

# AirLand Battle Redux: Evolutions of Air-Ground Integration from the Gulf War to Operation Iraqi Freedom

A Monograph

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## Abstract

AirLand Battle Redux: Evolutions of Air-Ground Integration from the Gulf War to Operation Iraqi Freedom, by MAJ Nicholas D. Milkovich, US Army, 61 pages.

The US Army's newest approach to combined arms integration is Multi-Domain Battle, the ability to create multiple dilemmas for an adversary while securing opportunities in a contested environment. The future battlefield is characterized by challenges to the air, space, and maritime domains largely uncontested since the end of the Cold War. Improvements in air defense systems, cyber capabilities, unmanned aerial vehicles, and range of conventional munitions threaten US superiority across the domains.

This monograph compares the Army's search for a modern theory of warfare against the development of AirLand Battle doctrine and applications of joint firepower over the last twenty-five years. Specifically, this monograph examines three air-ground integration evolutions beginning with the Gulf War, then Operation Anaconda, and finally the drive to Baghdad in Operation Iraqi Freedom. By doing so, this monograph finds that lessons in organization, planning anchored by service interests, application of new technology, and emerging tactics, offers Multi-Domain Battle planners valuable insights for incorporating innovations on the modern battlefield. The challenges of integrating just the air and land domains demonstrate the complexities inherent with operations across multiple domains.

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## Acronyms

ABCCC	Airborne Battlefield Command and Control Center
AFCENT	Air Force Central Command
AGOS	Air Ground Operations System
ALFA	Air-Land Forces Application
ALO	Air Liaison Officer
AOC	Air Operations Center
ARCENT	Army Forces Central Command
ASOC	Air Support Operations Center
ATACMS	Army Tactical Missile System
ATO	Air Tasking Order
AWACS	Airborne Warning and Control System
BAI	Battlefield Air Interdiction
BCD	Battlefield Coordination Detachment
BCE	Battlefield Coordination Element
BCL	Battlefield Coordination Line
BOLC	Basic Officer Leader Course
C2	Command and Control
CADRE	Center for Aerospace Doctrine, Research, and Education
CAFMS	Computer Assisted Force Management System
CAOC	Combined Air Operations Center
CAS	Close Air Support
CCT	Combat Controller Team
CENTCOM	Central Command
CFACC	Combined Forces Air Component Command
CFLCC	Combined Forces Land Component Command

CFSOCC	Combined Forces Special Operations Command
CJCS	Chairman Joint Chiefs of Staff
DASC	Direct Air Support Center
EBO	Effects Based Operations
ETAC	Enlisted Terminal Attack Controller
FAC	Forward Air Controller
FM	Field Manual
FSCL	Fire Support Coordination Line
IADS	Integrated Air Defense Systems
JDAM	Joint Direct Attack Munitions
JFACC	Joint Forces Air Component Command
JSOAC	Joint Special Operations Air Component
JSOTF	Joint Special Operations Task Force
JSTARS	Joint Surveillance and Targeting Attack Radar System
JTAC	Joint Terminal Attack Controller
JTCB	Joint Targeting Coordination Board
KTO	Kuwait Theater of Operations
MAGTF	Marine Air Ground Task Force
MAW	Marine Air Wing
MDB	Multi-Domain Battle
MEF	Marine Expeditionary Force
MOA	Memorandum of Agreement
NATO	North Atlantic Treaty Organization
ODA	Operational Detachment Alpha
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom



PACAF	Pacific Air Force
RGFC	Republican Guard Force Command
RPG	Rocket Propelled Grenade
SAC	Strategic Air Command
SEAD	Suppression of Enemy Air Defense
SIOP	Single Integrated Operational Plan
SOCCENT	Special Operations Command Central
TAC	Tactical Air Command
TACC	Tactical Air Control Center
TACP	Tactical Air Control Party
TRADOC	Training and Doctrine Command
TST	Time Sensitive Target
UAV	Unmanned Aerial Vehicle
UN	United Nations
USAFE	US Air Forces in Europe
USSOF	US Special Operations Forces

## Introduction

Victory has a way of excusing a multitude of sins.

—Eliot A. Cohen, “After the Battle”

Threats that challenge the air, maritime, and space superiority that US forces have come to depend on since the end of the Cold War will characterize the future battlefield. Improvements in the range of conventional munitions, integrated air defense systems, and cyber capabilities, combined with the proliferation of inexpensive unmanned reconnaissance assets, give adversaries options to challenge US superiority across the domains.<sup>1</sup> In an environment with multiple domains contested, the joint force must seek innovative ways to regain superiority and achieve operational objectives.

The idea of cross-domain capabilities is not new and senior Army leaders today reference the AirLand Battle doctrine developed over thirty years ago when discussing future battlefield challenges.<sup>2</sup> The application of AirLand Battle concepts required air-ground integration, the interplay between two domains of the battlefield. The Army’s newest approach to combined arms integration is Multi-Domain Battle. Multi-Domain Battle, by its etymology, spans at least two domains. This monograph seeks to answer the question, what can the evolutions of air-ground integration from the Gulf War to Operation Iraqi Freedom (OIF) offer planners of the future

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<sup>1</sup> US Army Training and Doctrine Command, “Multi-Domain Battle: Combined Arms for the 21st Century,” 2017, accessed September 17, 2017, [http://www.tradoc.army.mil/multidomainbattle/docs/MDB\\_WhitePaper.pdf](http://www.tradoc.army.mil/multidomainbattle/docs/MDB_WhitePaper.pdf).

<sup>2</sup> GEN David G. Perkins, “Multi-Domain Battle: Driving Change to Win in the Future,” *Military Review*, (August 2017), accessed August 12, 2017, <http://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/July-August-2017/Perkins-Multi-Domain-Battle/>.

multi-domain battlefield? The hypothesis underlying this monograph is that the recent history of air-ground integration provides a valuable lens to examine the challenges of multi-domain battle.

According to the Army Training and Doctrine Command (TRADOC) Multi-Domain Battle White Paper, “US forces strive to affect an adversary in both the physical and abstract domains creating dilemmas too numerous to counter.”<sup>3</sup> This language echoes one of the key influencers on AirLand Battle Doctrine, retired Air Force Colonel John Boyd. He emphasized the importance of operational shock on an adversary’s system exceeding their reaction times, citing the example of the German Blitzkrieg.<sup>4</sup> Technical advances developed during the AirLand Battle era included the Army Tactical Missile System (ATACMS), which extended the deep battle for the land component, complemented joint air capabilities, and forced multiple dilemmas on the enemy through cross domain capabilities. This innovation contributed to the creation of the battlefield coordination detachment (BCD) and mission command system solutions following the Gulf War to better integrate joint capabilities on the battlefield.<sup>5</sup> Improvements in air-ground integration continued through the combat experiences of Operations Enduring Freedom (OEF) and Iraqi Freedom.

The TRADOC paper, and the most recent Army Field Manual 3-0 *Operations*, emphasize the need for Army commanders to look beyond the land domain when constructing an operational framework.<sup>6</sup> The development of AirLand Battle made the same point over thirty years ago and

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<sup>3</sup> TRADOC, “Multi-Domain Battle: Combined Arms for the 21st Century.”

<sup>4</sup> Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (Portland, OR: Frank Cass Publishers, 1997), 258.

<sup>5</sup> R. Kent Laughbaum, “Synchronizing Airpower and Firepower in the Deep Battle,” Air University College of Aerospace Doctrine, Research, and Education, 1999, 50, accessed August 12, 2017, [http://aupress.au.af.mil/digital/pdf/paper/cp\\_0003\\_laughbaum\\_synchronizing\\_airpower\\_firepower.pdf](http://aupress.au.af.mil/digital/pdf/paper/cp_0003_laughbaum_synchronizing_airpower_firepower.pdf).

<sup>6</sup> US Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: US Government Printing Office, 2017), 1-26.

now the joint services have multiple combat operations to mine for lessons in multi-domain warfare. This monograph examines three historical examples of air-ground integration in depth and traces its origins in doctrine and theory. The first example is the 1990-1991 Gulf War and the application of AirLand Battle. The second example is the 2002 Operation Anaconda in Afghanistan. The third is OIF and the initial drive to Baghdad in March 2003. All three examples provide a rich source of accounts and analysis that highlight the difficulty of applying cross-domain capabilities on the battlefield.

FM 3-0 explains what the Army needs to do to reach positional advantage in a contested environment, but it does not explain how. Joint Publication 3-0 *Joint Operations* (JP 3-0) stresses the changing strategic environment and its “increasingly transregional, multi-domain, and multi-functional” military threats, but the unique circumstances of the next conflict will determine how the threats are addressed. The future battlefield will require joint force commanders to ask themselves what organization is best suited to manage multiple domains, what assets are required, and what challenges exist to implement the next campaign plan? An examination of integrating just two domains demonstrates the complexities inherent with multi-domain operations.

## Air Power Theory and Doctrine Post-Vietnam

The Air Force gained its independence as a separate branch of the armed services in 1947, and built the force, its strategy, and doctrine around the principles of Giulio Douhet and Billy Mitchell; namely that air power can be the decisive instrument of war, the decisive use of that instrument requires air superiority, and achieving air superiority requires central control of air power.<sup>7</sup> Strategic air attacks against Germany and Japan, culminating with the delivery of nuclear

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<sup>7</sup> Carl Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: The Johns Hopkins University Press, 1989), 68.

bombs to end the war in the Pacific, indicated that strategic air attack could achieve primacy over other forms of warfare.<sup>8</sup>

These themes were challenged in the Korean War and Vietnam, with political considerations and support to ground forces dominating the tactics and strategy of the Air Force. A strong belief held by Air Force Vietnam veterans was that given the opportunity, air power could have won the war with the unlimited bombing of North Vietnam.<sup>9</sup> This belief permeated the Air War College through the 1970s and initial studies of Vietnam were limited to Linebacker One and Linebacker Two, the interdiction and aerial bombing campaigns against North Vietnam in 1972.<sup>10</sup> It took several more years and agreements between the Navy and Army, working to develop the AirLand Battle doctrine, for the Air Force to revisit the limits of air power in strategy.

A key element to the decisiveness of air power in war is precision bombing. Beyond just the delivery of precision munitions, precision bombing is a strategic operation directed towards winning the war through air power. As quoted in an Air Force study after the Gulf War,

Precision bombing rests on the central idea that a systematic analysis of the enemy's political, military, and socioeconomic structures will reveal vital points that should be the focus of air attacks. Precision bombing seeks both effective and efficient combat operations that will have a significant impact on the capability and will of the adversary. Successful air attacks on vital nodes can lead to the collapse of an entire system of targets, and the cumulative effect of these attacks can lead to victory.<sup>11</sup>

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<sup>8</sup> Norman Friedman, *Desert Victory: The War for Kuwait* (Annapolis: Naval Institute Press, 1991), 134.

<sup>9</sup> Harry Summers Jr., *On Strategy: A Critical Analysis of the Gulf War* (New York: Dell Publishing, 1992), 114.

<sup>10</sup> *Ibid.*, 110.

<sup>11</sup> Jerome Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm* (Maxwell Air Force Base: Air University Press, 1994), 6.

This presents a calculated and technical approach to warfare that rests on the flexible use of air power while not wasting limited air resources. The emphasis on efficiency and analysis carries over to another tenet of air power theory; centralized command and control (C2).

