby winning the war.

For proponents and critics,

aircraft have been alternately perceived as weapons with the potential to enact sweeping change on the nature of conflict by forcing the obsolescence of armies and navies, as a threat so great in destructive potential that wars would be avoided so as to prevent aerial attack, and as a weapon with great potential for integration into the traditional theories and conduct of war on land and sea.¹⁰

¹⁰ Lt. Paul A. Galveias, *Instant Thunder! Air Power Theory and The Road to the Gulf War Air Campaign*, (Kingston: Royal Military College of Canada, 1995) p. 3.

Essentially the disconnect boils down to a disagreement about whether air power should be employed primarily as a strategic or tactical weapon.¹¹ To use air power at the tactical level means to support directly surface forces engaged in battle with enemy and the enemy forces held in reserve to the rear of the battle. To the surface forces, air power's tactical role in support of the surface forces, close air support¹² (CAS) and air interdiction¹³ (AI), should be preeminent and enjoy the largest amount of aircraft dedicated to that mission. To the air force and other proponents, the tactical role is the least efficient and effective one and air power should concentrate on strategic targets to be most successful, or offensive air strikes¹⁴ (OAS) in line with Douhet's theory. To use air power at the strategic level means striking targets well beyond the field of the land battle to destroy targets of strategic importance. This means disrupting communications and supply lines, destroying military, political, and civilian infrastructure, and so on.

Prior to WWII, particularly in the U.S., the dominance of the strategic variant resulted in the aggressive development of bomber technology to the detriment of the

¹¹ As defined by Air Commodore Jasit Singh, p. xxx – xxxi, tactical and strategic airpower are as follows: Tactical air power "...implies the use of aircraft and other air power components to operate in conjunction with and in relation to the operation of military forces on the land or on sea. The wider war aim and the role of tactical air power therefore, is to provide support in terms of firepower, mobility and freedom of action of the surface forces through the third dimension." Strategic airpower is "...the use of aircraft (or other air vehicles) independently of the surface forces. The aim of strategic air power is destruction, disruption and dislocation of the enemy was waging machine in its totality so as to degrade the overall capabilities to wage war and/or increase the costs of waging war to an unacceptable level."

¹² Close Air Support is defined as "Air action...against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces", (The Air Force Doctrine Center, 2000).

¹³ Air Interdiction is defined as "air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required", (Joint Staff, 2002), found in Bruce R. Pirnie, Alan Vick, Adam Grisson, Karl P. Mueller, and David T. Orletsky, *Beyond Close Air Support: Forging a New Air Ground Partnership*, (Santa Monica: RAND Corporation, 2005) p. 8.

¹⁴ Offensive Air Strikes are defined as "offensive action...aimed at generating effects that most directly achieve our national security objectives by affecting an adversary's leadership, conflict-sustaining resources, and/or strategy", (Air Force Doctrine Document 2-1.2). This does not include military fielded forces but does include military installations, headquarters buildings, and logistics infrastructure.

fighter force. The U.S. and Britain both entered the war attempting precision daylight bombing as the means of achieving strategic victory. Proponents, however, failed to appreciate the development of radar, anti-air artillery, better, faster and more lethal fighters, the limitations of weather, and the use of primitive shrouding tactics such as smoke screens. The consequence was massive losses of bombers, great inaccuracy, and the inability to validate pre-war air power claims, as it did not, in fact, win the war by destroying certain key strategic targets. Indeed, the British adapted their tactics in the face of heavy losses, switching from low-level day-time bombing to nighttime, and accuracy suffered accordingly. The reality was that the bombers were so inaccurate and the targets made so difficult to hit by interference from the opposing forces that the bomber force's main successes came from hitting cities, resulting in less than anticipated strategic benefit.

It is much debated whether or not the allied bombing campaign was, in fact, decisive. Franklin D'Olier, chairman of the United States Strategic Bombing Survey for WWII stated emphatically that "Allied air power was decisive in the war in Western Europe"¹⁵ to contradict critics that used the survey's findings to conclude that destructiveness was greatly overestimated and the ability of the Germans to adapt and survive in the face of the onslaught was underestimated. Strategic bombing did have the effect of forcing the Germans to focus scarce air assets on the defence of Germany and interfered with the Germany's production efforts, and this certainly aided in the overall effort.¹⁶ However, strategic bombing did not win the war on its own by destroying key enemy targets as had been postulated. It also resulted in the realization that the bomber

¹⁵ Colonel Jeffery R. Barnett, USAF, "Great Soldiers on Airpower", *Airpower Journal*, Winter 1998, p. 24.

¹⁶ R.J. Overy, *The Air War 1939-1945*, (Briarcliff Manor, N.Y.: Stein and Day, 1980) p. 121-126.

alone would not always get through, and in order to bomb effectively a fighter force first had to establish air supremacy over the enemy to protect the vulnerable bombers from attack. This meant a renewed effort in fighter development and the refinement of the theory by influential airmen of WWII, including Doolittle, Harris, and LeMay.

The impact of air power on the ground battle, however, is seldom debated. The great leaders of both the Axis and the Allies agree that the advantage of allied air power is what turned the tide in the waning years of the war. German Field Marshal Erwin Rommel observed; “Anyone who has to fight, even with the most modern weapons, against an enemy in complete command of the air, fights like a savage against modern European troops, under the same handicaps and with the same chances of success.”¹⁷ Eisenhower agreed, writing about the Normandy invasion, “Here, as always, emphasized the decisive influence of airpower in the ground battle”¹⁸ and Omar Bradley said of the same operation: “Air forces were the decisive factor for Allied victories in the invasion and subsequent operations.”¹⁹ Likewise, General George Marshall stated “The outstanding feature to date of America’s war effort has been the manner in which our air forces have carried the war, in its most devastating form, to the enemy.”²⁰

In the post-WWII environment, the development of nuclear weapons severely impeded progress in the growth of further conventional air power theory. With the devastation nuclear arms could inflict, it quickly became obvious that the Cold War was a condition of deterrence where no state wished to use their strategic weapons, and sought to deter their enemy to do likewise. However, thanks to systems-obsessed nuclear

¹⁷ Found in Lt Col Price T. Bingham, USAF (retired), “The United States Needs to Exploit its Air Power Advantage”, *Airpower Journal*, Fall 1993, p. 53.

¹⁸ Barnett, p. 18.

¹⁹ Barnett, p. 22-23

²⁰ Barnett, p. 21-22.

strategists, theorists developed improved strategic targeting theory by breaking down the enemy into systems that could be targeted to achieve strategic effect. For air power proponents, nuclear weapons were the ultimate strategic weapon and there was little argument that a state could win a war using only air power if they employed them. However, the nuclear strategists did not target at the macro level required for conventional munitions. Rather their potential targets were much larger in scope, such as counter force and counter value targets, cities, military installations and other larger centers of gravity. As well, early nuclear strategy again concentrated on bomber development. Once the world ushered in the missile age, the entire American air fleet suffered while it focused on missile and launcher development. As a deterrent to Soviet aggression in Europe, theory for employing conventional air power was centered on nuclear weapon delivery. The conventional theory that did continue to prosper, however, was the use of conventional air power as a counter-force weapon, or flying artillery, to counter the massive preponderance of ground power that the Soviet Red Army enjoyed. This was incorporated into the AirLand Battle doctrine adopted by the US Army in the 1980's, as well as the Follow-On Forces Attack (FOFA) doctrine of NATO.²¹

The Vietnam conflict was a reawakening of conventional thought for both the bomber and fighter community. US air power was unprepared to conduct a conventional war at the outset of Vietnam and despite overwhelming air superiority, air power was used relatively ineffectively and sporadically throughout the conflict. Two operations contributed to modern air power theory significantly, and shaped the development of American air power into the present.

²¹ For more on the AirLand Battle doctrine, see John L. Romjue, "The Evolution of the AirLand Battle Concept, *Air University Review* 35, no. 4 (May-June 1984), p. 4-15; and James A. Machos, "TACAIR Support for AirLand Battle, *Air University Review* 35, no. 4 (May-June 1984), p. 16-24.

The first was Rolling Thunder, a massive bombing campaign against North Vietnam that began on March 2, 1965 and lasted three years. The political objective of Rolling Thunder was “to create conditions for a favorable settlement by demonstrating to the VC/DRV [Viet Cong/Democratic Republic of Vietnam] that the odds are against their winning.”²² Military planners translated this into the military mission “to reduce, to the maximum extent feasible, NVN’s [North Vietnam’s] capability to support and direct the insurgency in SEA [South East Asia]” by applying “steadily increasing pressure against North Vietnam to cause Hanoi to cease its aggression in South Vietnam.”²³ The Johnson administration, which ultimately made all the decisions concerning the execution of the war all the way down to the tactical level, believed that they could use gradually intensified air strikes to coerce the North Vietnam government to discontinue their support to the Viet Cong in South Vietnam. The gradual nature of the bombardment resembled graduated and reciprocated initiatives in tension (GRIT) reduction strategy for conflict management, which relies on punishment followed by pauses with the promise of further punishment if the enemy does not cease the undesirable activity.²⁴

Its use in forming an air campaign strategy was less than effective as the lengthy and frequent pauses in the bombing gave the enemy time to assess its weaknesses and adapt, and to rebuild its losses. Further, the political risk of drawing the Soviet Union or China into the war prohibited attacks on key target areas, such as Hanoi and Haiphong where North Vietnam’s real strength was, making it difficult to prevent military and

²² Former Secretary of Defense McNamara, 1964, as quoted in Joseph R. Cerami, “Presidential Decisionmaking and Vietnam: Lessons for Strategists” *Parameters* Winter 1996-1997, p. 67.

²³ Lieutenant Colonel Paul D. Berg, “Experience, Paradigms, and Generalship in Rolling Thunder: Implications for Today” *Air & Space Power Journal* – Chronicles Online Journal. 14 January 2005.

²⁴ Major Martin L. Fracker, USAF, “Psychological Effects of Aerial Bombardment” *Airpower Journal* Fall 1992.

financial aid from reaching the North Vietnamese government. As well, Johnson did not want the public's focus on Vietnam while he tried to push through his domestic agenda. President Johnson approved few targets of strategic importance for strikes. Rather, Rolling Thunder was primarily an interdiction effort and deeply flawed thinking went into that strategy.

The aim of interdiction is to interfere with the enemy's supply chain to greatest extent possible to make it difficult or impossible for it to re-supply its units. This involves destroying airfields, port facilities, railways, roads, bridges, supply depots, ammunition and fuel dumps, and other modes of transportation. However, during Rolling Thunder key port facilities were allowed to continue to operate, and in pre-industrial Vietnam there was only one rail line. Bridges and roads were hit, but with such infrequency and low intensity that it had little effect on the enemy's ability to move aid into South Vietnam destined for the Viet Cong. Furthermore, any interdiction effort was bound to fail as the Viet Cong, at least in the early stages of the conflict, were nearly self-sustaining. They fought, on average, only one day a month in small, highly dispersed units that traveled on foot, requiring little in the way of supplies to remain combat effective. The trickle of material that made its way to South Vietnam via the Ho Chi Minh trail was more than sufficient to maintain the low intensity operations of the Viet Cong.²⁵

To make matters worse for the Air Force and Navy, targeting restrictions also prohibited them from targeting military airfields and SAM sites, leaving themselves vulnerable, and using multi-million dollar jets and sophisticated weaponry to attack

²⁵ Major Randy Kee, USAF, "Are There Limits to Airpower? A Critical Review of Mark Clodfelter's 'The Limits of Airpower' From the Perspective of the 90's" found at <http://www.airpower.maxwell.af.mil/airchronicles/bookrev/kee3.html>

donkey-drawn carts on Ho Chi Minh trail. This was, again, due to the micromanagement from the White House and Johnson's apprehension of offending the Soviets or the Chinese and further escalating the conflict; "The final decision on what targets were to be authorized, the number of sorties allowed, and in many instances even the tactics to be used by our pilots was made at a Tuesday luncheon in the White House..."²⁶

Unbelievably, aircrews were briefed to ignore the SAM sites because if the US did not strike them, then Ho Chi Minh would not use them. The North Vietnamese Army (NVA) also exploited the protection granted Hanoi and Haiphong to locate large SAM sites within their protected area. These missiles could reach far beyond these areas to down US warplanes. As one US pilot put it "We had to fight all 111 of them one at a time."²⁷ The obvious consequence was a level of operational losses that was not commensurate with the strategic value of the targets being destroyed.

Despite its many flaws, Rolling Thunder was essential for the development of the theory and doctrine that allowed for later successes. What Rolling Thunder confirmed was that air superiority was essential to the success of offensive air operations. Fighters designed for a counter-air role could be used effectively versus ground targets, particularly against targets well defended by ground-based air defences. Heavy bombers, such as the B-52, originally intended for delivering nuclear weapons against strategic targets, could also be used effectively as flying artillery against surface forces, even when in close proximity to friendly forces. Rolling Thunder also clarified the requirement for more accurate weapons technology and delivery systems. Perhaps more importantly, it forced American strategic planners to develop better conventional doctrine to achieve

²⁶ John T. Correll, "Rolling Thunder" *Air Force Magazine* March 2005 Vo. 88, No. 3.

²⁷ Correll, "Rolling Thunder."

strategic success, since it was obvious that much of what nuclear theory had to offer could not be successfully adapted to conventional war.

The second influential operation was Linebacker, first launched to counter the North Vietnamese Army's (NVA) 1972 Easter Offensive, followed by Linebacker II to coerce the North Vietnamese leadership to negotiate peace. Linebacker was primarily a counter-force operation against NVA troops, tanks and artillery that attacked North Vietnam on March 30, 1972, supporting the defending South Vietnamese forces. The NVA wanted to take advantage of the minimal presence of US ground forces after Nixon had steadily reduced American presence there, but the North drastically underestimated their vulnerability to air power after their earlier success during Rolling Thunder. Two factors had changed considerably that made air power a more effective weapon: first, the deterioration of the Viet Cong in South Vietnam forced the North to engage in a more conventional ground campaign using massed infantry and armor. This made them ripe targets for air power.²⁸ Second, Nixon had diplomatic success with both China and the Soviet Union. It was a period of detente with the West. With a more favorable set of political circumstances, Nixon loosened the previous restrictions and allowed air campaigners more flexibility in their target selection and tactics. In his words "The bastards have never been bombed like they're going to be bombed...."²⁹

The success of the early operation quickly translated into an escalation of the bombing to include theater and strategic targets by the middle of April. Linebacker, with some determined resistance by the South Vietnamese Army, succeeded in halting the NVA offensive, inflicting massive casualties of NVA troops, tanks and artillery.

²⁸ Major Randy Kee, USAF, "Are There Limits to Airpower?"

²⁹ Kenneth P. Werrell, "Linebacker II: The Decisive Use of Air Power?" *Air University Review*, January-March 1987.

Linebacker II began after peace negotiations failed on December 18, 1972 and lasted eleven days, forcing the North Vietnamese leadership back to negotiation table. It struck at air bases, missile sites, oil storage facilities, ammunition dumps, and railroad networks using massed B-52s to concentrate a tremendous amount of destructive power on a single target area. This proved very effective against fielded forces and military installations, including some SAM sites.³⁰ For the first time, targets in and around Hanoi and Haiphong were attacked, bringing to bear heightened pressure on the North Vietnamese leadership.

The intensity of Linebacker II was far greater than during Rolling Thunder, hitting mostly strategic targets, but some theater and tactical targets as well. This operation demonstrated that a massive, intense air campaign that attacked multiple strategic and tactical targets simultaneously could be an effective tool of coercion against the enemy, apparently succeeding in under two weeks what Rolling Thunder failed to do after three years. Linebacker gave strategic planners a basis for comparison with the failure of Rolling Thunder to further develop conventional theory. It became central to subsequent thinking that the way for air power to succeed was to strike all potential targets nearly simultaneously and without pause until victory was achieved, rather than attempt to punish the enemy with progressive air strikes. It also highlighted the need for better bombing tactics, electronic defensive technology to increase survivability in high-threat environments, more accurate weaponry, and role specific delivery platforms.

It was in Vietnam that the first precision munitions were used and the utility of using fighters in an interdiction role, bombers in a close support role, and the requirement

³⁰ Walter J. Boyne, "Linebacker II", *Air Force Magazine Online*, November 1997, Vol. 80, No. 11. Found at <http://www.wafa.org/magazine/nov1997/1197lineback.asp>

to develop standoff weapons to counter integrated air defence systems (IADS)³¹ (and in particular surface-to-air missile (SAM) threats), were recognized. To counter these threats and exploit the change in theoretical thinking, new, more capable fighters were built, including the F14 Tomcat, F15 Eagle, and F16 Falcon, along with role specific aircraft such as the A10 Thunderbolt. As well, standoff assets such as cruise missiles and laser-guided bombs, and new technologies such as stealth were developed.

The Birth of Modern Theory

More importantly, it was recognized that better conventional theory was required. To that end modern air power theorists picked up where WWII practitioners left off. These included mostly USAF officers and US academics including John Boyd, Mark A. Clodfelter, Benjamin S. Lambeth, Phillip S. Meilinger, Karl P. Mueller, and John Warden III.³² Of this group, Boyd and Warden have had the most impact on the application of air power in contemporary conflicts, and both were obviously influenced by Douhet's original work. They adapted the concept of the enemy as a system, and breaking the enemy down into sub-systems as first penned by Douhet.

Boyd's development of the Observe, Orient, Decide, and Act (OODA) loop served both to improve doctrine and to mature targeting theory. Based on his experiences as a fighter pilot, initially the OODA loop was intended as a model for air-to-air combat. Boyd and others adapted the theory for use as a means to induce "psychological paralysis" on the enemy by striking at the enemy's ability to perform any part of the

³¹ Integrated Air Defense System – a system comprising radar, SAMs, and anti-air artillery (AAA) to protect territory against air power.

³² See Mark Clodfelter, *The Limits of Airpower: The American Bombing of North Vietnam*, (New York: Free Press, 1989); Benjamin S. Lambeth, *The Transformation of American Air Power*, (Ithaca, NY: Cornell University Press, 2000); Col. Phillip S. Meilinger Lt. Col. Mark A. Clodfelter Dr. David R. Mets Dr. James S. Corum Lt. Col. Peter R. Faber Dr. Karl P. Mueller Prof. Dennis M. Drew Lt. Col. David S. Fadok Dr. Harold R. Winton Col. Maris "Buster" McCrabb, *Paths Of Heaven: The Evolution of Airpower Theory*, (Colorado Springs: Air University Press) and many others by these authors.

OODA loop. He advocated viewing the enemy as a system where each part of the system was essential to complete the loop and preventing the enemy from doing so would lead ultimately to the collapse of its ability to wage war effectively. Martyn describes it accurately:

Boyd asserted that success in conflict stems from getting, and remaining, inside an adversary's OODA loop. The military commander can do so in two complementary ways: by minimizing his own friction through initiative and harmony of response ("tightening" one's own decision-action cycle time), and by maximizing an opponent's friction through variety and rapidity of response ("loosening" the adversary's decision-action cycle time)...This initially produces confusion and disorder within the enemy camp; ultimately it induces panic and fear, manifested as simultaneous paralysis of coping ability and willingness to resist – a term we now call *strategic paralysis*. [emphasis is Martyn's]³³

Rather than try to win wars based on strategies of attrition, essentially to wear the enemy down, or annihilation, to destroy utterly the enemy, a strategy of paralysis seeks to win wars cheaply and quickly by concentrating on key targets to create the greatest effect on enemy behavior. These can be attacks on government facilities, weapons production, military establishments, vital infrastructure, and concentrations of military personnel and equipment. Achieving strategic paralysis of an enemy is not just destruction of random targets, but targets that make up the enemy's system of decision-making and execution. The targets chosen will be unique to every circumstance as each state or non-state actor may use a different system;

Strategic paralysis sensibly assumes that every country has some targets that are more important than others in terms of sustaining the enemy's capability or will to wage war. Because the destruction of these

³³ Bob Martyn, "Theories of Post-Cold War Air Campaigning: The Development of Air Power Doctrine", *Air Campaigns in the New World Order*, Allan D. English ed., (Winnipeg: Centre for Defence and Security Studies, 2005) p. 47.

targets...can paralyze the enemy government, one should concentrate one's air power resources exclusively on those targets.³⁴

The assumptions and the theory itself are very similar to Douhet's.

Warden, influenced by Boyd's view of the enemy as a system, created his five ring theory. In his 1988 book *The Air Campaign: Planning for Combat* he emphasized targeting the enemy's centers of gravity (COG) to achieve decisive strategic results. At the center (the inner ring) was leadership, and then successively organic essentials, infrastructures, population, and fielded forces.³⁵ Striking at any of the rings necessarily affected the leadership; likewise striking leadership impacted all the rings and hence was the most effective for achieving victory through "physical paralysis." Martyn summarizes Warden's thinking:

The campaign plan must be based on political objects, as seen from the enemy's perspective, not one's own – it is the enemy leadership which must be convinced that it is defeated. Even if leadership is unavailable as a target for physical destruction, the air strategist must still focus on the enemy commander's mind when selecting centres of gravity among the other rings...The destruction or neutralization of the leadership centre of gravity will theoretically produce total physical paralysis of the system, whereas successful attack upon centres of gravity within the outer rings produces varying degrees of physical paralysis, but increasingly unbearable psychological pressure upon the leadership.³⁶

The focus for targeting is the effect on the leadership of the enemy, not individual targets.

The practical manifestation in US thinking became known as Effects Based Operations (EBO)³⁷. EBO is a relatively new military operations concept. Rather than focus on

³⁴ Maj Jason B. Barlow, USAF, "Strategic Paralysis: An Air Power Strategy for the Present", *Airpower Journal*, Winter 1993, p. 5.

³⁵ Colonel John Warden III, USAF (retired), *The Air Campaign: Planning for Combat* (Washington D.C.: National Defense University Press, 1988). A good summary of Warden's model is Colonel John Warden III, USAF (retired), "The Enemy as a System", *Airpower Journal*, Spring 1995.

³⁶ Martyn, p. 48.

³⁷ "EBO consists of a set of processes, supported by tools and accomplished by people in organizational settings, that focuses on planning, executing, and assessing military activities for the effects produced rather than merely attacking targets or simply dealing with objectives. EBO complements, rather than

military objectives such as “to destroy the bridge”, EBO instead centers on the effects that the commander’s want to achieve and allow their subordinates the flexibility to achieve that effect by any means they can. So rather than “destroy the bridge” the desired effect could be “to interdict the enemy supply chain” which can be achieved in various ways other than destroying bridges. EBO married to precision weapons also allows the commitment of minimal forces to inflict only that amount of damage required to achieve the desired effect. “‘Effects based’ is an Air Force approach to bombing campaigns. Critical parts of the target are destroyed, not the entire complex or network. For example, planners target electrical nodes instead of the much larger generation plant to get the same effect – no military electrical power.”³⁸

However, Ware points out that “the five ring analysis offers no logical validation that the enemy possesses a form which degrades in predictable ways when his [centers of gravity] are attacked. Nor does it tell us anything about how he operates under conflictual circumstances”³⁹ It was never intended to be a predictor of enemy behavior, as each will behave differently, but a targeting theory to achieve paralysis by focusing effort against those targets that will have the greatest strategic effect. Warden was also influenced in his thinking by the existence of new technologies, including ISR assets⁴⁰ that allow near real-time collection of intelligence data, stealth that allows the US to

replaces, target-based or objectives-based approaches (such as strategy-to-tasks) and is very amenable to mission-type orders and strategy options that do not emphasize attrition-based approaches. EBO applies across the entire range of military missions from humanitarian relief operations, peacekeeping operations, enforcement operations, or conventional war.” Found at *Air Force Research Library's Information Directorate, Information Technology Division, Dynamic Command and Control Branch*, Rome NY, <http://www.afrlhorizons.com/Briefs/June01/IF00015.html>.

³⁸ Cordesman, Anthony H., *The Air War Lessons of Afghanistan: Change and Continuity*, (Washington, DC: The center for Strategic and International Studies, 2002) p. 41.

³⁹ Dr Lewis Ware, “Some Observation of the Enemy as a System”, *Airpower Journal*, Winter 1995, p. 64.

⁴⁰ ISR assets include AWACS (Airborne Warning and Control System), JSTARS (Joint Surveillance and Target Attack Radar System), surveillance satellites, UAVs (Unmanned Aerial Vehicles), and reconnaissance aircraft and ground equipment.

strike any target at anytime regardless of the IADS threat, and PGMs (precision guided munitions) that allow surgical strikes against enemy targets with minimal risk of collateral damage.

Robert A. Pape, the author of *Bombing to Win*, argues that air power can achieve victory, not by employing it strategically, but by using it tactically. He explains that the use of air power strategically, in what he calls a “punishment” strategy, will never work.⁴¹ Punishment, as described by Pape, essentially means using strategic bombing⁴² to attack and destroy civilian infrastructure to achieve political ends. Pape says that these strategies are rarely effective and that using air power in the more traditional, tactical way has far more effect on the enemy. Attacking targets that have little to no effect on the enemy’s military force, such as government buildings and civilian infrastructure, cannot achieve victory on the ground as the enemy’s military is still capable of fighting. Targeting solely military targets, on the other hand, reduces the enemy’s fighting capability. Sustained counter-force strikes will defeat the enemy as they will no longer have the means of continuing the conflict. This is what he calls a “denial” strategy. Destroying the enemy’s ability to wage war against friendly forces is the best way to coerce the enemy to agree to your peace conditions or to defeat it. This means attacking the enemy’s fielded forces opposing friendly surface forces and making it easier for the

⁴¹ Robert A. Pape, *Bombing to Win: Coercion and Air Power in War*, (Ithaca: Cornell University Press, 1996.)

