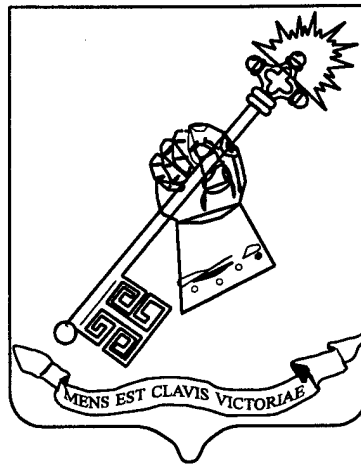


MARINE AIR-GROUND TASK FORCE: A MODEL FOR FUTURE U.S. AIR FORCE AND U.S. ARMY OPERATIONS

A Monograph
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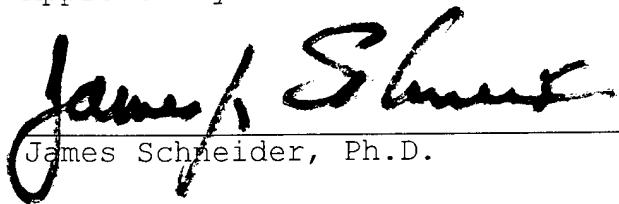
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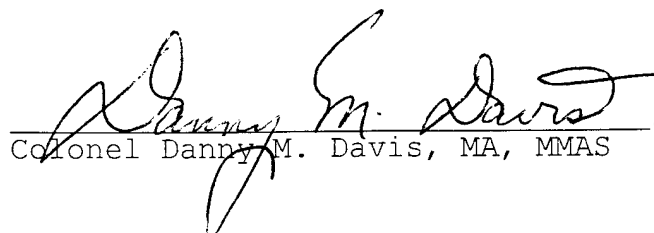
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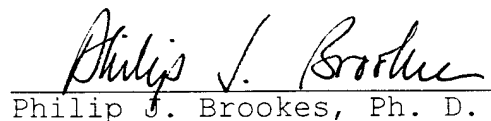
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The opinions and conclusion expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any government agency. (Reference to this study should include the foregoing statement.)

ABSTRACT

MARINE AIR-GROUND TASK FORCE: A MODEL FOR FUTURE U.S. AIR FORCE AND U.S. ARMY OPERATIONS by MAJ. Victor Holman, 51 pages.

This monograph examines the issue of joint warfare. It is limited to the aspects of air and ground integration. Specifically, this paper will focus the command and control of air interdiction and close air missions in support of ground operations. The purpose of this monograph is to consider alternative methods of employing air and ground units in future operations.

The issue of air and ground integration will begin with a review of current joint doctrine. The paper focuses on the joint task force (JTF) concept and the functional command of the joint forces air component commander (JFACC). The paper also reviews Air Force and Army operations during the Persian Gulf War as a recent example of the application of joint doctrine. Next, the development, employment, and effectiveness of the Marine Air-Ground Task Force (MAGTF) are detailed.

This monograph is organized into six chapters. The introduction covers the geo-political environment, research question and background material. Chapter Two reviews current joint doctrine, Chapter Three examines air-ground integration during the Persian Gulf War, and Chapter Four deals with the Marine Air-Ground Task Force (MAGTF) concept. Chapter Five details the analysis of the monograph by contrasting current joint doctrine against the MAGTF model. Finally, Chapter Six summarizes the main issues of the monograph and offers some recommendations for future Air Force and Army air-ground integration.

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CHAPTER 1

INTRODUCTION

Geopolitical Environment

The U.S. Army envisions achieving success in future warfare through the domination of the battlespace and attacking the enemy simultaneously and in depth.¹ Although this theme is not new, the Army can accomplish this goal most effectively through joint warfare.

Two main issues have caused the military services to reconsider how they might employ forces in future combat. The first issue is that the United States threat focus is now more global than ever because of the breakup and dissolution of the former Soviet Union and the WARSAW Pact nations.² Rather than maintaining a large force in central Europe, the United States and other members of NATO have redeployed large portions of the force structure to their respective nations. Since the end of the Persian Gulf War, the United States has deployed forces to several locations. These locations include Haiti, Iraq, Rwanda, Somalia, and Bosnia. The second issue is that major force reductions within the U.S. military services have increased the need to participate in joint operations. Smaller modular joint force packages have been organized and deployed on several occasions. These multi-service, multi-functional task force

are considered to be more appropriate than deploying standard corps, divisions, or wings.

This monograph does not address the broad issues of joint warfare. It is limited to the aspects of air and ground integration. Specifically, this paper focuses on the command and control (C²) of air interdiction (AI) and close air missions (CAS) in support of ground operations and explores these issues through a review of the Air Force and Army integration during the Persian Gulf War. The Marine Air-Ground Task Force (MAGTF) is used as a possible model for future Air Force and Army integration.

This monograph contains six sections. Chapter One covers the geopolitical environment, presents the research question, the significance of the question, and details the background of this issue. Chapter Two reviews current joint doctrine, Chapter Three examines the Persian War, and Chapter Four examines the MAGTF model. Chapter Five outlines the analysis of the paper. Chapter Six concludes the monograph with a review of the papers main issues and presents the author's recommendations. The paper begins by addressing a specific research question.

Research Question

The research question for this monograph is centered on achieving the best possible results from joint air and ground operations. The question to be answered by the paper is "What is the most effective method for introducing U.S.

Air Force air power in support of a future ground campaign?"

To ensure a common frame of reference, several terms used within this monograph need to be defined before proceeding. The Air Force distinguishes 15 different missions that are grouped into 5 major roles.³ However, the missions in this paper address only air interdiction (AI) and close air support (CAS) because of their immediate impact and direct relationship to a ground campaign. Introducing air power into a battle specifically involves the command and control of air power in order to achieve the campaign objectives. The criteria for the effectiveness of air power lie within the synergy that the combined efforts of air and ground units might achieve. The Air Force describes synergy in the following manner: "Externally, aerospace operations can be applied in coordinated joint campaigns with surface forces, either to enhance or be enhanced by surface forces."⁴ The operational art further describes synergy as the synchronization of forces from different directions to defeat an opponent.⁵ The desired outcome is that the enemy's operational level center of gravity is identified and rapidly destroyed with minimal effort, to ensure the achievement of the strategic objectives.

Significance of the Question

Given the absence of a major military threat to the United States, this appears to be the most appropriate time

to contemplate and conduct adjustments to military organizations and doctrine. The significance of the research question to the U.S. Army is that it must prepare now for the next conflict and not be lulled into complacency after the outstanding victory of the Persian Gulf War. There is a great deal of discussion whether or not changes within the services are evolutionary or revolutionary.

The revolution in military affairs is said to occur when relevant technical advances, coupled with societal pressures to reduce destruction while achieving results, act upon the military and provoke change. The changes should result in substantial organizational and doctrinal adjustments within the military.

Before changing and combining the efforts of the services, it is important to understand that each service has a different approach to warfare based on its particular history and doctrine. For example, the Navy and Air Force tend to focus on the theater of operations as a whole, the Army centers operations around the corps or joint task force (JTF), and the Marine Corps achieves its missions through the careful employment of the Marine air-ground task force (MAGTF).⁶ The Air Force, like all services, has always sought to prosecute war in a particular manner. The Air Force follows the beliefs of Giulio Douhet. Douhet, who directed Italian Army aviation during World War I envisioned aviation as a decisive instrument of war. He espoused the use of massive aerial attacks to defeat the

enemy. However, to accomplish this task, control of the skies was of the utmost importance. Therefore, he concluded that by centrally controlling air assets, air superiority could be achieved quickly.⁷ He did not foresee any major benefits in closely coordinated attacks by air and ground forces.