The theory of the Air Force as an independent instrument of war meant that the service commanded the delivery assets, targeting criteria, and technical resources for control of the air. Following its break from the Army Air Corps, the Air Force developed the Strategic Air Command (SAC) responsible for deep bombing raids and nuclear bombs, while the Tactical Air Command (TAC) focused on air superiority against any adversary.<sup>12</sup> The decisive goal of the air campaign, as developed by the SAC, was the complex Single Integrated Operational Plan (SIOP).<sup>13</sup> This plan argued for the Air Force to control all aircraft, unified in purpose. It was complex in execution, perhaps needlessly so, as a way of controlling the process from target nominations to aerial delivery, often excluding Navy and Marine air planers.<sup>14</sup> This centralized command and control principle affected another role for the Air Force; support to ground forces.

The Air Force recognized that central command and control may not be desirable to the ground force commanders, but are essential for the maximum effective use of limited air assets.<sup>15</sup> The theory of air power post World War II, especially in Europe facing the nuclear capable Soviet military, considered ground forces to be a “trip wire” or “broken glass,” signaling an

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<sup>12</sup> Builder, *The Masks of War: American Military Styles in Strategy and Analysis*, 137.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid., 136.

<sup>15</sup> Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm*, 7.

offensive but incapable of resisting or defeating the attack.<sup>16</sup> The SAC provided the best combat power options in a nuclear scenario. Additionally, coordinating with ground forces for attacks or close air support was considered less desirable than air-to-air combat or deep, independent strikes. As the author of *Masks of War* explains, “losing the freedom to apply air power independently to decisive ends is to lose that which pilots have striven so hard to achieve for much of the history of the airplane.”<sup>17</sup> After being relegated to an ancillary role during the ground force campaigns in Korea and Vietnam, the Air Force sought to regain its prominence in the Gulf War.

In *Strategy in the Missile Age*, author Bernard Brodie explains the effect of nuclear warfare theory on doctrine prior to Vietnam, “The minimum destruction and disorganization that one can expect from an unrestricted thermonuclear attack in the future is likely to be too high to permit further meaningful mobilization of war-making capabilities over the short term.”<sup>18</sup> This thinking across the services, reinforced by civilian technicians, led to atrophy in doctrinal development during the 1950s and 1960s. Similar to the Army’s doctrinal developments post Vietnam, discussed in the next chapter, the Air Force recognized the need to return to the basics of doctrine and theory.

Notable developments in this period included Project Warrior, a conceptual framework to get airmen back to thinking, planning, and training in warfighting terms.<sup>19</sup> Additionally, the

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<sup>16</sup> Bernard Brodie, *Strategy in the Missile Age* (Princeton: Princeton University Press, 1965), 253.

<sup>17</sup> Builder, *The Masks of War: American Military Styles in Strategy and Analysis*, 137.

<sup>18</sup> Brodie, *Strategy in the Missile Age*, 167.

<sup>19</sup> F. Clifton Berry, Jr., “Project Warrior,” *Air Force Magazine*, August 1982, accessed November 3, 2017, <http://www.airforcemag.com/MagazineArchive/Pages/1982/August%201982/0882warrior.aspx>.

Air Force introduced Clausewitz's *On War* to the Air War College in 1978, created the Air University Center for Aerospace Doctrine, Research, and Education (CADRE) in 1983, and the Air Force Academy introduced history classes on the lessons of air power in Vietnam.<sup>20</sup> In 1982, the Air Force signed a memorandum of agreement with the Navy for increased cooperation in training and operations and, similarly, with the Army in 1984.<sup>21</sup> The cooperation between the Air Force and the Army manifested in the development of the extended battlefield concept of AirLand Battle, doctrine reflecting nine years of joint initiatives.

Following two years of unofficial staff dialogue, the commanding generals of the Air Force's TAC and the Army's TRADOC established the Air-Land Forces Application (ALFA) agency in 1975. ALFA orchestrated the working groups that ultimately produced the initiatives and memorandums of agreement (MOAs) surrounding joint combat capabilities.<sup>22</sup> The work of ALFA complemented the ongoing Army doctrinal updates of Field Manual 100-5 *Operations* discussed in the next section. The AirLand Battle doctrine published in 1982 envisioned a synchronized and interdependent ground and air maneuver plan. This vision of the extended battlefield formed the basis of the 31 Initiatives memorandum, endorsed in 1984 by the Chief of Staff of the Air Force, General Charles Gabriel, and the Chief of Staff of the Army, General John Wickham.<sup>23</sup> This memorandum was considered historic by the service chiefs and sought to prioritize air-ground integration concepts and avoid duplicating efforts, thus avoiding duplicate expenditures in materiel or technology.

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<sup>20</sup> Summers Jr., *On Strategy: A Critical Analysis of the Gulf War*, 111.

<sup>21</sup> *Ibid.*, 110.

<sup>22</sup> Richard Davis, *The 31 Initiatives: A Study in Air Force - Army Cooperation* (Washington, DC: Office of Air Force History, 1987), 27.

<sup>23</sup> *Ibid.*, 46.



The 31 Initiatives addressed air defense, joint munitions development, joint combat techniques, suppression of enemy air defenses, and a new concept called battlefield air interdiction (BAI).<sup>24</sup> BAI gave name to surface targets nominated by a ground force commander and in direct support of ground operations, but at extended ranges to affect enemy reinforcements and supplies.<sup>25</sup> BAI supported the concepts addressed in AirLand Battle doctrine. The language and concepts of the 31 Initiatives contributed to the emergent joint doctrine through the 1980s and early 1990s. They were a first step towards a long-term commitment to achieving, “the most affordable and effective airland forces.”<sup>26</sup> Despite a seemingly unified approach to the theory and practice of modern warfare, the role of the Air Force in AirLand Battle faced criticism and challenges from within that service branch.

One particularly outspoken and influential critic of the AirLand Battle concept was Colonel John Warden. Colonel Warden had authored a paper on the operational art of war as the Air Force Deputy Director for Warfighting Concepts and wrote the book, *The Air Campaign: Planning for Combat*, published in 1988. Colonel Warden, along with consecutive Deputy Chiefs of Staff of Plans and Operations, Generals Charles Boyd and Michael Dugan, felt that the Air Force needed its own comprehensive air strategy much like what AirLand Battle accomplished for the Army.<sup>27</sup> In their opinion, the Air Force had become too subordinate to the AirLand Battle

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<sup>24</sup> Robert H. Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War* (Washington, DC: Brassey’s, Inc., 1994), 27.

<sup>25</sup> Davis, *The 31 Initiatives: A Study in Air Force - Army Cooperation*, 58.

<sup>26</sup> *Ibid.*, 65.

<sup>27</sup> Richard Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq* (Washington, DC: Air Force History and Museums Program, 2002), 60.

doctrine and bound the tactical air forces to the needs of the Army. Instead of an air campaign, the Air Force would be executing an Army air tasking order (ATO).<sup>28</sup>

Colonel Warden spent the last years of the 1980s modernizing air power theory with a select group of Air Force officers from across the major commands, under the office of the Deputy Director for Warfighting Concepts. They advocated the importance of a series of independent air operations, that when connected, achieved strategic or operational level objectives. Central to that effort was determining the enemy's center, or centers of gravity, that when struck, could unbalance and ultimately topple the enemy fighting force.<sup>29</sup> Colonel Warden also proposed a prioritized targeting bulls-eye, with hardened military targets on the outer ring protecting the softer, inner rings of key infrastructure and adversary leadership. Colonel Warden's team oversaw the exercises testing their theories that gradually shifted from a Soviet-European scenario to a Middle Eastern, non-nuclear scenario.<sup>30</sup> By the time General Schwarzkopf directed the Air Force to begin work on an air plan to defeat the Iraqi military, the foundation for an independent air campaign had been laid by Colonel Warden.

## Army Theory and Doctrine Post-Vietnam

Several geopolitical and military factors contributed to the Army's need to redefine doctrinal concepts in the 1970s. Faced with defeat in Vietnam, the drawdown of forces, and the end of conscription, the United States started searching for a new theory of warfare and applicable doctrine.<sup>31</sup> General Abrams, the Chief of Staff of the Army in 1973, ordered a study of

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<sup>28</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 61.

<sup>29</sup> *Ibid.*, 62.

<sup>30</sup> *Ibid.*, 66.

<sup>31</sup> Lawrence Freedman, *Strategy* (New York: Oxford University Press, 2013), 199.

the strategic environment. The Astarita Group Study concluded that the future relied on conventional warfighting strategies that contributed to control of the air and sea, while recognizing the threat to central European land forces.<sup>32</sup> The Soviet Union and the United States reached nuclear parity during the 1960s, and by the 1970s the idea of mutually assured destruction contributed to a lack of American strategy involving conventional forces.<sup>33</sup> The Soviet Union, on the other hand, paired its nuclear strategy with conventional force deployments across Eastern Europe that threatened North Atlantic Treaty Organization (NATO) countries.<sup>34</sup>

The Soviet Army and the Warsaw Pact countries used the concepts of ‘deep battle’ and ‘deep operations’ initially developed by Mikail Tukhachevsky in the 1920s to position numerically superior forces in Eastern Europe during the Cold War.<sup>35</sup> The Soviet army could mobilize up to 211 divisions and attack in echelons to overcome NATO defensive lines and strike vulnerable NATO rear areas.<sup>36</sup> As the V Corps Commander in Germany and future TRADOC Commander, General Donn Starry recognized the threat of Soviet follow-on forces. The new concept needed to, “hold and defeat the initial Soviet onslaught while at the same time attacking and substantially disrupting movement of the Red Army’s reserves deep behind the front line.”<sup>37</sup>

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<sup>32</sup> Summers Jr., *On Strategy: A Critical Analysis of the Gulf War*, 76.

<sup>33</sup> Lawrence Freedman, “The First Two Generations of Nuclear Strategists,” in *Makers of Modern Strategy*, ed. Peter Paret (Princeton: Princeton University Press, 1986), 773.

<sup>34</sup> Henry Samuel, “Soviet Plan for WW3 Nuclear Attack Unearthed,” *The Telegraph*, September 20, 2007, sec. News, accessed February 16, 2018, <http://www.telegraph.co.uk/news/uknews/1563692/Soviet-plan-for-WW3-nuclear-attack-unearthed.html>.

<sup>35</sup> Azar Gat, *A History of Military Thought* (New York: Oxford University Press, 2001), 634.

<sup>36</sup> Lester Grau, “Russian Deep Operational Maneuver: From the OMG to the Modern Maneuver Brigade,” *Infantry* (April-June 2017): 24–27, 25.

<sup>37</sup> Williamson Murray and Robert Scales, Jr., *The Iraq War: A Military History* (Cambridge: Harvard University Press, 2003), 47.

It would take multiple iterations before General Starry's conceptual framework for the future battlefield could be legitimized in doctrine.