⁴² As described by Pape in “The Air Force Strikes Back: A Reply to Barry Watts and John Warden” found in *Security Studies* Winter 1997/1998 Vol 7, No.2 p. 192, see note 4; “Strategic bombing attacks a nation’s main political and economic centers which are usually located deep behind the front, while theater air power strikes at fielded forces in the combat theater as well as their supply, transport, and communication networks at relatively short distances behind the lines. Strategic air power aims to coerce independently of friendly ground operations. Theater air power operates in cooperation with friendly ground forces to enhance their ability to coerce or defeat the opponent.”

ground forces to achieve victory. In his words, “the critical element of air power is theater attack, not strategic bombardment.”⁴³

It was the belief in this theory that led the “US Army to assert that, in the final analysis, the Gulf War was a ‘swift and complete victory...for the coalition ground force’, which was aided in its campaign by ‘overwhelming support from air and naval forces.’”⁴⁴ However, this argument defines territory and force annihilation as the ultimate goal in conflict and this may not be applicable to EBO, where control of territory is only useful insofar as it effects the enemy.⁴⁵

The arguments essentially boiled down to the pre-WWII debate over whether air power is a strategic or tactical weapon. Pape argues that air power should be used as flying artillery to support the surface forces and annihilate the enemy. Destruction of tactical and theater targets has tangible effects on the enemy’s ability to continue the war, whereas strategic targets have effects that are not easily determined or measured, and can even have the opposite of the desired effect. In line with Warden’s arguments, Armitage and Mason claim that if CAS was required, then airmen had failed at their mission. It is their view that, “air power [can] be a ubiquitous arm of the first hour, and thus escape the need to be employed as a weapon of last resort.”⁴⁶ Air power applied in a strategic and operational role, in this opinion, is more effective and efficient than on-call attacks against enemy forces engaged with friendly forces on the front lines. By using it to perform OAS and AI early on, then CAS will not be necessary later on, as the enemy will

⁴³ Robert A. Pape, “The Limits of Precision-Guided Air Power”, *Security Studies*, Winter 1997/98, p. 96.

⁴⁴ Alan Stephens, “‘Testing the Limits’: The Future of Air Power”, *Asia-Pacific Defence Reporter*, June/July 1998, Vol. XXIV No. 4. p. 15.

⁴⁵ Maj Christopher Bence, USAF, “Warden Vs Pape”, *Air & Space Power Chronicles – Chronicles Online Journal*, February 2000, p. 4.

⁴⁶ M.J. Armitage and R.A. Mason, *Air Power in the Nuclear Age*, (Urbana, Ill.: University of Illinois Press, 1983), 257.

not have the ability to marshal whatever forces it has remaining against ours, and furthermore would no longer want to. Further, if there is a land battle, friendly forces will have been better served if the enemy has been weakened to a point that it can no longer fight effectively.

Air power proponents on either side of this argument are not contending that it alone is sufficient in each any every scenario; indeed none of the elements can claim that. Correll summarizes this view succinctly, “The nation needs a full range of military capabilities. That includes boots on the ground and ships at sea. However, and with all due respect, it seems reasonably obvious that the dominate elements of warfare in the future will be airpower and systems in space.”⁴⁷ Air power technology, along with effects based operations, have allowed it to replace the Army and surface forces as the tool to destroy, coerce, and control the enemy.

For traditional Army tasks such as holding territory, air power can achieve this in an effects based operation. Richard Hallion explains: “Airpower can hold territory by denying an enemy the ability to seize it, and by denying an enemy the use of his forces. And it can seize territory by controlling access to that territory and movement across it. It did both in the Gulf War.”⁴⁸ To this John Warden adds, “I find it difficult to think of things that can be achieved by regular forms of military power that can’t either be done by airpower of some sort, or at least where airpower cannot make a significant, substantive contribution.”⁴⁹ Lt Gen Charles G. Boyd, writing in 1991, agreed: “I submit that air power will play the leading role in our response to the security challenges of the

⁴⁷ John T. Correll, “The Clash of Visions”, *Air Force Magazine*. April 1997, Vol.80, No.4. p. 2.

⁴⁸ Richard Hallion as quoted from, Maj. Marc Dippold, USAF, “Air Occupation, Asking the Right Questions”, *Airpower Journal*. Winter 1997, Vol. XI, No. 4. p. 72.

⁴⁹ Col. John A. Warden, USAF, as quoted from John T. Correll, “Airpower and the Other Forces”, *Air Force Magazine*, June 1997, Vol. 80, No.6. p. 34-35.

uncharted future. It will in some circumstances be the only engaging form of military power and in others the form upon which successful surface operations depend.”⁵⁰ Many more notable authors have contributed to this debate.⁵¹ Nonetheless, Warden’s view was the dominant theory amongst strategic planners when the US began planning the air campaign for the Gulf War.

From Strategic to Decisive

It was with these new weapon systems, doctrine, theories, and technologies that the US entered its next major conflict, the Gulf War. This conflict will be covered in depth in Chapter 2, but briefly the Gulf War served to test these new technologies, doctrines, and theories. In particular Warden’s theories were put to the ultimate test as one of the architects of the Gulf War air campaign. The target list he created was consistent with his five ring theory to disrupt Iraq’s leadership capability, and as will be seen in the next chapter, was arguably successful. However the Gulf War also rekindled the debate about air power and the critics were quick to argue variously that it was an anomaly not to be repeated, strategic bombing was ineffective, air power cannot win wars without surface forces, aerial bombardment increases collateral damage and civilian casualties, and the role of air power is still to support the surface forces. The core of the

⁵⁰ Lt Gen Charles G. Boyd, USAF, and Lt Col Charles M. Westenhoff, USAF, “Air Power Thinking: ‘Request Unrestricted Climb’”, *Airpower Journal*, Fall 1991, p. 11-12.

⁵¹ These include: Barry Watts, “Ignoring Reality: Problems of Theory and Evidence in Security Studies”, *Security Studies* Winter 1997/1998 Vol. 7, No. 2 p. 115-171, Karl Mueller, “Strategies of Coercion: Denial, Punishment, and the Future of Airpower”, *Security Studies* Spring 1998 Vol. 7, No. 3 p. 182-227, and John Warden, “Success in Modern War: A Response to Robert Pape’s *Bombing to Win*”, *Security Studies* Winter 1997/1998 Vol. 7, No. 2 p. 172-190. For more on the argument that CAS is the primary role of air power, see Pirnie, Vick, Grisson, Mueller, and Orletsky, *Beyond Close Air Support: Forging a New Air Ground Partnership*, (Santa Monica: RAND Corporation, 2005). For a critique of Warden’s theories, see Lt Col Timothy G. Murphy, USAF, “A Critique of *The Air Campaign*”, *Aerospace Power Journal*, Spring 1994.

debate has remained essentially unchanged since the time of Douhet. How is air power best employed, as a strategic or a tactical weapon?

Central to the theoretical argument is the belief that employing air power is a zero-sum game. If one views it as a strategic weapon, then the focus will be on strategic targets to the detriment of tactical targets, and naturally the opposite applies as well. This is due to the scarcity of air power resources such that demand for air power will always exceed America's ability to supply it. This misses the point entirely. Air power is neither inherently strategic nor inherently tactical and theoretical arguments that focus on either do little to explain the contemporary role and ability of air power. Whether it is used strategically or tactically, or more likely as some mixture of the two with the emphasis shifting based upon the situation, air power is decisive.

As modern militaries typically act in a joint context, whereby all branches are operated in conjunction with each other and none is truly independent, determining which of the forces is decisive is key in the decisions regarding force structure, operations planning, and doctrine. Decisive in this context can be defined as the greatest contributing factor to success, or the element that most contributed to the conditions of victory, be they the surrender and withdrawal of the enemy, as in the Gulf War, the coercion of a hostile actor to accept coalition demands, as in Operation Deliberate Force, or total regime change and the annihilation of a combatant force, as in Operation Enduring Freedom. Arguments in this regard can rarely be quantitative and are often the subject of great debate. The term "strategic" cannot be used synonymously in this context, since air power is not employed in isolation from other factors. Even when air power is used without a coordinated surface campaign, several other factors can influence

the enemy, including diplomatic and economic pressures and local opposition forces. It is not necessary for air power to win the war on its own. Indeed there are few scenarios where this would be the likely outcome. To be decisive, air power, or any element of the military, needs to demonstrate it was key to determining the successful outcome of the conflict.

The term strategic, as it is used in this paper, is not synonymous with decisive. Strategic is word that has many meanings to many people. Within military jargon, strategic can denote a higher level of authority or a target whose destruction carries with it political consequences. With academia, strategic has come to mean “war winning”, as in “strategic goals” or “strategic success.” In this study, the term strategic will be used solely in the military sense of the word where the objectives are operationally strategic. Political goals are ultimately at the strategic level, though they often do not coincide with military objectives and include domestic political considerations. While a useful consideration in the political analysis, only the operational strategic level is examined in the case studies.

Decisive, for the purposes of this analysis, is defined as “very important for the final result of a particular situation.”⁵² If air power is the greatest contributing factor to victory, it is therefore the decisive element. That is not to say that it is the necessary condition for success, meaning that without air power, the US would have lost the conflicts in question. To the contrary, the US certainly would have won in the Gulf War, Bosnia, and Afghanistan if air power did not exist. However, it would have been a different victory. The wars would certainly have been longer; longer to prepare for and to execute. More friendly casualties would have been very likely, as would greater

⁵² *Oxford Advanced Learner's Dictionary*, Oxford University Press, 2005.

destruction to the country. Finally, it would have cost much more, politically and fiscally. There would also be a diplomatic and public relations impacts to consider.

The decisive element is normally the one that is supported by the other elements. In a historic sense, the surface forces, more accurately the Army, have been the supported force with the Air Force providing the support in the form of close air support, transportation, and reconnaissance. Many in the Army still hold this view:

Land operations determine the outcome of major theater wars (MTWs). In an MTW, the nation employs large joint and multinational forces in major combat operations to defeat an enemy nation, coalition, or alliance. The Gulf War of 1991 is an example of an MTW. Army forces are the decisive forces for sustained land combat, war termination, and postwar stability.⁵³

However, in recent conflicts air power has shown that it can win conflicts independently from or with the support from land forces;

The still-growing capability of US airpower is not simply an issue of providing better indirect fire support to maneuver forces in a different way. This situation is conceptually different. In certain circumstances, it could easily transform the Air Force or Navy from the supporting force to the supported one. The Army in many cases will fulfill a “find-fix-flush” function to position enemy forces so that airpower can destroy them...⁵⁴

Conclusion

As Warden wrote, “We don’t go to war merely to have a nice fight; rather, we go to war to attain something of political value to our organization.”⁵⁵ Air power is politically preferred over troops on the ground for two main reasons. First, it puts less people in danger while accomplishing the same goals. As one author put it, “New technology and new operational concepts already offer an alternative to the kind of

⁵³ US Army, *The Way Ahead: Our Army at War, Relevant and Ready*, <http://www.army.mil/vision/Documents/The%20Army%20Vision.PDF>

⁵⁴ John Gordon IV and Jerry Sollinger, “The Army’s Dilemma”, *Parameters*, Summer 2004, p. 39.

⁵⁵ Warden, “The Enemy as a System”, p. 43.

military operation that pits large numbers of young [soldiers] against an adversary in brute, force-on-force conflicts.”⁵⁶ The result would also be fewer casualties for friendly troops on the ground. Summed up by Lt. Col. David K. Edmonds, USAF, “the military, could exploit airpower at the strategic level. It promises an improved chance of victory with fewer casualties through its inherent capabilities such as speed, flexibility, and maneuver in a new dimension.”⁵⁷

Second, “It is a strategy of asymmetric force that applies...advantages to strike directly at an adversary’s ability to wage war.”⁵⁸ This means crippling the enemy’s command, control, communications and intelligence capability (C³I) and destroying their ability to move and support fielded forces. By first achieving air superiority, modern air power can halt an advancing army in its tracks with relative ease and with little threat to itself.⁵⁹ As one scholar wrote, “the airplane possesses such ubiquity, and such advantages of speed and elevation, as to possess the power of destroying all surface installations and instruments, ashore or afloat, while remaining comparatively safe from any effective reprisal from the ground.”⁶⁰ This advantage of modern armed forces can seriously change the way wars are fought and lessen the amount of casualties taken by friendly forces in the future.

The USAF and proponents of air power are not attempting “to say air power is the weapon of only choice, or that air power can invariably play the decisive role across the

⁵⁶John T. Correll, “The Measure of Airpower”, *Air Force Magazine*. January 1998, Vol.81, No.1, p. 20.

⁵⁷ Lt. Col. David K. Edmonds, USAF, “In Search of High Ground: The Airpower Trinity and the Decisive Potential of Airpower”, *Airpower Journal*. Spring 1998, Vol. XII, No.1. p. 5.

⁵⁸ James A. Tirpak, “Future Engagement”, *Air Force Magazine*. January 1997, Vol. 80 No. 1, p. 20

⁵⁹ James Kitfield, “To Halt an Enemy”, *Air Force Magazine*. January 1998, Vol.81, No.1. p. 65.

⁶⁰ Edward Warner, as quoted from MacIssac, p. 629.

full spectrum of activities that a modern defense force must be prepared to confront.”⁶¹

Obviously this is not the case. However, air power can be decisive in many combat operations, and can even make a substantive contribution to non-combat operations, such as low-spectrum policing actions, humanitarian aid, and disaster relief, and may at times be decisive.⁶² It seems clear, though, that in circumstances similar to those described in the case studies it has the principal role in modern combat.

Surface forces may still be preeminent in some low to medium intensity operations, but in most combat operations the decisive force will be air power. Indeed as some scholars suggested, “The increasing capabilities of air power relative to land power do not, however, imply that land forces are becoming obsolescent. Land forces can perform some tasks that air forces simply cannot, and they can perform some others far more effectively or efficiently than air power can.”⁶³ Missions such as policing, collecting human intelligence, counter insurgency, “winning the hearts and minds”, and other operations requiring human contact are examples where surface forces are essential and air power can make limited contributions in a supporting role.

Counter-insurgency operations are a key area where air power can provide support, but ground forces are required for the main effort, this will be expanded upon in Chapter 5. However, air power is becoming dominant in combat; “First, the ability of air

⁶¹ Stephens, p. 13.

⁶² The role of air power in low and medium spectrum conflicts is covered by Corum, James S., “Airpower and Peace Enforcement”, *Airpower Journal*, Winter 1996, Vol. X, No. 4., “The Air Campaign of the Present and Future – Using Airpower Against Insurgents and Terrorists”, *Air Campaigns in The New World Order*, English, Allan D., ed. Winnipeg: Center for Defence and Security Studies, 2005, and, “Aerospace Power in Current and Future Small Wars”, *Aerospace Power: Beyond 100 Years of Theory and Practice*, Fergusson, James G. ed. Winnipeg: Center for Defence and Security Studies, 2005. See also Hillen, John, “Peacekeeping at the Speed of Sound: The Relevancy of Airpower Doctrine in Operations other than War”, *Airpower Journal*, Winter 1998, Vol. XII, No.4 and, Metz, Steven, “The Air Force Role in United Nations Peacekeeping”, *Airpower Journal*, Winter 1993.

⁶³ Pirnie et al, p. 25.

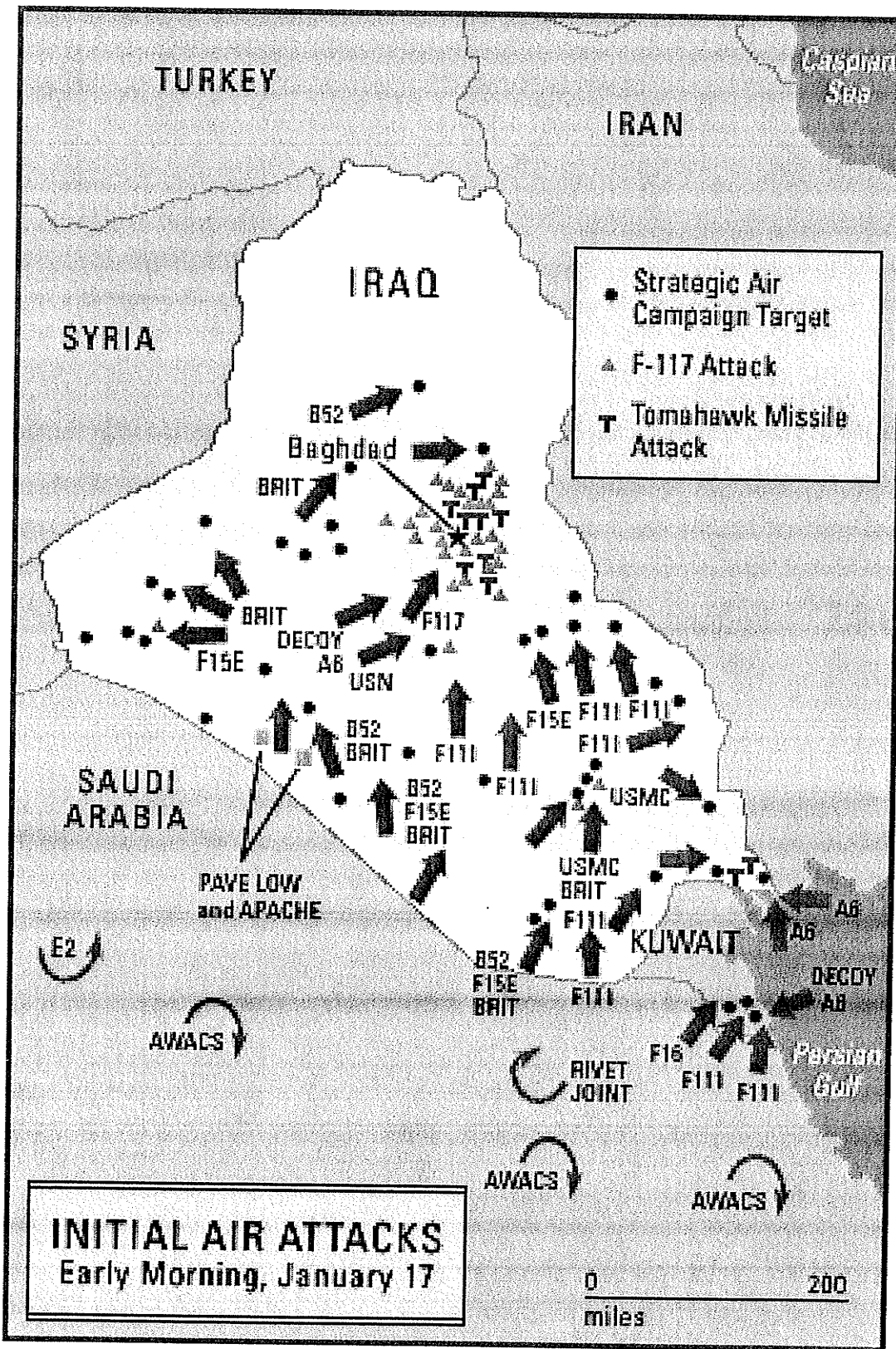
power to attack ground forces has increased faster than has the ability of the latter to survive in the face of air attack. Second, the ability of air power to destroy ground forces has increased more rapidly than has the ability of ground forces to kill other ground forces.”⁶⁴

Air power’s main political advantage is allowing for the US to put fewer troops in harms way while still achieving success. There are also several more advantages from a political perspective. Air power is rapidly deployable and can bring near-immediate force to bear anywhere in the world. This is attractive in an age when the American public and politicians have an almost unrealistic expectation of the ability of the US military to react and counter aggression and defend national interests quickly. Additionally, not only does using air power involve using less troops, it puts those troops less in harms way. The American public has become increasingly casualty averse and air power has the promise of delivering victory with minimal casualties. Another reason air power is more politically attractive is that is very effective as a destructive and coercive tool while curtailing the risk of civilian deaths and collateral damage. The increasing accuracy of US air power that stems from the greater use of PGMs means that the air campaign can destroy any target in nearly every setting, including those in built up areas close to the civilian population, without taking on a large risk of damage to non-combatants. Finally, air power can take on nearly any mission that is presented to it, be it tactical or strategic in nature, or a combination of the two, simultaneously to achieve the greatest effect and the best chance of a swift victory.⁶⁵

⁶⁴ Pirnie et a., p. 24.

⁶⁵ This entire argument is found in Zalmay Khalilzad, David Ochmanek, and Jeremy Shapiro, “Forces For What? Geopolitical Context and Air Force Capabilities”, *United States Air and Space Power in the 21st*

Century, ed. Zalmay Khalizad and Jeremy Shapiro, (Santa Monica: RAND Corporation, 2002) p. 15-50.
For more on the “air first” option see also Gordon and Sollinger, p. 33-45.



Gulf War Initial Air Attacks Map showing KTO.

Chapter 2 – Decisive Air Power in The Gulf War

War is the remedy that our enemy has chosen. Therefore let them have as much as they want. (General William Tecumseh Sherman)¹

The Gulf War clearly demonstrates the decisiveness of modern air power as it was employed in a wide variety of roles to achieve a vast array of objectives and effects. As well, it accomplished what many believed to be historically land-force objectives, such as holding territory and closing with and destroying the enemy.² Air power was the decisive element in this scenario for several reasons: it achieved desired strategic effects that resulted in the virtual paralysis of the Iraqi organs of command and control, leaving the fielded units effectively leaderless; it seriously undermined the population's, and more importantly, the Iraqi soldier's will to fight; it dealt a swift and devastating blow to the Iraqi units that were occupying the Kuwaiti Theatre of Operations (KTO) from which they were never to recover, and it halted and destroyed any attempt by the enemy to steal the initiative.

The Gulf War also demonstrates the impact of 'jointness,' a term meaning operations involving two or more branches of the armed services. In the case of the Gulf War, the air campaign was planned and executed by a joint headquarters and utilized resources from nearly all areas of the American military. The term air power does not only include the Air Force, rather it refers to all conventional airborne, air breathing assets and includes everything from strategic bombers to army aviation and everything in between. All of this was brought to bear against the Iraqis through an integrated plan. It

¹ General Norman Schwarzkopf quoting General Sherman in an interview after the war, as quoted from Bert Kinzey, *The Fury of Desert Storm: The Air Campaign*, (Blue Ridge Summit: Tab Books, 1991) p. 14.

² Lt Col. Terry L. New makes the argument that air power can perform all historical army tasks and there should no longer be a delineation between the air and land battle. See "Where to Draw the Line Between Air and Land Battle", *Air Power Journal*, Fall 1996, p. 34-49.

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was not uncommon during the Gulf War, though extremely rare in previous operations, for aircraft from the USAF, the US Navy, and the US Marine Air Corps to all participate together in a single sortie against a single target package. This is significant as each arm of the US military developed those capabilities that best suit its needs. For example, the Marine Air Corps and Army Air Corps have aircrew and aircraft for close air support (CAS) missions but possesses no strategic bombers. The Navy focuses on protecting their surface assets from air attack and anti-submarine warfare but does have multi-role attack fighters for power projection. The Air Force possesses the full range of air weaponry. By combining these forces in such an integrated manner, the campaign planners effectively neutralized Iraqi air and ground threats enabling the success of the campaign.

The strengths of modern air power, as revealed in this conflict, are unmistakable evidence of its decisiveness. Harnessing those attributes of air power that are unique to the third dimension have given contemporary and technologically advanced air forces the edge over surface forces in terms of decisiveness. Air power in the Gulf War exhibited rapid mobility, by meeting the threat of Iraqi invasion of Saudi Arabia within days rather than weeks; flexibility by adapting to the changing situation and capitalizing on strategic and tactical advantages; and strategic interdiction by striking the enemy far from the front line in order to induce a situation conducive to victory. No other branch of the military can respond so quickly, make use of new intelligence immediately, maintain near-constant situational awareness, and strike at the heart of the enemy's nodes of production and centers of decision-making authority. For these reasons air power played the preeminent role in the war.

Historical Background

Before the conflict began, Iraq had the fourth largest army and the sixth largest air force in the world. This included over 950 aircraft, 7,000 antiaircraft guns, 16,000 surface to air missiles, 900,000 regular force troops, 1.1 million reservists, 3,700 artillery pieces, 5,700 main battle tanks supported by 10,000 support vehicles and 5,000 armored fighting vehicles, and 160 armed helicopters.³ In addition, Iraq's forces were not recent graduates of recruit school by any means. The nine-year war with Iran had Iraq's ground forces battle-hardened and disciplined. The air force had conducted long-range and sophisticated attacks on Iran's air force and installations.

The threat that this force posed to the coalition forces was very real. Saddam Hussein had invaded Kuwait with three armored divisions comprised of T-72 tanks and supported by artillery, some ground attack and troop lift helicopters, and several squadrons of fighter aircraft. The only defense that Kuwait was able to put up in the face of this threat came from their air power and air defense assets, destroying several Iraqi planes and helicopters and harassing the armored advance. After the successful invasion, Hussein moved in thousands of more troops and armor to occupy the "Nineteenth Province."⁴

When Iraq invaded Kuwait on August 2, 1990 and it came as a shock to nearly everyone. In the words of Mikhail Gorbachev:

A surprise. An absurd decision. That action could have been done only by an adventurer or a person who did not have a sense of reality. We had Malta behind us....the unification of Germany. The cold war split was being overcome. International relations were being freed from ideological confrontation. Nuclear arms were being reduced. So this action seemed

³ Kinzey, p. 146-147.