Issue Background

As early as the 1947 National Security Act and subsequent 1949 amendments, the Air Force was given the close air mission in support of the Army.⁸ Doctrinally, the Air Force states that "even in close combat situations, timely and accurate CAS can be provided."⁹ The Korean War included early successes and failures at integrating air-ground operations.

The U.S. Marine Corps operations in the Korean War provide an outstanding example of how to organize repeatedly air and ground units under a single commander to achieve success on the battlefield. During the Korean War, the Marines closely integrated air-ground operations, while Army and Air Force air-ground integration was lacking.

Difficulties in integration can be traced back to World War II when Army Air Force tactical priorities were: air superiority, isolation of the battlefield, and then close air support.¹⁰ The lack of Army and Air Force air-ground integration was also partly a consequence of the fact that the aircraft were designed for air-to-air missions, and by

inadequate communications links between tactical Army and Air Force units. During the Vietnam War these same problems led to the development of the Army's attack helicopter program. As a result of being ill-prepared in Korea, the Air Force decided to procure the A-10 Thunderbolt aircraft specifically for the CAS mission.

While each service is rightly concerned with its own issues, survival, and employment, the concerns of the services as a whole remain paramount. One of the main catalyst that has forced the services to plan and execute operations that are more joint in nature was the Goldwater-Nichols Department of Defense Reorganization Act of 1986. The act's primary focus was to give theater commanders the ability to organize forces to achieve national objectives.¹¹ Of particular interest was an increased capability for coordination between Air Force and Army units.

Former Chairman of the Joint Chiefs of Staff (JCS), Admiral William Crowe stated that all of the services possessed organic CAS. Crowe felt that for the Army, attack helicopters served as sufficient CAS. However, the Army and Air Force chiefs disagreed. They believed that helicopters lacked the speed and lethality of fixed-wing aircraft. Their conclusion was that the CAS mission should remain with the Air Force. In November 1989, the new Chairman, General Colin Powell, submitted a roles and missions report that realigned the CAS mission with the service chiefs perspective.¹²

Although the Air Force owns the CAS mission, there has always been a degree of hesitation to execute this mission. The resistance is a result of perceived unwarranted control by ground commanders and poorly coordinated missions. Military author Carl Builder states:

Flying down in the mud instead of up in the blue and taking directions from someone on the ground are encroachments upon the freedom of flight that is so cherished by airmen. Close air will always be the unwanted stepchild of the Air Force.¹³

Furthermore, Dr. Richard Hallion, a former visiting professor at the U.S. Military Academy, discussed the historical implications of requesting CAS missions when the tactical situation had reached the point of crisis. He states:

Battles emphasizing CAS reflect its peculiar or more desperate nature: "Bloody Ridge" on Guadalcanal in 1942; Hellzapoppin Ridge on Bougainville in 1943; the Naktong and Chosen Reservoir fighting in 1950; outpost, column, and hamlet defense in Indochina and South Vietnam; and siege-breaking at Dien Bien Phu and Khe Sanh. In all of these cases, CAS substituted for a lack of available artillery assets, and often to offset huge force disparities between opposing sides.¹⁴

Both authors emphasize that for CAS operations to achieve rapid and sure success there is a need for consistently

organizing and training Army and Air Force units in air-ground operations.

In an attempt to balance the needs of the ground commanders against centralized control and strategic strikes, the services have developed joint doctrine. This doctrine partly ensures that the Air Force supports ground commanders while retaining control of air assets. The services have instituted various techniques and procedures, including joint planning, centralized control with decentralized execution, apportionment, staff integration, and tactical control parties to gain an advantage on the battlefield. Ultimately, joint doctrine is an attempt to achieve efficiency and effectiveness through a unity of effort which is founded in the implementation of formal elements of control between the services.

CHAPTER 2

CURRENT JOINT DOCTRINE

The significance of developing joint doctrine for air and ground combat elements is that commanders can achieve their objectives in a more effective and efficient manner by ensuring that for the duration of the conflict both elements share a common campaign plan, techniques, objectives, and unity of command. The benefit of a joint effort is that advantages of both air and ground forces are brought to bare against the enemy, who is overwhelmed as he is attacked and has to defend against multiple dimensions. This effort is realized in the person of the joint force commander (JFC).

The joint force commander (JFC) has several ways to create mutually supporting operations in particular, air and ground operations. He may elect to use the service component commands, form functional component commands, establish a subunified command, establish a joint task force, use a single service force command, or execute direct command.¹⁵ Each option has specific advantages and disadvantages. However, this section will focus on the functional component command (specifically the JFACC) and the joint task force.

The Functional Component Command

The functional component command is composed of four elements: the joint force land component command (JFLCC), the joint force air component command (JFACC), the joint force maritime component command (JFMCC), and the joint force special operations component command (JFSOCC). Of all the components, the JFACC is responsible for the integration of air power into the campaign plan.

The primary purpose of the JFACC is to provide unity of effort for employment of air assets.¹⁶ The JFACC usually owns the majority of the air assets and command structure within the theater to control these elements. After allowing for appropriate air support to the other services, the JFACC is authorized to assume control of any remaining Army helicopters and ATACMS, Naval aviation and TLAMS, and Marine tactical air.

The JFACC is responsible for planning, coordinating, allocating, and tasking units in accordance with the JFC's apportionment plan.¹⁷ This plan is usually developed and recommended to the JFC by the JFACC. The JFACC provides assets to support component commanders based on a determination of the expected percentages of available air during a given period of time. After the JFC approves the apportionment plan, the JFACC then allocates sorties to the various missions.¹⁸

The JFACC uses the air tasking order (ATO) to plan, coordinate, allocate, and task theater air assets. The ATO

contains targets, altitudes, times, radio frequencies, and other vital information and allows the JFACC to control the air portion of the campaign.

The JFACC derives his authority to control specific forces from the JFC. The JFACC normally has operational control (OPCON) of assigned and attached forces, and tactical control (TACON) over other forces that might be available for tasking.¹⁹ The JFACC's primary function is to provide unity of effort and to support the entire joint force with air assets.

The control of aviation assets is shared by the parent unit and the JFACC. In most instances, the parent organizations control aviation assets that are organic to the Army, Navy, or Marine units. However, the JFACC will usually control these assets if they are employed in an interdiction role, operate beyond the fire support coordination line (FSCL), or are considered to be excess.²⁰

In terms of control, the JFACC will probably direct Army, Navy, and Marine aviation units through tactical control (TACON). This means that these units will report back to their parent headquarters upon completion of the assigned mission. The JFACC has the authority to give detailed directions to accomplish an assigned mission. Under TACON, the JFACC does not provide administrative or logistical support nor can the JFACC reorganize these assigned forces.²¹

The Joint Task Force

The joint task force is used to gain organizational integration. It is formed when two or more military services are assigned or attached to a force established by the secretary of defense, a commander in chief (CINC), or commander of a subordinate unified command.²² The JTF may be constituted during deliberate planning or crisis action planning (CAP). It is dissolved once the operation for which it was created has been accomplished or after the crisis has subsided. The commander of the JTF (CJTF) exercises OPCON over all assigned and attached units.