Another geopolitical event that factored into the development of new Army doctrine was the Arab-Israeli War of 1973. Israel, like the armies of NATO, faced an adversary with numerical superiority. A mentality of the "few against many" contributed to the development of Israeli operational art, strategic depth, maneuver, and decentralized command.<sup>38</sup> This served Israel well until advances in precision munitions, anti-tank and anti-aircraft technologies proliferated the battlefield. The Israel armor corps suffered twenty-five percent attrition as they were employed piecemeal against the Arab armies equipped with precision munitions and cheap rocket propelled grenades (RPGs).<sup>39</sup> The intensity and lethality of the modern battlefield, as demonstrated in the Arab-Israeli War of 1973, served as a model for the first battle the NATO forces could expect in Europe against the Soviet Union, "short-lived, exhausting, and terribly destructive to both sides."<sup>40</sup>

The first attempt at a new Army doctrine resulted in the Active Defense theory in 1976, proposed by TRADOC Commander General DePuy and co-authored by General Starry.<sup>41</sup> It focused on the first battle against the Soviet Army in the Fulda Gap, the projected path of a Soviet armored column east of Frankfurt. It was a step in the right direction, but critics complained that it was mechanistic and focused too heavily on annihilation vice maneuver.<sup>42</sup>

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<sup>38</sup> Jacob Kipp, *The Evolution of Operational Art: From Napoleon to the Present*, eds. John Olsen and Martin Van Creveld (Oxford: Oxford University Press, 2011), 168.

<sup>39</sup> *Ibid.*, 181.

<sup>40</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, 13.

<sup>41</sup> *Ibid.*

<sup>42</sup> Huba Wass de Czege, "Lessons from the Past: Making the Army's Doctrine 'Right Enough' Today," AUSA Institute of Land Warfare 06-2, The Landpower Essay, September 2006, accessed August 12, 2017, <http://ausar-web01.inetu.net/SiteCollectionDocuments/ILW%20Web-ExclusivePubs/Landpower%20Essays/LPE06-2.pdf>.

General Starry replaced General DePuy in 1977 and with him came a renewed interest in the operational art of war.<sup>43</sup> Critics of Active Defense included Colonel John Boyd and Edward Luttwak. Boyd introduced the decision cycle and the ability for planners to confuse an adversary by disrupting their orientation.<sup>44</sup> Luttwak recommended decentralization and a non-linear approach to warfighting.<sup>45</sup> These two contributions combined with a comprehensive revision process, supervised by commanders of the US Army Training and Doctrine Command (TRADOC) and Chiefs of Staff of the Army, led to the publication of Field Manual (FM) 100-5 *Operations* in 1982 and 1986.<sup>46</sup>

FM 100-5 *Operations*, otherwise known as AirLand Battle, was the seminal publication that served the Army through the Gulf War.<sup>47</sup> It introduced the operational level of war, non-linear operations, the need for joint cooperation, and the basic tenets of initiative, agility, depth, and synchronization. Clausewitz heavily influenced AirLand Battle, and *On War* is quoted throughout the publication. The ideas of ‘fog,’ ‘friction,’ ‘culminating point,’ the strength of the defense, and ‘centers of gravity’ gained prominence. The chapters on offense and defense included historical vignettes. The Army went to war using AirLand Battle in 1990. Following Operation Desert Storm, the Desert Storm Study Project concluded that, “AirLand Battle represented a way of thinking about war and a mental conditioning rather than a rigid set of rules

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<sup>43</sup> Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, 264.

<sup>44</sup> Freedman, *Strategy*, 196.

<sup>45</sup> *Ibid.*, 202.

<sup>46</sup> Wass de Czege, “Lessons from the Past: Making the Army’s Doctrine ‘Right Enough’ Today.”

<sup>47</sup> Laughbaum, “Synchronizing Airpower and Firepower in the Deep Battle,” 11.

and lists to be done in lock-step fashion. Its four tenets, *initiative, agility, depth and synchronization*, are timeless, immutable precepts for present and future wars.”<sup>48</sup>

## Goldwater-Nichols Act

Another significant catalyst to air-ground integration post-Vietnam was the formalization of joint practices. The Defense Reform Act or Goldwater-Nichols Act of 1986 strengthened the position of the Chairman of the Joint Chiefs of Staff (CJCS) and the operational Combatant Commanders.<sup>49</sup> The act also improved joint operations by making joint experience a prerequisite for senior level assignments and encouraged joint curriculum in the military’s war and staff colleges.<sup>50</sup> Following the successful Operation Just Cause in 1989, the Gulf War became the next test of these new measures. General Schwarzkopf benefited from unity of command outlined in the new joint policies, reporting to both the Secretary of Defense and the CJCS, and commanding all forces in the Central Command (CENTCOM) theater. In his words, “Operation Desert Shield/Desert Storm was certainly the classic example of a multi-service operation, a truly joint operation.”<sup>51</sup>

A closer look at the plans, execution, and analysis of the Gulf War reveal that the service branches struggled to fully realize the potential of the Goldwater-Nichols Act. The Army and the Air Force largely held to the parochial views of their service theory of warfare. That the operations were a success, further cemented the services’ ideas of joint operations, each branch operating in concert with one another, but separated by missions, phases, and geography. The conclusions drawn by the Air Force and Army post-Gulf War impacted their ability to prepare for

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<sup>48</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, 107.

<sup>49</sup> Norman Friedman, *Desert Victory: The War for Kuwait* (Annapolis: Naval Institute Press, 1991), 6.

<sup>50</sup> Summers Jr., *On Strategy: A Critical Analysis of the Gulf War*, 244.

<sup>51</sup> *Ibid.*, 245.

the next war. Operation Anaconda exposed the challenges of air-ground integration not addressed in the Gulf War and helped to lay the foundation for joint operations for the next fifteen years. The next chapters discuss the influence of the services' theories of warfare and doctrine on the plans, execution, and analysis of the Gulf War, Operation Anaconda, and the invasion of Iraq in Operation Iraqi Freedom, through the lens of air-ground integration.

## Air-Ground Integration in the Gulf War

The first evolution of air-ground integration examined in this paper is the Gulf War. For its role, the Air Force implemented a two part air campaign plan that allowed it to strike targets deep into Iraq to weaken command authority and Iraqi support for forces in the Kuwaiti Theater of Operations (KTO), while also targeting Iraqi forces in Kuwait. The plans represented fifteen years of improvements in technology, doctrine, and exercises. They also demonstrated the return to basics of air power theory and the role of strategic bombing to achieve decisive victory.<sup>52</sup> Despite the eventual success, the efforts of Colonel Warden and the Air Staff planners met some resistance prior to the launch of the air campaign.

In early August 1990, shortly after the air planners received the mission to plan for the Gulf War, Colonel Warden flew to Tampa to brief General Schwarzkopf on the air campaign plan - Instant Thunder. In his brief, Colonel Warden referenced both the US landing at Inchon in 1950 and the German Schlieffen plan in World War I.<sup>53</sup> By doing this, he hoped to convey the daring nature of strikes deep into Iraq, like the landings at Inchon, and the danger of distributing forces instead of a concentrated effort, as in the execution of the Schlieffen plan. Colonel Warden

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<sup>52</sup> Jeffrey Record, *Hollow Victory: A Contrary View of the Gulf War* (Washington, DC: Brassey's, Inc., 1993), 104.

<sup>53</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 69.

wanted to ensure that the air campaign did not divert crucial forces to ground support missions. General Schwarzkopf rejected the analogies and considered this plan an option, but not the main effort.<sup>54</sup> General Horner, the Combined Forces Air Component Commander (CFACC), critiqued the plan for a lack of operational targets and for neglecting Iraqi forces in Kuwait.<sup>55</sup>

The insular thinking of the air planners manifested itself in remarks made by General Michael Dugan, the Air Force Chief of Staff, in September 1990. Using Colonel Warden's targeting bulls-eye concept, General Dugan remarked to a reporter that the war could be won by targeting Saddam Hussein directly, "we know where he is, and where his mistress is, and where his family is, and we can get them."<sup>56</sup> The *Washington Post* also paraphrased General Dugan as saying, "Ground forces may be needed to reoccupy Kuwait, but only after air power has so shattered enemy resistance that soldiers can 'walk in and not have to fight' a pitched battle." These comments were not in line with the Joint Chiefs of Staff or CENTCOM's understanding of the Gulf War plans. On September 17, 1990, General Dugan was relieved from office for these remarks.<sup>57</sup>

The air campaign against Iraq met the tenets of air power theory developed in the late 1980s. Strategic bombing dominated the first forty-three days of the war, crippling the Iraqi integrated air defense systems (IADS), C2 nodes, and key infrastructure and economic capabilities. Strikes cut electricity to Baghdad within the first hours and disrupted eighty percent

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<sup>54</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 69.

<sup>55</sup> Thomas Keaney and Eliot Cohen, *Gulf War Air Power Survey Summary Report* (Washington, DC: US Government Printing Office, 1993), 37.

<sup>56</sup> Friedman, *Desert Victory: The War for Kuwait*, 138.

<sup>57</sup> Summers Jr., *On Strategy: A Critical Analysis of the Gulf War*, 96.



of Iraq's oil production capability using only fifteen percent of the coalition strategic sorties.<sup>58</sup> Coalition aircraft achieved air superiority within the first days of the campaign and proved the importance of centralized C2. Centralized C2, under the Joint Forces Air Component Command (JFACC), can be credited for the successes of the air campaign execution, but it is worth closer examination to understand its implications for future operations.

All fixed wing air operations of the combined and joint forces operated under the control of the JFACC and its operations center, the Tactical Air Control Center (TACC). The forward air controllers (FACs) and air liaison officers (ALOs) imbedded with ground forces relayed ground target information to the TACC and airborne command posts. The airborne C2 included the airborne warning and control systems (AWACS) aircraft, airborne battlefield command and control centers (ABCCCs), and the joint surveillance and targeting attack radar system (JSTARS).<sup>59</sup> These complementary air assets controlled all airborne assets, detected moving Iraqi forces, and directed strikes and refueling operations.

Integration with ground operations, under the direction of General Schwarzkopf and General Horner, improved upon the initial Instant Thunder plan that allocated the majority of air assets to deep strike targets. General Schwarzkopf asked that air power destroy fifty percent of the Iraqi armor and artillery in Kuwait before the coalition ground offensive began.<sup>60</sup> Within the JFACC, liaisons from the other services had a seat, but their limited numbers caused suspicion amongst the ground force commanders concerning their priorities in the ATO, which directed all

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<sup>58</sup> Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm*, 77.

<sup>59</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 192.

<sup>60</sup> *Ibid.*, 246.

air operations and strikes in theater.<sup>61</sup> Close air support (CAS) was not included on the ATO, which left Marine aviation out of the loop due to their CAS mission. The air campaign came close to meeting General Schwarzkopf's guidance prior to the ground offensive, but the management of the ATO and targeting cycle was one part of the centralized C2 structure that frustrated ground commanders.

Adding to the frustrations of ground commanders was the creation of the targeting group led by Brigadier General Buster Glosson, nicknamed the Black Hole.<sup>62</sup> General Glosson controlled both the targeting cycle and the ATO, and could bypass the TACC to Generals Horner and Schwarzkopf directly. The Black Hole also received collated interagency products from a Pentagon intelligence fusion cell, dubbed Checkmate, that aided in target selection criteria.<sup>63</sup> The airborne C2 platforms continuously provided updated target information in addition to intelligence received from Checkmate, so the daily ATO often changed after it had been issued. By the time nominated targets from the ground commanders reached the JFACC, they were often already destroyed by previous air attacks.<sup>64</sup> This method proved effective overall, but clouded the common battlefield picture for commanders at all levels.