⁴ Saddam Hussein maintained that Kuwait was a province of Iraq since he did not recognize the independence granted it by the British during colonial rule.

done with an idea to explode all this. This is why it surprised me and angered me. I resented it.⁵

On August 3 Iraq declared their intention to withdraw their troops beginning on August 5, but this was just a deception and Iraq continued to deploy its army to the Kuwaiti-Saudi border, appearing to prepare for invasion.⁶

From the outset, the United States saw this as an attempt by Saddam Hussein to invade Saudi Arabia, which is protected by the US in a security relationship. On August 7, US President Bush gave the authorization for the deployment of troops, ships, and aircraft to Saudi Arabia for Operation Desert Shield, to protect the Saudis from the large Iraqi army.⁷ Two aircraft carriers in the area responded immediately and were the first on the scene and were later followed by several squadrons of the USAF combat and support aircraft. At that time, the US intention was initially to deter Iraq from attacking Saudi Arabia, and not to interfere in Kuwait. As Hallion puts it: “Iraq clearly had an opportunity, if it choose to do so, to expand the war into Saudi Arabia at a time when its potential opponents were understrength – but this “window of vulnerability” was fleeting, thanks to the mobility of air power.”⁸ As it would have been tremendously difficult to mobilize a sufficient number of ground troops to deter the formidable Iraqi invasion force in so short a period, the rapid mobility of air power, both sea and land based, was seen as the only real option to provide a tangible and credible threat to the Iraqis in Saudi Arabia.

⁵ Mikhail Gorbachev in an interview with PBS Frontline, found at <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/decision.html>

⁶ Anthony Cordesman, *Lessons of Modern War Vol IV, The Gulf War*, (Boulder, CO.: Westview Press, 1996) p. 54.

⁷ Kinzey, p. 8.

⁸ Richard P. Hallion, *Storm Over Iraq: Air Power and the Gulf War*, (Washington, D.C.: Smithsonian Institution Press, 1993) p. 135.

Once the decision to deploy land-based aircraft was made, the first squadron of the USAF was operational in Saudi Arabia in 38 hours.⁹ However, as Cordesman emphasizes,

The fact that aircraft can fly fast does not mean that they can fight fast. Even though the US began to act with days of the Iraqi invasion of Kuwait, it could not deploy operational land-based combat air power until August 10, and it was nine days after the first F-15C arrived in theater before they could begin flying actual patrols out of Saudi bases....¹⁰

Still, the deterrent effect of having US forces in theater was very real, and in any case Iraq never capitalized on its strategic advantage. As well, carrier-based assets were fully combat capable upon arrival, and these forces were present within days of the invasion and the USAF was able to deploy air power of equal strength to that of the Iraqis in under two months.¹¹

At the same time, the UN and US decision makers were debating what to do about Iraqi aggression. On August 2, 1990 the UN Security Council passed its first of seventeen resolutions on the Iraqi action, UN Security Council Resolution (UNSCR) 660, condemning the Iraqi invasion. There was popular support in the US and the UN to deploy forces to defend Saudi Arabia from a potential Iraqi invasion. However, similar support did not initially exist for an offensive to throw Iraq from Kuwait in either the UN Security Council or the US government. All preferred using diplomatic efforts and punitive measures that did not include force to try to coerce Saddam into withdrawing. Eventually they decided to impose economic sanctions backed up with naval forces to enforce the embargo with UNSCR 664 on August 18 and UNSCR 665 on August 25, to try and weaken Iraq to the point where it would have listen to UN demands and back out of Kuwait. This brought considerable economic pressure to bear on Iraq since it cut off

⁹ Hallion, p. 136.

¹⁰ Cordesman, p. 64.

¹¹ Cordesman, p. 71.

access to pipelines through Saudi Arabia and Turkey that Iraq relied upon to export oil. This denied Iraq more than 95% of its oil export revenues.¹² Many felt that cutting off the profit from oil sales would work, but if that did not work, in Margaret Thatcher's words, "aggressors must be stopped, not only stopped, but they must be thrown out. An aggressor cannot gain from his aggression. He must be thrown out and really...we ought to throw him out so decisively that he could never think of doing it again."¹³ As the diplomatic pressure brought to bear on Saddam increased, he continued to reinforce his army in Kuwait, and to loot the state systematically, dismantling its economy and infrastructure.

Considerable US diplomatic effort was required to bring the UN, British, Saudi, Kuwaiti, and the remaining coalition members, as well as the Soviet Union, into agreement on what action to take in the event the sanctions did not work. On November 29, UNSCR 678 authorized "all necessary means" to force the withdrawal of Iraq from Kuwait, with a deadline of January 15, 1991, nearly six months after the invasion. Iraq breached the deadline, daring the UN to attack it, and coalition forces in the Middle East, including Gulf and Arab states such as Saudi Arabia, Egypt, Syria, and the UAE, cooperated with the US in preparing to drive Saddam from Kuwait by force. The final opportunity for Iraq to avoid a full scale ground war came from President Bush on February 22, 1991. He gave it until February 23 to begin withdrawing troops among other ultimatums. Saddam again refused.

The build up for "Operation Desert Storm" was the largest since World War II and has been compared to "taking Oklahoma City, all of its people, all of its vehicles, all

¹² Cordesman, p. 86.

¹³ Margaret Thatcher in interview with PBS Frontline found at <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/thatcher/1.html>

of its food and household goods, and moving it all half-way around the world.”¹⁴ This was achieved using massive air and sea lift resources that required aircrews and seamen to make literally hundreds of round trips. “Airlift proved critical, for it was the only rapid military tool that could deliver significant combat strength at long ranges within hours.”¹⁵ The USAF moved two land force brigades and twelve squadrons of aircraft, including all logistical and administrative assets required to support them, in under a month.

By January 15, the date of the deadline, the US amassed 454,100 troops, and more than 2000 main battle tanks, 2500 armored fighting and reconnaissance vehicles, 110 naval vessels, 1215 fighters and bombers, and 340 attack helicopters.¹⁶ Allied forces contributed more to the numbers. This compared to the estimated Iraqi force of 1.2 million troops, 5800 tanks, 5100 armored vehicles, 3850 artillery pieces, and 750 combat aircraft.¹⁷

Iraq’s air force, military and governmental infrastructure was protected by one of the most sophisticated Integrated Air Defence Systems (IADS) that existed in the world at the time. It had approximately 130 surface-to-air missile (SAM) sites and complexes with 18 SAM support facilities. “Baghdad had more dense air defenses at the start of the Gulf War than any city in Eastern Europe, and more than seven times the total of surface-to-air missile launcher strength deployed in Hanoi during the height of the Vietnam War.”¹⁸ Throughout the build-up, between August 2005 and January 2006, and afterwards theater commanders were relying heavily on the ability of air power to defeat

¹⁴ Kinzey, p. 10.

¹⁵ Hallion, p. 137.

¹⁶ Cordesman, p. 106.

¹⁷ Cordesman, p. 109.

¹⁸ Cordesman, p. 444.

an Iraqi invasion if it came and reduce their numbers significantly before a ground offensive.¹⁹

The Air Campaign

The air campaign during “Operation Desert Storm” started with hitting key leadership targets and removing the threat from Iraqi combat aircraft and rapidly moved on from there. The campaign was split into four phases, phase one concentrated on strategic targets and was planned to take seven days. Its objectives were to gain air superiority over Iraqi Air Force, destroy Iraq’s strategic capability, which included nuclear biological, and chemical facilities, as well as the Scud missile threat, and disrupt the Iraqi command and control network. Phase two focused on operational targets, ensuring freedom of movement for friendly forces by suppressing Iraqi air defence systems in Kuwait, and was only planned for a single day. Phase three saw the continuance of phase one and two targets, but shifted emphasis to the fielded army in Kuwait, preparing the battlefield prior to the ground assault. Scheduled for twenty-two days, phase three was the longest of the air campaign. Phase four, the final phase, had no fixed timeframe and was planned to support the surface invasion.²⁰ The first three phases were projected to take 30 days, but it actually required 39 due to weather, trouble finding the mobile Scud missiles, and inaccurate battle damage assessments (BDA) forcing pilots to strike the same target twice.²¹

Phase one was the only strategic phase of the operation and is the main point of contention for analysts. “Generally speaking, the strategic campaign followed Warden’s concept of the Five Strategic Rings: isolate leadership, degrade key production, disrupt

¹⁹ Cordesman, p. 76.

²⁰ Kinzey, p. 11-12.

²¹ Kinzey, p. 11.

the infrastructure via transportation attacks, “turn” the population and troops against the regime, and destroy Iraq’s offensive and defensive military forces.”²² Airpower targeted Iraqi leadership, key production facilities (i.e. electricity, petroleum, and communications), infrastructure (i.e. key roads and bridges to the KTO), and population through psychological warfare and a propaganda campaign.²³ As Warden put it: “The overall thrust of operations in the first hours of the war was to begin inducing a strategic paralysis in Iraq which would simultaneously start the process of cutting Iraq down to an acceptable postwar size and making it impossible for Iraq to do anything about it.”²⁴ As Kinzey vividly describes:

By the time the Iraqis knew that the air attacks had begun, the strike packages were on their way to destroy targets that would help attain the goals stated in phase one of the air campaign. It was to be a blow from which the Iraqis never would recover. Carrier based aircraft added their numbers to the land based aircraft in the strike packages headed for targets throughout Iraq. Command and control facilities were hit in downtown Baghdad, Scuds were attacked in Northern Iraq, air defense systems were targeted throughout the country, airfields were bombed, and nuclear, biological, and chemical plants and storage facilities were attacked from the air and hit by Tomahawks. As the sun rose on Iraq the morning of January 17, the country was under a massive air attack that reportedly delivered “a bomb a minute” on a wide variety of targets.²⁵

Phases one and two began nearly simultaneously, with the emphasis shifting to phase three targets once phase one and two targets were largely destroyed. The strategic

²² Hallion, p. 151.

²³ John Warden III, “Success in Modern War: A Response to Robert Pape’s *Bombing to Win*”, *Security Studies* Winter 1997/1998 Vol. 7, No. 2, p. 179-184.

²⁴ Warden, p. 179.

²⁵ Kinzey, p. 13-14.

targets continued to be serviced throughout the campaign. The air campaign started on January 17 and from that time until the end of the war, “there was no time from day one on, that the Iraqi ground forces were not under heavy air attack.”²⁶ The Iraqi Air Force did try to counter the coalition air threat, but to an embarrassing futile end. The only air-to-air kill made by the Iraqis throughout the war was on their own aircraft.

As previously stated, the Iraqi Air Force had been the sixth largest in the world before the Gulf War. They flew new and old Soviet and French aircraft. The most modern of the Iraqi combat aircraft were about equal in ability to most coalition aircraft. Despite this, they failed miserably, losing about half of their aircraft on the ground from air strikes, and more losses from air-to-air combat. Iraq began the war with 750 combat fighters, and while only around half were destroyed by the coalition, their contribution to the defence of Iraqi forces was lost since the survivors scattered or escaped to Iran, where they were accepted as reparation payments for the Iran-Iraq war.²⁷ This is attributable to the lack of training on the Iraqi side, and the professionalism and superior planning, numbers, and weapons technology on the coalition side.

The Iraqi pilots were aided by one of the most capable and redundant IADS in the world. The destruction of this defensive system was vital to the continued success of airpower in the war, but missions to destroy its components were extremely risky. This remarkable air battle was waged at great risk to the airmen involved and surprisingly few casualties were experienced. The coalition lost only 38 aircraft to combat action, having flown some 69,000 sorties. The modern and sophisticated Iraqi SAM network was only able to down thirteen aircraft, clearly showing its overall ineffectiveness.

²⁶ Hallion, p. 201.

²⁷ The remaining aircraft fled to Iran for safety, thus American pilots dubbed the Iraqi Air Force the “Taco Bell Air Force” because they “made a run for the border, see Kinzey, p. 18.

The ensuing 39 days of the Gulf War air campaign were one of the most successful operations by air forces ever accomplished. As Galveias describes:

Air superiority was achieved in a decisive manner which allowed coalition aircraft to roam the skies virtually unmolested...Strategic precision strikes destroyed essential centers of gravity through the use of precision guided munitions. Surveillance from air and space provided virtual real-time information which was used in target selection and bomb damage assessment. Stealth technology succeeded despite the critics who had cited it as a waste of money and resources...The Iraqi Army forces were decimated in their positions in occupied Kuwait; showered with bombs and psychological material, their ability and will to fight was seriously degraded...Interdiction, counter-air operations, and close air support missions were conducted with a high level of skill, precision on both strategic and tactical levels. The coalition showed a high level of integration and interoperability across the spectrum of roles and missions which were required.²⁸

Phase two gave coalition air power unrestricted access to the entire theatre of operations through the destruction of the anti-air threat and paralysis of the Iraqi Air Force. Phase three concentrated attacks on Iraqi ground forces, particularly the Republican Guard, in Iraq and Kuwait in an attempt to induce combat ineffectiveness of those units by the destruction of morale and attrition of manpower and equipment. It also cut those units off from their supply routes and isolated them. As Keaney describes:

Air attacks against the Iraqi army in Kuwait comprised well over half of the coalition effort. The objective set for the air attacks was reduction of combat capability of that army by 50 percent. The measurement of attrition was destruction of Iraqi armor and artillery to that level throughout the theater. Air strikes began targeting ground forces on the first day of the war, then proceeded with increasing intensity throughout. All forty-three Iraqi divisions in the theater received some attention, but three Republican Guard armored or mechanized (heavy) divisions received the most, followed by the other eight heavy Iraqi divisions that made up the tactical and operational reserves. Attacks against Iraqi front line divisions (all infantry) peaked just prior to the ground offensive.²⁹

²⁸ Paul A. Galveias, *Instant Thunder! Air Power Theory and The Road to the Gulf War Air Campaign*. (Kingston: Royal Military College of Canada, 1995), p. 33-34.

²⁹ Keaney, p. 33.

Although the arbitrary 50% goal was not achieved, air power did achieve estimated attrition rates of “39 percent for tanks, 32 for armored personnel carriers, and 47 for artillery.”³⁰ In addition, the lack of supplies, the constant bombardment, and its psychological impact seriously undermined the Iraqi Army’s will to fight. By the time the coalition tanks rolled, one could barely make out the once proud army from the rabble that remained. Indeed,

...air power played a critical role in preparing for the land battle, and...equipment losses are only part of the story. Air power unquestionably helped to contribute to massive desertions in the Iraqi forces during the air campaign...the total manning of Iraqi units in the KTO dropped from 336,000 at the beginning of the air war to 200,000-220,000 by February 24. This 25-30% drop came largely through desertions....³¹

In phase four the coalition air forces supported the ground force offensive by providing CAS, interdiction, and reconnaissance. Much of the surviving equipment and vehicles that the ground offensive encountered were already abandoned or unoccupied from deserting soldiers.³² This is not because their equipment was inferior. It was because in many cases the soldiers had no food, no ammunition, and lacked confidence in their ability to defend themselves from air attacks. The ground war was so successful simply because air power had reduced any resistance the friendly forces would face to numbers far lower than even the attrition rates above indicate. Even many of the units that remained, including Republican Guards, surrendered in droves without a shot fired. This may have been because they feared the advancing tanks, but more likely as a sense of hopelessness induced by the previous 39-day air assault.

³⁰ Keaney, p. 33.

³¹ Cordesman, p. 566.

³² Keaney, p. 35.

Applying Theory to Practice

It is easy in hindsight to predict a coalition victory so complete, but in January 1991, the situation appeared much different. Iraq seemed like a formidable enemy; it had defeated Iran in a bloody, multi-year war, was in full control of Kuwait, had large stockpiles of combat ready chemical weapons with medium range ballistic missiles, and was continuing to build up forces in Kuwait faster than the coalition could. On the other hand, the key coalition member, the US, had not fought a major regional war since Vietnam, which it lost, had never tested its new fighting technologies or doctrine in combat, and was faced with political pressure from the coalition as well as the American public to win the war quickly, decisively, and bloodlessly.³³ None of these factors indicated that the coalition would achieve victory at so little a cost.

Planning for an air campaign had actually started in the late 1980's during the rapid collapse of the Soviet Union. At the time, military planners saw Iraq as the only real military threat to Saudi Arabia and began a contingency plan for just such a scenario.³⁴ Once the crisis had started and detailed planning began in earnest, the US military planners from each of the services had already planned to destroy over 400 targets³⁵ using the joint concept as described above rather than parceling out strike packages to each of the services piecemeal. It was fortunate that they were able to make the most of the relatively long five and one half month planning cycle before actual fighting commenced. In-theater intelligence assets concentrated on identifying targets to obtain the desired strategic and operational effect of paralyzing the Iraqi leadership and undermining their ability to wage war. Reconnaissance aircraft were utilized to monitor

³³ Cordesman, p. 86.

³⁴ Hallion, p. 143.

³⁵ Hallion, p. 143.

troop concentrations and movements in order to achieve the desired tactical effect of eliminating the fielded Iraqi forces.

The target set grew rapidly throughout the planning process as a result of increased intelligence about the enemy. This allowed the commanders to orchestrate the opening days of the air campaign carefully to ensure that decisive force was brought to bear immediately upon the start of the offensive. For the US offensive plan to succeed without heavy friendly casualties, the air campaign had to be extraordinarily effective in reducing Iraq's combat strength.³⁶ Before the offensive began, "enough air power had arrived in theater so the phases of the air campaign had ceased to be sequential... This build-up in air strength and ability to attack all major targets at once, vastly increased the shock value of applying decisive force. It also increased the ability of air power to play a more decisive role than in previous conflicts."³⁷

Concerning the value and utility of the strategic phase of the war, conducted exclusively by air power, if one believes Warden then this operation greatly contributed to the overall victory. On the other hand, if one believes Pape then this strategic operation was ineffective and the result of the war would have been the same without it. An argument has been made for both, but the strategic goals extended beyond the end of the conflict to limiting Iraq's post-war capabilities and removing it as a regional threat. As well, the effect of the bombing certainly impacted Iraq's ability to defend itself and conduct the war. Destroying only 25% of the electrical facilities knocked out 70% of the power in Iraq. This combined with the fuel shortages caused by the destruction of petroleum refineries and caches meant that Iraqi society and policy makers were forced to

³⁶ Cordesman, p. 90.

³⁷ Cordesman, p. 427.

expend resources to obtain energy that could have been used for more profitable ends. As well, key individuals in Saddam's government are thought to have been killed when offices and command bunkers were destroyed from the air, adding great confusion and further delays in an already stressful decision making environment.³⁸ Thus before the coalition air forces turned their attention to Iraq's fielded troops, they had already weakened Saddam's ability to defend his country and his forces.

It is always difficult to quantify the benefit of a strategic campaign, and the Gulf War is no different. Did the coalition air campaign accomplish its strategic goals and did it contribute to the victory? The bombing disrupted key leadership activities, but this did not necessarily negatively impact the fielded forces in any discernable way. Similarly, although Iraq's communication ability was disrupted, this did not seem to have any effect on Iraq's military.³⁹ The damage to Iraq's governmental and economic infrastructure was substantial, but quickly recovered after the war. The air campaign removed the ability of the fielded army to be re-supplied with food, water, fuel and ammunition, but they had already had nearly six months to build-up stock in anticipation of war, and any shortages are likely more attributable to poor management than to the interdiction of supply lines. This would have had great effect if the ground war had lasted more than a week, but as it was there was only 100 hours of ground combat and most Iraqi units would have had sufficient tactical supplies for that amount of time.⁴⁰

³⁸ Kinzey, p. 179-184.

³⁹ Cordesman, p. 548-549.

⁴⁰ Cordesman, p. 553-554

Daryl G. Press goes further to say that air power did not win the Gulf War, nor did it even have much tactical impact.⁴¹ He backs this assertion up with a counter argument against the main boasts of the air power proponents. That air power disrupted the enemy's C3I, prevented the enemy from maneuvering, prevented the enemy from supplying its forces, attrited the enemy's military forces, and broke the enemy forces' morale. Press first suggests that using offensive air power against defensive ground forces is inherently difficult.⁴² His own evidence suggests otherwise. The air campaign lasted only 38 days, yet Iraqi fielded forces in the KTO were reduced considerably, indicating that air power had pretty clear success targeting Iraqi forces in a defensive posture. He next states that Iraq's army divisions, even the most elite of these, were "poor military units" even by third world standards, and no match for the American and British opposition.⁴³

There is no question that the coalition's forces and equipment were of superior quality to that of Iraq's, but Iraq had fought a long sophisticated war against an arguably superior enemy force and had been victorious. Furthermore, the US has, in the past, taken significant casualties against generally poor military units, as in Vietnam and Somalia; forces that were undoubtedly of lower caliber than the Iraqi forces. Iraq deployed fifty-one divisions into the KTO and were capable of fielding more of their elite units had they chosen to. The suggestion that Iraq's army would have been so completely routed without using air power is a little naïve, and cannot really be argued with any certainty since the war was fought with air power.

⁴¹ Daryl G. Press, "The Myth of Air Power in the Persian Gulf War and the Future of Warfare", *International Security*, Fall 2001, Vol. 26 No. 2.

⁴² Press, p. 9.

⁴³ Press, p. 14.

Press' entire argument is essentially that air power failed to "neutralize" the Iraqi Army because during the ground war some units actually fought. But the aim of the air campaign was not to "neutralize" the Iraqi forces, as they likely could have done had not the air campaign ceased after only 38 days. The aim was to reduce the effectiveness of the Iraqi forces through attrition and interdiction such that victory was assured for coalition ground forces. To use Press' own logic, since victory was quick and easy for the coalition, the air campaign must have achieved its aim. Suffice it to say that the majority of fighting against the Iraqi ground forces occurred during the 38-day air campaign, not the 100 hour land offensive. Again, the coalition certainly would have been victorious had a bomb never been dropped from the air during the entire engagement. However, it is naïve to suggest that the friendly casualty rate would not have been greater and that the campaign would have been no longer.

Air power greatly reduced the combat strength of the Iraqi Army and Air Force, in terms of both troops and equipment. While this certainly played a role in facilitating the ground offensive, it failed to achieve the strategic objective of reducing Iraq's post-war capabilities, since Iraq retained much of its strength immediately after the war and was able to rebuild what it lost fairly quickly. Suffice it to say that it remained a regional threat despite those losses.⁴⁴ In spite of this, one cannot characterize the strategic bombing campaign as a failure, since it is difficult to measure any of the immediate and long-term effects very precisely. As well, strategic targets accounted for the least amount of combat sorties (18%), including strikes against the Republican Guard.⁴⁵ Air power knocked out Iraq's electrical grid and most of their distilled oil production, and this

⁴⁴ This may have been deliberate to keep Iraq has a regional balance against Iran.

⁴⁵ Cordesman, p. 537.

would certainly have impacted a prolonged ground war. However, the air campaign's greatest effectiveness was against the fielded enemy forces. Indeed,

There is no way to quantify the impact of this pressure on Iraqi forces and war fighting capability, any more than there is a way to quantify the shock effects of air strikes as distinguished from their damage effects. It is clear, however, that Iraq never was free of pressure from offensive air power from the beginning of Desert Storm to its end. Night did not halt Coalition operations. Weather gave only brief respites. Iraqi forces in the rear came under the same intense pressure as Iraqi forces in the forward area, and dispersed Iraqi forces came under attack as well as rear area facilities and Iraqi economic infrastructure that supported military operations.⁴⁶

Criticism leveled against the strategic campaign invariably points to the lack of ability to locate and destroy the mobile Scud launchers as well as the inability to locate and destroy chemical and biological weapons factories. While these can be seen as intelligence failures, critics claim that since air power is more dependent on useful and accurate intelligence than ground forces, it can be seen as a failure of air power as well.⁴⁷ However, this did not have a discernable impact on the outcome of the war. The "Scud Hunt" was largely a product of the media as the threat the Scuds posed to friendly forces was not too high. The political fallout of successful Scud attacks against Israel forced the coalition to make finding and destroying the Scuds a priority in return for an agreement from Israel not to retaliate and risk inflaming other Arab states.

The Scuds were an inaccurate and unreliable weapon system, and technologically not much of an improvement over the German V2 rocket of WWII. Although the Scud attacks created pressing political issues, the few successes Iraq did have with the Scuds resulted in little impact on the coalition. While air power destroyed relatively minor

⁴⁶ Cordesman, p. 491.

⁴⁷ James A. Winnefeld, Preston Niblack, and Dana J. Johnson, *A League of Airmen: U.S. Airpower in the Gulf War*, (RAND, 1994).

amounts of the mobile Scud launchers, they were rendered essentially ineffective as Iraq was forced to relocate them constantly and hide them in areas where they posed little to no threat to friendly forces.⁴⁸ The rapid decline of Scud launches as the war progressed⁴⁹ indicates that even if many of the launchers were not destroyed, the air campaign achieved the desired effect of removing them from the battle; “the effort against the missiles, combined with the perceived success of the Patriot in defending against them, achieved the strategic objective of enabling the Israelis to stay out of the conflict. And, it is on the strategic level that military organizations, nation states, and Coalitions win wars.”⁵⁰ It was estimated that Iraq entered the war with many hundreds of missiles and after the war, retained 100-200 missiles⁵¹ that it did not use. General Folgelman pointed out that,

we denied the enemy use of fixed Scud sites and made it dangerous for mobile missiles to move... Our attacks against the Iraqi forces effectively suppressed rates of fire, disrupted operations tempo, and limited multiple launches. The enemy had 500-600 missiles and upwards of 36 [launchers] but fired only 88 Scuds. Having previously demonstrated a high launch rate in the Iran-Iraq War by firing almost 200 Scuds, Iraq should have been able to expend its entire Scud inventory. That it did not is a tribute to intense coalition air operations that destroyed launchers and related logistics or kept the enemy too busy hiding to fire its missiles... We can statistically show that Iraq launched Scuds more often during bad weather with low visibility than in good weather -- perhaps believing that bad weather offered protection from attack. The bottom line is that coalition dominance of Iraqi airspace apparently drove the enemy to seek the cover of clouds to protect its [launchers].⁵²

⁴⁸ Thomas A. Keaney, “Surveying Gulf War Air Power”, *Joint Force Quarterly*, Autumn 1993, p. 30.