Five categories of command are identified when a JTF is created: the JTF establishing authority, the CJTF, the JTF component commanders, the supported commander, and the supporting commander.²³ This hierarchy attempts to clearly delineate command relationships and responsibilities.

The JTF establishing authority has OPCON or combatant command (COCOM) of the JTF. The establishing authority actually appoints the CJTF, assigns the area of operations, mission objectives, and rules of engagement. In addition, the establishing authority ensures sufficient logistical and administrative support, requests supporting forces, and approves the CJTF's tactical plan.²⁴

The commander JTF has OPCON of all assigned and attached forces. He develops tactical plans in accordance with Joint Operation and Planning Execution System (JOPES) CAP and contingency plans. The CJTF must consider cross-

service support, employment of tactical units, and coordination with outside elements in the area of operations.²⁵ These agencies include non-government organizations, and U.S. and foreign government agencies.

Joint task force component commanders are responsible for planning and executing operations, as assigned, and ensuring that all required administrative and logistical support is provided to assigned forces. These commanders must also provide sufficient liaison officers (LO) to lateral units and agencies for coordination.²⁶ As "directed telescopes" for the commander, liaison officers provide invaluable information and feedback concerning the tactical situation, and they can reinforce relationships between critical organizations.

The relationship between the supported and the supporting commanders reinforces the unity of effort and cannot be overstated. The supported commander's control over supporting forces is determined by the common superior commander. This allows the supported commander to provide general direction of effort. The supporting commander exercises OPCON of assigned and attached forces. This commander must properly employ all units, coordinate with the supported commander, and provide liaison officers to the CJTF, component commanders, and other supporting commanders.²⁷

Unity of effort is achieved through a sound command structure that is both effective and efficient. This fosters centralized direction, decentralized execution, common doctrine, and interoperability.²⁸ In this environment organizations understand what is to be accomplished, and can operate while spread over vast distances. Furthermore, there is agreement about doctrine between units and commanders. The result is an organization with an enhanced warfighting capability.²⁹

JTF Operational Employment

Once the JTF is formed, the critical tasks become deployment, employment, and redeployment. The JFC must determine if the JTF will deploy incrementally, the initial command and control setup, and when the liaison element will depart for the area of operations prior to the JTF headquarters. U.S. Transportation Command (USTRANSCOM) will become heavily involved once notified of the crisis.

During the actual execution of the assigned mission the commander of the JTF must accomplish four major tasks.³⁰ He must monitor the status of his forces and manage all assigned resources. Next, the CJTF and his staff must prepare tactical plans for current and future operations. To ensure success, the commander has to gain visibility of the battlefield so that he can oversee the execution of the

plan by all friendly forces. Finally, reports must be submitted to higher headquarters as directed.³¹

Upon termination of the operation, the JTF must execute a redeployment plan. The commander and his staff will have to consider how the command, combat, combat support, service support elements will leave the joint area of operations. The JOPES process is the primary tool to assist the staff in scheduling common-user lift assets to return units to their assigned locations.

Joint Air Attack Teams (JAATs)

Currently, Army attack helicopter units and Air Force fixed-wing aircraft train occasionally to conduct joint offensive operations. These missions are usually reinforced with field artillery or naval gunfire. These ad-hoc groupings are referred to as joint air attack team operations (JAATs). The teams may attack targets in close proximity to or away from ground combat operations.³² To destroy targets successfully that are located deep in enemy controlled territory, the JAAT requires a joint suppression of enemy air defenses (J-SEAD). Consequently, these operations may or may not influence the ground units' fight or help to overwhelm and defeat the enemy.

There are three major areas of responsibility when employing a JAAT: the maneuver commander has overall responsibility for employment of the JAAT; the aviation

commander coordinates the mission; and the air mission commander executes the actual attack.³³

The typical JAAT makes a coordinated helicopter/fixed-wing attack on a single target array. This attack can support the ground commander's scheme of maneuver. Since each service retains operational control of their respective units, the success of the JAAT relies heavily on precise planning and standardized procedures.³⁴ More important, however, is that these missions require training and rehearsal and an organizational structure that allows a single commander to control both air and ground elements. This preparation would result in increased unity of effort and true domination of the battlespace.

Between the maneuver commander and the corps staff, there are numerous steps to follow concerning the operational responsibilities to effect a JAAT. The process begins when a ground commander or unit identifies possible JAAT targets. The ground commander then requests air support from the aviation commander. After receiving the ground commander's request the aviation commander plans, coordinates, and eventually executes the JAAT. Before that however, the aviation commander forwards the requests to the brigade, division, and corps levels where the request is further refined, coordinated, and prioritized until it is finally worked into the ATO at the tactical air control center by the battlefield coordination element (BCE).³⁵

Although these missions strive to integrate air and ground operations, there are some inherent shortfalls. For example, there is a basic lack of flexibility. The relationship does not allow the ground commander the ability to quickly shift assets within his area of operations to take advantage of rapidly changing situations. Long planning lead-times also serve to hinder the true initiative of the combat commander. As much as 36 hours are needed when requesting tactical air support.³⁶ Finally, units selected to conduct JAATs do not have permanent or even semi permanent relationships; they are chosen by an on-call basis rather than operating with the same units and aviators. Requests for CAS that are classified as "immediate" are fulfilled by shifting aircraft from lower priority missions.³⁷ This issue, in particular, focuses on the Air Force's well founded resistance to conducting ill-prepared missions as identified earlier by Professor Hallion.

The previous discussion outlined how joint air-ground operations should work according to U.S. doctrine. The following chapter details how the process actually performed in combat operations in 1991 during the Persian Gulf War.

CHAPTER 3

OPERATION DESERT STORM

The development of U.S. joint doctrine has advanced greatly since the National Security Act of 1947 as demonstrated through an increase in the power of the CINCs and their ability to organize forces under joint command structures. The most recent illustration of U.S. air-ground integration in the Gulf War in 1991 tested the ability of a joint forces air component commander to meet the needs of other component commanders while centrally controlling the bulk of the air assets in the theater. This chapter explores several aspects of air-ground integration during the Gulf War such as the JFACC concept, the use of the ATO, and the application of CAS.

The Control of Air Assets

Although the coalition air-offensive portion of the Gulf War was extremely successful, it seemed to reinforce General Billy Mitchell's World War I concept that called for the centralized control of aviation. In September 1918, Mitchell was the Chief of Air Service of the First American Army. He achieved mass and unity of effort during the St. Mihiel offensive when he concentrated the attacks of nearly

1,500 allied aircraft.³⁸ The Allies' operational and tactical objectives were achieved through the sequencing of Mitchell's four phased operation: preparation, night preceding the attack, day of the attack, and exploitation. Like Mitchell, the Coalition JFACC, Lieutenant General Charles A. Horner developed a tremendous air plan of attack.

The Joint Force Air Component Commander

During the Gulf War of 1990, Lieutenant General Charles A. Horner served as the joint forces air component commander (JFACC). As the JFACC, Horner had two major tasks. He had to support the operational plan of General H. Norman Schwarzkopf, Commander-In-Chief of U.S. Central Command, and ensure unity of effort within the air war. Horner had to balance massing of air assets for the air war against providing adequate amounts of air interdiction (AI) and CAS support to the ground component commanders. Horner controlled over 2,700 aircraft through the master attack plan (MAP) and the more detailed air tasking order (ATO).³⁹ His goal was to achieve freedom of action for ground and air elements by gaining air superiority.