The execution of the air campaign also identified weaknesses in the technological developments over the previous decade. The Air Force Central Command (AFCENT) distributed the daily ATO through the networked Computer Assisted Force Management System (CAFMS), but the size of the ATO meant hours of time downloading and printing the document.<sup>65</sup> Aircraft

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<sup>61</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 147.

<sup>62</sup> *Ibid.*, 146.

<sup>63</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 87.

<sup>64</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 155.

<sup>65</sup> *Ibid.*, 149.

supporting from US Air Forces in Europe (USAFE) and the Pacific Air Force (PACAF) did not share CAFMS and navy ships did not allocate any of their limited space for a non-universal computer system.<sup>66</sup> This contributed to delayed distribution of the ATO across the air services and last minute changes directed via secure phones.

The JSTARS was still in development when two deployed to the Gulf in 1990. Designed specifically for coordinating the deep attack required in AirLand Battle, the aircraft successfully detected increases in Iraqi supply truck movements to the border and the buildup of Iraqi forces prior to the battle at Khafji in January 1991.<sup>67</sup> General Schwarzkopf kept the JSTARS under his control, despite protests from the JFACC. Air planners worried that the technology might be too good and give ground commanders too complete of a picture, leading to unsupportable requests for air attack.<sup>68</sup> Schwarzkopf as the overall joint force commander, refused to give the JFACC unlimited control over the air war, ensuring the service component commanders received apportioned support from a joint asset.<sup>69</sup> The JSTARS was a valuable addition to the battlefield, but the wrangling over control reflected the influence of air power theory in contention with new joint service practice.

Another point of contention early in the campaign planning was the initial refusal by the Air Force to deploy the “Warthog” A-10 close support aircraft. The A-10 was developed to meet the needs of the ground forces, without giving the Army its own tactical fixed wing air arm like

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<sup>66</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 149.

<sup>67</sup> Friedman, *Desert Victory: The War for Kuwait*, 187.

<sup>68</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 144.

<sup>69</sup> *Ibid.*

the Marines Corps.<sup>70</sup> The Air Force adopted and deployed them reluctantly because they took resources away from the strategic bombing mission. The air power theory driving the early campaign planning was that strategic bombing would cripple the Iraqi army through deep strikes and aircraft would need to provide minimal support to ground forces. The deployment of the A-10s, like the JSTARS, required direct intervention from General Schwarzkopf. In the end, the A-10 was credited with destroying over 1,000 tanks and 900 artillery pieces leading the CFACC Commander, General Horner, to remark, “I take back all the bad things I ever said about the A-10. I love them. They are saving our asses.”<sup>71</sup> The A-10 example demonstrates the need for joint campaign planning and the dangers of approaches too restricted by service parochialism.

Additional advancements on the battlefield that furthered air-ground integration were the unmanned aerial vehicles (UAVs). The USAF flew over 3,500 UAV reconnaissance sorties during the Vietnam War and the Israelis used flew UAVs for effective suppression of enemy air defense (SEAD) during the Lebanon War of 1982, but the Air Force initially failed to harness the potential for UAVs in the years leading to the Gulf War.<sup>72</sup> Culturally, neither the bomber nor fighter communities favored the UAV.<sup>73</sup> Early classification of UAVs referred to them as remotely piloted aircraft (RPAs), a reflection of the service culture’s emphasis on the importance of pilots for any operations in the third dimension.<sup>74</sup> The Gulf War air campaign contained UAV

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<sup>70</sup> Friedman, *Desert Victory: The War for Kuwait*, 136.

<sup>71</sup> Record, *Hollow Victory: A Contrary View of the Gulf War*, 109.

<sup>72</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 91.

<sup>73</sup> Thomas Mahnken, *Technology and the American Way of War Since 1945* (New York: Columbia University Press, 2010), 114, accessed February 14, 2018, <http://ebookcentral.proquest.com/lib/carl-ebooks/detail.action?docID=908283>.

<sup>74</sup> Mark Wells, “Tribal Warfare: The Society of Modern Airmen,” *Air and Space Power Journal* (June 2015): 82–87, 84.

sorties, but they were just one tool in the arsenal of air weapons and were used initially for distracting Iraqi air defenses, presenting a realistic but false target.<sup>75</sup> Long range UAVs contributed to the sustained surveillance over Iraq, but were not considered for any role in the ground offensive during air campaign planning.

The ground forces, on the other hand, had begun to experiment with UAVs but few systems actually arrived in theater for use in the ground offensive. The Army's only UAV platoon, fielding the Israeli Pioneer model, was still stateside when the air campaign began and did not arrive in theater until January 26<sup>th</sup>.<sup>76</sup> Assigned only to VII Corps, the Pioneers quickly gained relevance in the shaping operations prior to the assault. Satellite imagery provided wide area intelligence, but lacked the refinement needed for targeting. The VII Corps Commander, General Franks, reprioritized his Pioneer UAVs from intelligence collecting to targeting, using the UAV real-time video images to direct artillery and rocket fire on Iraqi defensive positions.<sup>77</sup> UAVs demonstrated an advancement in warfare technology, but their limited use in the ground war was overshadowed by the success of the air campaign and traditional air power.

The organization created to conduct air-ground integration under the AirLand Battle doctrine was the battlefield coordination element (BCE), today the battlefield coordination detachment (BCD). As one of the initiatives between the Air Force TAC and Army TRADOC in the early 1980s, the BCE provided an Army liaison team operating in the Air Force TACC, now called the air operations center (AOC).<sup>78</sup> The BCE was tasked with relaying the Army ground

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<sup>75</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 91.

<sup>76</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, 169.

<sup>77</sup> *Ibid.*, 204.

<sup>78</sup> US Department of the Army, Field Manual (FM) 100-13, *Battlefield Coordination Detachment (BCD)* (Washington, DC: US Government Printing Office, 1996), vii, accessed November 13, 2017, <http://www.bits.de/NRANEU/others/amd-us-archive/FM100-13%2896%29.pdf>.

component requirements to the Air Force and synchronizing air interdiction, close air support, theater airlift, and Army airspace command and control.

In the summer of 1990, Schwarzkopf directed joint exercise Internal Look, which modified an existing plan to reflect an Iraqi invasion of Saudi Arabia and Kuwait.<sup>79</sup> The XVIII Airborne Corps BCE deployed to Eglin Air Force Base, Florida and linked into the 9th Air Force TACC to synchronize air ground operations. This simulation proved to be valuable to establishing the relationships and operating procedures between the services, thus giving planners a frame of reference when preparing for and executing Desert Shield.<sup>80</sup>

Despite a successful exercise, the nascent BCE faced difficulties integrating into an Air Force hierarchy. Lack of common communications equipment, inexperienced joint personnel, and emerging authorities meant that the BCE in Riyadh had to fight for relevance. Instead of acting as the CFLCC's representative in the joint targeting coordination board (JTCCB), the BCE augmented the CFACC's staff so the Army voice was filtered through the Air Force. Conversely, any guidance coming down from General Schwarzkopf went direct to General Horner's staff and often missed getting to the BCE commander. These difficulties resulted in so much friction that General Schwarzkopf's deputy, Lieutenant General Waller, stepped in to head the JTCCB. This elevated land force targeting concerns, but even that solution was imperfect as General Schwarzkopf personally made last minute changes, significantly altering the ATO.<sup>81</sup>

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<sup>79</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, 43.

<sup>80</sup> *Ibid.*, 44.

<sup>81</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 155.

Additionally, the first JTCB did not meet until ten days into the air campaign, delaying the introduction of ground force target nominations to the air campaign.<sup>82</sup>

As Eliot Cohen wrote in *The New Republic* immediately following the Gulf War, “The spectacular success of American arms in the Persian Gulf will shape us as a power in international politics for decades to come. It will affect not only the way we think about the military power this nation possesses, but the institutions that create it.”<sup>83</sup> A critical evaluation of a successful military campaign can be more difficult to accomplish than a defeat. The subsequent paragraphs look at the service perspectives on air-ground integration following the Gulf War and what lessons impacted planning for Operation Anaconda and Operation Iraqi Freedom.

The success of Desert Storm reflected positively on all services and the spirit of joint operations. For the Air Force, Operations Desert Shield and Desert Storm validated a concept of air power theory seventy years in the making; air power could be the decisive component of warfare given centralized control to achieve air superiority. The JFACC exercised almost complete centralized C2, though permitting the Navy to control fleet defense sorties and the Marines to maintain their own close air support.<sup>84</sup> Centralized command enabled efficient use of sorties and precision munitions to wage the strategic air campaign. A vision of the air campaign initially developed in the Pentagon came to fruition largely unaltered, and crippled the Iraqi military’s ability to respond. A unified and tightly controlled structure integrated aircraft from

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<sup>82</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, 180.

<sup>83</sup> Eliot Cohen, “After the Battle,” *The New Republic* 204, no. 13 (April 1991): 19–26, 19.

<sup>84</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 160.

multiple nations and services into a fluid and efficient operation responsive to the theater commander's guidance.<sup>85</sup>

The Air Force achieved air superiority within the first ten days of the campaign, defeating the air threat and surface to air radars and artillery. Following that, most any additional Iraqi air combat sorties were lost while trying to flee to Iran, not in a defensive engagement.<sup>86</sup> Air superiority meant that the Iraqi forces were under constant threat while the coalition enjoyed freedom of maneuver. Intelligence gathered from persistent surveillance and reconnaissance of the battlefield increased the size of the target lists and gave the ground force commanders a remarkably clear picture of enemy forces prior to the ground assault.<sup>87</sup> Many leaders and historians, including President Bush, espoused the importance of a dominant air force, "Lesson number one from the Gulf War is the value of air power."<sup>88</sup> According to the Air Force theory of warfare, it's conduct was not just important, it was decisive.

During the forty-three day air campaign, 65,000 combat sorties delivered over 84,000 tons of ordnance on Iraqi targets.<sup>89</sup> In comparison, US forces delivered seventy-four times that amount during the Vietnam War and were unable to defeat North Vietnam.<sup>90</sup> Air Force leaders concluded that aerial bombardment alone, centrally coordinated, could destroy an enemy state's

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<sup>85</sup> Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm*, 95.

<sup>86</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 13.

<sup>87</sup> Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm*, 96.

<sup>88</sup> *Ibid.*, 84.

<sup>89</sup> Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm*, 63.

<sup>90</sup> Record, *Hollow Victory: A Contrary View of the Gulf War*, 106.



ability and will to wage war. The director of the Airpower Research Institute stated that, “air power now dominates land warfare.”<sup>91</sup> The commander of Air University went so far as to say that in the future, ground forces will largely be relegated to security for air forces and that the air campaign made the ground offensive a “walkover.”<sup>92</sup> The Chief of Staff of the Air Force remarked that the Gulf War was “the first time that a field army had been defeated by air power.”<sup>93</sup>

The field army in question deserves a brief examination for its contribution to the Gulf War mythos. Western analysts, fed by Saddam Hussein’s propaganda and recent Iran-Iraq War results, overestimated the strength and competency of the Iraqi Army and Republican Guard Force Command (RGFC).<sup>94</sup> Coalition commander’s based inflated casualty estimates on this flawed data, as much as ten percent per day.<sup>95</sup> Instead, coalition aircraft and ground forces destroyed Iraqi formations every time they moved.<sup>96</sup> During the battle of Khafji, the only Iraqi offensive after the start of the Gulf War, Iraqi divisions demonstrated an inability to deviate from plans, tactical ineptitude, technological incompetence, and a lack of will to fight.<sup>97</sup> Saddam replaced the elite RGFC units responsible for the invasion of Kuwait with regular Iraqi divisions

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<sup>91</sup> Record, *Hollow Victory: A Contrary View of the Gulf War*, 103.

