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**NAVAL WAR COLLEGE  
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**Deriving the Correct Enemy Center of Gravity: An Air Force Debate**

**by**

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**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

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**26 April 2010**

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## **Abstract**

### *Deriving the Correct Enemy Center of Gravity: An Air Force Debate*

Since the early 1910s, air power advocates, theorists, and military planners have searched for a decisive way to employ air forces by avoiding direct confrontation with the enemy's fielded forces. However, operations to cajole public morale and wreck economies led to mass destruction and large civilian casualty tolls, but had little effect on resolving conflicts. Proper center of gravity analysis is vital to the effective employment of air power. In future conventional wars, the preponderance of the air effort should target the enemy's fielded fighting forces, not economic infrastructure, political leadership, or population centers. This paper will explore the rise of the United States Air Force and its development of prevailing thoughts on air power application. It will scrutinize previous major conflicts for conclusions that should shape future thought. Finally, the paper will develop recommendations on how air power should be best applied at the operational level.

## INTRODUCTION

*“There is only one way of seeing a thing rightly, and that is seeing the whole.”*  
- John Ruskin<sup>1</sup>

After three years of civil war and hundreds of thousands of casualties, Ulysses S. Grant took command of the Union Army. His task was to develop a unified strategy to defeat the Confederates. Naval blockades, captured towns, ports, and countless raids culminated in no appreciable gains toward termination of the American Civil War. In the spring of 1864, Grant decreed his strategy to achieve this aim which had proved so elusive to his five predecessors in the eastern theater. Grant correctly deduced the armies of the Confederacy to be the centers of gravity, “the point[s] at which all our energies should be directed,” not Richmond, Atlanta, key railroad hubs, or waterways.<sup>2</sup> He told his eastern sub-commander, Meade, “Lee’s army will be your objective point...wherever Lee goes, there you will go also” and Sherman, his second in the west, understood the plan, “[Grant] was to go for Lee, and I was to go for Joe Johnston.”<sup>3</sup>

Since the early 1910s, air power advocates, theorists, and military planners have searched for a decisive way to employ air forces by avoiding direct confrontation with the enemy’s fielded forces. They sought the “holy grail” of an independent, decisive air campaign. This idea appeared to politicians as a favorable alternative means of coercion. However, operations to cajole public morale and wreck economies led to mass destruction and large civilian casualty tolls, but had little effect on resolving conflicts. Conversely, when

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<sup>1</sup> Quotation taken from NEON (pseudonym), *The Great Delusion: A Study of Aircraft in Peace and War* (London: Bouverie House Ernest Benn Ltd, 1927) 236.

<sup>2</sup> Clausewitz, Carl Von, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976) 596.

<sup>3</sup> Shelby Foote, *The Civil War: A Narrative*, vols. 2&3, *Fredericksburg to Meridian, Red River to Appomattox* (1963, 1974; new imprint, New York: Random House, 1986) 966, 17. When Grant took over, General George G. Meade was retained as commander of the Army of the Potomac, albeit with Grant’s presence and guidance. William T. Sherman was promoted to commander of the western theater and faced Joe Johnston’s Confederate army in the vicinity of Dalton, Georgia.

the air arm was wielded in direct support of unified joint commanders, conflicts concluded sooner without wanton amounts of collateral damage.

Proper center of gravity analysis is vital to the effective employment of air power. Today, joint planners occasionally promote the use of the air forces as a panacea in the form of “distant” interdiction or “strategic” attack vice as a supporting arm to achieve decisive ends. While every situation is different, the fundamental maxims of war and historical examples prove quick, decisive victories are not possible without engaging the enemy’s main military forces. Planners, particularly when directing air forces, must understand, as Grant did in the winter of 1863, that strategies not directing efforts toward the enemy’s true centers of gravity are imprudent and wasteful.<sup>4</sup> In future conventional wars, the preponderance of the air effort should target the enemy’s fielded fighting forces, not economic infrastructure, political leadership, or population centers.

This paper will explore the rise of the United States Air Force and its development of prevailing thoughts on air power application. It will scrutinize previous major conflicts for conclusions that should shape future thought. Finally, the paper will develop recommendations on how air power should be best applied at the operational level.

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<sup>4</sup> C.F. Atkinson, *Grant’s Campaigns of 1864 and 1865: The Wilderness and Cold Harbor* (London: Hugh Rhees Ltd., 1908) 70-98. Grant put five Union armies into motion in the spring of 1864 to engage, isolate, and prevent other Confederate forces from combining with the Army of Northern Virginia: Meade’s against Lee directly, Sigel’s to prevent Breckinridge’s forces in the Shenandoah Valley from reinforcing Lee, Butler’s to cut off Pickett’s and Beauregard’s from reinforcing Lee from Richmond and North Carolina, Sherman’s against Johnston’s, and Banks to against Mobile to prevent reinforcement from the west.