⁴⁹ From 17 January to 26 January, 9 days, there were 49 Scud launches, compared to only 39 from 27 January to 28 February, 32 days.

⁵⁰ Elliot Cohen ed., *Gulf War Air Power Survey* Vol. 12, (Washington D.C.: Federation of American Scientists, 1993), p. 139.

⁵¹ See <http://www.iraqwatch.org/government/US/Pentagon/dodscud.htm>.

⁵² General Ronald Folgelman, USAF, “Theater Ballistic Missile Defence”, *Joint Force Quarterly*, No. 9, Autumn 1995, p. 76

To achieve this effect, the coalition dedicated just 1,599 sorties out of 51,146, or only 1.3% of the total number of combat sorties to finding and destroying Scuds.⁵³ Obviously the “Great Scud Hunt” was a well-publicized sideline to the overall campaign and did not reflect the effectiveness of the remainder of the operation.

As for the biological and chemical weapon manufacturing installations, these too were an overemphasized part of the strategic campaign. The aim of destroying them was so that these weapons could not be used against coalition forces and to remove them from Iraq’s post-war arsenal. As none were indeed used throughout the war or afterwards, the desired strategic effect was achieved. Nonetheless, the threat may have been greatly overstated in any case. Similarly, although the intelligence prior to the war drastically underestimated the size and scope of the Iraqi nuclear program, the failure to adequately dismantle it was also seen as an air power failure. However, in the years between the Gulf War and the Iraqi war, Hussein was not able to produce a nuclear weapon.

In the four phases described above, the US leadership had five goals:

(1) isolate and incapacitate the Iraqi regime by attacks on leadership facilities, electric power production, and telecommunications; (2) gain and maintain air supremacy by attacks on the air defense system and the air force; (3) destroy nuclear, biological, and chemical warfare (NBC) capabilities; (4) eliminate offensive military capabilities by attacks on logistical sites, Scud missiles and launchers, oil refining and distribution facilities, and naval forces and bases; and (5) render the Iraqi army ineffective and isolate it in the Kuwait theater by attacks on railroads and bridges and on the units themselves, particularly the Republican Guard.⁵⁴

To the extent that these goals were accomplished is an accurate measure of the decisiveness of airpower. Although it is difficult to measure the impact of the strategic campaign targeting Iraq’s leadership and communication, it did contribute to the overall

⁵³ All numbers derived from the *Gulf War Air Power Survey* Vol. 5, (Washington D.C.: Federation of American Scientists, 1993), Elliot Cohen ed.

⁵⁴ Keaney, p. 27.

victory as it prevented Hussein from amassing any forces for counter attack as well as preventing him from stealing the initiative by attacking land-based air units in Saudi Arabia, which he did attempt once. It also reduced Iraq's capability to service and support their military to a point that even mundane provisions for the fielded units, such as food, spare parts for vehicles and equipment, and ammunition, were not being delivered. This greatly impacted the effectiveness of Iraq's army for obvious reasons and made it nearly impossible for them to mount a credible offensive or to defend themselves from an air or ground threat for even short timeframes.

Press argues that there is no evidence that air power destroyed Iraqi C3I and suggests that the fact that Iraqi units did maneuver is evidence that their C3I was intact during the ground campaign and therefore air power failed to cut-off Iraqi communications in the field.⁵⁵ Despite attacks to their intelligence gathering and communications infrastructure, the Iraqi field commander apparently was knowledgeable of the "left hook" attack to west only six hours after it was launched, and re-positioned his forces to defend against it.

Press takes a great leap of faith that the maneuver was coordinated and organized by a central commander. There is no evidence to suggest that it was, and what is more the movement was neither effective nor appropriate. The Iraqi forces that did move simply oriented themselves in a defensive posture that faced west, requiring very little maneuver. They did not take advantage of the stretched out movement of coalition forces to counter-attack at the flanks or mass forces to exploit holes in the offensive, showing an obvious weakness in their intelligence gathering and command capability. Furthermore, radio and cellular communication between individual units in the field was not the target

⁵⁵ Press, p. 27-28.

of the air campaign. The coalition sought to cut off the fielded forces from the centralized command of Saddam's government, which was largely successful. Since decision-making in the Iraqi military was notoriously centralized, this had the effect of forcing command downward into the field, leaving higher-level coordination impossible.

As with Cordesman, Press argues that the lack of supplies were more a function of poor management amongst the Iraqi forces than it was the air campaign.⁵⁶ That may be true, but only because the ground war was only 100 hours long. No one expected such a resounding and rapid victory over the Iraqi Army. As with all immobile and defensive armies, the Iraqi forces needed very little in the way of combat supplies, such as fuel and ammunition. But as soon as they engaged in combat, their consumption increased exponentially. The coalition planners were counting on the air interdiction campaign to choke the Iraqi fielded forces in the event of a lengthy ground battle. Since the ground battle was over quickly, the effect of the interdiction was not fully felt, but the operation was no less successful. As well, combat supplies of fielded forces were not the main focus of the interdiction effort, military stockpiles in Iraq were. That the Iraqi forces were able to fight with the supplies they had once the ground war began is not indicative of an air power failure. Press' unreasonable expectation seems to be that air power was unsuccessful unless every tank and artillery round, every missile, and every round of ammunition were destroyed from the air prior to the start of the ground war. Nevertheless, air power did reduce the availability of combat supplies to some fielded units and this arguably contributed to their overall combat ineffectiveness.

The second reason why airpower won the Gulf War is that it significantly reduced the number of opposition ground combatants to a level that enabled the coalition land

⁵⁶ Press, p. 29-30.

forces to easily defeat them in under five days. As Richard Hallion put it: “The effect of all these attacks was a veritable firestorm of munitions raining down upon Iraqi forces. It inflicted operational paralysis upon the Iraqi soldiers in the KTO, immobilizing them, preventing them from fighting, breaking their will, and reducing many units to rabble waiting to surrender.”⁵⁷

At original levels each Iraqi armored division averaged 250 main battle tanks, 175 armored personnel carriers, and 75 artillery pieces. By mid-February, in those units along the Kuwaiti-Saudi border, that strength was reduced by half, for those further back, their strength was reduced by 70-80%. This meant destroying nearly 150 armored units per night.⁵⁸ As Hallion summed up the air force contribution: “By the end of January, the Iraqi Air Force had ceased to exist as an effective force, the Iraqi Navy was virtually under water or hounded to Iran, and the Iraqi Army was substituting for live-fire targets found at the National Training Center, or the Fallon and Nellis ranges.”⁵⁹

To say that the ground assault in the dying days of the war won the day is obviously, then, inaccurate.⁶⁰ Air power had essentially rendered the Iraqi fielded forces to ‘combat ineffective’ status. Had they been allowed to retreat prior to the land operations, any troop or armoured movement that the Iraqis attempted was quickly thwarted by coalition air power. Even during and after the land offensive air assets preyed on retreating Iraqi units preventing them from re-grouping for a counter attack and reducing Iraq’s post-war military capability.

⁵⁷ Hallion, p. 217.

⁵⁸ Hallion, p. 217.

⁵⁹ Hallion, p. 220.

⁶⁰ US Army, *The Way Ahead: Our Army at War, Relevant and Ready*, <http://www.army.mil/vision/Documents/The%20Army%20Vision.PDF>.

The critics point out that although the air campaign did make the ground offensive easier, the ground offensive was still required to remove the Iraqi units from Kuwait and would have outmatched the Iraqi army without any air campaign in any case.⁶¹ Daryl Press argues that merely dropping many bombs does mean that air power is decisive. Surface forces alone could have certainly achieved similar results, perhaps with increased friendly casualties over a longer period of time, but ultimately the same outcome. There is little doubt that the quality of the coalition ground force was far superior to the Iraqi Army, however the coalition had an insufficient superiority of troops and equipment to win decisively. The enemy was also dug into camouflaged and fortified positions, thus it's difficult to believe that without air power, surface forces would have achieved the same ultimate outcome. As well, the strategic air campaign had effects that lingered after hostilities ended, while a ground only campaign could not have conducted a similar campaign without a full invasion and occupation of Iraq.

The U.S. Army also contends that while air power provided excellent support, the ground war was still required to finish the job.⁶² While true, it is completely inline with what was planned from the start; air power never sought to drive Iraq's forces from Kuwait. To the contrary, senior officers sought to pin down the Iraqi units and not allow them freedom of movement, including movement out of Kuwait to retreat to Iraq. Indeed the campaign commanders wanted the Iraqi forces to stay put, following the "classic military dictum of "find, fix, fight, and finish.""⁶³ Had the US commanders wanted to drive out the Iraqi units using only air power, they certainly could have done so had they

⁶¹ Daryl G. Press, "The Myth of Air Power in the Persian Gulf War and the Future of Warfare", *International Security*, Vo. 26, No. 2 (Fall 2001) p. 5-44.

⁶² US Army, *The Way Ahead: Our Army at War, Relevant and Ready*, <http://www.army.mil/vision/Documents/The%20Army%20Vision.PDF>

⁶³ Hallion, p. 154.

not utterly destroyed their escape routes. In any case, the ground battle was hardly that. Essentially it was rounding up the defeated and mopping-up token resistance; “over 8,000 Iraqis surrendered during the first day, and most Iraqi ground defenses in the KTO had collapsed by the second day.”⁶⁴ Without an air campaign, although the end result may have been ultimately the same, there certainly would have been higher friendly casualties, the war would have taken longer, and the threat from biological and chemical weapons would have been higher since Iraq could have used their air power and positioned their Scuds closer to the front without fear of their destruction. The argument that ground power could have done the job on its own is really irrelevant, because it did not do that. Air power did the majority of the fighting, very successfully, and it, not the surface force, was the decisive factor.

Press asserts that air power did not destroy enough Iraq military hardware or damage the morale of its forces in any discernable way.⁶⁵ Despite the aforementioned attrition rates for Iraqi units, Press argues that by sheer force ratios and that they were in a defensive position, the Iraqis should have been able to put up a better fight. Press only accounts for numbers of combat vehicles when assessing air power’s effectiveness. He does not consider the effect on combat effectiveness of fatigue and shock from sleepless nights of near-relentless bombing, battle damaged vehicles, and the loss of their situational awareness through the destruction of their centralized C3I net. Press also ignores that although conventional tactical theory suggest that armies in defensive positions enjoy a tactical advantage over an attacking enemy,⁶⁶ the greater range of US

⁶⁴ Cordesman, p. 572.

⁶⁵ Press, p. 30-37.

⁶⁶ John J. Mearsheimer, “Assessing the Conventional Balance: The 3:1 Rule and Its Critics,” *International Security*, Vol. 13, No. 4 (Spring 1989), p. 54-89.

weaponry actually put the dug-in Iraqi units at a disadvantage as they restricted the mobility that may have allowed them to close with the attackers to increase the effectiveness of their weapons. As well, as Press himself pointed out, these units had just abandoned the defensive positions they occupied for entire 38-day air campaign to defend against the “left hook” attack of the coalition. The new defensive positions would have been hastily prepared and not as robust as the more permanent installments of their earlier positions.

Another reason to claim that airpower won the Gulf War is that it broke the Iraqi troops’ will to fight. Upon the commencement of the ground attack, the only thing that slowed coalition units was the amount of surrendering soldiers it had to contend with. The reason why the Iraqi’s were so unwilling to fight was due to the constant air bombardment they had experienced the month previous. Or, as one captured Iraqi division commander answered when asked why his troops gave up, “It was the *airplanes!*(emphasis is Hallion’s)”⁶⁷ Captured prisoners said their worst fears was the venerable B-52s, which dropped around a third of all coalition bombs in the Gulf War. One prisoner in particular said that he had surrendered because he feared the B-52, although his position had never been attacked by one, he said that “I saw one that *had* been attacked. (emphasis is Hallion’s)”⁶⁸ The coalition air forces also made widespread use of psychological weapons. For an example, when they dropped a massive 15,000lbs bomb (the explosion was actually mistaken for a tactical nuclear weapon), they also dropped leaflets saying there would be more and indicated the proper way to surrender to the coalition troops. The Iraqi soldier must have felt cut-off and helpless. Most were

⁶⁷ Hallion, p. 219.

⁶⁸ Hallion, p. 218.

starved and suffering shock from all the air attacks. It is no wonder so many surrendered. The Iraqi Army simply could not put up an effective resistance since they had been so badly crushed by air power.

Press is unconvinced of the low morale of Iraqi forces. He uses the simplified criteria that if the unit followed orders and actually fought, then morale could not have suffered.⁶⁹ Again Press uses an unrealistic expectation to assess air power effectiveness; that unless each Iraqi soldier was reduced to an empty shell of a man completely incapable of fighting, then morale could not have been bad. The effect of bombardment in of itself has shown to have detrimental psychological effects on soldiers throughout history⁷⁰, not to mention the effects on morale of repeatedly witnessing friendly casualties against which they were helpless to defend. Poor morale does not necessarily make a coward of a soldier, as Press asserts⁷¹ but does have a quantifiable impact on the soldiers ability to fight. That they did fight does not mean they fought effectively, and as Press himself points out, even when they did fight it was totally ineffective. Press is eager to attribute the Iraqi lack of morale to some other factor, but clearly, any army that was the target of such brutal devastation from the air, amongst all the other contributing factors, is obviously going to be negatively impacted on the battlefield.

The final reason that air power won the Gulf War is that it maintained the initiative and denied it to the enemy. There wasn't a single moment during the campaign that something Iraqi wasn't being destroyed. This maintained the offensive and kept Iraq

⁶⁹ Press, p. 33.

⁷⁰ See Major Martin L. Fracker, USAF, "Psychological Effects of Aerial Bombardment," *Airpower Journal*, Fall 1992. Fracker examines several noted studies on the effect of repeated battery on combat soldiers, including Zahava Solomon, "Does the War End When the Shooting Stops? The Psychological Toll of War," *Journal of Applied Social Psychology* 20 (1990), p. 1733-45, who concludes that "repeated battery will eventually fell even the hardest souls."

⁷¹ Press, p. 35.

on the defensive. Saddam did attempt to capture the initiative by starting the ground war during the Battle of Khafji; the only offensive attempt made by Iraq during the entire war. No one really knows Saddam's reasons for the attack, but some have postulated that because he was impotent in the air, he sought to start the land battle prematurely. On the evening of January 29, 1991, Iraq moved an entire armored division against a town defended by approximately 5,000 American and Saudi soldiers with some armored personnel carriers. The armored division made the mistake of being spotted by an American plane, and air power, instead of land units, was sent to counter this offensive. As Rebecca Grant has wrote, "At Khafji, Joint airpower demonstrated something new: a heretofore unknown ability to stop moving enemy armored forces at night, on short notice, and without a synchronized ground attack."⁷²

Press disagrees and uses evidence from the ground war to buttress his arguments. During the ground war, he writes, the enemy was able to maneuver his forces, therefore was not, in fact, pinned down by air power.⁷³ This ignores that fact that the Iraqi units were largely immobile during the 38-day air campaign, and that their few attempts to maneuver offensively were thwarted using air power. As well, Press' expectation of air power seems to be that it be able to prevent the maneuver of 51 divisions of infantry, artillery, and armored vehicles over 100 hours. While theoretically possible, it would require more aircraft than was available to the coalition and is not a reasonable expectation in any case. Air power did prevent the retreat of many of the deployed Iraqi units, and pounded maneuvering forces when the opportunity presented itself and when airpower was not heavily engaged in CAS operations on the front. However, because

⁷² Rebecca Grant, "The Epic Little Battle of Khaji", *Air Force Magazine*, February 1998, Vol. 81, No. 2, p. 30.

⁷³ Press, p. 27.

some of the enemy forces held in reserve were able to maneuver during a short ground campaign is not a failure of air power.

The ensuing battle dramatically demonstrated the air force's ability to win land battles. Relatively few planes and helicopters were able to hinder, destroy, or delay an entire division of armored units.⁷⁴ Two days later, the battle was over and the coalition did not lose a single aircraft. According to Grant, "American airpower had within a short period of time destroyed enough vehicles to stifle the Iraqi III Corps effort to regain the initiative. On one level, Khafji 'proved, once again that an unsupported army moving in the field is highly vulnerable to airpower.'"⁷⁵ For the Iraqis, the battle at Khafji was an utter failure. Saddam's solitary attempt to draw the coalition forces into a ground war, therefore increasing the casualties suffered by the coalition ground troops, ended in defeat.⁷⁶ This almost forgotten battle of the Gulf War is perhaps the best demonstration of the new role of airpower to achieve land forces goals. Although the land offensive did go ahead to end the Gulf War, it can be argued that the air force had already won the war and the surface forces merely performed a mop-up operation of the impotent Iraqi army.⁷⁷

It is possible to seize and hold land from the air by controlling what moves through it and denying it to the enemy.⁷⁸ During the Gulf War 'kill boxes' were established using the experimental JSTARS (Joint Surveillance and Target Attack Radar System) technology that allowed observers in the air to monitor movements on the ground over large areas, similar to what AWACS does for air control. One forward air

⁷⁴ Grant, p. 32.

⁷⁵ Grant, p. 32.

⁷⁶ Hallion, p. 223

⁷⁷ Galveias, p. 37.

⁷⁸ Maj. Marc K. Dippold, USAF, makes this argument in "Air Occupation: Asking the Right Questions", *Air Power Journal*, Winter 1997, p. 69-84.

controller monitored each 'kill box' and any target spotted within those zones was quickly destroyed. Thus, without a single coalition boot ever touching the ground within those 'kill boxes', the land inside of them was effectively under friendly control. This also had the effect of denying the initiative to the enemy as it could not maneuver its units to its advantage.

Conclusion

The Gulf War was truly a demonstration of what air power could accomplish for the US in future conflicts. As Cordesman summarizes:

The Gulf War was the first war where air power was able to play a critical role in defeating a well-positioned ground force before supporting ground attacks began. It was also the first war in which aircraft had sufficiently advanced avionics and weapons to destroy large numbers of dug-in armor and artillery weapons....By the time the ground war began, Iraqi forces had been hit by more than 40,000 attack sorties...air power caused the desertion of as many as 84,000 Iraqi personnel, and destroyed 1,385 Iraqi tanks, 930 other armored vehicles, and 1,155 artillery pieces.⁷⁹

Throughout all the phases, including direct support during the ground war, air power reduced Iraq's effective combat strength in the forward areas of the KTO by an average of 74%.⁸⁰ The strategic and operational campaign damaged Iraq's nuclear reactors, destroyed three chemical and biological weapons production facilities and eleven storage facilities, 60% of command centres and bunkers, 70% of its communication ability, 125 ammunition bunkers, 48 Iraqi naval vessels, cut off 75% of electrical power, and reduced the replenishment of Iraqi troops by as much as 90%.⁸¹ Air power was able to accomplish this and suffer the lowest casualty rate in the history of air combat.

⁷⁹ Cordesman, p. 481.

⁸⁰ Cordesman, p. 669.

⁸¹ Cordesman, p. 481.

Chapter 2 – Decisive Air power in the Gulf War

The most well covered media event in history showed viewers all over the globe exactly what airpower could do. News-watchers saw vivid pictures of bombs going down exhaust chutes in Iraqi buildings, cruise missiles destroying bunkers, and assorted aircraft decimating the Iraqi ground force. Despite all this, American and coalition airpower still was not as capable as it is now. Only a small percentage of aircraft could use precision-guided munitions and the new Stealth technology was barely exploited. The US did not use their B-1B or B-2 bombers, easily them most lethal of the strategic fleet. Now, virtually all aircraft in the American arsenal are capable of firing PGMs and they have more stealth aircraft that can be used. It has been fifteen years since the Gulf War, and the strength of airpower has already increased dramatically. Nevertheless, the battle still rages between the services in the US as to whether airpower can be a decisive force.

THE FORMER YUGOSLAVIA THEATRE OF OPERATIONS 1995



Deliberate Force Area of Operations Map

Chapter 3 – Coercive Air Power in Bosnia

*Flexibility is the key to victory, and airpower is the key to flexibility
....Airpower is neither inherently strategic nor tactical in nature, but it is
inherently flexible.¹*

NATO air operations in Bosnia demonstrated the decisiveness of a new application of air power. This was not war in the sense that the US sought the complete destruction of the enemy force and surrender of the government. It was a coercive employment of force against a limited set of enemy targets only. The ability of air forces to seek out and destroy precise targets in the unpredictable climate and rough terrain of the Balkans was paramount to success. Operations Deny Flight, Dead Eye and Deliberate Force demonstrated the benefit of air power in a low-intensity conflict where the political objectives were narrow and delicate. While UN and NATO ground forces were deployed in the region, their presence was more of a hindrance to success than help. Air power alone assured that UN demands were agreed to, and its use in this fashion was a first for the USAF.

Operation Allied Force over Kosovo and Serbia in 1999 is often cited as another success of air power. However, the relative success of that operation was largely due to the lessons learned during Deliberate Force. Prior to Operation Allied Force, the US already had planning staff and military hardware positioned in the region that remained from its previous campaign. Conducted under NATO and not UN auspices, Allied Force was also arguably less complex politically and diplomatically than Deliberate Force. The planning effort was greatly facilitated by the effort expended in the run-up to Deliberate Force. Finally, while there was no coordinated surface campaign conducted

¹ Maj Scott Walker, USAF, "A Unified Field Theory of Coercive Airpower", *Airpower Journal*. Summer 1997, Vol. XI, No.2. p. 71.

during Operation Allied Force, although a credible threat existed from the presence of a large NATO land force and may have influenced the outcome to some degree.

Regardless, operations Deny Flight, Dead Eye and Deliberate Force set the stage for the future and thus provide a better example of the independent use of decisive air power.

Operation Deny Flight was the NATO operation in support of the UN mandate to enforce the no-fly zone over Bosnia and provide Close Air Support (CAS) as required to UN ground forces. It was under Deny Flight that NATO forces first fired a shot at an enemy, and dropped their first bomb on a target. NATO planners, using the information gleaned during Deny Flight sorties, began planning for air strikes against the Bosnian-Serbs and Serbia. The subsequent combat operations, Dead Eye and Deliberate Force, were conducted under the auspices of Deny Flight, which was the overarching NATO operational mandate under which all subordinate operations were conducted. “Deny Flight officially ended after an almost continuous 970 day ‘aerial presence’ constituting over 100,000 aircraft sorties. In that time, NATO aircraft dropped more than 3000 bombs while participating in combat operations for the first time in Alliance history.”²

Dead Eye was the precursor to Deliberate Force and its intent was to reduce the risk to NATO pilots by eliminating threats posed by the Bosnian-Serb Integrated Air Defense System (IADS). Deliberate Force was the US-led NATO bombing of Bosnian-Serbs and Serbia in 1995 to coerce Slobodan Milosevic to negotiate and to accept a NATO peacekeeping force in order to end the conflict in the Bosnia. Unlike the Gulf War, which was a major international commitment and a true high-intensity war, the NATO operation in Serbia is an excellent example of how air power can be used decisively in low-intensity conflict. What is particularly interesting about this operation

² Beale, p. 1.

is that air power alone was used without a coordinated ground battle, as during Desert Storm. In fact, the deployment of ground forces before the use of air power actually limited the options available to planners as air strikes left the deployed ground forces vulnerable to retaliation. As witnessed during the campaign, the Bosnian-Serbs took advantage of the presence of the poorly defended and numerically inferior UN troops by taking them hostage to protect key targets as an attempt to divide the coalition.

Historical Background

The death of Marshal Tito, the former communist leader of Yugoslavia, and the break-up of the Soviet Republics in the late 1980's resulted in the end to the cohesive forces that had held the fractious Yugoslav people together. Serbian leaders sought to exert their control on the region and the reaction of the Croatians and the Slovenians was to declare independence in June 1991, sparking conflict between these two republics and the Serbian-dominated Yugoslav People's Army (JNA). Much of the fighting was so violent that a new term was used to describe the barbarity: ethnic cleansing. United Nations Security Council Resolution (UNSCR) 713 was the initial international effort to stop the fighting in September 1991. It established a complete arms embargo against all the parties. The deployment of the United Nations Protection Force (UNPROFOR) was authorized by UNSCR 749 in April 1992 and resulted in the initial deployment of a small force to Croatia to monitor a tenuous cease-fire. By March 1994, when the conflict expanded to Macedonia and Bosnia-Herzegovina, it became the largest ever UN undertaking; "this number eventually grew to 38,599 military peacekeepers supported by

803 civilian police and more than 2,000 international civilian staff³. However it involved no US ground troops.