<sup>92</sup> Ibid.

<sup>93</sup> Martin, *Victory from Above: Air Power Theory and the Conduct of Operations Desert Shield and Desert Storm*, 84.

<sup>94</sup> Friedman, *Desert Victory: The War for Kuwait*, 111.

<sup>95</sup> Hew Strachan, *The Direction of War: Contemporary Strategy in Historical Perspective* (Cambridge: Cambridge University Press, 2013), 122.

<sup>96</sup> John Ballard, *From Storm to Freedom: America’s Long War with Iraq* (Annapolis: Naval Institute Press, 2010), 66.

<sup>97</sup> Friedman, *Desert Victory: The War for Kuwait*, 202.

along the Kuwait border, losing any chance to repel coalition forces.<sup>98</sup> The result was coalition success so rapid that General Schwarzkopf's deliberate plan struggled to keep pace.<sup>99</sup>

The Scud missile threat presented another element that disrupted the campaign plans. Iraqi forces fired Scud missiles into Israel at the start of the Gulf War in hopes of dividing the coalition and caused Generals Schwarzkopf and Horner to devote up to one third of air sorties to hunting Scud missiles in western Iraq.<sup>100</sup> The coalition targeted suspected fixed launch sites, but had to develop creative ways to find and destroy mobile launchers. CENTAF created "killboxes" in the western desert that allowed responsive fires fed by JSTARS and AWACS to F-15Es covering large geospatial areas.<sup>101</sup> The killbox technique proved useful in OEF and OIF, but achieved little success against the mobile Scuds in the Gulf War.

Additional observations on air-ground integration during the Gulf War reveal more contributions than just air power alone. The first observation is the reduced role of Air Force close air support during the ground campaign. The forty-three day air campaign included an increase in attacks on Iraqi armored forces, peaking just prior to the ground offensive.<sup>102</sup> At that point, CENTCOM estimated that the frontline Iraqi divisions had been reduced to less than fifty percent effectiveness and rear divisions at approximately seventy-five percent effectiveness.<sup>103</sup> When it came to the short coalition ground offensive; weather, speed of the armored fight, fear of

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<sup>98</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 71.

<sup>99</sup> *Ibid.*, 65.

<sup>100</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 51.

<sup>101</sup> Friedman, *Desert Victory: The War for Kuwait*, 175.

<sup>102</sup> Keaney and Cohen, *Gulf War Air Power Survey Summary Report*, 102.

<sup>103</sup> *Ibid.*, 105.

fratricide, and the still effective Iraqi antiaircraft defenses kept CAS sorties to a minimum.<sup>104</sup> Instead, Army Apache and Marine Cobra gunships delivered the preponderance of fire support to the ground forces. Existing training relationships and employment outside an ATO meant the helicopter gunships were more flexible than the fixed wing sorties.<sup>105</sup>

Another air-ground integration development was the employment of the Army Tactical Missile System (ATACMS). A product of the AirLand Battle developments, the ATACMS provided the CFLCC the ability to strike targets deep beyond friendly frontline troops. The Army fired the first ATACMS in combat during the opening of the air campaign, striking an SA-2 threatening the air route into Kuwait.<sup>106</sup> The mission was a success, but the process to clear the airspace required for a target over 100 kilometers away was new to the joint air integration teams and it took hours for launch approval. The Army only fired twenty-one ATACMS missions during Desert Storm, but it realized an application of AirLand Battle and contributed to the joint prosecution of the Gulf War.

Despite the high regards for the joint forces from Generals Schwarzkopf, Powell, and Horner, the CENTCOM deputy commander offered more critical remarks. In an interview for PBS's *Frontline* program, LTG Waller acknowledged the friction between the services in conduct of the air campaign. General Horner wanted to maintain the focus on the strategic bombing campaign targeting Iraqi infrastructure and support systems in and around Baghdad while ground force commanders increasingly wanted the battlefield shaped prior to the ground offensive, which

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<sup>104</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, 369.

<sup>105</sup> *Ibid.*, 370.

<sup>106</sup> *Ibid.*, 193.

meant more Iraqi armor targets.<sup>107</sup> LTG Waller remarked, “Now those people who are into strategic targets may believe and feel that it is more important to hit strategic targets than it is to shape the battlefield but I can guarantee you that when you’re on the ground and you’re faced with fighting for your life and your men’s lives, that you’re going to be far more concerned with what’s out in front of you than you are with what’s happening in downtown Baghdad.”<sup>108</sup>

Additionally, the lack of close air support during the ground offensive ultimately reduced the ‘jointness’ of Operation Desert Storm. There was the air campaign and the ground offensive, two distinct operations with little overlap. The work of the TAC and TRADOC to develop AirLand Battle was subordinated to service insularity and dominated by the air campaign. Jeff Record, the author of *Hollow Victory*, states, “There was no AirLand Battle, just a massive air assault; and the brevity and ease of the ground offensive, when it finally came, are an acknowledged product of the air campaign.”<sup>109</sup> Desert Storm was operationally joint, but the air campaign was strategically independent, reminiscent of the air offenses of WWII and adhering to the principles of the founders of airpower theory.<sup>110</sup>

Finally, there is the matter of decisiveness; can airpower alone win the war? The Air Force and Department of Defense senior officials already quoted seemed to think so. In *On Target*, Richard Davis claims that the strategic bombing campaign was a decisive factor, but when combined with the tactical air effort, “airpower was *the* decisive factor in the coalition’s

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<sup>107</sup> Calvin Waller, *PBS Frontline: The Gulf War*, last modified January 9, 1996, accessed November 22, 2017, <http://www.pbs.org/wgbh/pages/frontline/gulf/oral/waller/1.html>.

<sup>108</sup> Ibid..

<sup>109</sup> Record, *Hollow Victory: A Contrary View of the Gulf War*, 103.

<sup>110</sup> Cohen, “After the Battle,” 26.

quick and bloodless victory in the Persian Gulf War.”<sup>111</sup> But the air campaign did not win the war alone. It required a ground offensive to push the Iraqi forces out of Kuwait. General Waller believed that the Air Force Chief of Plans, General Glosson, thought that only a few more days of the strategic air campaign could defeat the Iraqi regime.<sup>112</sup> General Waller said, “I have never seen a strategic air campaign yet that moved one enemy soldier off a piece of terrain.”<sup>113</sup> It took the strong personality of General Waller to interject on behalf of the ground forces, get a voice in the JTCB, and bring air power in to support the final ground offensive stage of the war.

The Gulf War’s success owed to the accomplishments of a multinational coalition and all joint services. In 1958, President Eisenhower characterized the future battlefields as no longer belonging to one service, “Strategic and tactical planning must be completely unified, combat forces organized into unified commands, and each equipped with the most efficient weapons systems science can develop, singly led and prepared to fight as one.”<sup>114</sup> On the surface, Operations Desert Shield and Desert Storm aptly applied that vision but a closer examination reveals that service parochialism bolstered by technology and an inferior enemy force compartmentalized service contributions to the war. As for air-ground integration, the confidence in airpower theory overshadowed critical lessons required for fighting the next war.

## Air-Ground Integration in Operation Anaconda

The second evolution evaluated in this paper is the start of OEF and Operation Anaconda. Operation Anaconda was the first conventional fight in Afghanistan following 9/11 and it

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<sup>111</sup> Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 320.

<sup>112</sup> Waller, *PBS Frontline: The Gulf War*.

<sup>113</sup> Ibid.

<sup>114</sup> Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War*, vii.

included forces from seven coalition countries and personnel from each of the US services. Over the course of eighteen days, the coalition defeated the conventional forces of al Qaeda and the Taliban in the Shah-i Kot Valley. The coalition suffered six Afghans and eight Americans killed in action and fifty-three wounded while inflicting hundreds of casualties on the enemy, ensuring they would never mass forces again to fight.<sup>115</sup> The operation was a success and the hard won lessons in air-ground integration, command structure, and authorities would benefit the armed forces for the duration of the wars in Afghanistan and Iraq.

The enemy facing coalition forces in 2001 was nothing like the Iraqi army of the Gulf War. The Taliban gained control of Afghanistan following the Soviet withdrawal and provided sanctuary for al Qaeda forces beginning in 1996.<sup>116</sup> By 2001, the forces numbered between 40,000 to 50,000 fighters loosely assigned to five divisions and associated by indigenous Taliban, non-Afghan Taliban, and al Qaeda, with little standardization of training and no central command structure.<sup>117</sup> The coalition relied on the Central Intelligence Agency enemy picture, built largely through the alliance with the mujahedeen fighting the Soviets in the 1980s, but lacked clarity due to compartmentalization and limited access.<sup>118</sup>

By October 21<sup>st</sup>, 2001, the first Operational Detachment Alphas (ODAs) arrived in Afghanistan and worked with the Northern Alliance to call in airstrikes against Taliban forces

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<sup>115</sup> Daniel Bolger, *Why We Lost: A General's Inside Account of the Iraq and Afghanistan Wars* (New York: Houghton Mifflin Harcourt, 2014), 87.

<sup>116</sup> Dr. Donald Wright, *A Different Kind of War: The United States Army in Operation Enduring Freedom October 2001-September 2005* (Fort Leavenworth, KS: Combat Studies Institute Press, 2010), 71.

<sup>117</sup> Wright, *A Different Kind of War: The United States Army in Operation Enduring Freedom October 2001-September 2005*, 72.

<sup>118</sup> Walter Perry and David Kassing, *Toppling the Taliban: Air-Ground Operations in Afghanistan, October 2001-June 2002* (Santa Monica, CA: RAND Corporation, 2015), 28.

outside Mazar-e-Sharif. A week later, Air Force tactical air control parties (TACPs) arrived, allowing the ODAs to split into three-man teams which greatly amplified the air strikes. One TACP remarked, “there is no doubt in my mind that air power allowed the Northern Alliance to move through that valley virtually unimpeded.”<sup>119</sup> By November 9<sup>th</sup>, Mazar-e-Sharif fell to the Northern Alliance and SOF, setting the stage for similar tactics across Afghanistan in the coming months. The Taliban was defeated in the north, but they learned lessons on the importance of concealment, cover, and dispersion that would hamper coalition tactics in Operation Anaconda four months later.

Operation Anaconda was planned as a search-and-destroy mission using Afghan and Special Forces to sweep into the valley and flush the enemy into blocking positions held by infantry task forces on high terrain. There, close air support and indirect fires would aid in destroying the fleeing enemy.<sup>120</sup> Planners did not expect heavy resistance, so little effort was made in planning or coordinating for indirect fires or close air support.<sup>121</sup> That oversight was partially due to lack of intelligence, but growing complications in organizational hierarchy and authorizations exacerbated the problem.

The US command structure for Afghanistan at the time of Operation Anaconda was piecemealed and ad hoc, with headquarters spread from Tampa to Saudi Arabia and Kuwait. Already in theater was the Joint Special Operations Task Force (JSOTF) split into JSOTF-North and JSOTF-South, reporting to Special Operations Command Central (SOCCENT) and Central

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<sup>119</sup> Wright, *A Different Kind of War: The United States Army in Operation Enduring Freedom October 2001-September 2005*, 77.