## BEGINNINGS

Despite vehement resistance by many military leaders, independent air forces emerged in the early 20<sup>th</sup> century, and in 1947 the United States Air Force (USAF) became an independent service. In the second decade of the 20<sup>th</sup> century, military leaders suggested building up air forces was a “reversion to barbarism” and pointed to World War I results as an indication of the “relative unimportance of air warfare.”<sup>5</sup> On the opposite side of the debate, Italian Field Marshal Giulio Douhet, General Billy Mitchell, and British General Hugh Trenchard advocated a separate air arm. Mitchell went so far as to state that the advent of the aircraft invalidated the “old system of war” and the “hostile main army in the field is a false objective.”<sup>6</sup> Neither side was correct. Many facets of Douhetian concepts were exercised against Germany and Japan in World War II, with varying degrees of effectiveness, but gruesome and unnecessary human carnage accompanied both.

Deep interdiction and strategic bombing, well beyond the local battlefield, provided independent air force proponents with reasons for legitimacy.<sup>7</sup> British Admiral Dickens contested funding of strategic air power and critiqued Douhet as a “technical mind hypnotized by the machine itself and, so, unable to grasp that this [air] machine was but another means to the same end as existed before it was invented.”<sup>8</sup> Instead of a panacea, the

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<sup>5</sup> NEON (pseud.), *The Great Delusion: A Study of Aircraft in Peace and War* (London: Bouverie House Ernest Benn Ltd., 1927) 225,230. The “barbarism” context was towards the idea of bombing cities which was a popular discourse during the time. Avoiding trench warfare that occurred from the U.S. Civil War to World War I drove this discussion.

<sup>6</sup> William Mitchell, *Skyways: A Book on Modern Aeronautics* (Philadelphia, PA: J.B. Lippincott Co., 1930) 253. Mitchell’s 1921 demonstration of aerial bombardment leading to the sinking of the German battleship, *Ostfriesland*, in his mind, vindicated his belief that air warfare would change the face of war.

<sup>7</sup> Robert Coram, *Boyd: The Fighter Pilot who Changed the Art of War* (New York: Little, Brown and Co., 2002) 197.

<sup>8</sup> Gerald Dickens, *Bombing and Strategy: The Fallacy of Total War* (London: Sampson Low, Marston & Co., Ltd., 1946) 18.

air component is just another element of the armed forces. Air forces are not to be bridled by its contemporary services, but pitted jointly towards the same objectives.

Rivalry and service cultural differences created disagreements, primarily between the United States Army (USA) and the USAF, on the best way to employ air power. Ironically, as a testament to inter-service feuding, all four services operate their own air force today. Unsatisfied with the USAF's level of support to ground efforts, the USA secured a monopoly of funding for rotary-wing attack aircraft via the Key West Agreement of 1948.<sup>9</sup> To defend its own legitimacy and budgets, the USAF developed doctrine and equipment to expand on fighting the enemy beyond the Army's traditional battlefields. It became a turf battle.

Strategic bombing was the watchword for the new USAF after World War II until the late 1960s. As conventional conflicts entangled U.S. forces, and nuclear weapon use was checked by the Soviet threat of escalation, limited tactical strikes in strategic veins began to shape modern air doctrine. In the latter quarter of the 20<sup>th</sup> century, airmen developed strategies to target enemy leadership, command and control nodes, and disabling systems like power grids, to avoid messy force-on-force battles.

Colonel John Warden coined the term deep or distant interdiction when attacking targets beyond the classic battlefield.<sup>10</sup> Although Warden considered this "strategic attack," the term adopted in the late 1990s, critics rightly point out flaws in this multiple centers of gravity approach. Attacking several so-called vital centers disperses efforts and is a misinterpretation of the Clausewitzian idea.<sup>11</sup> Warden argues that American technological

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<sup>9</sup> Robert F. Dorr, "Mustang gave Army Pilots Rare Chance to Fly Fighter," *Army Times*, 5 April 2004, <http://proquest.umi.com/> (accessed 24 March 2010). This agreement needed further refining in 1957 by the Secretary of Defense. He ruled the Army could operate fixed-wing aircraft that weighed less than 5,000 pounds. The USAF today operates combat helicopters, but they do not have forward firing weapons.

<sup>10</sup> John A. Warden, *The Air Campaign: Planning for Combat* (Washington, DC: Pergamon-Brassey's International Defense Publishers, 1989) 80-81.

<sup>11</sup> Murphy, Timothy G. "A Critique of *The Air Campaign*." *Airpower Journal* VIII, no. 1



advantages applied in parallel attacks on systems would result in a state of paralysis for the enemy. Scholar Benjamin Buley warns that strategies reliant on technological advantages are dangerous, and the nature of war cannot be changed. Further, he states military planners must “puncture the technological hubris of the prevailing military discourse, the conceit that technology can render war predictable.”<sup>12</sup>

Today, current USAF doctrine still decries use of its forces primarily to support ground campaigns. Begrudgingly, the USAF recognizes the need for close air support (CAS) to American ground forces. However, USAF doctrine argues, “direct attack of fielded forces, one vehicle or artillery battery at a time, is possible but tends to be a less efficient use of aerospace power.”<sup>13</sup> In fact, the USAF remains avid that strategic bombing efforts should be foremost and accomplished by “avoiding” and “bypassing” the conventional enemy forces, which efforts against are “not useful.”<sup>14</sup> This recurring theme litters USAF dogma.