The former Yugoslavia missions came on the heels of some embarrassing UN and US operations in Africa. In Somalia, US forces had gotten stuck in a quagmire of a multi-sided civil war and were forced to withdraw. Initially the UN sanctioned mission was solely a humanitarian aid operation, but expanded to include disarming the warlords. Unacceptable American casualties marred the operation and turned the American public against peacekeeping. As a result, newly elected President Clinton recalled all troops from the area. The previous Bush administration as well as Clinton failed to define an American national interest at stake in Somalia, to define clear and achievable objectives for their forces, to properly appreciate the consequences of deploying elite combat troops for a peacekeeping and humanitarian aid mission, and to define an end state and exit strategy for the mission. UN interference with US commanders on the ground and restrictive UN rules of engagement frustrated policy-makers, military commanders, and soldiers alike.⁴

The US administration, public, and military learned hard lessons that preconditioned them against sending American ground troops into a conflict where the US did not stand to benefit directly from the outcome. It was with these thoughts in mind that the US framed the conflict in the former Yugoslavia. Although first Bush, and then Clinton, wanted to demonstrate the US support of its NATO allies and wanted to prevent

³ David Johnson, Karl P. Mueller, and William H. Taft, *Conventional Coercion Across the Spectrum of Operations: The Utility of US Military Forces in the Emerging Security Environment*, (Santa Monica, RAND, 2002) p.88.

⁴ For more on US involvement in Somalia in 1992-1994, see Robert F. Baumann, Lawrence A. Yates, and Versalle F. Washington, *"My Clan Against the World" US and Coalition Forces in Somalia 1992-1994*, (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2004).

or stop the humanitarian crisis, the reaction of the public to another UN peacekeeping operation and the caution provided by their military advisors caused them to enter the former Yugoslavia with some trepidation.

The political maelstrom over the decision to apply force in Yugoslavia was no less heated than during Somalia. Unfortunately for Bush, he was in the midst of a campaign for re-election, and his opponents used the Yugoslavian conflict to gain political points against him. As Beale states:

Because a US core security interest was not at stake, a military commitment to peripheral and vaguely definable objectives created a fertile ground for political opportunists. The media influence also played a more significant role under these circumstances. Images of hapless war victims and alleged atrocities being committed fed on public emotions, clouding rational action and complicating political decisions.⁵

US decision makers faced a public that was sympathetic to the plight of the Bosnians yet would quickly turn angry if American lives were lost without US national interest at stake. The obvious solution was using air power, thereby preventing highly publicized ground casualties that might inevitably occur.

Once President Clinton was elected, he aimed to make good on his campaign promise to end the conflict in Yugoslavia. Owing to the effective Bosnian media campaign, his initial statements suggested he wanted to side with the Bosnians by arming and training them as well as bombing the Serbs, but since this was a UN controlled operation, that prospect created strategic and political problems. He was advised against this course by Chairman of the Joint Chiefs of Staff, General Colin Powell, who wanted a clear objective, end-state, and a well-defined timetable and exit strategy to avoid another Somalia. Allies within NATO and the UN diplomats were also very resistant to a

⁵ Maj Michael O. Beale, USAF, "Bombs Over Bosnia: The Role of Airpower in Bosnia-Herzegovina", (Alabama: School of Advanced Aerospace Studies, 1996) p. 12.

bombing campaign⁶. Most of the NATO allies, with the exception of the US, had committed troops to UNPROFOR and were fearful of Serb retaliation against their forces⁷. The UN wanted to maintain its perceived neutrality. General Powell was convinced that if they focused on an effects-based operation, rather than territory based, then air power could be used decisively to end the conflict without exposing surface forces to undue risk.⁸

The lessons to be learned from Deliberate Force are very telling as Serbia posed a very difficult tactical problem to US planners. The terrain and climate are varied and at times brutal, particularly for mechanized ground forces. Some areas of the country are nearly impossible to reach with mechanized forces, such as tanks and armoured personnel carriers, which US forces rely heavily upon. As the enemy occupied all of the high ground, confronting them with ground forces would necessarily expose them to great losses, and above everything this is what the planners sought to avoid. Not only were these practical difficulties a concern for planners, but they also had great difficulty identifying what needed to be bombed to resolve the conflict. As Colonel Robert C. Owen put it succinctly: “knowing that the Bosnian conflict sprang from the collapse of the Yugoslavian Federation provided little foundation for strategic planning. Crudely put, a political breakup, in and of itself, provides few targets against which air strategists may ply their trade.”⁹

⁶ Beale, p. 13

⁷ Beale, p. 13.

⁸ For this argument see Lt. Gen. Norton A. Schwartz, USAF, and Col. Robert Stephen, USAF, “Don’t Go Downtown Without Us: The Role of Aerospace Power in Joint Urban Operations” *Aerospace Power Journal*, Spring 2000. See also: Alan J. Vick, John Stillion, Dave Frelinger, Joel Kvitky, Benjamin S. Lambeth, Jefferson P. Marquis, Matthew Waxman, *Aerospace Operations in Urban Environments: Exploring New Concepts*, (Santa Monica: RAND, 2003).

⁹ Col. Robert C. Owen, USAF, “The Balkans Air Campaign Study: Part 1”, *Airpower Journal* Summer 1997, p.7.

To further complicate matters, this was an operation of many firsts. It was the first time NATO reacted collectively with force against an aggressor and the first time NATO subordinated itself to the UN in a command relationship. NATO commanders and diplomats had to clear every authorization for the use of force with UN representatives. It was also the first coercive and punitive use of force in a peace enforcement operation, and US planning officers could not rely on previous experience or doctrine to help them develop strategic plans, target selection, or command and control.

Everything about this operation was new to the USAF. As well, since there was no general diplomatic agreement on the targets that should be hit due to the possibility that NATO might upset the balance of military power in favor of the Croats and Bosnians by only targeting Bosnian-Serb units, the planners had to be careful that they did not inflict too many casualties even on their enemy. Bosnian-Serbs were targeted precisely due to the fact that they were perceived to have overwhelming military superiority over their enemies and it was thought that by achieving force equity between the factions that the war would stop as none of the sides could gain an advantage over the others. But the bombing had to be limited in order to ensure that the Croats and Bosnians Muslims did not surpass the Bosnian-Serbs in military might as a result, and thereby perpetuate the conflict.

NATO forces, including US air power and logistical support, entered the conflict in a supporting role to the UN in June 1992, enforcing a no-fly zone (Operation Deny Flight) and providing the bulk of the air transport used in the operation. It was under these auspices that NATO launched Operations Dead Eye and Deliberate Force before

formerly taking over peacekeeping duties in the former Yugoslav republics from the UN.

As a participant in the campaign, Major Michael Beale put it this way:

To understand the role...Deliberate Force played in getting a peace agreement signed, one must understand the political and historical context of the war in Bosnia-Herzegovina. Ethnic animosities, severe economic hardships, and opportunistic leadership, combined with an uncertain post Cold-War landscape, merged to create a confusing and dangerous situation in Bosnia. By the late summer of 1995, the Bosnian Serbs, who early on controlled 70% of Bosnia, were in retreat. Serbia cut off its economic and political support of the Bosnian Serbs and a Bosnian/Croat Confederation Army had been gaining ground against the beleaguered Serbs throughout the spring and summer. Facing defeat and domination, the Bosnian Serb Army was a ripe target for a coercive bombing operation. Deliberate Force proved to be the coercive catalyst that led to the Dayton peace agreement and the current cessation of hostilities.¹⁰

There is little doubt that even with the turning tide of the ground battle that fighting would have continued had the bombing campaign not been executed. Despite Croatian and Bosnian offensives, the Bosnian-Serbs could still mass greater military strength, through forces held in reserve and superior levels of equipment and armament, than both of their foes before the bombing began. Moreover, it was possible that Serbia might be forced to intervene directly if the war began to go badly for its ethnic brethren.

The US saw ending the conflict in the former Yugoslavia as vital. Most importantly, the area was on NATO's back porch. If the alliance could do nothing to stop it then it would lose much credibility and cohesion at time when it sought to expand. A failure here could have easily put the strategically important alliance in jeopardy. As well, years of UN attempts to bring an end to the conflict failed as the troops deployed under the blue helmet were insufficient in number, and ill-equipped to counter the aggression they confronted. The UN was also not willing to give the deployed forces robust rules of engagement that were necessary for the ground forces to intercede in the

¹⁰ Beale, p. v.

conflict successfully. The European NATO allies themselves were not, at the time, capable of deploying a force great enough to assure victory and with enough speed to bring an immediate end. Most of their forces were still strategically fielded to counter a Cold War threat and were not structured for rapid and robust deployment. For these reasons, the US entered the conflict in force but was unwilling to accept a great amount of casualties.

Planning for Coercive Air Strikes

The first application of air power came very early on under Operation Deny Flight. In October 1992, the UN passed a resolution to prohibit flight in the air space over Bosnia unless the UN with NATO providing surveillance approved it. However, without a mechanism to enforce the prohibition, NATO recorded over 500 violations in under a year. UNSCR 816 authorized NATO to take a more active role in enforcing the no-fly zone, and Operation Deny Flight began 12 April 1993. Despite being mandated to take a combat role, NATO airmen were constrained by the overly cautious UN Rules of Engagement (ROE) that stated that the pilot had to actually observe not only a violation of the air restriction, but also a hostile act in order to release weapons. The Bosnian-Serbs had the overwhelming advantage in air combat assets, particularly Russian attack helicopters. It was difficult for the NATO jets to observe hostile acts by the helicopters, as the Serb pilots would just land and wait for the jets to leave then continue on their mission. Although NATO airmen experienced problems stemming from the strict UN ROE and violations of UNSCR 816 remained high, Deny Flight did serve a couple of purposes: it allowed the deployment of a robust combat air force to the region; it succeeded in locating enemy air defences, radar sites, and communication nodes; and it

displayed a show of force to the hostile parties. These were necessary for later operations, as well as the expansion of Deny Flight.

Primarily due to Bosnian-Serb aggression against UNPROFOR ground troops deployed to deliver humanitarian aid and monitor cease-fire agreements, UNSCR 836 was passed on 4 June 1993 to authorize NATO to carry-out close air support (CAS)¹¹ missions to deter the enemy against further attacks on UNPROFOR units, to protect UN safe areas, and to ensure the freedom of movement of humanitarian convoys; offensive air support (OAS)¹² to punish violators, and to suppress of enemy air defences (SEAD)¹³ to safeguard NATO pilots flying over the operations area. The initial problems stemming from the “dual key” authority, requiring both NATO and UN authorities to approve the release of weapons, were mostly alleviated by the delegation of authority to lower levels in both organizations.

The issue of carrying-out air strikes in Bosnia was still highly contentious with most of the European NATO allies opposed to the US plan, fearful that their troops would be caught in the ensuing crossfire. Russia also opposed the plan, but for different strategic reasons as it sided firmly with Serbia. Without agreement, the chaos in Bosnia continued unabated, and indeed was aided, by international inaction;

By November of 1993, diplomatic handwringing and the confusing ground picture ensured that the UN and NATO accomplished little militarily or politically. All three sides targeted UNPROFOR soldiers. The majority of the aid workers and UN personnel on the ground who lost their lives were caught in Muslim and Croat crossfires. Lord Owen said on 15 November, that international intervention in Bosnia might actually be prolonging the

¹¹ CAS, or close air support, is defined as direct support of air assets to deployed ground forces at the tactical level. Essentially air strikes against enemy military units to defend friendly ground forces.

¹² OAS, or offensive air support, is the term used to described air strikes that are not used in direct support of ground forces. Often called interdiction, it can be strategic, operational, or tactical in nature, whereas CAS is always at the tactical level.

¹³ SEAD, or suppression of enemy air defences, targets enemy anti-air radar, surface to air missile installations, and anti-air artillery, all generally referred to as IADS, or integrated air defence system.

conflict since the humanitarian aid is helping to feed the warriors on all sides.¹⁴

Bosnian-Serbs, as a result of the international disagreement, were ultimately free to do what they wished and pursued with great zeal their conquest of Bosnia. In response to a mortar attack on a market in February 1994, NATO ordered the Bosnian-Serb force to withdraw its heavy guns from Sarajevo or risk punitive air strikes. The operational-level planners were acutely aware of the disaster that would ensue if any unintended target was destroyed and the operation and target list were developed under the strictest scrutiny to ensure that every target would achieve the desired effect without resulting in an undesirable impact. American diplomacy coupled with the continued violations of the UNSCRs by the Serbs eventually pressured the NATO leaders to pursue a more aggressive policy, even if reluctantly. However, political indecision and the time it took to reach a diplomatic agreement did have some advantages to the military planners; “The slow pace [of diplomatic negotiations]...gave them time to overcome the institutional and doctrinal impediments they faced in planning and executing sustained air operations over Bosnia.”¹⁵

There was still no consensus among NATO allies, let alone the UN, for the use of coercive air power. The US was by far the strongest proponent of using offensive air strikes against the Bosnian-Serbs and Serbia to enforce UNSCRs, while the European allies and the UN were by-and-large anxious over the perception that the force should remain unbiased and neutral and the possible domestic political backlash of a bombing campaign, especially when significant casualties were the likely result. Continued Serbian violations of UNSCRs, and finally the shelling of innocent civilians in a so-called

¹⁴ Beale, p. 19.

¹⁵ Owen, “The Balkans Air Campaign Study: Part 1”, p. 10.

UN safe zone had the cumulative effect of the UN granting permission for NATO to “take the gloves off.”

The mission planners’ great challenge was to develop a strategic plan, based upon a more basic understanding of the conflict. From this examination they sought to identify the *sustaining causes* of the conflict and determined that they could achieve success through force only if they could attack the sustaining causes effectively. *Sustaining causes*, as defined by Owen, “is a term useful in this discussion to designate the forces that ‘move’ a conflict from its root cause to its ultimate form.”¹⁶ Essentially, the sustaining causes are what made them fight and what is making them continue to fight rather than explore other options. This has been explained variously as ethnic tensions inflamed by power-hungry politicians and military leaders, and a military imbalance of one side over the others.

Ethnic tension does not explain the conflict entirely since the Croats, Bosnian-Serbs, and Bosnians lived together for over fifty years without significant conflict under the reign of Tito. Certainly the inflammatory rhetoric of the various ethnic leaders seeking to fill the power vacuum left by Tito’s death are partially to blame for the start of hostilities. Still, though, fighting would not have been possible on the scale that occurred if one party had not been able to so completely dominate all the other sides militarily.

According to Owen,

Indeed, the chronology of the Bosnian conflict has its tangible beginnings in the demagoguery of Slobadan Milosevic. Maneuvering for power, in 1987 he began using his position as president of the Yugoslavian League of Communists as a platform to whip up the ethnic pride and paranoia of the Serb community of Serbia... The boldness and success of the Bosnian Serbs’ military offensive were consequences to some degree of their great

¹⁶ Owen, “The Balkans Air Campaign Study: Part 1”, p. 7.

military advantage over the Moslem [Bosnian-Muslim] and Croat factions.¹⁷

This, then, gave US planners something to target to eliminate the sustaining causes and end the conflict. By eliminating the Bosnian-Serb military advantage and achieving military parity among the parties, the Bosnian-Serbs would not have the same chance of success and may be more willing to negotiate. This could not have been achieved as quickly or as bloodlessly by either indigenous or coalition ground forces.

Planners naturally could call upon existing strategic air power doctrines that existed at the time of Deliberate Force and could have been used in creating a target list. However, in interviews with those involved in the key planning of the operation afterwards, no one “uncovered oral evidence that [the planning team] had any working knowledge of them.”¹⁸ Interestingly, if one applies Robert Pape’s denial strategy¹⁹ and John Warden’s five-ring paradigm²⁰ to the available targets in Bosnia, Owen suggests that, “despite their markedly different theoretical propositions and planning approaches...these...theories generally produced target sets similar to one another and to the targets actually bombed during Deliberate Force.”²¹ It’s difficult to determine if this similarity was the result of the relative scarcity of strategic targets and the consequent focus on the tactical picture, or if the same effect would occur in every conflict involving air power. If strategic targets had been available for attack, perhaps the target set based on the different theories would have produced different results. What is particularly salient here is that without the benefit of existing doctrine for conducting a combined air

¹⁷ Owen, “The Balkans Air Campaign Study: Part 1”, p. 8.

¹⁸ Owen, “The Balkans Air Campaign Study: Part 1”, p. 11.

¹⁹ Robert A. Pape, *Bombing to Win: Coercion and Air Power in War*, (Ithaca: Cornell University Press, 1996).

²⁰ John A. Warden, *The Air Campaign: Planning for Combat*, (Washington D.C.: National Defense University Press, 1988).

²¹ Owen, “The Balkans Air Campaign Study: Part 1”, p. 11.

campaign under UN auspices, or using existing theory, the air planners designed a target list that not only proved to be very successful, but was also in line with contemporary theory. It also shows that air power can be successful without conducting a strategic bombing campaign by focusing only on fielded military forces and tends to give credit to Pape's denial theory.

The CAOC (Combined Air Operations Center)²² produced a package of three targeting options:

Option one provided for [Offensive Air Strikes] of limited duration and scope against military forces and weapon systems directly violating UN resolutions or attacking UN peace forces or other personnel. Option-two targets were mechanisms for lifting sieges. Their focus remained on military forces and supporting elements, but their scope expanded to include targets throughout the immediate environs of a besieged safe area. Option-three targets marked out a broader campaign against targets outside the immediate area of a siege.²³

Obviously these actions were directed against the Serbs since they were the main culprits violating UNSCRs and besieging safe areas, as well as the dominant military force amongst the three factions. The reason for the three options was to give the political decision-makers more flexibility if a decision to use force was made. If they chose option one, then they could easily escalate to option two if the destruction of the first target set was insufficient to end the conflict. Although military personnel, vehicles and equipment, other wise known as "direct" targets, were the primary targets in all three packages to avoid as much collateral damage as possible, the air commanders believed that more strategic effect would be gained by attacking "indirect" targets, "such as

²² Although a NATO operation, there were no international officers in the CAOC and Deny Flight, "Dead Eye", and "Deliberate Force" were all planned and executed solely by USAF officers. The US had invited the participating NATO states to send officers to the CAOC, but none did. Whether it was because they were unprepared to do so due to the level of their competence or due to political considerations is not clear. See Owen, "The Balkans Air Campaign Study: Part 1", p. 17-18.

²³ Owen, "The Balkans Air Campaign Study: Part 1", p.15.

bridges, command facilities, supply dumps, and so on.”²⁴ Consequently, these targets were included in each of the three packages to ensure that no matter which package was decided upon by the diplomats, NATO air power would still achieve success. Ironically, and despite the coercive effect of Deliberate Force, “NATO initiated the campaign to protect the safe areas [and] there was no overt general commitment to bomb the Bosnian Serbs into talking.”²⁵ Success, as it was defined by the military planners, meant protecting the safe areas from further attack.

Coercive Air Operations

Operation Dead Eye was the preparation for Deliberate Force. Its objective was to clear the way for NATO air strikes against Serb forces by destroying its anti-air defense system. It was unique in that there was no limitation on the areas that were eligible for targeting so long as it was determined that the target was a threat to friendly forces. “NATO planners...were thinking in terms of broad-ranging ground attacks, supported by a theaterwide SEAD campaign in defense of Bosnian cities rather than the halting and piecemeal applications that had characterized the use of air to that point.”²⁶ The fear from the UN and the NATO allies was that the Serbs would take hostages in retaliation for the air strikes. They had good reason to fear this.

In the spring of 1994, the Bosnian Serbs laid siege to the town of Gorazde, a designated UN safe area, to force Muslims from the town and control a critical communications node. While NATO or the UN did not immediately respond, it did so once an UNPROFOR soldier was killed, dropping bombs for the first time in Alliance history to destroy a Bosnian Serb command post and an armored vehicle. The Serb

²⁴ Owen, “The Balkans Air Campaign Study: Part 1”, p. 21.

²⁵ Col. Robert C. Owen, “The Balkans Air Campaign Study: Part 2”, *Airpower Journal*, Fall 1997, p. 14.

²⁶ Owen, “The Balkans Air Campaign Study: Part 1”, p. 19.

commander retaliated by surrounding the 150 UNPROFOR soldiers stationed there and threatened to kill them unless NATO stopped the bombing. As one UN diplomat stated, it “brought home to us the limits and difficulties of using airpower when you had such an exposed force on the ground.”²⁷ This apprehensiveness seriously curtailed the effects of the campaign.

Dead Eye proceeded with a SEAD plan that was designed specifically for the unique political circumstances of the conflict. Having had over three years to plan, US officers making up the CAOC were confident of the operation’s success if they were allowed to carry out the entire plan against the complete target set. They were also confident that once the attacks began, they could not be easily stopped since that would mean undermining the UN and NATO commitment and limiting the desired effect upon the enemy. The CAOC had identified several Zones of Action (ZOA); areas around UN safe zones that were under siege by Bosnian-Serb forces, which were to be the centers of attack during the operation. Few air strikes were actually carried out during Dead Eye, however, because the UN still held a veto over the targets and the release of weapons and they had reduced the target list to a level that made the operation more of a risk to NATO aircrew without a great enough potential payoff in terms of effect on the enemy. The Dead Eye plan and target set rolled into Deliberate Force once NATO had been given the go ahead.

Operation Deliberate Force²⁸ was triggered in response to the shelling of Sarajevo by the Bosnian Serb Army (BSA) on August 28th, 1995, killing 37 civilians and injuring

²⁷ Michael Williams, UN special advisor, found in Beale, p. 22.

²⁸ All factual data, unless otherwise noted, has been taken from the NATO Unclassified *Fact Sheet* for Allied Forces Southern Europe participation in “Operation Deliberate Force.” It is current as of September 19, 1996.

many others. The BSA had previously disregarded the UN Safe Areas, had targeted NATO forces, and had actually increased the amount of factional fighting since the UN passed a resolution calling for a cease-fire and negotiations to start. Deliberate Force began when the first NATO bomb impacted on August 30th, 1995. Direct attacks were executed on BSA units threatening the UN Safe Areas, as well as BSA heavy weapons, command-and-control capability, and air defense units. The very next day, the Serbs requested a 24-hour suspension of air strikes to negotiate. This was later extended to September 4th. The negotiations were unsuccessful in the minds of both NATO and UN delegates, and the operation resumed on September 5th. By September 14th, the Bosnian Serbs had had enough of the relentless bombardment and were ready to accept UN terms.

It took just twelve days of air strikes to accomplish the goal of the mission. In that time, 220 fighter aircraft and 70 support aircraft from the US, Great Britain, Italy, Germany, Holland, Greece, Turkey, Spain and France flew 3,515 sorties and delivered 1,026 weapons against 48 targets, including 338 individual aim points.²⁹ More than two-thirds (2,318) of the combat sorties were flown by US assets. In Owen's words: "These figures equated to just about a busy day's sortie count for coalition air forces during the Gulf War."³⁰ Though small in scope, the campaign was massive in implications for air power. Until Deliberate Force the prevailing opinion was that air power could only play a mobility and intelligence-gathering role in UN peacekeeping operations. As one critic

²⁹ Owen, "The Balkans Air Campaign Study: Part 2", p. 8. A DMPI (desired mean point of impact) is the point of aim for the aircrew. The reason for the discrepancy in numbers (48 targets vs. 338 DMPI) is that a single target may have several DMPIs to ensure the target is destroyed. An example is a supply dump that may be spread out into many separate caches to avoid destruction from one bomb. Although the supply dump is the general target, each cache is a DMPI selected to destroy the target.

³⁰ Owen, "The Balkans Air Campaign Study: Part 2", p. 8.

wrote, “The role of airpower in peacekeeping is auxiliary.”³¹ The Balkan operations proved differently. That air power could be used independently and decisively to end conflict. In fact, in a coercive campaign similar to Bosnia, it may be preferable to use air power before deploying any ground troops to ensure greater freedom of action.

Air strikes were not the only method of coercion used on the Serbs. There were two other major factors that contributed to their eventual agreement to UN demands. The first is the economic sanctions levied against the Serbian Republic, which had a disastrous effect on the Serb economy and applied pressure on the military commanders to negotiate. While this was certainly hurting the Serb government and people, it did not have a drastic effect on the military capability of the Bosnian-Serb military forces.

The other factor was the successful Croatian offensive in 1995 against the Serb controlled Croatian *Krajina* that took away vital Serbian territory. The Bosnians also had made substantial improvements to their fielded forces and began an offensive campaign against Serb held territory in central and southern Bosnia-Herzegovina. The net effect of both counter-offensives created the winning conditions of diplomatic success by separating the territory held by the Serbs and the opposing factions to 51%/49% respectively, the already diplomatically agreed to distribution of territory, and down from the 70%/30% in the Serbs favor earlier in the year. What is clear, however, is that if the air strikes had not begun at this point, fighting would have certainly continued as the Bosnian-Serbs were likely still superior militarily to their foes in terms of sophistication and equipment and stood to gain more from prolonged conflict.

³¹ Lt Col. Brooks L. Bash, USAF, “Airpower and Peacekeeping”, *Airpower Journal*, Spring 1995. See also Dr Steven Metz, “The Air Force Role in United Nations Peacekeeping”, *Airpower Journal*, Winter 1993, for a similar argument,

The BSA still retained the bulk of its artillery capability, most of its armor and mechanized forces, and a clear superiority of fixed and rotary wing combat aircraft. The Croats and Bosnians did not attack those areas where the BSA had these hard assets deployed, such as Sarajevo. Given an opportunity to redeploy its forces, it is doubtful that the Croats and Bosnians could have held onto their gains against a Serb counter attack as they had extreme difficulty just to generate these forces and could not easily or quickly maintain their forces in the face of combat losses of troops and equipment, particularly with an ongoing arms embargo.

The concurrent air campaign significantly reduced the Serbs' ability to command their forces and move them to areas to mount credible counter-offensives or even to defend the territory being threatened.³² Although the simultaneous air and ground offensives were unintended, the cumulative effect on Serb military commanders and politicians alike ultimately forced them to accept the diplomatic agreement that they had previously been hostile to.