The Air Tasking Order (ATO)

The daily ATO was developed in two parts by the JFACC staff who gathered information from various intelligence sources and aviation units. The first portion dealt with targeting and mission data that came from the master attack

plan (MAP). The second portion added communications, tanker support, and early warning support.⁴⁰ Although the ATO was initially quite effective, it was not responsive to rapidly changing situations. While the JFACC attempted to be highly flexible, the ATO regularly took 48 hours to build.⁴¹ This deficiency was caused by the lengthy planning cycle, size, complexity, and dissemination delays of the ATO.⁴² At certain times during the war, the ATO had evolved into a nearly 300-page document. Furthermore, several units were unable to receive the information electronically because they lacked the automation and communications equipment.⁴³ In addition, the battle damage assessment reports added to the delay since it was received well after the ATO had been prepared and disseminated. Therefore, controlling all of the air assets via the JFACC's ATO proved to be a difficult task. Communication and planning concerns with Naval aviation meant that short-notice mission changes were usually handled by the Air Force and Marine Corps aircraft and pilots.⁴⁴

The JFACC did attempt to build more flexibility into the ATO by placing a few aircraft in reserve on ground alert status, giving aircraft alternate targets, and establishing generic kill-boxes in the Kuwait theater.

Close Air Support

The primary CAS aircraft for the U.S. Air Force was the A-10 Thunderbolt. The plane was produced in both an attack

version (A-10) and an observation version (OA-10). The A-10 has been in service and proven to be a worthy aircraft since 1976. During the Gulf War, 136 A-10s and 12 OA-10s were deployed to the theater. Of the 8,000 sorties flown by this aircraft only 1,000 supported CAS missions.⁴⁵ The remaining 7,000 A-10 sorties were used to destroy enemy air defense sites and SCUD missile systems.⁴⁶

On 31 January, Schwarzkopf tried to ensure that the ground fight would be properly supported with air assets. He told Horner that as the war effort shifted to the ground offensive, corps commanders needed to receive an increase of air sorties to be flown against targets of their choosing.⁴⁷ The deputy CINC, Lieutenant General Calvin Waller was chosen to be the honest broker between the JFACC and ground commanders in resolving contentious issues. Realizing that the JFACC staff was nearly filled only with USAF officers (from CENTAF), Schwarzkopf developed a joint targeting board to ensure that the needs of the other services would be met.⁴⁸ Also, Horner used "push" CAS to ensure that ground commanders had a constant flow support.

There were not a large number of CAS missions requested during the Gulf War. This was due to two primary factors. First, when coalition forces did attacked, many Iraqi ground forces offered little or no resistance; therefore, only a small amount of CAS was required since the Iraqi military had been devastated by Coalition air attacks prior to the start of the ground phase of the war. Second, U.S. Army

attack helicopters were able to provide sufficient airborne firepower. Attack helicopters were successful against both close-in fighting situations and as a deep strike force.⁴⁹ However, this situation should not be taken as an endorsement for transferring the CAS mission to attack helicopter units. The Gulf War provided military leaders with a great deal of current air and ground combat data.

Gulf War Results

The war served to validate the JFACC concept of planning, coordinating, allocating, and tasking sorties.⁵⁰ The U.S. Air Force was uniquely equipped with the automation and aviation technology necessary to execute theater-wide air operations. Success was due to coalition leadership, the development of joint doctrine, joint force structure, and the inability of Saddam Hussein and his leaders to prevent air attacks by Coalition aviation.

At any time, there were several major air efforts going on throughout the theater. In Iraq, the JFACC concentrated on strategic targets. In Kuwait, the CINC focused air attacks on second-echelon and third-echelon units which the corps commanders disagreed with.⁵¹ They felt instead that the air attacks should be directed against frontline artillery units that possessed chemical capabilities. In contrast, the Marine Corps relied on organic air assets to destroy Iraqi forces in their sector.

While the joint forces commander used functional commands to integrate the air war, Marine Corps commanders relied on the proven air-ground task force model to achieve battlefield success and unity of effort. The results of the interaction between the JFACC and the Marine elements in Operation Desert Storm will be discussed in the next chapter.

It must also be understood that Coalition forces enjoyed the luxury of having an abundance of air assets to distribute throughout the theater. However, leaders must begin preparations to win the next conflict.

CHAPTER 4

THE MARINE AIR-GROUND TASK FORCE

In 1946, General Alexander Vandegift stated in the U.S. Marine Corps Commandant's report, that "one of the Marine Corps' postwar missions was to provide a balanced Fleet Marine Force that would include air support."⁵² The requirement to use aviation to gain an advantage on the battlefield was driven by an attempt to overcome the "atomic battlefield." At that time, a board of officers suggested "vertical envelopment" as a possible solution. The Marine Corps first employed the air-ground concept in 1950, during the Korean War.

Korean War Experience

On 7 July 1950, Brigadier General Edward Craig commanded a Provisional Marine brigade that would become the First Marine Division on 13 September.⁵³ The brigade consisted of the Fifth Marines, commanded by Lieutenant Colonel Raymond Murray, and the Marine Aircraft Group 33 (MAG-33), commanded by Brigadier General Thomas Cushman. Most of the Corps' 995 CAS missions were directed into action by tactical air control parties (TACPs) located forward with ground combat units.⁵⁴ The majority of the

brigade's operations were against the North Korean 4th Division located within the Naktong Bulge.

There are numerous examples of Marine air-ground operations during the Korean War. On 7 August, VMF-323 and VMF-214 belonging to MAG-33 successfully flew Corsairs against enemy locations. The planes used napalm, bombs, and machine guns as Marine and U.S. Army units attacked along a major highway.⁵⁵ On 11 August, a VMF-323 flight of four Corsairs and the 11th Marine Artillery destroyed nearly 100 North Korean vehicles in the vicinity of Kosong.⁵⁶ The next day, near Chongchon, Corsairs attacked machine-gun positions and enemy columns while A Company and B Company attacked to secure key hilltops flanking the roadway.⁵⁷ Later, on 17 August, near Obong-ni Ridge, four of A Company's M-26 Pershing tanks, a section of recoilless rifles, and two Corsairs destroyed a platoon of T-34 tanks and their accompanying infantry.⁵⁸ On 18 August, during final actions in the Naktong Bulge, the 3d Battalion, a battery of artillery, and four aircraft drove the final elements of the enemy across the Naktong River in a coordinated attack.⁵⁹

The second major coordinated use of Marine air and ground units in the Korean War occurred at Inchon on 15 September 1950. During the successful assault of Green Beach on the island of Wolmi-do, Marine Corsairs attacked enemy positions that were within 50 yards of friendly ground forces.⁶⁰ This action allowed follow-on units to initially conduct unopposed landings.

The Korean War clearly illustrated two major issues that faced the Marine Corps. First, it demonstrated the advantage of remaining flexible and innovative when approaching a problem on the battlefield. Second, it proved beyond any doubt that air and ground units should continue to conduct coordinated operations. More important, by operating under a single commander, unity of purpose and effort were greatly assured. This unity of purpose also meant that the MAGTF commander would not need to request air support from the Air Force, Navy, or Army, services which had their own missions and priorities. The MAGTF commander had aircraft and more significantly, pilots who were dedicated to his specific battle. This was illustrated in Korea when the First Marine Aircraft Wing greatly reduced the number of CAS missions once it was placed under the operational control of the Fifth Air Force.⁶¹

During Vietnam, Grenada, and Panama, terrain and conditions conspired against the Marine Corps' use of fixed-wing CAS. However, attack and lift helicopters temporarily filled the needs of ground units. In 1988, General Alfred M. Gray Commandant of the Marine Corps designated all MAGTFs as "expeditionary" rather than amphibious.⁶² This change occurred because the MAGTF could conduct sustained combined-arms operations in support of national security interests.