In this same vein, air power advocates tout the ability of the B-2 bomber which will soon have the capability to drop over 200 precision-guided bombs against more than 200 separate targets in one sortie. If intelligence efforts can generate that many legitimate targets, could not our forces gain a greater advantage by using this ability against the enemy’s armed forces in direct contact? This type of attack would limit the enemy’s ability to concentrate and would force entrenchment, reducing his mobility.

Air Force literature appears to demean cooperation with ground forces by stating “CAS should only be used when the surface force cannot handle the enemy with organic

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(Spring 1994). <http://www.airpower.maxwell.af.mil/> (accessed 15 March 2010), 6.

<sup>12</sup> Benjamin Buley, *The New American Way of War: Military Culture and the Political Unity of Force* (New York: Routledge, 2008) 136.

<sup>13</sup> U.S. Air Force, *Air Warfare*, Air Force Doctrine Document (AFDD) 2-1 (Washington, DC: Department of the Air Force, 22 Jan 2000), 9. Military efficiency is important, but war is not a business model. (author)

<sup>14</sup> U.S. Air Force, *Strategic Attack*, Air Force Doctrine Document (AFDD) 2-1.2 (Washington, DC: Department of the Air Force, 12 June 2007) 1-4.

firepower.”<sup>15</sup> Planners must make wise choices with limited resources, but USAF doctrine asserts CAS is “not the most efficient mission for aerospace power.”<sup>16</sup> This can be interpreted as a business approach to war. Air Force doctrine further suggests that attacks on infrastructure and key leadership nodes “could indirectly affect the adversary’s will to fight.”<sup>17</sup> Why not directly attack the adversary’s will by destroying their armed forces? Consumed with independent action, the USAF is breeding an officer core to avoid CAS operations. This type of thinking might surprise and disappoint joint force land commanders.

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<sup>15</sup> AFDD 2-1, *Air Warfare*, 12.

<sup>16</sup> *Ibid.*, *Air Warfare*, 12.

<sup>17</sup> AFDD 2-1.2, *Strategic Attack*, 4.

## HISTORICAL CONTEXT

*Germany (1939-1945)*. Great Britain's life line during World War II was its sea lines of communication and supply. Yet Britain's air arm did not prioritize defense of its shipping. As a result, German U-boats inflicted horrible damage to merchant shipping throughout the war. British Admiral Gerald Dickens criticized the Royal Air Force's (RAF) focus on strategic bombing in Europe, in lieu of protecting its sea lanes.<sup>18</sup> He stated these bombing efforts "did not satisfy the demands of the economy of force or of effort" and it resulted in only "blind bludgeoning versus rapier thrusts at an enemy's vital spots which we associate with good strategy."<sup>19,20</sup> Even when targeting the pens harboring U-boat construction or resupply, RAF attacks did little damage. Admiral Dickens further argued that killing the trained crews, not merely the machines, was most important.<sup>21</sup> The 'Battle of the Atlantic' see-sawed in the first years of the war and almost proved fatal for Great Britain. Finally, in late 1943, refocused Allied air and sea forces swung the tide by targeting the submarines at sea.<sup>22</sup> The misguided emphasis on bombing German towns dangerously delayed these results.

Similarly, the battle for air superiority over Europe only swung in favor of the Allies when the Luftwaffe's seasoned pilots began to perish in large numbers. German aircraft production, though incessantly targeted by Allied bombers, never decelerated. In 1944, the

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<sup>18</sup> Williamson Murray, *Strategy for Defeat: The Luftwaffe 1933-1945*, (Montgomery, AL: Air University Press, 1983) 129-130. RAF's Arthur Harris felt that Coastal Command had too many assets as it was and called counter-sea and close air support sorties "an obstacle" to victory.

<sup>19</sup> Gerald Dickens, *Bombing and Strategy: The Fallacy of Total War*, 53-56.

<sup>20</sup> Williamson Murray, *Strategy for Defeat: The Luftwaffe 1933-1945*, 128. Trenchard disagreed stating that destroying submarines by air was difficult and even non precision bombing in Europe resulted in 100% of the bombs landing in enemy territory.

<sup>21</sup> Gerald Dickens, *Bombing and Strategy: The Fallacy of Total War*, 56.

<sup>22</sup> *United States Strategic Bombing Survey Summary Report (European War)* (Washington, DC: Government Printing Office, 1945) 8. German Admiral Donitz stated on 24 May 43 "...Our losses...have reached an intolerable level. The enemy air force played a decisive role in inflicting these high losses."

German Luftwaffe accepted 39,087 aircraft, more than double the number in 1942.<sup>23</sup> It might be argued that damage to Germany's transportation apparatus slowed delivery of the aircraft and fuel, but it was not decisive. Instead, the combat losses of nearly 3,500 aircraft and their crews in just the first quarter of 1944 were pivotal.<sup>24</sup> Allied planners had incorrectly derived the production plants as a center of gravity.