The outcome was unprecedented. John A. Tirpak describes it: "A three-week campaign...it included some artillery fire, but it was dominated by air power, the weight of which hammered the Bosnian Serb heavy weapons, ammunition depots, command-and-control bunkers, and other targets."³³ This was a lesson in how to use coercive force through air power. NATO learned that it could avoid the costs of lengthy overseas OOTW deployments of ground troops by using a smaller number of aircraft to influence the parties involved. Although in this operation IFOR (Implementation Force) was deployed to police the area, and NATO had mobilized 60,000 troops, ground forces were

³² James S. Corum, "Airpower and Peace Enforcement", *Airpower Journal* Vol. X, No. 4 (Winter 1996), p. 20.

³³ John A. Tirpak, "Deliberate Force", *Air Force Magazine*, October 1997, Vol. 80, No. 10, p. 36.

not extensively used during Deliberate Force. In this regard NATO was initially hindered by the more passive UN policy and could not exert the immediate force it desired.

The sporadic application of air power caused retaliatory attacks on friendly troops on the ground who were sparingly deployed and in small numbers. In the future, the US discovered that the deployment of troops should only come after airpower had weakened the enemy to such a state that it could no longer pose a threat to even small numbers of friendly ground troops, or until an acceptable peace arrangement has been signed; a lesson that would inform the Kosovo campaign.

In total, Operation Deliberate Force was a fairly small operation when compared to the Gulf War, but it more closely resembled the more frequent conflicts that the US might be drawn into. Clashes such as this in the Balkans have been far more frequent locations for deployment of US troops and aircraft than major wars like that in Iraq. What was different about this operation from Desert Storm is the increased use of precision guided munitions. Seventy percent of all bombs dropped (708 out of 1,026) were PGMs³⁴. This is a major improvement over the Gulf War and placed US pilots in less danger than in the Gulf by enabling them to release weapons at a greater distance from the target.

The improved accuracy from the increased use of PGMs also limited collateral damage. Although it is difficult to quantify the true amount of unintended damage, “The simple fact that Bosnian Serb leaders made no effort to exploit collateral damage politically indicates that they had little to exploit.”³⁵ The modern air force better utilized its new technology to achieve its ends with increased speed and precision, and with

³⁴ Owen, “The Balkans Air Campaign Study: Part 2”, p. 12.

³⁵ Owen, “The Balkans Air Campaign Study: Part 2”, p. 20.

minimal destruction of non-targeted or civilian units. Gen. Michael E. Ryan, then commander of NATO southern air forces, stated: “I think precision munitions are not only here to stay, but they’re...the wave of the future.”³⁶

Deliberate Force displayed what airpower used to its fullest extent can accomplish in short period of time without the aid of ground forces. As Tirpak put it:

Within three weeks of the first bomb on target, recalcitrant Serb leaders agreed to enter serious negotiations with their foes in the three-year-old war. Within two months, the Dayton Accords had been signed, effectively bringing the war to a halt. The operation is regarded as the prime modern example of how judicious use of airpower, coupled with hard-nosed diplomacy, can stop a ground force in its tracks and bring the worst of enemies to the bargaining table.³⁷

It should be noted that while the land contribution was small, limited to some artillery fire, it was the troops on the ground who were exposed to the most danger and were attacked daily in response to NATO air strikes. Owen sums up the land force contribution:

During the bombing, [ground] forces mainly held their positions or conducted limited patrol operations, but they did not go on the offensive. At the same time, elements of NATO’s Rapid Reaction Force (RRF) took an active, though limited, role in the intervention’s offensive...During the first two days of Deliberate Force, its artillery units shelled Bosnian Serb military forces in the Sarajevo area. These bombardments certainly had some effect on Serb military capabilities, and they probably had some effect on their diplomatic calculations. However, given the lack of emphasis placed on them by the diplomats...the effects of these activities...probably were limited, at least in relation to the effects of the air campaign.”³⁸

³⁶ Quoted from Tirpak, “Deliberate Force”, p. 43.

³⁷ Tirpak, “Deliberate Force”, p. 37-38.

³⁸ Owen, “The Balkans Air Campaign Study: Part 2”, p. 14.

Clearly, then, this was not a joint operation and air power was able to carry the day by itself. This flew in the face of theories that suggested any use of air power must be joint and be coordinated with surface forces to ensure success.³⁹

Conclusion

Operations Dead Eye and Deliberate Force displayed a heretofore-unseen ability of airpower to act decisively on its own. The impact for future policy in similar conflicts is profound. There is little to suggest that a NATO ground campaign could have achieved the same results as bloodlessly and as quickly as air power did. The Bosnian terrain is brutal for a ground campaign; incredibly mountainous and forested, it is less than ideal for a mechanized force. Deploying sufficient numbers of light infantry to counter the Serb aggression would have been likewise difficult. Since air power can act as a decisive coercive instrument on its own without a supporting deployment of surface forces, as these operations indicate, the US was capable of projecting coercive force with little risk and cost.

The success in the Bosnian operation was total, and this surprised many.

“Deliberate Force was an achievement on a scale that even airpower proponents did not anticipate.”⁴⁰ According to Gen. Ryan, “Deliberate Force testifies to the capability of air power ‘to coerce compliance with international mandates...when it was finally used in very deliberate...but sustained way.’”⁴¹ As can be seen from this example, air power can be used effectively and decisively in a wide spectrum operations, including peacemaking. This goes contrary to belief that “in a world where almost all wars are fought not between states, but within them, many if not most of [airpower's] elements have become useless

³⁹ See Maj Scott A. Fedorchak, USAF, “Air Operations Must be *Joint*”, *Airpower Journal* Spring 1995.

⁴⁰ Tirpak, “Deliberate Force”, p. 39

⁴¹ Quoted from Tirpak, “Deliberate Force”, p. 43.

and obsolete.”⁴² Air power acted nearly alone and was more than able to meet all of its set goals, which brought about the end of conflict very quickly.

Bosnia was a very different scenario than the Gulf War and, as shall be seen, the air campaign over Afghanistan. As well, Deliberate Force was a combined operation that involved not only the contributing countries of NATO, but also the UN. Although air assets came from many contributing countries, the US flew the bulk of combat missions, provided all the Airborne Warning and Control System (AWACS) coverage, and US officers performed all the planning and execution (at the command level) of the operation, making it really a US operation. For the airmen involved, “it was a strategically limited, tactically intense, high-technology, coalition air campaign, conducted under tight restraints of time and permissible collateral damage; further, it was aimed at coercing political and military compliance from a regional opponent who had no airpower.”⁴³

In its purest form this operation was like any other undertaking involving the use of force. The objective was to obtain an effect. In most wars, that effect is the surrender or obliteration of your opponent. In the case of Bosnia, it was to coerce of the Serbs to adhere to the UNSCRs and agree to UN demands for peace. The lesson that must be taken away is that air power, like naval power in the days of the British Empire, can be a very decisive coercive tool when it is used in a consistent manner. If one avoids the sporadic use of air power that typified its use in Bosnia prior to mid-1995, then it may be successful without a coordinated ground offensive, and therefore without significant risk of casualties.

⁴² Martin van Creveld, quoted from John Hillen, “Peacekeeping at the Speed of Sound: The Relevancy of Airpower Doctrine in Operations other than War”, *Airpower Journal* Vol. XII, No.4 (Winter 1998), p. 7.

⁴³ Owen, “The Balkans Air Campaign Study: Part 2”, p. 20.

In any form but an independent air campaign, Deliberate Force would have given the Serb faction a vastly greater opportunity to fight back and inflict casualties on NATO and UN forces. Reasonably, the Serbs would have fought back, at least long enough to see if killing some number of interventionist troops would break the will of their political leaders.⁴⁴

It is difficult to envision a scenario involving a joint effort of air and surface forces that would have resulted in greater or quicker success with fewer casualties than using air power alone did.

As well, strategic targets were attacked, although not extensively, during the campaign, despite the difficulty of choosing politically acceptable ones and the pressure to focus only on the opposing deployed forces near the UN safe areas. These attacks were able to achieve greater strategic effect by focusing on the enemy's mobility, such as road and rail systems, command and control, such as headquarters buildings, military leadership and communications nodes, and logistics infrastructure, such as storage facilities, fuel dumps, and ammunition caches. This accomplished the two-fold objective of minimizing the Bosnian Serb military capability and reducing enemy casualties to a smaller, more politically acceptable, amount. As well, given the relatively small amount of sorties flown to achieve success, this experience demonstrates that the US need not deploy a combat air force numbering in the many hundreds.

What is particularly crucial to these types of operations is an understanding of the political circumstances of the conflict, the military situations, and the availability of targets. What the diplomats wanted was a quick, and low-risk method to put an end to a bloody and well-televised war in NATO's back yard.

And that's what Deliberate Force did. It did what three years of factional ground fighting, peacekeeping, and international diplomacy had yet to achieve. Almost at the instant of its application, airpower stopped the

⁴⁴ "The Balkans Air Campaign Study: Part 2", p. 21.

attacks on the safe areas and made further large-scale fighting over Bosnian territory largely pointless. In so doing, it drastically altered the military situation on the ground, and it gave the UN and NATO control of the pace and the content of the peace process.⁴⁵

And it did it in only twelve days of bombing and the use of only a fraction of the capability that the USAF has today.

The complete and total triumph of air power is indicative of its decisiveness. Not only was it the primary force used in the Bosnian campaign, but it was the only force that was politically acceptable as well. The long-lasting peace that has resulted in the Balkans is directly attributable to Deliberate Force and its long-term effects on the Serbian psyche. The subsequent deployment of massive numbers of NATO troops to ensure the peace does not diminish the fact that it was air power that achieved the peace in the first place. As well, it was used again in the Balkans to successfully enforce peace in Kosovo, during Operation Allied Force, despite the deployment of large numbers of well-armed friendly ground forces. As shall be seen in the following chapter, air power is also decisive in more robust warfare where the objective is not just coercion of a government or leader, but an entire regime change.

⁴⁵ Owen, "The Balkans Air Campaign Study: Part 2", p. 24.



Afghanistan Political Map

Chapter 4 – Afghanistan: A New Air-Ground Partnership

If the Gulf War and Operation Deliberate Force were rapid evolutions in the application of air power, Operation Enduring Freedom (OEF) was revolutionary. For the first time in the history of warfare, the relationship between ‘supporter’ and ‘supported’ was flipped on its head; surface forces supported the air war. This was not unintentional, but the strategic plan from the very beginning. Ten years earlier, the idea that “land power and air power are co-equal and independent forces: neither is an auxiliary of the other”¹ was seen as radical. It had always been the primary role of air power to support the surface forces, with the strategic air campaign an oft-neglected sideline of the ground battle. Now, having applied the lessons learned in Operations Desert Storm, Deliberate Force, and Allied Force², United States decision makers revolutionized the way America fights wars.

This operation saw the first use of some new technology, such as new weapons and intelligence, surveillance, and reconnaissance (ISR) systems, the longest sustained naval air campaign in history, the largest use of close air support (CAS) in a single battle, the longest sortie ever flown by a combat aircraft, and one of the largest airlift operations ever recorded. Truly OEF was revolutionary in many ways.

More than any previous campaign, the war against the Taliban and Al Qaeda in Afghanistan demonstrated the true decisiveness of modern air power. It can win wars when coupled with support from surface forces. The air component demonstrated remarkable flexibility, often receiving target information while in flight and attacking targets sometimes within minutes of receiving the request.

¹ David MacIsaac, “Voices from the Central Blue: The Airpower Theorists”, *Makers of Modern Strategy*, ed. Peter Paret. (Princeton: Princeton University Press, 1986) p. 626.

² Operation ALLIED FORCE was the NATO-led air strikes against Serb forces in Kosovo in 1999.

What made OEF unique was that joint airpower was able to respond on command in a harsh, politically complex environment. The airpower component set the conditions for a coalition campaign and achieved success from the first night onward, adapting to tactical constraints and bringing precise firepower to bear. Indeed, 80 percent of the targets struck by US airpower were "flex targets"--those given to pilots en route.³

On September 11, 2001 the United States armed forces were thrust from a standing start into a rapid and robust deployment of forces to the most remote theater its forces have ever operated in. United States Central Command (CENTCOM), responsible for Southeast Asia, began an intense planning activity that would culminate in OEF. The sheer logistics of what was accomplished in only three weeks is staggering.

By October 7, 2001, the first day of combat air operations, the US had staged two of its twelve formidable carrier air wings (CVW) to conduct combat operations against Afghanistan, with two more that would contribute to operations within ten days. The Combined Air Operations Center (CAOC) in Saudi Arabia was rapidly modernized and reinforced. It had already created an elaborate and detailed target set to defeat the Taliban and utterly destroy Al Qaeda forces based in Afghanistan. Most remarkably, a twenty-four hour, seven-day-a-week ISR⁴ net was being established over the entire country for the first time in history. This net passed on real-time imagery and signals to the CAOC, CENTCOM headquarters in Tampa Bay, Florida, the White House, and to Ground Forward Air Controllers (GFACs) who were positioned with surface forces to provide more accurate strike information. This incredible system allowed for a previously unseen level of situational awareness for US planners.

³ Rebecca Grant, "An Air War Like No Other", *Air Force Magazine*, November 2002, Vol. 85, No. 11, p. 30.

⁴ For the first time in the history of warfare, information received from satellites, reconnaissance and electronic warfare aircraft, unmanned aerial vehicles (UAVs), and forward air controllers on the ground was fed in real time into an integrated system, so that all the data was compiled for all sources at all times to give the commander a real time picture of enemy and friendly force movement over the entire country.

Supporting this effort, modest when compared with other recent US interventions, such as the Gulf War and even the various operations in the Balkans, was a major logistical undertaking. US Forces did not have pre-existing basing areas or airport infrastructure within striking range of would-be targets. The absence of adequate basing facilities posed a different set of problems; rather than moving massive amounts of troops and equipment into one forward staging location, many areas had to be established and supported simultaneously.

By some measures, OEF could be considered a small combat operation, given the number of aircraft and personnel deployed, the number of beddown locations employed, and the number of sorties flown, all of which are small compared with other recent Air Force operations. However, the combination of short planning timelines and poor existing infrastructure created especially demanding requirements for combat support operations.⁵

Historical Background

The Bush administration was under intense pressure in the days and weeks following the terrorist attack of September 11 to take some action. The Administration did not want to follow the example of its predecessor and launch a few cruise missiles to destroy meaningless targets. Rather, it wanted to make a substantial diplomatic and military offensive against the terrorists and the states harboring them. As President Bush stated,

whether we bring our enemies to justice or bring justice to our enemies, justice will be done...It will not look like the air war over Kosovo two years ago...Our response involves far more than instant retaliation and isolated strikes...We will direct every resource at our command – every means of diplomacy, every tool of intelligence, every instrument of law

⁵ Robert S. Tripp, Kristin F. Lynch, John G. Drew, and Edward W. Chan, *Supporting Air and Space Expeditionary Forces: Lessons Learned From Operation Enduring Freedom* (Santa Monica: RAND Corporation, 2004), p. 18.

enforcement, every financial influence, and every necessary weapon of war – to the disruption and defeat of the global terror network.⁶

Bush was cognizant of the requirement to portray the conflict as a war against terror and not against Islam and to gain political legitimacy within the international community, particularly within the Islamic world. Strategically he wanted not to merely focus on Afghanistan, but also on Al Qaeda and other terrorist organizations located in some 60 different states.⁷ Once convinced by his advisors that going after a broad array of military targets at once was not militarily feasible, as it would also threaten the loose coalition support, he decided to “pick them off one at a time”⁸ and focus on Afghanistan first.

The success of the diplomatic efforts greatly enabled the military operation. Critical partners were brought on board, such as Saudi Arabia, where the CAOC was located, and Pakistan, Afghanistan’s closest ally and the strongest international supporter of the Taliban. The leaders of Pakistan cut off support to the Taliban, lent legitimacy to the US action, and allowed over-flight permission of its airspace for US strike and support aircraft. Uzbekistan, Turkmenistan, Tajikistan and Kyrgyzstan offered varying levels of support for critical operational aspects like basing and airfields, which were in very short supply to US forces, after intensive American diplomatic efforts in those states as well as in Russia. For its part, Russia did not offer any military assets, partially because of the military burden in Chechnya, it did assist the diplomatic effort in obtaining US access to bases in Asia and also lent legitimacy to the subsequent war.

⁶ Benjamin S. Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, (Santa Monica: RAND Corporation, 2005) p. 15.

⁷ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 45.

⁸ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 45.

The strategic framework of the American response emerged with four components: a military offensive against bin Laden and his terrorist network; a diplomatic and possible military campaign against states known to harbor terrorists; the formation of a worldwide counterterrorist network; and domestic initiatives to improve homeland security.⁹ The first and second objectives were given to the Joint Chiefs of Staff (JCS) and they handed them to CENTCOM to begin planning what would eventually become OEF.

Planning had already begun based on guidance from Secretary of Defense Donald Rumsfeld. Senior military leaders had also been gathering information on Afghanistan and the region. Options had already been analyzed for striking at Bin Laden and al Qaeda, but as for confronting both al Qaeda and the Taliban simultaneously, “there was nothing on the shelf that could be pulled down to provide at least an outline.”¹⁰

Strategic targets in Afghanistan were scarce as there was no electrical grid to speak of, nor was there anything beyond very rudimentary infrastructure which had been ravaged for over two decades by war. The Taliban and al Qaeda had combatants highly dispersed throughout the country without much in the way of troop concentrations or military installations. In many cases, Taliban and al Qaeda troops were situated among the civilian population or indiscernible from civilians to anyone except native Afghans. Like Operation Deliberate Force, the overriding concern was to avoid collateral damage and the local civilian population, which ruled out strikes to bridges, main supply routes, and other targets in built-up areas. To accomplish its goals, the US forces badly needed a source of local intelligence and expertise.

⁹ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 40-41.

¹⁰ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 49-50.

The Northern Alliance consisted of several groups of guerilla fighters left over from the resistance of the Soviet occupation who came together to oppose the Taliban. The alliance was also recognized by the UN as the legitimate government of Afghanistan. CIA operatives had been in contact with this group for years, and the military used this relationship to acquire much needed experience and guidance. Insertions of American special operations forces (SOF) teams from the Army and Navy, as well as Air Force ground forward air controllers (GFAC), were planned prior to the start of the air campaign, to give the aircrew and the CAOC eyes on the ground. Due mostly to weather, they were not able to make the insertion in sufficient numbers until eleven days into the campaign. Nonetheless, once integrated with the Northern Alliance, their presence produced major gains.

CENTCOM plans called for a massive build-up of land forces over the course of months. Projections from military advisors went from 40,000 troops to 250,000.¹¹ Rumsfeld responded, “Try again...Go off, be more creative, we don’t want to put huge forces on the ground, and your time lines are too long.”¹² What US decision makers wanted was a rapid, visible, and forceful response to the terrorist attacks that would not only achieve the goals set out by the administration, but also satisfy the American public and maintain international political support. What they got was a minimally destructive, precision air campaign supported by small numbers of SOF teams imbedded with Northern Alliance forces focused on the removal of the Taliban and the destruction of al Qaeda. The avoidance of civilian casualties was a key planning factor. The planning effort to achieve this was enormous;

¹¹ Rebecca Grant, “The War Nobody Expected”, *Air Force Magazine*, April 2002 Vol. 85, No. 04, p. 3; and Rebecca Grant, “An Air War Like No Other”, p.32.

¹² Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 51.

...in the space of just a little over three weeks, the US government pulled together an effective international coalition, crafted the beginnings of a serviceable war strategy, moved needed forces and material to the region, developed alliances with indigenous anti-Taliban elements in Afghanistan, arranged for regional basing and overflight permission, laid the groundwork for an acceptable target approval process, and prepared to conduct concurrent humanitarian relief operations.¹³

By the time attacks began on October 7, 2001, it was decided that air power would be the main force deployed by the US, with the Northern Alliance, small southern Pashtun tribes, small numbers of US SOF personnel and CIA operatives bearing the brunt of the ground campaign.

The conventional view from the Army planners was that this group was unprepared to confront al Qaeda and the Taliban without substantial assistance from a large US ground force. As Rebecca Grant remarked, they were “dead right about the Northern Alliance's need for help but wrong about the source. Help was about to arrive, in a spectacular form, from CENTCOM's joint air component.”¹⁴

The Air Campaign

The challenge in attacking Afghanistan from the air was not a traditional one. It had some fighter aircraft, but intelligence suggested they could not fly. Its integrated air defence system was neither a system nor integrated. It was only a superficial threat that existed from anti-aircraft artillery (AAA) and man-held portable SAM's, some of them American-made Stinger missiles supplied during the Soviet intervention. The aim was to remove any threat, no matter how inconsequential, to friendly aircraft, to disrupt the use of Afghanistan as a terrorist base, and to reduce the military capability of the Taliban.

¹³ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 59.

¹⁴ Rebecca Grant, “An Air War Like No Other”, p. 33.

On the opening night 42 US warplanes, including B-2s from the continental US, B-52s and B-1Bs from Diego Garcia, and 25 carrier-based fighters entered Afghanistan not in search of enemy forces, but rather “airfields, training camps, headquarters facilities, and material”¹⁵ as well as the previously mentioned air defences and some SCUD missile launchers. 50 cruise missile strikes were also launched. As well, C-17s operating from Germany dropped 34,400 food packets into Afghanistan as part of the President’s plan to win the hearts and minds of the civilian population. The initial salvo was successful and no Afghani fighters took to the air to oppose the onslaught and no friendly aircraft were damaged. The fighters and bombers hit 31 targets with 275 individual aim points.¹⁶

Until a substantial SOF presence was successful in connecting with the Northern Alliance eleven days into the campaign, air assets focused on fixed targets inside Afghanistan. They only attacked troop concentrations when they could be positively identified as enemy forces as approved by CENTCOM to avoid the possibility of civilian casualties. They struck at bunkers, the homes of the Taliban leadership, and military installations. Many targets were also hit multiple times to satisfy CENTCOM’s demanding battle damage assessment (BDA)¹⁷ requirements. During the first five days, American warplanes dropped 1,791 bombs on various fixed targets,¹⁸ not a very busy day

¹⁵ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 78-79.

¹⁶ Individual aim points are all the necessary components that must be hit to destroy a single target. Many targets have multiple aim points. For instance, a AAA site has a the gun, the fire control radar, and the ammunition.

¹⁷ Battle damage assessment (BDA) is the process whereby a target is confirmed hit and destroyed by examining satellite imagery of the target to review the blast damage. If there is insufficient indication by that imagery that the target has indeed been destroyed, it must be hit repeatedly until it can be removed from the target list. CENTCOM’s demand that only conclusive satellite imagery be used for BDA, rather than the more accurate UAV images or a visual assessment by the pilot or SOF troops likely resulted in many targets being hit more than once when it was unnecessary.

¹⁸ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 89

compared to the Gulf War and only a modest effort compared to Kosovo. As one military analyst insisted:

What else they're striking remains to be seen. A few leadership targets, perhaps some Taliban forces out in the field. But I think it is clear that in contrast to those previous wars where the air campaign was the center of gravity, the focal point, this is simply setting the stage, as they said, for the follow on Special Forces and other operations.¹⁹

Obviously, this turned out not to be the case, air power continued to be the “focal point” until the end of the campaign.

Naval fighters based from carriers did the vast majority of combat sorties, often flying missions over ten hours to destroy their targets, something never before accomplished by carrier air wings. Longer flights performed by B-2, B-1B, and B-52 crews stationed even farther away were enabled by the largest air-to-air refueling operation in the history of war. American and British tankers operating from nearby locations provided fuel 24 hours a day, seven day a week over Afghanistan, performing literally hundreds of air-to-air refuels every night.

Air power was greatly enabled by the presence of even a small ground force that could identify targets, direct the attacks, and maneuver to either force the enemy into a suitable location, or pin the enemy down until an air attack could destroy it. Once the SOF elements were on the ground, “the target list was greatly expanded and engagement zones were established throughout the country to facilitate attacks against Taliban and al Qaeda forces.”²⁰ These engagement zones did not allow pilots to target and destroy anything they could see from their aircraft. Instead they were for friendly ground forces to direct attacks against pop-up targets of opportunity. This “signaled the beginning of a

¹⁹ John Pike, director of [globalsecurity.org](http://www.globalsecurity.org), in an interview with Margaret Warner, PBS Newshour, October 8, 2001, found at http://www.pbs.org/newshour/bb/military/july-dec01/military_10-8.html.

²⁰ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 93.

new use of air power in modern war.”²¹ There was no coordinated US ground offensive except for the October 21 night raid when 100 rangers parachuted in near Kandahar to raid a suspected Taliban command site. “The operation was widely assessed later to have been mainly a show-of-force event that produced little of intelligence value and proved to be of no strategic consequence.”²²

Once the air attacks began, the Taliban information campaign suggested that large numbers of civilians were being killed. This continued throughout the war, making outrageous claims:

The Taliban exploited the Afghan situation by producing grossly exaggerated claims of civilian casualties. While an independent estimate by the Associated Press put the figure at roughly 500-600, the Taliban Ambassador quoted 1,500, Al Jazeera gave estimates as high as 6,000, and one economist at the University of New Hampshire produced estimates of 5,000 and then 3,100-3,800. In some cases, the Taliban is known to have reported civilian casualties when there were no such casualties at all.²³

The US government dismissed these claims, and reported only eight confirmed civilian deaths occurred. Certainly the civilian death toll due to collateral damage was higher, probably close to 1,000. However, these deaths may be as easily attributed to ground operations.²⁴ Taliban and al Qaeda forces deliberately hid among the civilian population, and even used hospitals, mosques and schools to protect themselves. They also intentionally blurred the lines between civilian military by disguising troop movements as

²¹ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 95.

²² Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 96.

²³ Anthony H. Cordesman, *The Air War Lessons of Afghanistan: Change and Continuity*, (Washington, DC: Center for Strategic and International Studies, 2002) p. 78.

²⁴ For this view see Carl Conetta, “Operation Enduring Freedom: Why a Higher Rate of Civilian Casualties”, *Project on Defense Alternatives*, found at <http://www.comw.org/pda/0201oef.html>, 18 January 2002. Conetta argues that there was a higher rate of civilian casualties attributed to US military actions due to changes in technology, suggesting that the GPS guided bombs were not as accurate as laser-guided bombs and malfunctioned more frequently, as well as the lack of a coordinated police action to help stabilize the country. He fails to discuss the issue of the Taliban and al Qaeda using facilities that are forbidden by the Geneva conventions for use as troop housing or for the storage of military material.

civilian in nature. “Wrapping movements in the cloak of democratic values, exaggerating civilian casualties and suffering, and exploiting human rights and international law are becoming a steadily more sophisticated part of modern terrorism and asymmetric warfare.”²⁵ CENTCOM demonstrated restraint in not attacking any of these targets, which, according to the Geneva conventions, were perfectly legitimate once the enemy used them for a military purpose.

With the aid of the SOF-enabled Northern Alliance, the Taliban quickly fell mostly due to air power. The characterization of the Taliban as an ill motivated, poorly trained, rag-tag group of incompetent mercenaries²⁶ falls far short of reality. Although certainly not up to the training and readiness standards of Western light infantry, the Taliban had been successfully fighting a six-year civil war on two fronts; against the Northern Alliance to the north and some break-away Pashtun Tribes to the south, which had been successful in resisting the Soviet occupation. The Taliban did not just quit in the face of the Northern Alliance; “they collapsed because the Northern Alliance was given good information at the right time. The people who were with them were identifying targets of value. We were striking targets of significant value and they were being cut off from the world. They ran.”²⁷ With the first of the Bush administration’s stated goals achieved, they set to stamp out the remaining vestiges of the al Qaeda from Afghanistan, seriously undermining its capability to generate and train more terrorists.

Al Qaeda proved be far more resilient fighters than the Taliban had been. They were a well trained and battle hardened foe that used imaginative and effective tactics

²⁵ Cordesman, p. 78.

²⁶ Stephen Biddle, “Afghanistan and the Future of Warfare: Implications for Army and Defense Policy”, (US Army War College Strategic Studies Institute, 2002) p. 13-23.

²⁷ Gen. Greg Martin, Commander United States Air Force – Europe, 2002. Found in John A. Tirpak, “Enduring Freedom”, *Air Force Magazine*, February 2002 Vol. 85, No. 02, p. 8.

against the asymmetric threat they faced. The flight of the Taliban and the push of the Northern Alliance and the Pashtun tribes forced the al Qaeda fighters on the run as well. They did not, however, disperse, surrender, or defect as the Taliban had done. Rather they regrouped in the mountainous region near the village of Tora Bora. At one time it was believed that bin Laden was in hiding in these mountains, where an elaborate system of caves had been dug over the years of the Soviet occupation and throughout the civil war. Finding and hitting the targets inside the caves was obviously a more difficult undertaking than hitting them in the open, even with camouflage and concealment. As well, with the goals of the Northern Alliance already achieved,²⁸ they were not as willing to follow US SOF direction when it came to facing the dug-in al Qaeda in the mountains of Tora Bora.

The largest problem for the CAOC was targeting. It was not always possible, given the nature of the rock formations and hidden cave entrances, to target the enemy until exposed to attack by friendly forces. Even with all the reconnaissance assets available²⁹ it was impossible to find and target every individual fighting position of the enemy. As Biddle put it, “al Qaeda’s local cover and concealment were good enough to prevent the SOF from locating the entirety of the enemy’s individual fighting positions, many of which could not be signaled out for precision attack.”³⁰ As well, the hard target

²⁸ The Northern Alliance had restored themselves as the de facto rulers of Afghanistan by ousting the Taliban before advancing on Tora Bora.

²⁹ Which included an impressive array of technology including JSTARS for an operational picture and UAVs for a tactical one. The B-2 was used for its 3-D, synthetic aperture radar that could map the cave system of the mountains and provide GPS coordinates and elevation of cave entrances, it did this at high altitude and through cloud cover, see Tirpak, p. 9.

³⁰ Biddle, p. 27.

kill weapons³¹ employed by US air power were not as effective as originally thought. As one analyst summarized, US air power “did little more in Afghanistan, however, than bang away at hardened targets with unknown psychological and deterrent effects.”³²

Biddle sees this as a failure of air power. However it is more reasonable to see this as a limitation, as the tactics and doctrine used to overcome this can be viewed as an incredible success. Air assets were first used to ‘prepare the battlefield’ before introducing ground forces to the battle. The mountains were bombed for three days continuously before pausing to allow the ground formations to advance on the caves.³³ Knowing that intelligence of enemy positions was incomplete, tactical commanders used maneuver by friendly surface forces to draw fire to itself, thereby exposing the enemy fighting positions to attack with precision weapons, including the 15,000 ‘Daisy Cutter’ bomb and ‘bunker-busting’ precision bombs.³⁴ A B-52, never before used in a CAS role, delivered a precision munition by flying it right into the cave entrance.³⁵

While there some of the most intense close combat of the entire war up to that point, the intensity was not so bad that it resulted in large casualties to friendly forces. This is attributable to the rapid ability of air power to fix the target once it was identified on the ground and destroy it within minutes, making it unnecessary to locate each and every enemy fighting position beforehand. While some in Army have contended that

³¹ Hard Target Kill Weapons are designed to penetrate targets prior to detonating. They include the GBU-28 “bunker buster” 5,000-pound bomb, rocket propelled bombs, and fuel-air explosives such as the “Daisy Cutter” described in note 37.

³² Cordesman, p. 89.

³³ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 150.

³⁴ The Daisy Cutter is so huge that it has to be pushed from the back of a large transport plane to deliver it on target. Similar to, but not, a fuel air bomb, it is designed to create a massive, fiery explosion over a contained space, thereby not only causing physical destruction but also robbing the area of oxygen and sharply increasing air pressure. Those that did not die from the initial explosion may have been killed from asphyxiation. Improved ‘bunker-buster’ bombs can penetrate up to 100 ft of earth and several meters of reinforced concrete before detonating. See Tirpak, p. 9, and Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 288-289.

³⁵ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 149.

artillery could have accomplished the same thing more effectively and efficiently than air power, the employment of these weapons would have involved a much larger surface force to transport the slow, bulky weapons into the mountains, and an even larger logistics tail to keep the guns supplied with ammunition.³⁶ As well, although artillery is accurate over an area target, for precise targets, such as cave entrances, it is unsuitable.

Bush and his advisors claimed victory after the success at Tora Bora, despite the failure of the Northern Alliance to find and capture key al Qaeda leaders. The intensity of the air campaign fell drastically after Tora Bora, although targets were still being engaged from the air for some time afterward. A sharp departure from the air-ground synergy that was experienced up to that point came during Operation Anaconda.

Operation Anaconda and the ‘Limitations’ of Air Power

Operation Anaconda was an operation to destroy the residual al Qaeda and Taliban supporters that had regrouped in small valley between the lower Arma mountains and the snow-covered Shah-I-Kot peaks. “No outside force had ever before succeeded in subduing this forbidding part of Afghanistan, from Alexander the Great in 327 BC through the British colonialists of the 19th century to the failed Soviet invaders of more recent years”³⁷ until sieged by US and friendly forces on March 2, 2002. According to critics, Operation Anaconda revealed the limitations of air power. They suggest air power failed to provide timely and accurate support and failed to detect the threats before they emerged. Others see the ‘failures’ as a result as poor planning on the part of the Army and an unrealistic expectation of what could reasonably have been achieved. Air power

³⁶ Cordesman, p. 107-110.

³⁷ Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 163. The Soviet army lost 250 soldiers there in a single day in 1987, with about 200 of those having been stoned to death after being captured by Afghan mujaheddin resistance fighters.

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was responsible for destroying the enemy once friendly forces were engaged in combat, and its effectiveness certainly limited friendly casualties.

CENTCOM had been monitoring the gathering of holdout al Qaeda and Taliban forces in the Shah-I-Kot hinterland while they rearmed themselves and prepared for what was assumed to be a counter offensive. In early January, CENTCOM tasked the land component commander to develop a plan to eradicate this threat. Things got off to a bad start immediately. The land commander did not have command and control over all the troops in theater, particularly the SOF troops, and could not coordinate his plan with them. As well, there were several different land components spread out between neighboring states and several key cities in Afghanistan itself. Some reported to him, others to CENTCOM. To complicate coordination of the air component, there was no air liaison officer that would include the CAOC staff in the development of the plan. The result was that the air component was not even aware that an operation was taking place until just over a week before the battle commenced, and did not get specific tasking instructions until six days prior to the assault on February 24.

As a result the area was not properly surveilled to get an accurate estimation of the enemy force, and the amount of enemy forces in the plan was grossly underestimated. Army planners also assumed a level of air support that was not even present in the theater. The active bombing campaign had long since ended. The level of support had to be ramped up with little to no guidance in the space of a week. Finally, the battlefield was not prepared from the air prior to the introduction of land forces. Not since Vietnam has an initial bombing campaign been ignored. The consequences were higher than

expected friendly casualties, and an operation that was supposed to last ten hours extending to thirteen days.

The battle, however, showed excellent air-ground synergy. Once friendly forces were engaged they were pinned down by enemy forces occupying the high ground. The only integral air asset that accompanied the Army into battle were eight Apache attack helicopters. Though they were very effective while engaged in the battle, due to their low altitudes, they were all beaten back by intense fire and all were sufficiently damaged to ensure that none reentered the battle. Fixed-wing air from then on was relied upon. Within moments, the CAOC was flooded with CAS requests from the different friendly force units. Air power responded to 150 immediate requests and dropped some 200 bombs during first day of the battle.³⁸ Over the course of next few days the main problem in responding to all of the requests was that the air space over the target was miniscule, which made for very dangerous crowding in the air overhead.

Ten heavy bombers, more than 30 fighters, and two AC-130s³⁹ continuously operated within a 70-square-mile battle area...with allied aircraft frequently stacked up eight miles high over the combat zone. B-52s at the highest altitude of 39,000 feet dropped JDAMs⁴⁰ through the flight paths of B-1 bombers and formations of fighters orbiting at 22,000-25,000 feet, EP-3s at lower altitudes, and AC-130s lower still at night, all followed by Predator UAVs, A-10s and attack helicopters at the lowest altitudes.⁴¹

³⁸ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 186.

³⁹ The AC-130 'Specter' is a USAF Special Forces platform. A modified C-130 Hercules transport plane, it is equipped with a 105mm howitzer, two 40mm cannons, and one 25mm cannon. Operating at low altitudes, using computer assisted targeting it can pinpoint enemy locations, either small or large, and eliminate them at close range to friendly troops. Its weapons are accurate to within 10 meters. See <http://www.af.mil/factsheets/factsheet.asp?fsID=71> for more details.

⁴⁰ A JDAM (Joint Direct Attack Munition) uses GPS systems to direct itself to the target, eliminating the requirement for a pilot to 'paint' the target with a laser or guide the bomb on using a TV system. The pilot can set the target coordinates minutes prior to launch and thus can drop it from high altitude and still ensure great accuracy in any weather.

⁴¹ Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 195.

The most remarkable feature of Operation Anaconda was employing maneuver and firepower on the ground to make air strikes more effective. Often the enemy was pinned to its position by friendly mortar fire while precision munitions were employed. In the largest CAS operation conducted by the USAF, and “in a situation in which five times the expected enemy strength was taken on by [land forces], air support to Anaconda saw the greatest number of precision munitions dropped into the smallest geographic space in the history of warfare.”⁴²

Some critics have suggested that air power’s contribution to this battle was not decisive and in fact greatly overstated. They cite the failure of reconnaissance assets to locate all the known enemy locations, the problem with acquiring targets from the air in the mountains, the lessened lethality of precision munitions on those enemy locations that were covered by rock and in caves, and the perceived inability of some aircraft to conduct low-level CAS.⁴³ Nonetheless, air surveillance assets were generally effective in pinpointing enemy locations in the mountains before Tora Bora. The lack of coordination with the CAOC prior to Anaconda prevented a full-scale effort that would have certainly provided for more intelligence. The Army relied upon those scarce UAV assets and helicopters that it controlled to provide reconnaissance information, but it was not an “intensive pre-battle reconnaissance effort” using “every available surveillance and target acquisition system”⁴⁴ that Biddle suggests. The B-2 and its 3D mapping radar was not used, nor were many other assets that the CAOC had at its disposal.

⁴² Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom*, p. 194.

⁴³ For this entire argument in more detail, see Biddle. As well, Lambeth, *Air Power Against Terror: America’s Conduct of Operation Enduring Freedom* addresses the critics on p. 204-221.

⁴⁴ Biddle, p. 28.

The problem with acquiring targets from the air in the mountains is indeed problematic. However, American air power has proven that it could successfully conduct these strikes during Deliberate Force, Allied Force, and the Tora Bora operation. Relying on JDAMs rather than other precision technology that uses lasers or TV systems, both of which require either the pilot or someone on the ground to physically acquire the target, has partially eliminated this problem. In spite of this, JDAMs rely on a GFAC or Terminal Air Controller (TAC) to relay targeting information from the ground to the pilot. Due to the lack of previous coordination with the air component, the land force was sent into battle without sufficient numbers of these critical personnel.

Biddle also suggests that because air power could not eliminate every single enemy soldier, that land forces were required to take the physical territory against any resisters that survived.⁴⁵ While this was certainly the case, the air component's condition for success was not to kill every living enemy soldier in the battle space. Its goals were effects-based. The operation itself was intended to eliminate al Qaeda insurgents by driving them from the mountain into areas where friendly forces waited to kill or capture them. In doing so, it was not necessary to utterly obliterate the enemy in order to defeat it. The enemy had been effectively defeated by the time the air operation had ceased and the subsequent land operation was directed against any remaining enemy forces.

The land force commander of Operation Anaconda later suggested that CAS would have been more effective if the Air Force pilots had been willing to fly at lower altitudes to drop their bombs.⁴⁶ His perception was that only the Air Force (which mainly contributed heavy bombers) did not operate at low altitudes, is quite false. Quite simply,

⁴⁵ Biddle, p. 35-36.

⁴⁶ See Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, p. 215.

this was not Vietnam and there was simply no need for most aircraft to strike from low altitudes, with the obvious exceptions of the AC-130 (which is operated by the Air Force), the A-10 and helicopters. Precision munitions have made dropping bombs from a standoff distance just as accurate, and sometimes more accurate, than dropping from low altitudes. Army planners had a poor understanding of how air power is employed in modern combat.

Even if one were to accept Biddle's views, the fact remains that air power was effective even if the surface forces failed. Although greatly assisted by the presence of soldiers to acquire targets and hold them in position, that does not change the reality that it was air power doing the fighting and land forces providing the support. To suggest, however, that this might lead to a restructuring of the US forces to capitalize on this new doctrine may be hasty.⁴⁷ Indeed, as Biddle argues, surface forces remain crucial to the success of war. Even in the case of Afghanistan, they are still a necessary condition for air power to succeed.⁴⁸ "The model to keep in mind, however, is not simply one of US special operations forces operating with indigenous troops, although that model may prove useful in future situations. The model to think of is the employment of US airpower in a fundamentally different way."⁴⁹

Conclusion

Operation Enduring Freedom, despite its slow start, demonstrated some hitherto unknown capabilities of air power. "The Afghan conflict has shown that a combination of precision air and missile strike capability, coupled with greatly improved intelligence

⁴⁷ William R. Hawkins makes this case in "What Not to Learn from Afghanistan", *Parameters*, Summer 2002, p. 24-32.

⁴⁸ Stephen D. Biddle, "Allies, Airpower, and Modern Warfare: The Afghan Model in Afghanistan and Iraq", *International Security*, Vol. 30, Issue 3 – Winter 2005/2006, p. 161-176.

⁴⁹ John Gordon IV and Jerry Sollinger, "The Army's Dilemma", *Parameters*, Summer 2004, p. 36.

and targeting systems, can, in some contingencies, provide much of the heavy firepower that previously had to be provided by artillery and armor.”⁵⁰ This massive air effort, combined with the land contribution limited to a few hundred SOF and CIA personnel linked with as many as 10,000 Northern Alliance forces, succeeded in killing an estimated 4,000 enemy combatants, captured 7,000 more and only suffered two US and perhaps 600 Northern Alliance casualties.⁵¹

Throughout the majority of the combat operations, USAF fighters could not be staged close enough to Afghanistan to contribute, and naval assets flew over two-thirds of all combat sorties throughout the operation. “There is no question that without the contribution of carrier-based air power, the success of Enduring Freedom would have taken longer to achieve – perhaps substantially longer.”⁵² A massive leap forward from the Gulf War where naval pilots could not even communicate with their USAF counterparts and did not have the technology to receive critical data aboard the carrier save for physically delivering it by helicopter, which heavily restricted their contribution to the Gulf War. Having learned these lessons, the carrier battle groups were fully integrated with the CAOC, and with the support of on-board air refueling assets and other tankers from the USAF and allies, the Navy and Marines conducted their first sustained air combat operation in history.

Notwithstanding the impressive contribution of naval air assets, the majority of munitions were still dropped from the Air Force’s heavy bombers, again displaying a capability to conduct CAS and air strikes close to friendly forces from high-altitudes.

⁵⁰ Cordesman, p. 102.

⁵¹ Conetta, “Strange Victory: A Critical Appraisal of Operation Enduring Freedom and the Afghanistan War”, p. 4-5.

⁵² Benjamin S. Lambeth, *American Carrier Air Power at the Dawn of a New Century*, (Santa Monica: RAND Corporation, 2005) p. 36.

The suggestion that their use for “carpet bombing” resulted in greater civilian casualties⁵³ not only shows incredible ignorance of what bombing operations were actually conducted. The United States did not conduct any carpet bombing operations throughout the campaign.⁵⁴ The majority of bombs dropped by these assets were precision weapons that were targeted from the ground. In fact, most combat sorties that actually deployed munitions did so against multiple targets; a trend that began during the Gulf War and came almost completely to fruition during OEF. General Franks, overall commander of OEF, described the operation as “far and away the greatest application of precision munitions in the history of our country.”⁵⁵ The standard of success is “no longer how many aircraft it takes to neutralize a single target but rather how many aim points can be successfully attacked by a single aircraft.”⁵⁶

President Bush summed up air power’s success in OEF the best, “real-time intelligence, local allied forces, special forces, and precision air power has really never been used before [to] shape and then dominate an unconventional conflict....No one would ever again doubt the value of strategic air power.”⁵⁷ The great lessons learned in this conflict were to come to good use in a much larger and more intense war that followed on the heels of OEF, the Iraqi War. Enduring Freedom confirmed that air power used in concert with relatively small amounts of ground forces can win wars without a coordinated major ground offensive.

⁵³ See Conetta, “Operation Enduring Freedom: Why a Higher Rate of Civilian Casualties” for this argument.

⁵⁴ Carpet bombing is a term that is used to describe massive, indiscriminate and concentrated bombing over a large, pre-determined area. Quite simply, this was not possible given the restrictions placed on CENTCOM for avoiding civilian casualties. All bombing operations during Enduring Freedom were focused against specific targets and in generally small areas.

⁵⁵ Grant, “The War Nobody Expected”, p. 5.

⁵⁶ Lambeth, *American Carrier Air Power at the Dawn of a New Century*, p. xii.

⁵⁷ Tirpak, p. 1.

Chapter 5 – Air Power and Political Considerations

For good or for ill, air mastery is today the supreme expression of military power and fleets and armies, however vital and important, must accept a subordinate rank. ~ Winston Churchill

If the Almighty were to rebuild the world and asked me for advice...the atmosphere would be such that anything which attempted to fly would be set on fire. ~ Winston Churchill

Air power has become the American weapon of first resort for nearly every conflict it has encountered since the Gulf War. The tremendous success with which it conducted that war fuelled ever greater reliance on it in later operations. This trend is likely to continue, and for a variety of very good reasons. The demand for air power in the United States has never been so high, and the USAF and the air branches of the other three services are struggling to deal with the increasing demand coupled with the need to modernize and shape their forces to meet this demand. With recent experiences, theory also needs to be adapted. The debate between the proponents of strategic and tactical air power and the accompanying theories are essentially meaningless to the actual application of air power. Used effectively at any level of the war, joint air power has been decisive. Theory is required to encompass the new air-ground synergy and couple it with the strategic effect of Warden and the practicality of Pape.

Relevancy of Theory to Operations

The primacy of strategic targeting postulated by Warden and the proponents of air power argue that the best use of air power is against the enemy's strategic resources. Critics, such as Pape, claim that 'punishment' would never produce victory by itself and a strategy of 'denial', or targeting the enemy forces, is the more appropriate and effective use of air power. A similar argument between airmen and the Army has taken place with

the former's view that CAS missions are the least efficient use of air power and the latter's view that air power should support surface forces. With the benefit of hindsight of three contemporary clashes examined in this thesis it would appear that there is no conclusive evidence to claim that either one is correct.

Counter force applications of air power have been, and will likely continue to be, the dominant form of its use in modern combat, though not necessarily in a CAS role. Even in the Gulf War, when a large strategic campaign was conducted, the war ended too quickly to determine conclusively the quantitative effect of destroying the strategic targets, other than to reduce Iraq's post-war strength. Whether or not the strategic bombing campaign would have won the war by itself cannot be argued since it was conducted simultaneously with the counter force operation that ultimately did win the war. In Bosnia and in Afghanistan there were too few strategic targets to destroy and in any case both conflicts ended too quickly for any strategic consequence to be fully appreciated by the enemy.

Strategic targeting is becoming less and less acceptable to political masters and the general public. Moreover, it is less relevant to modern conflicts. Civilian casualties, real or imagined, are to be avoided at all costs. This is detrimental to strategic targeting. In the case of Bosnia, most strategic targets in Serbia were deemed to be too risky from the standpoint of minimizing collateral damage, maintaining coalition cohesion, and preventing the delegitimization of the UN military action. In Afghanistan, not only were there few worthwhile strategic targets, but the desire of the US President to maintain the perception that they were at war with only the Taliban and al Qaeda and not the Afghanistan people, was the driving force behind the absence of a strategic campaign.

Allies' and public's sensitivity to the destruction of the enemy's governmental and industrial infrastructure make it difficult to conduct an effective strategic campaign. Targeting military forces is obviously more politically acceptable and holds much less potential for causing collateral damage. Even in cases where vital US national interests are at stake, if a dispute over the conduct of the operation threatens to break-up a coalition, the US will likely moderate its strategic bombing plans, as it did in Iraq and Bosnia. As one study concluded, "Enemy land forces were the critical target set during recent conflicts in Kosovo, Afghanistan, and Iraq. In all of these conflicts, enemy land forces were the only target set that was undeniably legitimate, politically acceptable, and of pivotal importance."¹

Warden's theory appears most useful against a state actor, particularly modern, or at least an industrial state. When the US involves itself in conflicts versus non-state actors, guerrilla insurgencies and third world underdeveloped states, it is more difficult to apply. Attacks against any of the five rings can have a strategic effect, so long as it negatively affects the leadership. Where the only targets an opposing leader possesses are military in nature, all attacks against his forces will have a strategic impact. That is not to say, as Keaney has, that the line between strategic and tactical has become blurred². One can still differentiate between tactical, operational and strategic targets. Rather, it means that even tactical effects can be felt at the strategic level. More to the point, whereas the success of strategic bombing is theory-based and difficult to prove through quantitative evidence, counter-force operations strike directly at the enemy's

¹ Pirnie et al., p. xv.

² Thomas Keaney, "Air Campaigns: Current Practice and Future Trends", *Air Campaigns in the New World Order*, Allan D. English ed., (Winnipeg: Centre for Defence and Security Studies, 2005) p. 5-24.

ability to wage war and have a measurable effect. In this respect, Pape's denial strategy more closely resembles actual US air operations than does Warden's thinking.

The role of supported and supporter within the US military is changing as air power takes on the pre-eminent role in conflicts. While land force commanders do not necessarily agree with this supposition, the contribution of air power to their operations is unquestionably crucial. Indeed, "from the perspective of a land-force commander, air power's greatest contribution is in weakening and impeding the enemy forces before they can close with friendly troops."³ Conversely, "from the perspective of an air-force commander, land power's greatest contribution is in flushing and fixing enemy forces so that they can be destroyed by air attack."⁴ Both the surface and air components did this extraordinarily well in Afghanistan, and this success has fuelled the argument that air power is the decisive force since it did the majority of the actual strikes. This synergy was used to good result again during the more recent Operation Iraqi Freedom, where land forces provided the anvil for air power's hammer.⁵

This does not mean that CAS should be the primary role of air power. To the contrary, the increasing lethality and capability of air power could lead to less need for CAS than in the past;

These developments have caused a fundamental shift in the roles that air power can play against enemy ground forces. Military formations deep in enemy territory can be destroyed even when dug into defensive positions. Highly effective [air strikes] can reduce the need for CAS by preventing major enemy attacks and counterattacks, while the same developments make CAS a far more effective force on the battlefield than it once was.⁶

³ Pirnie et al., p. xiv.