The MAGTF Structure

The marine air-ground task force (MAGTF) is an integrated, balanced air-ground, combined-arms force organized for combat with its own combat service support element (CSSE).⁶³ Realizing the inherent strengths in both the ground and aviation elements, the Marine Corps permits the commanding general of each fleet marine force to task-organize each MAGTF to meet a specific mission.

While the MAGTF and Air Force and Army integration appear to be quite similar, there is one major difference. Both the ground and air commanders work for the MAGTF commander. This relationship helps to ensure that the efforts of the two commanders are closely synchronized to achieve the commander's objectives.

The MAGTF consists of four major elements: a command element, a subordinate ground combat element (GCE), an aviation combat element (ACE), and a combat service support element (CSSE).⁶⁴ The command element is essentially the headquarters for the MAGTF. The ground combat element (GCE) is task-organized to conduct ground operations. The size of the GCE can range from a reinforced infantry battalion to a division. The aviation combat element (ACE) is organized to provide the essential aviation missions. These include: reconnaissance, antiair warfare, assault support, offensive air support, electronic warfare, CAS, and control of aircraft and missiles. The size of the ACE may also vary from a composite squadron to one or more aviation wings.

The combat service support element (CSSE) is task-organized to provide the entire spectrum of combat service support to all units within the MAGTF.

The MAGTF commander is responsible for the overall conduct and outcome of the mission. He assigns missions to the GCE, approves GCE plans, establishes the FSCL, and conducts intelligence, target acquisition, and aviation combat operations. The MAGTF commander normally has the ACE commander serve as the tactical air commander. All requests for aviation support are consolidated at the MAGTF headquarters. Any requirements that exceed the capability of the ACE are resolved at the command element. The MAGTF commander also retains approval of ACE plans and helps prioritize the CSSE commander's efforts. The CSSE commander advises the MAGTF commander on the capabilities and methods used to meet all CSS requirements.

The Marine Corps recommends that before deploying, the MAGTF command element conduct periodic training to ensure effective command and control of the MAGTF and to identify responsibilities among subordinate units. The MAGTF command element is primarily responsible for controlling, coordinating, and allocating resources with emphasis placed on amphibious operations, pre-positioning operations, joint and combined operations, and low-intensity conflicts.⁶⁵

Gulf War Experience

The Marine Corps relied heavily on coordinated air-ground attacks to achieve success during the Gulf War. The Corps achieved a great deal of flexibility by establishing both standard divisions and brigades and integrated air-ground task forces. The Corps committed two divisions, a reinforced Marine Aircraft Wing (MAW), a support group, an expeditionary unit and two expeditionary brigades to the war effort.⁶⁶ In addition, the 1st Brigade of the 2d Armored Division was also attached to the 2d Marine Division.⁶⁷ During the war, Marine Air delivered nearly 29 million tons of ordnance on Iraqi targets.⁶⁸

There are several examples of successful Marine air-ground operations before the start of the ground war. On 29 January 1991, an Iraqi attack was defeated near Al Kahfji. Marine armored vehicles, artillery, helicopters, and Harriers supported Saudi and Qatari ground forces with a counterattack that resulted in the destruction of 22 enemy tanks and the capture of 600 prisoners.⁶⁹ On 21 February, elements of the 4th Marines in Kuwait successfully employed Harriers and artillery to gain an advantage over another defending Iraqi unit.⁷⁰ The next day, Company C, 2d Light Armored Infantry, used aviation and artillery to secure a key ridgeline.

On 24 February, the first day of the ground war, the 2d Division employed ground forces, artillery and elements of the 3d MAW to defeat an enemy armored column in the vicinity

of Kuwait City.⁷¹ The enemy force contained a battalion of T-55 tanks and 5,000 prisoners.⁷² The next day, the 1st and 2d Divisions employed armored units, artillery, and fixed-wing aviation to engage and destroy over two hundred tanks, and 100 other tactical vehicles in addition to capturing over 6,000 prisoners.⁷³ Finally, on 26 February, the 1st and 2d Divisions supported by the 3d MAW defeated over 400 Iraqi armored vehicles.⁷⁴

By the end of the war, Marine Corps units had attained significant results. The 3d MAW had flown 671 sorties in support of the 1st MEF and had destroyed 97 tanks and 57 personnel carriers.⁷⁵ During the ground war, the Marines had captured or destroyed a total of 1,600 tanks and armored vehicles, 432 artillery pieces, and 5 FROG sites. They had also captured almost 20,000 prisoners.⁷⁶ The Marine Corps had proven once again that the combined efforts of air and ground units is a lethal force.

Reasons for retaining the air-ground task force became evident during the war when conflicts arose over tactical air control. Marine Corps requests for air strikes were often overridden despite the creation of the joint forces air component commander (JFACC).⁷⁷ A compromise was finally struck between the Air Force and Marine Corps concerning the ATO. The Marines would place aircraft on the ATO and retain control of the missions that were in the vicinity of their forces.⁷⁸ In addition, all sorties considered to be excess were to be given to the JFACC to use as needed throughout

the theater. Furthermore, the Marine TACC (tactical air command center) allowed the DASC (direct air support center) to control aircraft within the Marine area of operations while maintaining contact with the ABCCC (airborne command and control center).⁷⁹ This particular arrangement permitted Marine aviation to operate with minimal interference and ensured full support for the JFACC's air war.

Although the issue of involving the JFACC as the central authority on air missions was settled, the real issue over apportionment and timing was not settled for the Marine Corps.⁸⁰ The 3d MAW had to ensure that their actions complemented the efforts of the JFACC.⁸¹ Part of the problem was due to the phasing of the entire operation. Because of the success of the air war, the commitment of ground forces in Phase III (rollback of SAMS threat) was begun while the strategic air strikes and preparation of the battlefield in Phases I and II were still occurring.⁸² This meant that the aviation units had to divide their efforts between interdiction and close air support.

MAGTF Employment

For the Marine Corps, the only element of the MAGTF that has permanency is the command element. Once a particular mission is completed, the other three elements of the MAGTF return to the control of their parent unit. The main reason for organizing the MAGTF under the control of a

single commander is to ensure unity of effort. The result is a highly effective combat unit that is well supported.

Although the MAGTF is designed to be highly independent and self-contained it can also operate as part of a larger force. When not conducting amphibious operations, the MAGTF can easily serve as part of a joint task force or unified or NATO major subordinate command.⁸³ During the Gulf War, the marine Corps provided both MAGTFs and standard divisions and air wings to the theater.

The MAGTF concept offers a major advantage for both the Air Force and the Army. The Marine model allows the services the flexibility to create, reorganize or dissolve this true air-ground task force as needed. The organization may have to change based on changes in mission, enemy, or available time, or available forces. This task force can also be used to supplement the actions of larger forces within the area of operations.