Perhaps more telling was the Allied leadership's persistence in continuing long range strike operations. General "Hap" Arnold, considered a primary architect of the USAF, saw his interdiction campaign to disrupt the supply lines of German forces contesting the Allied amphibious landings at Anzio having little effect. He worried the "bogging down" of the Italian air campaign served as "ammunition to the advocates who decry the use of air power except as artillery."<sup>25</sup> Arnold felt this would hurt efforts for an independent service. Ironically, the German forces he faced might not have been so strong if Allied bombers had been available to stop the German "Great Escape" at Messina. Instead, they were busy attacking Rome and Austria, hundreds of miles from the decisive point of the operation.<sup>26</sup>

On the other side, Hitler, perhaps caught up in the "holy grail" of strategic bombing, certainly helped the British deter a German invasion. During the Battle of Britain, German air leaders correctly determined the RAF to be the proper object of their attacks. Without German air superiority, an amphibious landing would be impossible. After British bomber raids into Germany, an infuriated Hitler directed the Luftwaffe to refocus the majority of

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<sup>23</sup> *United States Strategic Bombing Survey Summary Report (European War)* 10-11.

<sup>24</sup> *United States Strategic Bombing Survey Summary Report (European War)* 11.

<sup>25</sup> Eduard Mark, *Aerial Interdiction: Air Power and the Land Battle in Three American Wars* (Washington, DC: Government Printing Office, 1994) 143.

<sup>26</sup> Eduard Mark, *Aerial Interdiction: Air Power and the Land Battle in Three American Wars*, 72-76.

attacks on London, “a new and irrelevant operational objective.”<sup>27</sup> The RAF survived, reconstituted, and ended the feasibility of a Nazi invasion of England.

Hitler kept the Douhetian-style bombings going until the last days of the war. The Germans launched 9,251 V1 flying bombs and 1,115 V2 rockets into Britain causing less than 9,000 casualties.<sup>28</sup> Hitler also decelerated the development and deployment of the first jet fighter, the Me-262. He delayed its refinement in favor of a fighter-bomber and an intercontinental bomber version, as his country was losing air superiority on the western front. Hoping to inculcate fear among the English people, Hitler’s efforts only galvanized British public support for the war. Five years of German bombing in Britain resulted in 60,595 civilian casualties and failed to achieve any military gain.<sup>29</sup>

Through CAS and interdiction sorties during the Normandy invasion, the Allies demonstrated a more effective use of air power. The Allied air forces directly attacked German units, their communication lines, and military transportation in the preparation for the landings. German General Erwin Rommel remarked, “the movement of our troops on the battlefield is almost completely paralyzed...even the movement of minor formations...is instantly attacked from the air with devastating effect.”<sup>30</sup> In fact, strafing Allied fighters struck Rommel’s own military limousine injuring and knocking him out of the war. The direct use of air power on the Wehrmacht ensured the success of the Normandy landings.

***Japan (1941-1945).*** Air attacks on Japan’s main islands caused 900,000 civilian deaths; this contrasts to only 780,000 Japanese military casualties incurred by all causes

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<sup>27</sup> Milan N. Vego, *Joint Operational Warfare: Theory and Practice* (Newport, RI: United States Naval War College, 2007) II-15.

<sup>28</sup> Charman, Terry. “The V Weapons Campaign Against Britain, 1944-1945.” Imperial War Museum website. <http://www.iwm.org.uk> (accessed 25 March 2010) 1-2.

<sup>29</sup> Charman, Terry. “The V Weapons Campaign Against Britain, 1944-1945.” 1.

<sup>30</sup> B.H. Liddell Hart, ed., *The Rommel Papers* (New York: Harcourt, Bruce, Ltd., 1953) 477.

during the entire war in the Pacific.<sup>31</sup> While “war is cruelty and you cannot refine it,” as Union General Sherman stated, was this carnage necessary for the termination of the war in Japan?<sup>32</sup> Although debatable, firebombing and the use of nuclear weapons did not force the Japanese Emperor to concede. Instead, the declaration of war by the Soviet Union and the fear of an imminent Allied invasion were the deciding factors. Scholar Robert Pape concluded that air power “affects a state’s political calculations only to the extent it alters events on the battlefield.”<sup>33</sup> The indefensible state of affairs for Japan was decisive.

Strategic bombing advocates point to the havoc wreaked on Japan’s economy and the two nuclear strikes as decisive. In regard to the latter action, evidence shows the power of the two bombs was not immediately understood by the Japanese. Trains resumed running through Hiroshima only forty-eight hours after the first atomic bomb.<sup>34</sup> Public morale, though shaken, was not broken. Pape surmises “national traditions of obedience and conformity” kept the Japanese public ready to “passively face death in a continuation of the hopeless struggle, had the Emperor ordered so.”<sup>35</sup> Even if the nuclear strikes won the war, it is irrelevant to modern day planners. Nuclear weapon use is not an endorsed option today.