<sup>120</sup> Lester Grau and Dodge Billingsley, *Operation Anaconda: America's First Major Battle in Afghanistan* (Lawrence, KS: University Press of Kansas, 2011), 99.

<sup>121</sup> *Ibid.*, 100.

Command (CENTCOM).<sup>122</sup> The Joint Special Operations Air Component (JSOAC) was split north and south with JSOAC-North in Bagram and JSOAC-South on an island in the Persian Gulf. The Combined Forces Land Component Command (CFLCC), in charge of all land forces in Afghanistan, was based in Kuwait. The CFACC and Combined Air Operations Center (CAOC) was based in Saudi Arabia. CENTCOM was based in Tampa and reported directly to the Secretary of Defense, eliminating the Joint Chiefs of Staff from the chain of command.<sup>123</sup>

The ground commander in Afghanistan for Operation Anaconda was the commanding general of 10<sup>th</sup> Mountain Division, Major General Hagenbeck. Almost no planning was conducted between MG Hagenbeck's staff and the CAOC so the air picture was incomplete.<sup>124</sup> Additionally, MG Hagenbeck was not authorized to bring his whole division headquarters, including the air planning cell. With no corps headquarters above him and only a tactical command post at his disposal, air-ground integration depended on the controllers on the ground working directly with supporting aircraft ad hoc.

In addition to the many nations and military forces committed to the operation, Operation Anaconda was supported by attack, transportation, and reconnaissance aircraft from each US service and the French Air Force. Strike assets included US Air Force B-1 and B-52 bombers, F-15E Strike Eagles, A-10s, Predators and AC-130s, USMC AV-8 Harriers, US Navy F/A-18 Hornets, French Mirage and Super-Entards and US Army Apache helicopters. The US Air Force provided aerial reconnaissance and communication platforms with the AWACS, U-2, and

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<sup>122</sup> Grau and Billingsley, *Operation Anaconda: America's First Major Battle in Afghanistan*, 114.

<sup>123</sup> *Ibid.*, 115.

<sup>124</sup> Perry and Kassing, *Toppling the Taliban: Air-Ground Operations in Afghanistan, October 2001-June 2002*, 99.



JSTARS. Army Chinook helicopters provided the transportation aircraft.<sup>125</sup> Dino Murray, one of the ALOs assigned to Task Force Rakkasan, remarked on the crowded airspace, “All these airplanes show up in this confined airspace—an area seven or eight miles long by two or three miles wide. And they are all trying to fly around this area and help.”<sup>126</sup> While providing critical support overall, the presence of so many different platforms presented challenges to both the controllers on the ground and the Air Force command centers.

Successful air-ground integration on the battlefield relies on pilots and crews working in concert with airmen and soldiers on the ground specially trained in the language of each other’s service. Operation Anaconda included enlisted terminal attack controllers (ETACs), joint terminal attack controllers (JTACs), ALOs, and combat controllers teams (CCTs); all airmen attached to infantry units and the Special Forces teams to deliver close air support. Additionally, the Army units had fire support officers and forward observers trained in coordinating indirect fires. Because the initial forces into Afghanistan did not bring organic artillery support, only mortars, Operation Anaconda relied heavily on air support and the air controllers trained to coordinate fires.<sup>127</sup>

After their debut in support of ground forces during the Gulf War, Operation Anaconda saw the first extensive use of UAVs on the battlefield. A significant technological development leading up to OEF was arming the Predator UAV, allowing strikes under contested airspace without risking manned aircraft. US Special Operations Forces (USSOF) refined Predator use in conjunction with AC-130 gunships to deliver timely attacks against al Qaeda and Taliban

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<sup>125</sup> Grau and Billingsley, *Operation Anaconda: America’s First Major Battle in Afghanistan*, 201.

<sup>126</sup> *Ibid.*, 208.

<sup>127</sup> Perry and Kassing, *Toppling the Taliban: Air-Ground Operations in Afghanistan, October 2001-June 2002*, 16.

positions.<sup>128</sup> As a strategic asset, Predator use suffered from the ad hoc C2 structure overseeing the battles in Afghanistan. The CFACC would occasionally pull Predators off station for other priority missions, frustrating the ground forces.<sup>129</sup> This created a demand within the Army to acquire its own Predator-type UAV, and demonstrates the continued service oriented wrangling over air-ground integration assets.

The plan for Operation Anaconda predicted that the enemy forces, when faced with superior firepower, would escape through the mountain passes instead of remaining to fight.<sup>130</sup> As such, the air platforms and the controllers on the ground were not prepared for enemy forces dug in and at close proximity to friendly forces. The Apache helicopters were designed to hover and fire at armored or fixed positions from great distances. The conditions in the Shah-i Kot Valley, combined with the armaments of the helicopter, mostly permitted only running engagements with rockets.<sup>131</sup> The CCTs and ETACs had to share one frequency for air support and that was controlled by an AWACS, not an aircraft designed to support ground forces. Army and Marine helicopters could not communicate with Air Force platforms. The congestion on the limited frequencies, combined with lack of coordination between ground elements led to many close-calls with bombs dropped ‘danger-close’ and at least one incident of fratricide. In the opening movements of the operation, an Afghan and Special Forces convoy were misidentified as enemy and received fire from an AC-130, resulting in three killed and fifteen wounded.<sup>132</sup>

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<sup>128</sup> Perry and Kassing, *Toppling the Taliban: Air-Ground Operations in Afghanistan, October 2001-June 2002*, 64.

<sup>129</sup> *Ibid.*, 43.

<sup>130</sup> Grau and Billingsley, *Operation Anaconda: America’s First Major Battle in Afghanistan*, 132.

<sup>131</sup> *Ibid.*, 141.

<sup>132</sup> Wright, *A Different Kind of War: The United States Army in Operation Enduring Freedom October 2001-September 2005*, 141.

On one occasion, AC-130s and A-10s working in conjunction on an attack were stopped by the JSTARS flying in support so that the CAOC could approve the target.<sup>133</sup> The delay meant the opportunity was lost, even though the pilots and the ground team cleared the target. The mission of the CAOC was to support time sensitive targets (TSTs) but it extended control over all close air support. The desire for the CAOC to control all targets further complicated efforts to support the ground forces and highlighted inefficiencies of the command structure for Operation Anaconda.

Operation Anaconda provided the joint forces important lessons in air-ground integration which were applied to the invasion of Iraq and continued through the next fifteen years. One significant lesson was the importance of trained personnel on the ground to coordinate air attack. The demand for fire support controllers exceeded the capacity of the Air Force to provide JTACs to every Army ground combat unit. The Army implemented the Joint Fires Observer course in 2004 to train personnel capable of assisting JTACs and has since included the curriculum in the Basic Officer Leader Course (BOLC) for Field Artillery Officers.<sup>134</sup> The Air Force began assigning JTACs to Army corps, division and brigade combat teams in the early 2000s to work for the Army commanders and that relationship will continue into the foreseeable future even as the wars in Iraq and Afghanistan end.<sup>135</sup>

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<sup>133</sup> Wright, *A Different Kind of War: The United States Army in Operation Enduring Freedom October 2001-September 2005*, 309.

<sup>134</sup> Monica Guthrie, "BOLC Graduates Gain Extra Fires Skills," *TRADOC News Center*, last modified March 4, 2016, accessed February 13, 2018, <http://tradocnews.org/bolc-graduates-gain-extra-fires-skills/>.

<sup>135</sup> Michelle Tan, "Army, Air Force Formalize Program Putting JTACs in Army Units," *Army Times*, June 4, 2015, accessed February 13, 2018, <https://www.armytimes.com/news/pentagon-congress/2015/06/04/army-air-force-formalize-program-putting-jtacs-in-army-units/>.

Another lesson attributed to Operation Anaconda and the initial combat operations in Afghanistan was the effective cooperation between SOF ground forces and the Air Force. Using indigenous forces and dedicated air support, small teams of SOF destroyed Taliban and al Qaeda capabilities, toppling the Taliban government in three months.<sup>136</sup> This model was applied again in 2003 when SOF worked with the Kurdish militia in northern Iraq to pin down forty percent of Iraqi divisions using air support and UAVs.<sup>137</sup> The early months of both OEF and OIF supported conclusions by some that a new way of war was emerging; network-centric operations that achieved success with technology and minimal risk to ground forces.<sup>138</sup> Such thinking proved premature.

The success of Operation Anaconda demonstrated the potential of the joint and combined forces to defeat the enemy in Afghanistan. It also demonstrated the dangers of ad hoc organizations with complex authorities and authorizations, the lack of coordination and planning, and lack of joint training. Discussions of future battlefields are characterized by their non-contiguous nature and threat to supremacy in any or multiple domains.<sup>139</sup> If the United States finds itself once again in an undeveloped theater with a force piecemealed together, Operation Anaconda provides a study of complications from the senior levels down to the tactical fight.

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<sup>136</sup> Mahnken, *Technology and the American Way of War Since 1945*, 208.

<sup>137</sup> Ibid.

<sup>138</sup> Ibid., 204.

<sup>139</sup> Perkins, "Multi-Domain Battle: Driving Change to Win in the Future."

## Air-Ground Integration in Operation Iraqi Freedom

The third evolution of air-ground integration examines the plans and execution of Operation Iraqi Freedom (OIF), specifically the drive to Baghdad from March to April 2003. Most soldiers and airmen who fought initially in Afghanistan did not see combat in the opening drive of OIF, but many senior leaders in CENTCOM participated in either the planning or execution of combat operations in both theaters. As Commander of CENTCOM, General Tommy Franks received his first planning directive for Iraq from Secretary of Defense Rumsfeld in November 2001, three months before Anaconda began.<sup>140</sup> General Mattis led Task Force 58 to seize key terrain in southern Afghanistan in 2001 before commanding 1<sup>st</sup> Marine Division during the invasion of Iraq and subsequent operations, including Fallujah.<sup>141</sup> These leaders helped to transfer lessons from Afghanistan to Iraq, but like the Gulf War and Operation Anaconda, challenges unique to each campaign had to be solved through ingenuity and trust at the tactical and operational levels.

Planning for the Iraq invasion officially began at the end of 2001, but the battlespace had been shaped by almost ten years of no-fly zones and attrition of Iraqi air defense capabilities. Shortly after the Gulf War, CENTCOM established Joint Task Force Southwest Asia to monitor Iraqi compliance with the United Nations (UN) security resolutions. Under this task force, Operations Northern Watch and Southern Watch ensured that Iraqi fixed and rotary wing aircraft stayed south of the 38<sup>th</sup> Parallel and north of the 33<sup>rd</sup> Parallel.<sup>142</sup> Iraqi air forces tested these

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<sup>140</sup> John Ballard, David Lamm, and John Wood, *From Kabul to Baghdad and Back: The US at War in Afghanistan and Iraq* (Annapolis: Naval Institute Press, 2012), 65.

<sup>141</sup> Dick Camp, *Operation Phantom Fury: The Assault and Capture of Fallujah, Iraq* (Minneapolis, MN: Zenith Press, 2009), 34.