CHAPTER 5

ANALYSIS

Secretary of Defense Richard Cheney, stated that during Operation Desert Storm, the air war was decisive. The ground offensive would probably not have been as swift and as successful if the air war had not taken place. However, the lessons drawn from this war, as with any operation, must be reviewed with caution. Leaders must ask themselves, "Was the coalition successful because our forces were superior, or because the adversary was ill-prepared for war, or because of a combination of these circumstances?" General Walter Boomer of the U.S. Marine Corps offers some cautions. He believed that the Iraqi Army was a badly trained, ill-equipped, and poorly led force. He also states that only about 25% of their soldiers fought with any great degree of conviction.⁸⁴ There can be little doubt that the Coalition fielded an outstanding force; however, success must be tempered by the prudent words of General Boomer.

Analysis

The Gulf War provided an opportunity to exercise U.S. joint doctrine, notably air and ground integration. A review of the MAGTF provided another method for joint force

commanders to organize air and ground forces to achieve future success. Although the joint forces functional command system worked during Desert Storm, the MAGTF air-ground configuration also offers successes, insights, and even possible advantages for future joint task force organizations.

The JFACC offered the advantage of massing forces through centralized command and control, while the MAGTF organization gained an advantage through the decentralized employment of aviation. The JFACC sought to achieve victory with air power alone. The MAGTF commander used the combined striking power of air and ground forces in a simultaneous assault against Iraqi forces. The functional command arrangement forced the JFACC to focus on his portion of the fight sometimes to the detriment of ground commander's requests. The commander and staff of the MAGTF addressed the air and ground effort as a single fight. Finally, after some refinements and adjustments, the ATO process served to place timely and accurate fires on the desired targets and achieved unity of effort. However, had more CAS been required, this process may have proven cumbersome. By possessing designated air assets, the MAGTF commander had the advantage of achieving unity of command that may have added to his unity of effort. The JFACC strove to achieve unity of effort through the centralized control of air assets theater wide.

During the war, the MAGTF was organized to influence the battle tempo and provide responsive aviation which allowed the commander to react faster than the enemy and therefore disrupt the opponent's action.

Ultimately, both the functional command and the MAGTF arrangements succeeded. The sheer volume and power of coalition aviation allowed the JFACC to strike at what Colonel John A. Warden III called the "fifth inner strategic ring." Warden contends that before the era of air power, ground forces had to begin at the outermost strategic ring (fielded military forces) and work toward the innermost ring (military/civil leadership).⁸⁵ The other rings in this concept (moving inside to outside) are population, infrastructure, and key production.

There are several issues that remain unresolved and will face future air and ground interaction. Such as when does the apportionment effort shift from the air focus to the ground focus, how to coordinate Army deep-strike weapons like ATACMS, and how does the JFACC gain control of Army aviation? These issues may become more prevalent as the services continue to drawdown, receive fewer resources, and are forced to conduct more joint operations.

Some leaders feel that the services should seek more innovative techniques to defeat an opponent. Air Force Lieutenant Colonel Price Bingham states that perhaps ground forces can be used to "fix" the enemy while aviation units actually destroy the enemy and sever his lines of

communication.⁸⁶ Additionally, ground forces could be used to secure forward air bases to allow the air force to exploit the enemy deep within his own territory. Bingham views air superiority as merely a means to an end. It permits air and ground units to operate more effectively. Finally, CAS is not considered by the Air Force to be the most effective use of critical aviation assets. Strategic bombing is thought to have a greater overall impact on the war.

Ultimately, the MAGTF model provides several advantages for a commander. First, habitual training and command relationships could be established well before a conflict arises. This would serve to reinforce joint doctrine and refine joint operations. Second, the combined striking power of air and ground forces should result in the rapid defeat of an enemy by overwhelming his defenses. Next, unity of effort is more likely to be achieved because the task force commander "owns" both the air and ground elements and can employ them as he decides. This close relationship should result in greater unit cohesion. This unity of command and unity of effort also leads to an ability to dominate the tempo of the battle by reacting faster than the enemy. Finally, this model permits adhesion to current joint doctrine while allowing innovation in force structure.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

The intent of this monograph is to consider alternative methods for executing joint doctrine, principally between the Air Force and the Army. This was accomplished by reviewing current joint doctrine and the MAGTF organization. The reason for considering such a change was predicated on the shifting geopolitical environment. In the near term, the United States is more likely to become involved in smaller regional contingencies as opposed to a major war in central Europe. Furthermore, fewer resources will exist to execute these missions.⁸⁷ The idea then is to develop and deploy a force that is capable of defeating a variety of potential opponents. The Marine Air-Ground Task Force appears to provide an appropriate adjustment to current joint doctrine which seemed to be partially validated during the Persian Gulf War.

The development of joint doctrine demonstrates a great deal of intellectual thought and maturity on the part of political and military leaders. However, during the Gulf War, several factors prevented military leaders from making extremely difficult choices such as which units would or would not receive air support. The enormous amount of coalition aviation, the sequencing of the air effort and

then the ground war, the weakness of Iraqi forces, and the short duration of the ground offensive all contributed to overwhelming victory. This may not be the case in the next conflict. An old adage states that: it is difficult for military leaders to learn the correct lessons from a war they have just won. Therefore, it is more important than ever that leaders reconsider every aspect of the Gulf War.

The MAGTF concept has been in place for over 46 years and was validated in combat. It serves to demonstrate several key factors of joint warfare. It exploits the enemy by combining the strengths of ground forces firepower with aviation's speed and vertical envelopment. Most important, the MAGTF commander can achieve his battlefield objectives and ensure unity of effort by retaining ownership of both the air and ground forces. This close relationship has several advantages: shared doctrine, practiced maneuvers, and unit cohesion.

The military achievements of Operation Desert Storm resulted in almost phenomenal battlefield success and international acclaim. The objectives stated by then President George Bush were clearly met. Iraqi forces withdrew from Kuwait unconditionally, Kuwait sovereignty was restored, a major degree of stability was returned to the Gulf region, and American security abroad was restored.⁸⁸ Even though the objectives were achieved through joint and coalition warfare in the Gulf War, the Marine Air-Ground

Task Force provided another model for military leaders to consider when challenged with future operations.

Recommendations

Without a doubt, the body of joint doctrine shared by the U.S. military services is superior to that of any potential adversary. It is evident through Operation Desert Storm that the majority of U.S. joint doctrine has been developed correctly. The Gulf War provided an opportunity to demonstrate the validity of much of this doctrine. However, as the paper has revealed, there were some contentious issues between the services with the current doctrinal arrangement.

Future air-ground arrangements should be flexible organizations. They should not be based on a permanent table of organization and equipment. For example, an Air Force tactical air element might be paired with an Army brigade or division for a particular operation. However, should the tactical situation change drastically during a conflict, each element could revert to the control of the parent unit. Furthermore, the composition of this organization could be adjusted for each mission or crisis. This would give ground component commanders the ability to allocate air assets for greater effects and increased unity of effort.

It is critical that these forces be able to coordinate their individual actions. To ensure that such units could

conduct accurate and responsive close air support and ground maneuvers, training relationships would need to be established and exercised on a regular basis.

The idea of employing a task force in its own separate area of responsibility already exists. The JFC can identify a separate joint operations area (JOA) for a task force. The JOA and associated task force would be able to conduct operations for a limited time to achieve limited objectives which support the joint force commander's strategy.⁸⁹

As mentioned earlier, each service is shaped by particular experiences. The culture of the Air Force causes its leaders to focus on the deep fight. While Army leaders appreciate the need to shape the battlefield, the close fight gains the majority of their attention. It is necessary to realize that both the close battle and the deep battle are mutually supportive. Both will probably be necessary to ensure the defeat of the next opponent. Realizing the distinction of the battlefield geometry, it is incumbent upon leaders to overwhelm the enemy with every available weapon system.