Planners hoped air strikes on population centers would cripple the Japanese war machine. Economically, the Japanese found themselves more strangled by Allied submarine attacks on merchant shipping and the aerial mining of ports. In warplane manufacturing, the Japanese started the war with 2,625 warplanes but fielded 10,400 at the surrender, 5,400 of

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<sup>31</sup> *United States Strategic Bombing Survey Summary Report (Pacific War)* (Washington, DC: Government Printing Office, 1946) 27.

<sup>32</sup> Shelby Foote, *The Civil War: A Narrative*, vol. 3, *Red River to Appomattox* (1963, 1974; new imprint, New York: Random House, 1986) 602.

<sup>33</sup> Robert A. Pape, *Bombing to Win: Air Power and Coercion in War*, 311.

<sup>34</sup> *United States Strategic Bombing Survey Summary Report (Pacific War)*, 26.

<sup>35</sup> *United States Strategic Bombing Survey Summary Report (Pacific War)*, 28.

which were Kamikaze.<sup>36</sup> This distinction is important. The Japanese endured over 50,000 aerial losses during the war, and desperation paired with the scarcity of seasoned pilots caused them to adopt this suicide strategy.<sup>37</sup> It was not for lack of production.

The hapless Japanese situation was primarily caused by military defeats such as Midway, the Marianas, and Leyte Gulf. Operational planners struggled between strategic and tactical target selection. Only after 45 Allied ships were lost to Kamikaze attacks between October 1944 and January 1945, were 2,000 B-29 bomber sorties diverted to Kamikaze bases at airfields on Kyushu.<sup>38</sup> If more effort had been distributed towards the enemy's fielded forces, tactical actions could have had earlier strategic effects. Japanese General Yamashita testified to "his feeling of complete helplessness" when his forces faced concentrated Allied air attacks.<sup>39</sup>

*Korea (1950-1953)/Vietnam (1965-1973).* Agrarian based societies shielded by heavy vegetation and mountainous terrain do not provide many vital strategic targets. In Korea, the response by air planners was to expand the war by striking mainland China and bust the dams to flood the enemy (and the general population's) food supply. Escalating measures and terror bombings were not acceptable then, and most likely will not be in the future. Air power advocates need to reexamine these approaches to air warfare.

The failure of strategic air operations during the conflicts in Korea and Vietnam clearly vindicates a return to emphasizing close air support and interdiction. Air power was best used in covering MacArthur's tactical retreat from the Yalu River as the Chinese entered the war. With MacArthur's ground forces outnumbered ten to one, Allied aircraft attacked

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<sup>36</sup> *United States Strategic Bombing Survey Summary Report (Pacific War)*, 14.

<sup>37</sup> Allied losses over the same period numbered 27,000. *United States Strategic Bombing Survey Summary Report (Pacific War)*, 14.

<sup>38</sup> *United States Strategic Bombing Survey Summary Report (Pacific War)*, 15.

<sup>39</sup> *Ibid.*, 19.

the Communist forces, killing an estimated 30,000 Chinese soldiers, or 4-5 divisions.<sup>40</sup>

Direct air support covered the successful withdrawal preventing disaster for Allied forces.

In contrast, the United States used an escalation approach of air strikes in the Vietnam conflict. The object of these bombings was to strangle the North Vietnamese economy and prevent supply to its forces. Operation ROLLING THUNDER accomplished little towards these ends. At the cost of 921 U.S. aircraft and the lives of 52,000 North Vietnamese civilians, three years of ROLLING THUNDER only galvanized North Vietnam's will, and its gross domestic product, with Soviet aid, actually rose during the period.<sup>41</sup>

During the same time few CAS efforts were effectively coordinated and the USAF was not ready to supply them. General Westmoreland labeled all missions conducted in South Vietnam as CAS but, by the end of 1966, only 3% of all sorties qualified.<sup>42</sup> More curious, the Army utilized air support in only 10% of its engagements.<sup>43</sup> This disconnect was further frustrated by the fact that American aircraft, including the F-4, F-100, and F-105 used during the period, were poorly suited for CAS. Fast jets with low endurance, little armor and cannon firepower proved ineffective. Before 1970, the USAF did not acquire an aircraft dedicated and optimally designed for CAS.<sup>44</sup> This shortfall in Vietnam led to the

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<sup>40</sup> John A. Warden, *The Air Campaign: Planning for Combat*, 73.

<sup>41</sup> Mark Clodfelter, "Searching for Victory Through Air Power," in *Air Power: Promise and Reality*, ed. Mark K. Wells (Chicago, IL: Imprint Publications, 2000) 272-273.

<sup>42</sup> *Ibid.*, 276.

<sup>43</sup> *Ibid.*, 276.