<sup>142</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 89.

boundaries throughout the 1990s, losing several fighter planes in air-to-air combat. In 1996, Operation Desert Strike targeted communication nodes and air defense sites in southern Iraq for challenging coalition air patrols. In 1998, Operation Desert Fox struck over 100 military targets in Iraq following Saddam Hussein's defiance of UN weapons inspections and aggression towards the Kurds in northern Iraq.<sup>143</sup> By 2003, coalition forces had waged a twelve year air campaign against Iraqi air defenses and radar, allowing for quick air superiority at the start of OIF.<sup>144</sup>

General Franks benefitted from over a year of planning and organizing to prepare for OIF compared to the weeks he had for Afghanistan, having the time to get the command structures and leadership right. Instead of an ad hoc collection of coalition partners and command structures, OIF operated under a single chain of command, controlling coalition forces through the component commanders.<sup>145</sup> The CFLCC controlled all the ground forces, including operational control of Marine forces. The CFACC controlled all coalition air forces from the CAOC. All special operations forces reported to one Combined Forces Special Operations Component Commander (CFSOCC). Equally important to streamlining command authorities, the right leadership was required to execute a second simultaneous major offensive in CENTCOM's area of responsibility and effectively integrate air and ground operations.

Prior to taking command of CENTCOM, General Franks served as the Army Forces Central Command (ARCENT) commander from 1997 to 2000, contributing to combat operations and the build up of forces under Operations Desert Fox and Desert Spring. He also participated in Desert Crossing in 1999, a joint and interagency exercise to examine various outcomes for an Iraq

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<sup>143</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 94.

<sup>144</sup> Murray and Scales, Jr., *The Iraq War: A Military History*, 162.

<sup>145</sup> Walter Perry, Richard Darilek, Laurinda Rohn, and Jerry Sollinger, eds., *Operation Iraqi Freedom: Decisive War, Elusive Peace* (Santa Monica, CA: RAND Corporation, 2015), 247.

invasion.<sup>146</sup> Lieutenant General Moseley served as the coalition's CFACC commander and Lieutenant General McKiernan assumed command of ARCENT and the CFLCC. McKiernan augmented his staff with seventy Marines and made Marine Major General Rusty Blackman his chief of staff.<sup>147</sup> With two major combat operations competing for resources in one theater, these component command leaders needed to be creative to efficiently manage limited assets.<sup>148</sup> Additionally, these commanders were especially suited for their position through years of operations in the Middle East and extensive joint assignments.<sup>149</sup>

Despite constant pressure on Iraq during the interwar years, Saddam failed to reform the Iraqi military after 1991. Saddam believed that the Republican Guard and regular army divisions could hold terrain in central Iraq as they did during the war with Iran, and international pressure from Russia and France would stop the United States short of invasion.<sup>150</sup> Based on these assumptions and fears of internal political instability, Saddam positioned the majority of forces away from Baghdad and towards an Iranian threat, leaving the highways to Saudi Arabia and Kuwait largely unprotected.<sup>151</sup> When invasion was imminent, Iraqi forces failed to construct barricades, emplace mines, or drop bridges, allowing coalition forces to quickly seize terrain. Additionally, the Iraqi forces were not trained for urban warfare and chose to defend outside of

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<sup>146</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 111.

<sup>147</sup> *Ibid.*, 116.

<sup>148</sup> Ballard, Lamm, and Wood, *From Kabul to Baghdad and Back: The US at War in Afghanistan and Iraq*, 66.

<sup>149</sup> Walter Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong, and Why* (New York: Forge Books, 2003), 78.

<sup>150</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 139.

<sup>151</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 187.

the cities, making them susceptible to air attack.<sup>152</sup> Iraqi commanders lied to Saddam about the readiness of their forces, morale and willingness to fight. All this, combined with Saddam's micromanagement of forces, contributed to the coalition reaching Baghdad in three weeks, toppling the regime, and defeating an Iraqi army 350,000 strong.<sup>153</sup>

The starting point for the OIF campaign plan was CENTCOM's order 1003-98, a troop heavy invasion based on Desert Storm-style tactics and developed under General Frank's predecessor. 1003-98 did not account for concurrent operations in another country within CENTCOM's area of responsibility, or have the benefit of lessons from Afghanistan where limited Special Operations Forces achieved successes using effective airpower.<sup>154</sup> Subsequent planning during 2002 significantly reduced the troop numbers and considered observations from fighting in Afghanistan. By December, "Shock and Awe" and Cobra II, the air and land invasion concepts, developed into executable plans.<sup>155</sup>

The intent of the air campaign, like the strikes in 1991, was to force the regime to surrender its ambitions and meet coalition demands. But this initial phase of the air campaign reflected an evolution in air-power theory, one that relied on surgical employment of precision munitions to achieve an effect. Effects Based Operations (EBO), the theory behind "Shock and Awe," sought simultaneous selective attacks and psychological pressure to achieve results instead

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<sup>152</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 206.

<sup>153</sup> *Ibid.*, 217.

<sup>154</sup> Ballard, Lamm, and Wood, *From Kabul to Baghdad and Back: The US at War in Afghanistan and Iraq*, 67.

<sup>155</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 121.



of massed combat power and attrition.<sup>156</sup> The author of EBO, BG David Deptula, served as a lead CENTAF planner under General Glossom during the Gulf War and the concept reflected the decisive qualities of air power theory demonstrated ten years earlier. The rapid strikes targeting command and control centers, coupled with air support to the simultaneous ground offensive, created conditions to overwhelm the Iraqi security forces without inflicting costly damage to infrastructure or careless loss of life. EBO dominated joint applications in both OEF and OIF until 2008, when then Joint Forces Commander General Mattis declared it no longer valid for joint planning.<sup>157</sup>

OIF was not a cold start like the Gulf War. To control air operations and simultaneously support ground forces, the CAOC relied on established systems from enforcing the no fly zones in Iraq the previous twelve years, technological improvements developed since the Gulf War, and procedural advancements from support to operations in Afghanistan. The CAOC's Air Ground Operations System (AGOS) interfaced with the CFLCC, the Air Support Operations Center (ASOC) supporting V Corps, and the Direct Air Support Center (DASC) supporting I Marine Expeditionary Force (MEF).<sup>158</sup> JTACs and TACPs assigned to the 3<sup>rd</sup> Infantry Division and the 101<sup>st</sup> Airborne Division relayed targeting information to the division air-ground systems and the Corps Air Operations staff. The value of JTACs on Afghanistan's battlefields was not lost on the OIF commanders, and the established network facilitated timely response.

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<sup>156</sup> David Deptula, "Effects Based Operations: Change in the Nature of Warfare," Aerospace Education Foundation, 2001, 7, accessed February 16, 2018, <https://secure.afa.org/Mitchell/reports/0901ebo.pdf>.

<sup>157</sup> James N. Mattis, *USJFCOM Commander's Guidance for Effects-Based Operations*, Army War College Carlisle Barracks PA, September 2008, accessed February 19, 2018, <http://www.dtic.mil/docs/citations/ADA490619>.

<sup>158</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 257.

Another improvement during the initial offensive of OIF was in the common operating picture (COP), or the ability of the ground and air forces to see friendly and enemy positions in near real time. The limited number of JSTARS and AWACS in the Gulf War, and the limited radio and satellite communications in Operation Anaconda, contributed to an ambiguous representation of the battlefield compared to OIF. Instead, the employment of JTACs and TACPs provided a ground perspective, and the persistent surveillance of the battlefield from UAVs, JSTARS, and fixed wing aircraft completed the picture. With air superiority achieved in the first days of OIF, surveillance assets operated unchallenged.<sup>159</sup> In Boyne's analysis, "Never in history has so much information been available to a fighting force, nor has there ever been a greater difference in capabilities, for the Iraqi forces had scant information collecting equipment, and most of that was jammed or destroyed."<sup>160</sup>

The skies of Baghdad lit up from bomb blasts and anti-aircraft fire once again on March 20<sup>th</sup>, 2003. For those that also witnessed the strikes in 1991, the scene was much different.<sup>161</sup> Baghdad city lights stayed on and anti-aircraft fire was sporadic. The bombs and missiles struck only key command structures or targets of the highest priority. The coalition restricted many targets for fear of civilian casualties and did not attack the electrical grid, a consideration for Iraqi civilians that helped to shape the conditions for post-war Iraq.<sup>162</sup> The full weight of coalition air power did not fall on Baghdad until the next night, and that remained fixed on government buildings, defense headquarters, and air defense targets, leaving infrastructure largely intact.<sup>163</sup>

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<sup>159</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 155.

<sup>160</sup> Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong, and Why*, 65.

<sup>161</sup> Murray and Scales, Jr., *The Iraq War: A Military History*, 167.

<sup>162</sup> *Ibid.*, 168.

<sup>163</sup> *Ibid.*, 166.

Capitulation through bombardment and destruction was not the goal of “Shock and Awe.” Unlike the operations in Desert Storm, where a ground assault followed an extensive air campaign, OIF unified air-ground integration from the beginning.<sup>164</sup>

The day after the first missiles struck targets in Baghdad, the ground offensive began. Cobra II was General McKiernan’s plan for a rapid advance of ground forces from Kuwait all the way to Baghdad, avoiding significant urban areas to maintain momentum.<sup>165</sup> Two axes of advance, led by elements of V Corps and 1<sup>st</sup> Marine Expeditionary Force, paralleled the Euphrates River and quickly outmatched the Iraqi forces. The rapid advance of the ground forces and constant threat of air attack gave Iraqi forces few options for defense. General Peck, an OIF planner, explained, “Ground troops forced the enemy’s hand. If they massed, airpower could kill them. If they scattered they would get cut through by the ground forces.”<sup>166</sup>

When a sandstorm immobilized most of the Iraqi and coalition ground forces, coalition aircraft, aided by JSTARS, continued to execute over 1400 strike missions.<sup>167</sup> Instead of using the sandstorm to assess the situation, probe coalition lines, or reposition forces, Iraqi commanders faced continuous attack. Murray and Scales write, “Told by their commanders that the *shamal* (sandstorm) would protect them from air attack, the destruction that seemingly came from nowhere must have broken the will of many to fight.”<sup>168</sup> During that sandstorm, elements of 3-7

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<sup>164</sup> Murray and Scales, Jr., *The Iraq War: A Military History*, 166.

<sup>165</sup> Ballard, *From Storm to Freedom: America’s Long War with Iraq*, 128.

<sup>166</sup> Jan Angstrom and J.J. Widen, *Contemporary Military Theory* (New York: Routledge Publishing, 2015), 101.

<sup>167</sup> Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong, and Why*, 90.

<sup>168</sup> Murray and Scales, Jr., *The Iraq War: A Military History*.

Cavalry of the 3<sup>rd</sup> Infantry Division (ID) faced waves of Iraqi Fidayeen at An Najaf. The storm neutralized the technical sensor advantages of the US forces and the Iraqis took advantage to attack from only feet away. The US counter-attack was devastating. In just one day, JTACs assigned to 3-7 Cavalry called in twenty-eight joint direct attack munitions (JDAMs) from F-16s and F/A-18s and another twenty-four JDAMs from a B-1B bomber to destroy the attacking forces in blinding conditions.<sup>169</sup> It was the only time during the drive to Baghdad that bombers dropped ordinance under the control of JTACs assigned to 3<sup>rd</sup> ID, but the example demonstrates the technological advances since the Gulf War, the confidence in the common operating picture, and the trust between the air and ground forces.