The key to victory in the next battle will be to achieve asymmetry against an opponent. This means that opposing forces are dissimilar in nature. Asymmetry can be achieved in several ways. It may be gained through doctrinal changes, tactical adjustments, or organizational realignment. As in the past, flexible and adaptable leaders and organizations will dominate the next field of battle.

ENDNOTES

¹TRADOC PAM 525-5, Force XXI Operations (Washington, D.C.: Government Printing Office, 1994), 3-10.

²The White House, A National Security Strategy of Engagement and Enlargement (Washington, D.C.: Government Printing Office, 1995), 1.

³Air Force Manual 1-1, Vol. I, Basic Aerospace Doctrine of the United States Air Force (Washington, D.C.: Government Printing Office, 1992), 7.

⁴Ibid., 8.

⁵Joint Doctrine Capstone and Keystone Primer (Washington, D.C.: Government Printing Office, 1994), 31.

⁶Thomas A. Cardwell III, Airland Combat (Maxwell Air Force Base, AL: Air University Press, 1992), 69.

⁷Giulio Douhet, Command of the Air (Washington, D.C.: Office of Air Force History, 1983), 16.

⁸Tom Garrett, "Close Air Support: Which Way Do We Go?," Parameters 20 (December 1990): 31.

⁹IP 1-21, United States Air Force (Washington, D.C.: Government Printing Office, 1986), 4-25.

¹⁰Jonathan M. House, Toward Combined Arms Warfare (Fort Leavenworth: Command and General Staff College, 1984), 130.

¹¹Richard Swain, Lucky War (Fort Leavenworth: Command and General Staff College Press, 1994), 27.

¹²Garrett, "Close Air Support," 29.

¹³Carl H. Builder, The Masks of War (Baltimore: Johns Hopkins University Press, 1989), 68.

¹⁴Garrett, "Close Air Support," 32.

¹⁵FM 100-7, Decisive Force: The Army in Theater Operations (Washington, D.C.: Government Printing Office, 1995), 2-11.

¹⁶JFACC Primer Second Edition (Washington, D.C.: Government Printing Office, 1994), 11.

¹⁷Ibid., 14.

¹⁸Ibid., 17.

¹⁹Ibid., 9.

²⁰Ibid., 12.

²¹FM 100-7, 2-7.

²²JP 5-00.2, JTF Planning and Guidance, (Washington, D.C.: Government Printing Office, 1991), II-1.

²³Ibid., II-2.

²⁴Ibid., II-2.

²⁵Ibid., II-3.

²⁶Ibid., II-4.

²⁷Ibid., II-5.

²⁸Ibid., II-8.

²⁹Ibid., II-10.

³⁰Ibid., III-4.

³¹Ibid., ____.

³²FM 90-21, Joint Air Attack Team Operations (Washington, D.C.: Government Printing Office, 1991), vii.

³³Ibid., ____.

³⁴Ibid., 1-1.

³⁵Ibid., 2-7.

³⁶Ibid., 2-5.

³⁷Ibid., ____.

³⁸JFACC Primer, 2.

³⁹Conduct of the Persian Gulf War: Final Report to Congress,

(Washington, D.C.: Government Printing Office, 1992), 101.

⁴⁰Ibid., 102.

⁴¹James Winnefeld and Dana Johnson, Joint Air Operations (Annapolis, MD: Naval Institute Press, 1993), 110.

⁴²Conduct of the Persian Gulf War, 103.

⁴³Ibid., 104.

⁴⁴Ibid., ____.

⁴⁵Conduct of the Persian Gulf War: Appendix T, (Washington, D.C.: Government Printing Office, 1992), T-9.

⁴⁶Ibid., ____.

⁴⁷Thomas Keaney and Eliot Cohen, Gulf War Air Power (Washington, D.C.: Government Printing Office, 1993), 154.

⁴⁸Winnefeld and Johnson, Joint Air Operations, 111.

⁴⁹Ibid., ____.

⁵⁰Conduct of the Persian Gulf War, 179.

⁵¹Keaney and Cohen, Gulf War Air Power, 153.

⁵²Robert Moskin, The U.S. Marine Corps Story (Boston: Little, Brown and Company, 1992), 425.

⁵³Ibid., 447.

⁵⁴Ibid., 461.

⁵⁵Peter Mersky, U.S. Marine Corps Aviation (Annapolis, Maryland: The Nautical and Aviation Publishing Company of America, 1983), 131.

⁵⁶Moskin, The U.S. Marine Corps Story, 451.

⁵⁷Ibid., 451.

⁵⁸Ibid., 454.

⁵⁹Ibid., 457.

⁶⁰Mersky, U.S. Marine Corps Aviation, 133.

- ⁶¹Moskin, The U.S. Marine Corps Story, 585.
- ⁶²Ibid., 823.
- ⁶³OH 2, The Marine Air-Ground Task Force, (Washington, D.C.: Government Printing Office, 1987), 2-1.
- ⁶⁴Ibid., ____.
- ⁶⁵Ibid., 3-8.
- ⁶⁶Moskin, The U.S. Marine Corps Story, 776.
- ⁶⁷John Pope, "U.S. Marines in Operation Desert Storm," Marine Corps Gazette 75 (July 1991): 63.
- ⁶⁸Moskin, The U.S. Marine Corps Story, 792.
- ⁶⁹Ibid., 780.
- ⁷⁰Ibid., 783.
- ⁷¹Pope, "U.S. Marines in Operation Desert Storm," 64.
- ⁷²Ibid., ____.
- ⁷³Ibid., 65.
- ⁷⁴Ibid., 67.
- ⁷⁵Moskin, The U.S. Marine Corps Story, 792.
- ⁷⁶Pope, "U.S. Marines in Operation Desert Storm," 69.
- ⁷⁷Moskin, The U.S. Marine Corps Story, 797.
- ⁷⁸Winnefeld and Johnson, Joint Air Operations, 119.
- ⁷⁹William Cronin, "C3I During The Air War In South Kuwait," Marine Corps Gazette 76 (March 1992): 36.
- ⁸⁰Winnefeld and Johnson, Joint Air Operations, 120.
- ⁸¹Cronin, "C3I During The Air War In South Kuwait," 34.
- ⁸²Ibid., ____.
- ⁸³OH 2, The Marine Air-Ground Task Force, 2-9.
- ⁸⁴Walter Boomer, "How The Marines Fought The Storm," Officer

68 (May 1992): 13.

⁸⁵Richard Hallion, Storm Over Iraq (Washington, D.C.: Smithsonian Institution Press, 1992), 152.

⁸⁶Price Bingham, "Air Power In Desert Storm," Airpower Journal 4 (Winter 1991): 35.

⁸⁷Richard Shultz and Robert L. Pfaltzgraff, The Future of Air Power (Maxwell AFB, AL: Air University Press), 264

⁸⁸Conduct of the Persian Gulf War, 19.

⁸⁹FM 100-7, Decisive Force, 2-20.