<sup>44</sup> Robert Coram, *Boyd: The Fighter Pilot who Changed the Art of War*, 233. This trend continues with the F-35 procurement. Compared to the A-10, the F-35 will carry only 180 rounds of 25mm cannon versus the A-10's 1000 rounds of 30 mm cannon, and by some estimates will have 1/6<sup>th</sup> the loiter time of the A-10. The USAF did successfully modify a USN aircraft, re-designated the A-1, for CAS, but after the need emerged. Foresight and planning did not proceed this requirement.



development of the A-10 after the war. Shockingly, on the eve of DESERT STORM, the USAF was moving to retire them in favor of F-16s, proving the lesson was not learned.<sup>45</sup>

Political restrictions in both conflicts are cited as the major reason for the inability of air power alone to coerce the enemy. However, after the horrors of World War II and the advent of nuclear weapons, political restrictions can be expected to increase in future wars. Advances in the media expose the public to the battle field more than ever. The excuse of political restrictions only kept the flame burning by strategic bombing advocates for an unrealistic, politically unburdened air campaign.

*Operations DESERT STORM (1991)/ IRAQI FREEDOM (2003-present).* Many viewed the air campaign conducted during DESERT STORM as politically unlimited and strategic in nature. Strategic attack supporters point to this operation as a textbook example designed by visionaries like Colonel John Warden. His ideas suggest that crippling attacks on the enemy's leadership, resources, and infrastructure would cause the Iraqi forces to yield. In fact, it was direct attacks on Saddam's military, coupled with the Allied forces halting well shy of forcing regime change, which provided for a quick ground war. Political restraint weighed heavily on planners, and ultimately Hussein's military survived to put down subsequent internal uprisings and persisted as a threat for the next decade.<sup>46</sup>

In the initial planning phases, most bombing sorties were targeted well north of Iraq's forces in southern Iraq and Kuwait as part of surgical strikes to end the war in a few days. General Schwartzkopf and General Glosson revised this in the final planning stages. Even though VII Corp commander General Franks thought the air plan still neglected his CAS requirements, this was actually part of the deception plan to mask the Allied plan to attack

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<sup>45</sup> The F-16 is mounted with 20 mm cannon, carries much less ordnance, and has less than half the time on station as an A-10.

<sup>46</sup> Benjamin S. Lambreth, *The Transformation of American Air Power*, 262.

the western flank.<sup>47</sup> Air attacks directed by Schwartzkopf on the entrenched Iraqi forces were overwhelming. Demoralized Iraqi front line forces were reduced below fifty percent and were waiting to surrender when Allied forces began the ground engagements.<sup>48</sup> The air war was not won by striking Baghdad, but by paralyzing the Iraqi army. Gordon and Trainer concluded, “by depriving [the Iraqi army] of any help from the Iraqi air force, forcing it to dig in, eliminating the prospect of a mobile defense, and knocking out much of the Iraqi armor and artillery, the air campaign had all but won the war.”<sup>49</sup>

Focused attacks on the true centers of gravity, Iraqi field units, proved decisive. Direct bombardment, specifically by B-52s, was a major reason almost 70,000 Iraqi soldiers deserted or surrendered despite death threats from their superiors. When used as an effective supporting arm, “air power created the conditions for victory by making the endgame relatively painless for all other force components.”<sup>50</sup> In the repulse of the only Iraqi offensive at Khafji, one captured Iraqi veteran declared Allied aircraft wreaked more destruction in 30 minutes than he witnessed in 8 years of war with Iran.<sup>51</sup> Iraqi commanders chose between maneuvering their divided forces to block the invasion, thereby exposing their troops to withering attacks from the air, or staying immobilized. One captured Iraqi general

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<sup>47</sup> Steven E. McKay, *To BAI or Not to BAI, That is the Question*, (Fort Leavenworth, KS: School of Advanced Military Studies, 1996) 36-38. General Franks public outcries of neglect from the air side deceive those that feel air power was not substantially attacking the fielded forces of the Iraqi Army.

<sup>48</sup> Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report*. (Washington, DC: Government Printing Office, 1993) 119.

<sup>49</sup> Michael R. Gordon and Bernard E. Trainor, *The General's War: The Inside Story of the Conflict in the Gulf* (Boston, MA: Little, Brown, 1995) 331.

<sup>50</sup> Benjamin S. Lambreth, *The Transformation of American Air Power*, 274.

<sup>51</sup> AFDD 2-1, *Air Warfare*, 12.

stated in 2003, “Americans were able to induce fear throughout the army by using precision air power,” and “the Iraqi will to fight was broken outside of Baghdad.”<sup>52</sup>

Pundits applauded what appeared as an unrestrained U.S. military strike at the political heart of Baghdad. Despite the press, only about 1,000 of the 42,000 sorties were actually directed toward “the head of the snake.”<sup>53</sup> To claim these sorties were decisive is unconvincing. Actually, Allied forces were under tight political scrutiny. After the Al Firdos Bunker was hit, Baghdad was almost categorically removed from the target list.<sup>54</sup> The carnage caused by Allied air forces at the “highway of death” may have pressured President Bush to push for an early termination of the war, and indirectly aided in the escape of some Republican Guard units.<sup>55</sup>

If the point of the strategic air campaign was to send a message to Saddam Hussein, it was not received. Surviving the attempted decapitation of his control galvanized his will and emboldened the dictator. Days before IRAQI FREEDOM, he stated, “[Iraq] is the master of the world...because there has never been anything [like the attacks of 1991] in history,” and it did not coerce him or destroy his military. This hardly was the effect hoped for by an Allied strategic air campaign.<sup>56</sup>

***Operation ALLIED FORCE (1999).*** The Serb forces rendering the most harm, specifically the 52<sup>nd</sup> (Pristina) Corps, remained unchecked due to inaccurate enemy center of gravity development by planners.<sup>57</sup> Strikes on infrastructure, empty government offices, and

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<sup>52</sup> Kevin M. Woods, with Michael R. Pease, Mark E. Stout, Williamson Murray, and James G. Lacey, *Iraqi Perspectives Project: A View of Operation Iraqi Freedom from Saddam's Senior Leadership*, (Norfolk, VA: U.S. Joint Forces Command, 2006) 125.