Besides speed and effective use of JTACs, the ground forces relied on new, more flexible coordination measures to integrate air assets. The CFLCC placed the fire support coordination line (FSCL) far forward of V Corps' forces to avoid 3<sup>rd</sup> ID from overrunning the line. The Marines persuaded the CFLCC to allow a battlefield coordination line (BCL) in their area of operations (AO) short of the FSCL to distinguish targets requiring positive control.<sup>170</sup> The CFLCC also established killboxes, eliminating the need for positive control of air attack in sections of the battlefield not occupied by friendly forces, and short of the FSCL.<sup>171</sup> This was important because the focus on speed of the offensive meant coalition forces bypassed some Iraqi units and guerilla forces. Instead of methodically clearing every objective short of the FSCL, and then moving the FSCL as phase lines changed, the use of killboxes matched the non-linear

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<sup>169</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 160.

<sup>170</sup> Ibid.

<sup>171</sup> Ibid.

battlefield. Flexible application of control measures ensured timely air support to complement the fast pace of the initial drive to Baghdad.

The ATO in the Gulf War was notoriously cumbersome, as previously mentioned, and difficult to adjust in Operation Anaconda. The ATO remained difficult to adjust in OIF, but the prevalence of JSTARS and UAVs facilitated re-tasking of aircraft in real time to engage emerging targets.<sup>172</sup> This provided ground commanders responsive air support and efficiently employed aircraft already on mission. With the ongoing combat operations in Afghanistan, and taking lessons learned from Operation Anaconda, CENTCOM continually refined the targeting process. A refined process, combined with flexible air support, allowed aircraft to strike preplanned targets in accordance with the ATO, or targets of opportunity for effective air-ground integration.<sup>173</sup>

For the Marines, air-ground integration is built into their organizational structure for deployment. The Marine Air-Ground Task Force (MAGTF) combines an aviation element, ground forces, and logistics under a single commander for a scalable force package.<sup>174</sup> As mentioned previously, the Marines established independent fire support control measures with the BCL on their side of the Euphrates. This flexibility stemmed from the relationships between the CFACC, the 3<sup>rd</sup> Marine Air Wing (MAW) Commander, Major General Amos, and the naval component commander.<sup>175</sup> The Marines established their own ATO which the CFACC incorporated into the theater ATO.<sup>176</sup> General Amos directed an extra flight officer per Marine

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<sup>172</sup> Murray and Scales, Jr., *The Iraq War: A Military History*, 182.

<sup>173</sup> *Ibid.*, 161.

<sup>174</sup> Camp, *Operation Phantom Fury: The Assault and Capture of Fallujah, Iraq*, 132.

<sup>175</sup> Murray and Scales, Jr., *The Iraq War: A Military History*, 114.

<sup>176</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 162.

battalion so that the supporting aircraft could provide the most accurate and timely support to ground forces. This reflected the inherent control and trust within the MAGTF. The techniques employed by the Marines helped ensure tactical success from An Nasiriyah to Diwaniyah, Kut, and Baghdad.<sup>177</sup>

Air-ground integration during the opening drive of OIF reflected improvements in planning, organization, technology, and tactics from the Gulf War and the early conventional fight in Afghanistan, but it was not flawless. Fog and friction, ever present on the battlefield, once again challenged commanders. During a bridge crossing operation in An Nasiriyah, friendly fire from an A-10 Warthog killed six Marines.<sup>178</sup> A Patriot missile shot down a British Tornado, killing the two airmen.<sup>179</sup> The amount of terrain between the FSCL and the forward units of V Corps, combined with the amount of killboxes to manage, overwhelmed the ASOC assigned to V Corps and contributed to the less than optimal employment of air support.<sup>180</sup> Nonetheless, the advance to Baghdad demonstrated iterative progress in the complex execution of air-ground integration.

Operations did not stop in Iraq after the fall of Saddam and air-ground integration techniques continued to improve. Operation Phantom Fury, or Fallujah II, required air support to forces in a dense urban environment. The “keyhole” concept established three-dimensional, segmented, concentric rings defined in nautical miles and altitude surrounding a reference point in the city.<sup>181</sup> This method allowed everything from mortars and artillery to medevac helicopters

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<sup>177</sup> Ballard, *From Storm to Freedom: America's Long War with Iraq*, 138.

<sup>178</sup> Murray and Scales, Jr., *The Iraq War: A Military History*, 121.

<sup>179</sup> *Ibid.*, 178.

<sup>180</sup> Perry et al., *Operation Iraqi Freedom: Decisive War, Elusive Peace*, 381.

<sup>181</sup> Camp, *Operation Phantom Fury: The Assault and Capture of Fallujah, Iraq*, 133.

and CAS to operate in the same battlespace. Contributing to the common operating picture, planners established a grid network and numbered every building and labeled reference points and phase lines. The map was red light readable for pilots and the aircrews, who spent hours reviewing the product. A 1<sup>st</sup> Marine Air Wing planner stated, “Friendly location information had to be passed instantly and with no error. Every pilot was focused on avoiding fratricide.”<sup>182</sup> Flexible control measures like the keyhole and killbox are now essential to air-ground integration, and demonstrate the innovation required to operate in a contested environment.

## Conclusion

Against war it may be said that it makes the victor stupid and the vanquished revengeful.

—Friedrich Nietzsche, *Nietzsche on War*

The United States and its allies emerged victorious in each of the three examples presented in this monograph largely through the integration of land and air power. Each campaign also faced an inferior enemy that lacked effective air power, technology, and C2 to counter the coalition offensives, among other deficiencies. The question is not whether the services learned from those successes, which would be difficult to argue against, but what lessons did the services learn, and how could the lessons be applied for the next war?

The Air Force met the tenets of airpower theory by achieving air superiority, centralized C2, and decisive results through strategic bombing in the Gulf War at a cost to joint operations. The campaign was technically joint, but the arrangement of operations separated the air and ground efforts, and minimized the amount of air support to the ground force. The lessons for seamless air-ground integration would not be learned until Operation Anaconda, but even then

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<sup>182</sup> Camp, *Operation Phantom Fury: The Assault and Capture of Fallujah, Iraq*, 136.

was limited compared to Operation Iraqi Freedom. Only during OIF did the command structure, planning, technology, personnel, and air assets support the commitment to air-ground integration on a large scale for conventional forces. Instead of two separate campaigns, the drive to Baghdad fused the ground and air forces from the beginning. General Schwarzkopf's "truly joint" comment after the Gulf War, cited previously, was premature.

During the Gulf War, Marine aviation remained largely independent of the CFACC and in direct support to the Marine ground forces. In OIF, the MAGTF aviation units supported the CFACC, but maintained direct support to Marine ground forces. This simplified tasking authority, targeting authority, and the communications network. The Marines benefitted from an organic direct support relationship not afforded to the Army ground forces. In Operation Anaconda, the mix of joint and combined air assets provided crucial support to the ground troops, but complicated authorities and communications. In "After the Battle," Eliot Cohen warns of too much "jointness."<sup>183</sup> In a multi-domain fight, jointness may present the friendly forces as many dilemmas as it presents the enemy force.

In the twelve years between the Gulf War and Operation Iraqi Freedom, the CENTCOM CAOC continuously improved management tools and procedures through Operations Northern and Southern Watch. The CAOC stumbled in Operation Anaconda, but it certainly did not fail to support the ground operations. By March 2003, the Air Force weaponized the CAOC by recognizing its potential to coordinate and mass effects on the battlefield.<sup>184</sup> Consecutive Air Force Chiefs of Staff prioritized the CAOC assignment for senior airmen, considered

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<sup>183</sup> Cohen, "After the Battle," 26.

<sup>184</sup> Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong, and Why*, 152.



personalities so the staff could coalesce, and built separate staffs to support coalition air forces and the US Air Force. Investments over years in technology and facilities in the CAOC added to an aura of excellence cultivated by the Air Force.<sup>185</sup> The efforts were not misplaced, as the role of the United States expanded in the Middle East since 9/11. In an environment with multiple domains contested, structures and organizations like the CAOC and BCD will continue to need the best technology, skilled professionals, and joint liaisons to synchronize and support operations.

The service theories of warfare impacted the planning and execution of each campaign discussed in this paper and will shape the approach to the next war. In the 2018 National Defense Strategy, Secretary of Defense James Mattis argues that the United States is, “emerging from a period of strategic atrophy, aware that our competitive advantage has been eroding.”<sup>186</sup> This language echoes the same concerns defense officials had following Vietnam, which sparked a decade long pursuit of new doctrine and joint principles resulting in AirLand Battle.

As the primary proponent of Multi-Domain Battle, Army senior leaders express its importance on the modern battlefield. Speaking on the 2016 battle for Mosul, 101<sup>st</sup> Airborne Division Commander, LTG Volesky, remarked, “It was common practice in 2016 for action at the lowest tactical level to be directly supported by nationally and coalition sourced multi-domain capabilities.”<sup>187</sup> Arguments critical of Multi-Domain Battle, like AirLand Battle before it, center

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<sup>185</sup> Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong, and Why*, 152.

<sup>186</sup> James Mattis, “Summary of the 2018 National Defense Strategy of the United States of America”, Department of Defense, January 2018, 1, accessed February 18, 2018, <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

<sup>187</sup> Gary Volesky and Roger Noble, “Theater Land Operations Relevant Observations and Lessons from the Combined Joint Land Force Experience in Iraq,” *Military Review* (June 22, 2017), accessed March 10, 2018, <http://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2017-Online-Exclusive-Articles/Theater-Land-Operations/>.

on the lack of strategic effects of land-based service theories. Air power theorist Alan Stephens writes, “Four times American-led armies have invaded and occupied foreign countries, and four times that land-centric model has failed, in Vietnam, Iraq (twice), and Afghanistan.”<sup>188</sup> Modern airpower theorists recognize the importance of joint operations, but still see air power as an independent and strategic instrument of war. Recognizing and balancing service theories of warfare will continue to play a significant role in strategy and modernization efforts.

Recent initiatives to achieve multi-domain capability include air defense artillery systems integrated with infantry brigades, land based anti-ship artillery, and naval gunfire using GPS-guided shells for fixed targets. Each of these initiatives present an adversary with multiple dilemmas and extend across multiple domains. Application of these cross-domain assets require new techniques, changes to mission command organizations and relationships, and opportunities to train and test new capabilities. Most importantly, failure to identify necessary changes to mission command organizations and the connective technology could lead to delayed or ineffective employment of any new cross-domain assets.

Sixteen years of continuous combat operations in the Middle East has sharpened the tools of air-ground integration, but the next war may be uniquely different. Combatant Commanders and Component Commanders will once again have to plan, organize, and employ their forces in a manner to achieve relative advantage and defeat an enemy. The execution of air-ground integration in each of the three examples shows the difficulties of multi-domain battle, using just two domains. Operations extending from land to sea, or from sea to air, or any combination to include space or the cyber domain will need to account for the same challenges. What organization is capable of synchronizing and controlling the domain, how will services achieve a

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<sup>188</sup> Alan Stephens, *Airpower Reborn: The Strategic Concepts of John Warden and John Boyd*, ed. John Olsen (Annapolis: Naval Institute Press, 2015), 128.

common operating picture, and what service theories will influence the planning and conduct of operations? The lessons of air-ground integration will provide an essential reference.

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