⁴ Pirnie et al., p. xiv.

⁵ Pirnie et al., p. 17.

⁶ Pirnie et al., p. 24.

This does not mean that the strategic side of the equation should be discarded and the denial strategy adopted for all future operations. Pape's strategy falls quite short by ignoring the benefit of strategic targeting and focussing on the opposing fielded forces rather than the enemy's entire war fighting system. New theory is required that concentrates first on how to employ air power decisively at all levels. It should encompass the role of the surface forces in the air campaign, and not differentiate between the strategic, theatre, and tactical campaigns, and instead combine targets at all levels into one comprehensive air campaign that focuses on decisiveness. Air power has already demonstrated that it can be decisive, and this will only improve with the development of strategy and doctrine that recognizes this. Continued improvements will make air power even more politically attractive to decision makers.

New strategy and doctrine should include a targeting paradigm that focuses on situational-dependent effects; employing forces in a manner unique to each enemy. Neither Warden's nor Pape's strategy is adequate for contemporary air combat operations. Warden's weakness is that it makes a set of common assumptions about all enemies: it has an upward linear military command structure; the military relies upon centralized command, and the enemy relies upon its economic and industrial resources to support its military in the short-term. In addition, Warden assumes that by paralyzing the leader, the military will also be paralyzed in relegating the enemy's military forces to the most outer ring. In contrast, Pape's denial strategy assumes that there is no target beyond the enemy's fielded military that will have an impact on its immediate war-fighting ability if destroyed. As well, Pape ignores the impact of destroying strategic targets on

the enemy's post-war capabilities. He focuses on the immediate effect of destroying tanks and ignores political factors that can also impact the war.

Expediency in modern warfare is a political necessity. A strategic bombing campaign designed to last for weeks and months before the enemy is defeated will likely not be supported politically. Minimizing bloodshed and destructiveness is also required to maintain domestic and international political and public support for wars. A campaign that utterly annihilates the enemy's helpless forces may not meet this requirement. Targets must be selected that have the most immediate effect on the enemy's ability to fight while also achieving long-term strategic political goals. This means a greater focus on the enemy's military and interdiction, but also includes those strategic targets that directly support the military's efforts.

As seen in the three examples, in practice this is already occurring. Arguably without the benefit of theory to point them in this direction, air campaign planners have improvised operations that have been militarily and politically successful in the Gulf War, Bosnia, and Afghanistan. With the lessons learned from these contemporary wars, and the experiences of other countries, such as Israel, theory can be crafted that meets these principles.

Finally, air and ground operations should be planned in a coordinated fashion such that each support the others campaign plan. This has the benefit of ensuring the proper mix of forces is available to counter the threat. Some operations will call for air power to support the surface force, such as in counter-insurgency, and most high-intensity combat operations will have the ground units support the air operations. Developing war campaigns jointly rather than delegating target and goal selection to the

land and air component commanders ensures good air-ground synergy, to avoid future Op Anacondas.

Political Attractiveness of Air Power

Air power has become the weapon of first choice for many reasons, as outlined by Byman, Waxman, and Shapiro in *United States Air and Space Power in the 21st Century*, 2002.⁷ First, politicians and the public have a great intolerance for civilian casualties, so much so that it was often the primary factor when targeting. This has been a prevailing American trait since Vietnam, but came to a head during the Gulf War when US air power destroyed the Al Firdos bunker on February 13, 1991. US intelligence believed that some Iraqi leadership were hidden there. After it was bombed, it was revealed that the bunker was full of civilians and dozens had been killed. That there were civilians inside does not negate the fact that it was still a legitimate military target, and although it did not affect public support for the war effort over the long term, it did impact the targeting process. Baghdad targets had to be approved by the President, and many targets previously approved for strikes were removed from the list altogether. From that moment on, mitigating collateral damage and the negative impact it could have on public support and coalition cohesion became of utmost importance to American policy-makers and high-level military commanders alike.

Air combat operations hold the potential for far less overall destruction than a ground campaign due to the greater precision from the air. The ubiquitous use of PGMs in recent conflicts, increasing from a small fraction of dispensed munitions in the Gulf

⁷ Daniel L. Byman, Matthew C. Waxman, and Jeremy Shapiro, "The Future of US Coercive Airpower", *United States Air and Space Power in the 21st Century*, (Santa Monica: RAND Corporation, 2002) Zalmay Khalilzad and Jeremy Shapiro ed., p. 51-82.

War to the majority in Operation Enduring Freedom⁸, has resulted in fewer cases of collateral damage where civilians have been killed. Attacking from the ground uses a blunt weapon as tactics involving overwhelming firepower using non-precision munitions to destroy the enemy. In large force-on-force battles, this is not a problem. However, as seen in recent conflicts in Iraq and Afghanistan, the enemy has been avoiding troop concentrations and dispersing its units into civilian areas with greater frequency in an attempt to hide their forces from the air, as well as from large concentrations of ground forces. In response, air power can exercise more proportionality by not only using less munitions more precisely, but also using less destructive weapons to achieve the same results.

Recent media coverage of the Israeli bombing of Southern Lebanon in an effort to destroy Hezbollah focussed on the seemingly indiscriminate and large-scale destruction of predominantly civilian areas. The implication was that air power was an inappropriate weapon to use against an enemy that used the civilian population as cover. The alternatives, however, are somewhat more unattractive. Using a predominantly land force, such as tanks, armoured fighting vehicles, artillery, and mortars, would likely have created similar, if not greater, levels of destruction. It would also mean greater potential for increasing Israeli casualties, which could fuel the escalation of violence. Using special forces and dismounted infantry, while certainly less destructive, would undoubtedly have resulted in greater Israeli casualties and may have resulted in a quagmire similar to that seen in Baghdad. Clearly, using air power independently to

⁸ In Desert Storm only 7-8% of munitions employed were precision guided, this increased to 35% during conflicts in Bosnia, and 56% during Operation Enduring Freedom. Anthony H. Cordesman, *The Air War Lessons of Afghanistan: Change and Continuity*, (Washington, DC: Center for Strategic and International Studies, 2002) p. 32.

counter an urban insurgency has moral and political hazards. Air power coupled with special forces and small land force units, however, holds much greater potential for successful operations while minimizing destructiveness to the civilian population. In the Lebanon example, Israel erred by employing only air power against an enemy that was hidden amongst the civilian population, was not massed, and was highly mobile. The early introduction of even a small amount of ground forces directly in the conflict may have forced the enemy into a position where it could be struck by air power.

USAF Colonel Phillip S. Meilinger suggests that the greater use of air power has actually “humanized war.” In his view:

Tremendous technological strides in the use of precision weapons, as well as developments in air and space intelligence-gathering tools, have made it far easier to distinguish between military and civilian targets and then effectively strike the military ones. Moreover, such effectiveness has carried with it a marked reduction in risk to the attackers. In short, modern air warfare has reduced casualties among both the attackers and the attacked, thus making it an increasingly efficient, effective, and humane tool of American foreign policy.⁹

Significantly higher civilian casualties may have resulted from a larger ground campaign focused on seizing territory and forcing the enemy out of built-up areas without the use of precision air power. On the other hand, it has been argued that because the use of air power requires much more in the way of locally gathered intelligence for targeting, it is much more sensitive to misinformation that can result in attacking illegitimate targets. Some unconfirmed reports suggest that some targets identified as Taliban military or Al Qaeda by Afghan informants were actually tribal rivals selected for revenge or to gain political advantage. According to Anthony Cordesman,

⁹ Col. Phillips S. Meilinger, USAF retired, “Precision Aerospace Power, Discrimination, and the Future of War”, *Aerospace Power Journal*, Fall 2001, p. 13.

By relying in many instances on air strikes instead of ground forces to destroy Al Qaeda positions, the US has reduced the opportunities that it has to verify the target intelligence being provided by local Afghan warlords... While precision-guided munitions are more accurate and less likely to stray from targets, the reality remains that they are only as accurate as the intelligence on the ground.¹⁰

Yet, Cordesman later concludes that, “There is little understanding that short, highly intensive air campaigns may actually end wars with far fewer cumulative casualties”¹¹ than longer surface campaigns.

The US does not usually undertake military action in isolation. All three of the conflicts studied here were multinational, under the auspices of the UN, NATO, or an ad hoc “coalition of the willing.” As one Air Force officer said of coalitions,

Typically created on short notice to deal with an unexpected crisis on the international stage, prior planning or collective preparation for the mission is minimal, in contrast to the inevitable political expectation for quick and effective military solutions to the *problem*. Furthermore, such coalition operations usually result in an unpredictable mosaic of multinational participants brought together temporarily for a variety of parochial national interests, unified more by a superficial political cause than a lasting military commitment. [emphasis is Matte’s]¹²

In these situations, America can make its most substantive contribution from the air since it will possess the overwhelming bulk of air power assets and expertise in any coalition and therefore will ultimately command the overall air campaign. Where a conflict calls for an initial combat operation followed by a reconstruction or peacekeeping-type operation, participation in the combat portion is far more popular publicly in the US than prolonged involvement in peacekeeping or reconstruction. This stems from the American public’s sensitivity to these operations since Somalia and the so-called “Vietnam

¹⁰ Cordesman, p. 79.

¹¹ Cordesman, p. 87.

¹² Colonel Greg Matte, RCAF, “Improving Aircrew Interoperability in Coalition Warfare: Examining the Human Dimension of the Air Power Equation”, *Canadian Military Journal* Winter 2005-2006, p. 78.

syndrome.” This sensitivity is now being reinforced by the current situation in Iraq. Air power provides decision makers with a significant and effective contribution that promises a quick exit and limited involvement once the fighting has ended.

The American public also has an aversion to casualties, particularly where there is no vital national interest at stake. Air operations hold the promise of few friendly casualties, even in conflicts where the enemy possesses significant IADS assets, as in the Gulf War. US aerospace technology is so superior for now that any potential foe faces fourth generation weapon systems with second generation IADS. If the option is between putting tens of thousands of US troops in harm’s way to accomplish a military objective versus using a few hundred planes and aircrew, then the choice is clear. Additionally, most aircraft are now capable of engaging and destroying multiple targets during a single sortie. For instance the B2 bomber can hit as many as 20 in one trip. It would be naïve to call combat air operations safe, but comparatively there is far less chance that an enemy on the ground will successfully engage an airborne weapon system than if he were to engage a target on ground. Even in states that have large amounts of warplanes, the US dominance in this area is such that air superiority can be achieved.

The American public also has a preference for high-technology solutions to problems. Several scholars agree that:

A long-standing tenet of the American way of war has been a reliance on material over manpower, high technology over low-technology mass. The U.S. military, and indeed U.S. society in general, tends to believe in the possibility of clean, technological solutions to even seemingly intractable social and political problems...”the mystique of U.S. air power” stems from the U.S. penchant for applying a high-technology force of latest-generation fighters, fantastically precise bombs, and intelligent cruise missiles to what has historically been a very grimy affair.¹³

¹³ Byman et al., p. 57.

Related to its aversion to casualties, Americans rely on technology, rather than superior numbers, to reduce the threat posed to its forces. The revolution in military affairs (RMA) created great advances in all areas of war fighting, but particularly in the realm of air power capabilities. The leap forward was huge, while on the ground the advances were limited to improving force protection, situational awareness, and lethality of existing weapons.

Finally, related to its aversion to civilian casualties, as much as possible the US justifies its military actions based on international norms, including the Geneva Conventions and all international agreements that encompass the Laws of Armed Conflict. To a great extent, justified military action is judged by its adherence to the principles of discrimination and proportionality. Discrimination is differentiating between military targets and civilians, and then only striking those military targets that satisfy military and political goals. Proportionality is selecting the most appropriate use of force against specific targets, and using only that level of force required to accomplish the objective. Air power has proven excellent in achieving both of these principles in all recent conflicts. Although errors happen and are highly publicized, a massive mobile ground force has very limited options when countering threats, with less likelihood of ensuring discrimination and proportionality. Overwhelming firepower and fire and manoeuvre are the best means to defeat the enemy, while minimizing the risk to one's forces. However this also causes massive destruction, and is not always discriminatory especially when fighting occurs in built-up.

For all these reasons air power will remain prominent in US political and military circles. Using predominantly air power with surface forces in a supporting role offers a

greater chance of success with less cost and less risk. This is obviously attractive to both the American public and its political representatives. The fact that American air power is becoming even more capable makes its use even more palatable. Increasing ability in stealth, with the introduction of the F22 Raptor, and other fourth generation fighter technology, and the forthcoming introduction of the Joint Strike Fighter, will improve arguments for air power's decisiveness. More and better PGMs are available for use, and there is no airborne platform in the American arsenal that cannot use them. The increasing use of unmanned aerial vehicles (UAV) for reconnaissance is providing commanders with better situational awareness, targeting information, intelligence, and even a stealthy precision-strike capability.

The next American military action promises an even heavier reliance on air power than ever before, and even greater success. Still, "the increasing capabilities of air power relative to land power do not, however, imply that land forces are becoming obsolescent. Land forces can perform some tasks that air forces simply cannot, and they can perform some others far more effectively or efficiently than air power can."¹⁴

The benefit of the decisiveness of air power to political decision makers is dependent largely on the political goals of the United States and the military capability it requires to achieve those goals. Since the end of the Cold War, it has been difficult to define an American "Grand Strategy"¹⁵. Generally the US has approached each regional crisis similarly by first attempting to form a coalition that it leads then steering the outcome of the crisis to best suit US national interests. Far from isolating itself into

¹⁴ Bruce R. Pirnie, Alan Vick, Adam Grissom, Karl P. Mueller, and David T. Orletsky, *Beyond Close Air Support: Forging a New Air-Ground Partnership*, (Santa Monica: RAND Corporation, 2005) p. 25.

¹⁵ See Barry R. Posen and Andrew L. Ross, "Competing Vision for US Grand Strategy", *International Security*, Vol. 21, No. 3, Winter 1996-1997, p. 5-53.

“Fortress America” the US has engaged itself in many far-flung conflicts, such as Somalia, Haiti, and the Balkans in which there was little discernable vital national interest at stake. Indeed, “because the United States has economic, cultural, and political ties to almost every region on earth, withdrawal and isolationism are unlikely and would certainly carry greater risks.”¹⁶ Conflicting with the US propensity to intervene and engage in foreign crises is the public’s and politician’s aversion to casualties and civilian deaths; and aversion currently being informed by the situation in Iraq. This has and will continue to constrain the type and use of force in all conflicts. Coupled with this constraint is the political desire for a speedy victory. In short, Americans want to achieve all of their global goals as quickly and bloodlessly as possible.

Khalilzad and Ochmanek list all the geopolitical US goals that may involve the military:

Promoting alliance relations and demonstrating US commitment through routine engagement operations, or “overseas presence”; deterring and defeating the use of weapons of mass destruction, both those threatening the US homeland and those threatening US forces and allies abroad; countering international terrorism; intervening to resolve inter- or intrastate conflicts that affect important US interests broadly defines; monitoring compliance with peace agreements; [and] providing humanitarian relief to victims of disasters.¹⁷

To accomplish these missions the US has a wide array of military capabilities. However, to meet these goals with the simultaneous constraints of rapid deployment, risk aversion, minimization of collateral damage, acting with allies, neutralization of the enemy,

¹⁶ Zalmay Khalilzad, David Ochmanek, and Jeremy Shapiro, “Forces For What? Geopolitical Context and Air Force Capabilities”, *United States Air and Space Power in the 21st Century*, Khalilzad and Shapiro ed., (Santa Monica: RAND Corporation, 2002) p. 30.

¹⁷ Khalilzad and Ochmanek, p. 32. See also Donald Stevens, John Gibson, and David Ochmanek, “Modernizing the Combat Forces: Near-Term Options”, *United States Air and Space Power in the 21st Century*, Khalilzad and Shapiro ed., (Santa Monica: RAND Corporation, 2002) p. 86.

exertion of coercive force, and capable of undertaking a variety of missions¹⁸, air power appears as the best tool in the arsenal. American air power is capable of dominating combat not only in the air, but also on the surface.

The Iraqi War of 2003 was not included here as a case study. This conflict witnessed the culmination of the lessons learned in combat since the Gulf War and the political benefits. The new air-ground synergy made it possible to invade Iraq with a much smaller, lighter, and faster ground force than was deployed for the Gulf War, which supported an overwhelming air campaign. Iraq's army had learned from the Gulf War that large troop concentrations in the open were too attractive a target for air power and in the Iraqi War attempted to disperse units into smaller concentrations and either conceal them or put them close to civilian populations.

US forces also learned from operations in Afghanistan that in order for the air campaign to work most effectively, ground forces are required to compel the enemy to confront it and expose themselves to attack from the air. The result was spectacular. A quick and resounding victory for the coalition that was numerically outmatched by its opponents. This was particularly true in the north. US Special Operations Forces, augmenting a small force of poorly equipped and minimally capable Kurdish rebels, assisted air power in defeating four Iraqi Army corps, including one Republican Guard unit.¹⁹ Again, it is important to consider the success of the invasion apart from what has become a near-disastrous occupation and counter-insurgency. It's obvious that while much time was spend to ensure that the initial war plan was solid, little time and effort was spent planning for occupation operations. Arguably had more surface forces been

¹⁸ Khalilzad and Ochmanek, p. 34 and Stevens et al., p. 88.

¹⁹ Gordon, John IV and Sollinger, Jerry, "The Army's Dilemma", *Parameters*. Summer 2004, p. 36.38.

used during the initial invasion, the occupation may not have gone so poorly. However, it is important to remember that the potential failure of the current operations does not signal a failure in the operational concept for war fighting. It is a product of a flawed political and diplomatic model that expected far too much of the Iraqi government, police and military too quickly after the end of hostilities, and was over-optimistic with respect to the level of tension between the different religious populations. The relative failure of the occupation fuelled the trouble witnessed today. The civil war and insurgency, as with all such conflicts, are manifestations of social frustrations and dissatisfaction and thus cannot be defeated with military force alone. Social problems have social solutions.

The implications of this are profound. If the US can intervene in conflicts with less risk and greater chance of quick success, then it may do so more often, with all the consequences that entails. Greater US interventions in conflict may mean less international crises, or quicker ends to them. At the same time, this may lead to a greater negative reaction to American actions, increased hostility towards it, and polarization of the relationship between the US and other great powers, such as Europe, China and Russia. Whether or not American armed intervention will become more frequent as a result of its air power capability is difficult to know. Nevertheless, the need for US military intervention is a near certainty:

More than 15 Third World countries now have more than 1,000 main battle tanks and 300 modern combat aircraft, and virtually all of these countries have been involved in some form of combat in the last decade. North Korea has over one million men at arms, 3,000 tanks, and 730 combat aircraft. Iran has more than 500,000 men, 700 tanks, and 260 combat aircraft. More than 20 countries are developing or deploying weapons of mass destruction and are acquiring long range strike systems.²⁰

²⁰ Anthony H. Cordesman, *Lesson of Modern War Vol IV, The Gulf War*, p. 1026.

Though less of an issue since September 11, 2001, public and political circles continue to remain apprehensive in committing forces where the possibility of friendly or civilian casualties exists. However: “Death is often the price of power, and sending US forces into ‘police’ actions and other interventions in the hope that force does not mean killing is about as practical as sending a nun to halt an orgy.”²¹ Still, most US policy-makers recognize that “deterrence is only meaningful where there is a true commitment to use force.”²² The US has shown a willingness to commit air power thus reinforcing the credibility of its deterrent threats, and an ability to apply force to accomplish a broad array of goals. With this in mind, one can expect the use of air power by the US to increase along with military interventions if the need arises.

This has far reaching implications for the US and its allies. The danger here is that if the US views its allies as not being relevant to their operations, then it may just to go it alone more often. American unilateralism fuels anti-American sentiment with its traditional allies. Under the Bush administration, this has meant a shift in relative importance amongst its allies, from the traditional Western Europeans to the new Central and Eastern European allies. This alienates not only Western Europe but also Russia. Greater animosity between these powers and the US could result in the end of NATO and other US partnerships.

As well, there is danger in employing less ground forces. As witnessed in Iraq, an excellent invasion plan using light and mobile ground forces did not translate into and proper occupation and counter-insurgency plan. Much of this was politically driven, however it seems clear that more surface are needed for these operations. In the

²¹ Anthony H. Cordesman, *Beyond Bosnia: The Need for Realism in Using American Military Force*, (Washington, DC: Center for Strategic and International Studies, 1996) p. 8.

²² Cordesman, *Lesson of Modern War Vol IV, The Gulf War*, p. 1027.

terminally short-sighted world of politics, ensuring the right mix of forces for all phases of combat is essential in the early planning stages.

Conclusion

While the decisiveness and utility of US air power is clear in circumstances similar to the cases examined here, there are other forms of conflict that need to be addressed in future studies. These include counterinsurgency operations, a contemporary inter-state war between great powers, or nuclear war. These were intentionally excluded for several reasons. First, this analysis sought out the most likely potential scenarios that would involve air power. Second, there is little to no modern empirical evidence for an inter-state great power war and nuclear war open to examination.

To be sure, air power is being used to counter insurgents both in Afghanistan and in Iraq and in both operations it has yielded some success. However, in these types of operations, the more traditional relationship between the surface forces and air power is perhaps more relevant as the majority of the fighting is done on the ground. “Low intensity wars are almost invariably fought in confused political circumstances against people, not things. Such wars are highly political and focus on killing rather than on destroying weapons and facilities.”²³ Still, air power is enormously useful and a tremendous force multiplier in counter-insurgency operations. Its decisiveness remains open to further debate. Recent Israeli experience in Lebanon demonstrates the political problem of using air power to counter an urban-based insurgency. While arguably successful in disrupting and degrading Hezbollah militants, the Israeli campaign was not a military or political success. It did not achieve its strategic goals, of eliminating

²³ Anthony H. Cordesman, *Lesson of Modern War Vol IV, The Gulf War*, (Boulder, CO.: Westview Press, 1996), p. 1040.

Hezbollah in Lebanon and creating a buffer zone so the terrorists could no longer launch missiles into Northern Israel. Evidence suggests that had more ground forces been engaged sooner, Hezbollah would have become more vulnerable to air strikes.

The USAF has no current counterinsurgency doctrine. They have “ignored insurgency as much as possible, preferring to think of it as little more than a small version of conventional war.”²⁴ This is obviously inadequate.

Generally speaking, guerrillas and terrorists rarely present lucrative targets for aerial attack, and even more rarely is there ever a chance for airpower to be employed in a strategic bombing campaign or even in attack operations on any large scale. As a result, it is the indirect application of airpower – that is, the use of aviation resources for reconnaissance, transportation, psychological operations, and communications – that proves most useful.²⁵

The strengths of air power allow it to greatly contribute to a counterinsurgency, as seen during Operation Enduring Freedom. Small numbers of special forces on the ground can root-out targets that can then be destroyed using air power. The CAS role, in particular, is a force multiplier in counterinsurgency campaigns, since it allows greater flexibility when employing ground forces. Soldiers can operate in smaller numbers over a wider area while relying on air power to counter the enemy when they engage in combat.

However, greater numbers of well-equipped land forces are required for these operations.

There is far less material surrounding air power in inter-state war between Great Powers, mainly because it has not occurred since WWII. One could only speculate on the probable role of air power in a war between the US and another Great Power, such as Russia or China. They possess far superior air assets, technology, and training, than the

²⁴ Major Kenneth Beebe, USAF, “The Air Force’s Missing Doctrine: How the US Air Force Ignores Counterinsurgency,” *Air and Space Power Journal*, Spring 2006.

²⁵ James S. Corum and Wray R. Johnson, *Airpower in Small Wars*, (Lawrence, KS: University Press of Kansas, 2003) p. 8.

mostly primitive air assets of its recent foes. Since the US possesses far greater air power than either of these potential foes, but less surface forces, it is plausible to deduce that it would play a dominant and likely a decisive role in a US victory.

Regional Great Powers, such as China, are striving to catch up with American military dominance. To develop the technology required to compete with the US in the air is too capital intensive for nearly all countries to consider. The focus for many of America's potential foes is on air defence, deception, and camouflage. However, for the US the most likely future combat scenarios are in a largely defensive and pre-emptive role: repulsing a North Korean invasion of South Korea; defending Taiwan from Chinese military aggression; and striking nuclear facilities in Iran and North Korea. These are tasks to which air power is well suited and can play a decisive role. Further speculation on the role of air power in a Great Power conflict would be based solely on theoretical assumptions and conjecture, and not on empirical evidence as was intended in this thesis. Therefore, the topic remains open for further debate.

In a nuclear war, the conventional role of air power, indeed of all forces, would be more limited. But it is impossible to extrapolate additional conclusions without further research and debate. A nuclear war is an aerospace war. All nuclear assets, be they bombs dropped by planes or missiles fired from submarines, are air power assets. Fortunately, there exist no examples to study to draw comparisons from or empirical data to analyze. This is largely a theoretical debate whereas this project focussed on the empirical.

To be clear, this argument applies only to American air power, and not to the other Great Powers. The reasons for this are that the US is the only state to date to

develop and field fourth generation fighters, bombers, ISR, and weapons technology; the only state to have successfully utilized these technologies in combat; the only state that has adapted its doctrine to better apply these assets; and the state with the greatest airborne arsenal on the planet. The other Great Powers likely have more than a decade or more of catching up to do before they can hope to compete with American air power. US military technology continues to evolve faster than its competitors, therefore American military dominance seems assured for decades to come. As well, the US will continue to develop new and more air power technologies partially as a function of recognition of its decisive role in future conflict.

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