GLOSSARY

ABCCC- AIRBORNE COMMAND AND CONTROL CENTER
ACE- AVIATION COMBAT ELEMENT
AI- AIR INTERDICTION
ATO- AIR TASKING ORDER
C2- COMMAND AND CONTROL
CAP- CRISIS ACTION PLAN
CAS- CLOSE AIR SUPPORT
CENTAF- CENTRAL AIR FORCE
COCOM- COMBATANT COMMAND
CSSE- COMBAT SERVICE SUPPORT ELEMENT
FSCL- FIRE SUPPORT COORDINATION LINE
GCE- GROUND COMBAT ELEMENT
JAAT- JOINT AIR ATTACK TEAM
JCS- JOINT CHIEFS OF STAFF
JFC- JOINT FORCE COMMANDER
JFACC- JOINT FORCE AIR COMPONENT COMMANDER
JFLCC- JOINT FORCE LAND COMPONENT COMMANDER
JFMCC- JOINT FORCE MARITIME COMPONENT COMMANDER
JFSOCC- JOINT FORCE SPECIAL OPERATIONS COMPONENT COMMANDER
JOA- JOINT OPERATIONS AREA
JOPES- JOINT OPERATION AND PLANNING EXECUTION SYSTEM

J-SEAD- JOINT SUPPRESSION OF ENEMY AIR DEFENSE

LO- LIAISON OFFICER

MAGTF- MARINE AIR-GROUND TASK FORCE

MAW- MARINE AVIATION WING

OPCON- OPERATIONAL CONTROL

TACC- TACTICAL AIR CONTROL CENTER

TACON- TACTICAL CONTROL

BIBLIOGRAPHY

Books

- Builder, H. Carl. The Masks of War. Baltimore: Johns Hopkins University Press, 1989.
- Cardwell, Thomas A. III. Airland Combat. Maxwell Air Force Base, AL: Air University Press, 1992.
- Cureton, Charles H. LTC. With the 1st Marine Division in Desert Shield and Desert Storm. Washington, D.C.: U.S. Marine Corps, 1993.
- Cushman, John H. Organization and Operational Employment of Air/Land Forces. Carlisle Barracks, PA: U.S. Army War College, 1984.
- Douhet, Giulio. Command of the Air. Washington, D.C.: Office of Air Force History, 1983.
- Hallion, Richard P. Storm Over Iraq. Washington, D.C.: Smithsonian Institution Press, 1992.
- House, Jonathan M. Captain. Toward Combined Arms Warfare. Fort Leavenworth, KS: Command and General Staff College, 1984.
- Keaney, Thomas A. and Eliot A. Cohen. Gulf War Air Power. Washington, D.C.: Government Printing Office, 1993.
- Mersky, Peter B. U.S. Marine Corps Aviation. Annapolis, Maryland: The Nautical and Aviation Publishing Company of America, 1983.
- Moskin, J. Robert. The U.S. Marine Corps Story. Boston: Little, Brown and Company, 1992.
- Mroczkowski, Dennis P. LTC. With the 2nd Marine Division in Desert Shield and Desert Storm. Washington, D.C.: U.S. Marine Corps, 1993.

Shultz, Richard H. Jr. and Robert L. Pfaltzgraff, Jr. The Future of Air Power. Maxwell AFB, AL: Air University Press, 1992.

Swain, Richard M. Lucky War: Third Army in Desert Storm. Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994.

Trotti, John. Marine Air. Novato, California: Presidio Press, 1985.

Warden, John A. III The Air Campaign. Washington, D.C.: National Defense University Press, 1988.

Winnefeld, James A. and Dana J. Johnson. Joint Air Operations. Annapolis, MD: Naval Institute Press, 1993.

Journals and Periodicals

Admire, John H. "Third Marines In Desert Storm." Marine Corps Gazette 79 (September 1991): 66-71.

Bingham, Price T. "Air Power In Desert Storm." Airpower Journal 4 (Winter 1991): 33-46.

Boomer, Walter E. "How The Marines Fought The Storm." Officer 68 (May 1992): 11-15.

Cronin, William R. "C3I During The Air War In South Kuwait." Marine Corps Gazette 76 (March 1992): 34-37.

Garret, Thomas. "Close Air Support: Which Way Do We Go?." Parameters 20 (December 1990): 29-43.

Pope, John R. "U.S. Marines in Operation Desert Storm." Marine Corps Gazette 75 (July 1991): 62-69.

Government Publications

Department of Defense. Conduct of the Persian Gulf War. Washington, D.C.: Government Printing Office, 1992.

Department of Defense. Conduct of the Persian Gulf War: Appendix T. Washington, D.C.: Government Printing Office, 1992.

Headquarters, Department of the Air Force. AFM 1-1, Vol. I, Basic Aerospace Doctrine of the United States Air Force. Washington, D.C.: Government Printing Office, 1992.

Headquarters, Department of the Air Force. AFM 2-1, Tactical Air Operations. Washington, D.C.: Government Printing Office, 1969.

Headquarters, Department of the Air Force. JFACC Primer Second Edition. Washington, D.C.: Government Printing Office, 1994.

Headquarters, Department of the Army. FM 71-100, Division Operations. Washington, D.C.: Government Printing Office, 1990.

Headquarters, Department of the Army. FM 90-21, Joint Air Attack Team Operations. Washington, D.C.: Government Printing Office, 1991.

Headquarters, Department of the Army. FM 100-5, Operations. Washington, D.C.: Government Printing Office, 1993.

Headquarters, Department of the Army. FM 100-7, Decisive Force: The Army in Theater Operations. Washington, D.C.: Government Printing Office, 1995.

Headquarters, Department of the Army. TRADOC PAM 525-5, Force XXI Operations. Washington, D.C.: Government Printing Office, 1994.

Headquarters, Department of the Navy. FMFM 1, Warfighting. Washington, D.C.: Government Printing Office, 1989.

Headquarters, Department of the Navy. FMFM 1-1, Campaigning. Washington, D.C.: Government Printing Office, 1990.

Headquarters, Department of the Navy. FMFM 6-1, Marine Division. Washington, D.C.: Government Printing Office, 1978.

Headquarters, Department of the Navy. OH 2, The Marine Air-Ground Task Force. Washington, D.C.: Government Printing Office, 1987.

Headquarters, Joint Chiefs of Staff. JP 1, Joint Warfare Of the Armed Forces. Washington, D.C.: Government Printing Office, 1991.

Headquarters, Joint Chiefs of Staff. JP 3-0, Doctrine for Joint Operations. Washington, D.C.: Government Printing Office, 1995.

Headquarters, Joint Chiefs of Staff. JP 5-00.2, Joint Task Force Planning Guidance and Procedures. Washington, D.C.: Government Printing Office, 1991.

Headquarters, Joint Chiefs of Staff. Joint Doctrine Capstone and Keystone Primer. Washington, D.C.: Government Printing Office, 1994.

The White House. A National Security Strategy of Engagement and Enlargement. Washington, D.C.: Government Printing Office, 1995.

Unpublished Manuscripts

Cleveland, William R. Major. "Over The Horizon: Ready or Not." Monograph, School of Advanced Military Studies, Fort Leavenworth, Kansas, 1992.

Eckert, Gregory. "Joint Fire Support: How to Achieve Unity of Effort." Monograph, Advanced Operational Art Studies Fellowship, Fort Leavenworth, Kansas, 1996.

Priddy, John R. Major. "Desant From The Sea: An Opinion For the Operational Employment of a Marine Air-Ground Task Force." Monograph, School of Advanced Military Studies, Fort Leavenworth, Kansas, 1990.