<sup>53</sup> Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report*, 239.

<sup>54</sup> Mark Clodfelter, “Searching for Victory Through Air Power,” 305.

<sup>55</sup> Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report*, 250-251.

<sup>56</sup> Kevin M. Woods and Mark E. Stout, “Saddam’s Perception and Misperception: The Case of Desert Storm,” *Journal of Strategic Studies* 33, no. 1 (February 2010): 16.

<sup>57</sup> Milan Vego, “Wake-up Call in Kosovo,” *Proceedings* 126, no. 10 (October 2000): 66.

bridges did not prevent these forces from expelling or murdering Kosovar Albanians.

Operations four years earlier during DELIBERATE FORCE included limited air strikes on infrastructure targets, but the conflict was resolved by the ground belligerents.<sup>58</sup> Planners misinterpreted the results.

Noting disputes over what was the Serbian center of gravity between the joint force commander (JFC) and the joint force air component commander (JFACC), Scott Cooper argues that attempts to target and isolate leadership have historically failed.<sup>59</sup> Dr. Milan Vego judged, “if the current obsession with technology and targeteering is not reversed, our ability to use military force decisively against a strong opponent could be crippled severely.”<sup>60</sup> Friction between Army and Air Force leadership is not new, but emergent technology cannot overcome miscalculated strategy.

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<sup>58</sup> Scott A. Cooper, “Air Power and the Coercive Use of Force,” in *Immaculate Warfare*, ed. Stephen D. Wrage (Westport, CT: Praeger, 2003) 5-9.

<sup>59</sup> *Ibid.*, 12-13.

<sup>60</sup> Vego, “Wake-up Call in Kosovo,” 67.

## CONCLUSIONS

*“The greatest calamity that can befall us is the destruction of our armies...  
if lost we have no recourse.”*

- General R.E. Lee to Jefferson Davis, 1865<sup>61</sup>

Deriving the proper targets against which to pit one’s air forces can be complicated and controversial, but the focus should be on the enemy’s centers of gravity. This is difficult because, especially in democracies, public opinion often dictates political restraints on the way war is waged. Public refusal of wanton destruction such as the burning of Atlanta in 1864 and the fire-bombing of Tokyo in 1945, paired with extremely low allied casualties in DESERT STORM emboldened politicians and military leaders alike to embrace a “new” way of warfare.<sup>62</sup> In the first six months of IRAQI FREEDOM, the United States lost 350 dead which led to a drop of 29% in public approval, whereas the same drop during Vietnam took three years and 30,000 U.S. deaths.<sup>63</sup> Although Clausewitz would scoff, Buley concludes “war is becoming more political than ever.”<sup>64</sup> Nonetheless, this preferred American way of war embraces short campaigns, few casualties, and involves coalitions.

From historical analysis, one can conclude air strategies that favor cooperation with the land forces yield the best results. Additionally, when concentrated on the enemy armies, air forces, and navies decisive results can be accomplished. Pape calls this a denial strategy and defines it as the “smashing [of] enemy forces, weakening them to the point where friendly ground forces can seize disputed territories without suffering unacceptable losses.”<sup>65</sup>

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<sup>61</sup> Bruce Catton, *Grant Takes Command* (Boston, MA: Little, Brown, and Co., 1968) 429.

<sup>62</sup> Benjamin Buley, *The New American Way of War: Military Culture and the Political Unity of Force*, 87-88.

<sup>63</sup> Nial Ferguson, *Colossus: The Rise and Fall of the American Empire* (London: Allen Lane, 2004) 214.

<sup>64</sup> Benjamin Buley, *The New American Way of War: Military Culture and the Political Unity of Force*, 140.

<sup>65</sup> Robert A. Pape, “The Limits of Precision-Guided Air Power” *Security Studies* 7, no. 2 (1997/98): 97.

Although this approach seems obvious, air planners have continually sought more unconventional strategies.

Strategic bombing campaigns aimed at economies, population centers, or government leaders typically require a long period of time, and sometimes have unintended effects. Graduated approaches have yet to prove fruitful. These approaches are not generally accepted today if a large number of civilian casualties will result. However, USAF leadership persists in promoting them. Precision attacks aimed at decapitation challenge legalities and are heavily reliant on information. Also, the message can be blurred. After DESERT STORM, the Iraqi Interior Minister said “we would have understood carpet bombing, but we didn’t understand this [series of PGM attacks on Baghdad],” and if the regime just “[held] tight...the Americans will go away.”<sup>66</sup> Time proved he was correct.

Is the current USAF approach to campaign design anchored by an insecure need to legitimize its independence or is technology so inebriating to drive unproven “asymmetric” approaches? The current model leaning toward decapitation cannot remain politically feasible in the long run. As seen in IRAQI FREEDOM, scattering the government leaders and to a large extent side-stepping the fielded force may result in insurgencies. Properly defeated armies in the U.S. Civil War, Japan and Germany in World War II, and DESERT STORM did not disintegrate into anarchy despite large levels of fanaticism.<sup>67</sup>

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<sup>66</sup> Interviews by William Arkin, quoted in “Defeat of Iraq Sparks Debate on Which Air Role was Crucial” *Aviation Week and Space Technology*, 27 January 1992: 62-63.

<sup>67</sup> The Japanese Bonzai attacks are well documented, but German suicide ramming attacks against Allied bombers are not so. Fear of Russian occupation led many Nazis to commit suicide in the final days of World War II. R.E. Lee’s lieutenants recommended a guerilla existence in lieu of surrender days prior to Appomattox. He declined stating the war’s devastation needed to be stemmed. His consideration of this course of action are well documented in the memoirs of Edward Porter Alexander, *Military Memoirs of a Confederate: A Critical Narrative* (1907; new imprint, New York: Da Capo Press, 1993) 605.

Much has come to be expected by air power; even Roosevelt in World War II declared “air power would win it.”<sup>68</sup> Other services need to support the JFACC with guidance, requests, and have an understanding of “the whole” picture. In the same fashion, the USAF needs to reexamine its customer’s requirements, work jointly in determining operational design, and refrain from self-indulgent side projects. This entails drastic changes in doctrine, procurement, methods, training, and technology development.

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<sup>68</sup> Quote from Harry Hopkins, deemed to be Roosevelt’s most trusted advisor. Taken from DeWitt S. Copp, *A Few Great Captains*, (McLean, VA: EPM Publications Inc., 1980) 445.

## RECOMMENDATIONS

In laying out his grand strategy, U.S. Grant directed a joint effort: “all the armies [and supporting navies] are to move together, and toward one common center” which was to extinguish the heartbeat of the Confederacy, its fielded armies.<sup>69</sup> Grant’s holistic approach proved successful despite some tactical mistakes. Borrowing from the same idea, today’s USAF must revisit its doctrine, acquisition desires, methodology, training plans, and technology to intertwine its efforts with the ground and naval forces. The first step, and maybe the most difficult, is for the USAF to admit the problem exists.

Instead of warning that “planning has historically devolved to an emphasis on surface operations and objectives,” Air Force doctrine should state, “planning should evolve to support joint operation and objectives.”<sup>70</sup> The USAF must be prepared to do independent air operations, but its entire force cannot be committed to this idea of “Asymmetric Force Strategy.”<sup>71</sup> Advocating system attacks is smart if the system directly affects the enemy’s armed forces. Young USAF officers should be imbued with a desire to seek synergy with their sister services. USAF doctrine must elaborate these ideas and methods.

A majority of USAF acquisitions should be suitable and interoperable with USA forces. Aircraft dedicated to close air support but not able to conduct these operations effectively is unacceptable. Reviews of desired capabilities during weapons system proposals must include Army representatives.

Technology pursued by both the USAF and the USA should be in parallel. Data link systems should be able to send real time targeting information from ground commanders

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<sup>69</sup> Shelby Foote, *The Civil War: A Narrative*, vol. 3, *Red River to Appomattox* (1986; new imprint, New York: Random House, 1974) 15.

<sup>70</sup> AFDD 2-1, *Air Warfare*, 1.

<sup>71</sup> *Ibid.*, 3-5.



directly to CAS and interdiction aircraft. This information should include category, type, allegiance, and location of the nearest friendly units. Current systems are immature, underfunded, and rarely trained with. Instead of keeping a certain number of aircraft tied to a particular corps or division, this information interconnect will permit the aircraft commanders to select the best suitable striking force. More importantly this firepower will arrive sooner than traditional “talk-ons.”

Training between USAF and USA forces has to increase. The USAF needs to move away from exercises that deemphasize concurrent ground operations. The typical RED FLAG exercises rarely involve USA participants, and never include CAS operations. BLUE FLAG exercises are more connected with ground forces and should be the norm. Particularly disturbing is the fact that defensive counter air forces rarely, if ever, conduct training with USA Patriot surface-to-air missile battalions. During war time they are expected to work together seamlessly without committing fratricide. It is not clear how that is going to happen.

Over the last six decades, the USAF has proven to be a vital service. The hangover from gaining independence is over. Air Force leaders now need to reassess the various strategies that underscored the conflicts of the past 60 years. Spiraling budgets committed toward weapon systems avoiding the reality of force-on-force combat cannot continue. The Air Force must frame this problem squarely and see that military arms of the United States must embrace each other towards common goals. Instead of relying on individual commander personalities to work it out, only a systematic change in thinking will bring the USAF closer to embracing joint operations.

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