

A HISTORICAL LOOK AT CLOSE AIR SUPPORT

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

SCOTT A. HASKEN, MAJ, USA
B.S., Florida Institute of Technology, Melbourne, Florida, 1991

Fort Leavenworth, Kansas
2003

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REPORT DOCUMENTATION PAGE

Form Approved OMB No.
0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 06-06-2003	2. REPORT TYPE thesis	3. DATES COVERED (FROM - TO) 05-08-2002 to 06-06-2003
-------------------------------------------	--------------------------	----------------------------------------------------------

4. TITLE AND SUBTITLE A HISTORICAL LOOK AT CLOSE AIR SUPPORT Unclassified	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S) Hasken, Scott, A	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME AND ADDRESS US Army Command and General Staff College 1 Reynolds Ave Fort Leavenworth, KS66027-1352	8. PERFORMING ORGANIZATION REPORT NUMBER ATZL-SWD-GD
----------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------

9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS ,	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
A1,Administrative or Operational Use
06-06-2003
US Army Command and General Staff College
1 Reynolds Ave
Ft. Leavenworth, KS66027-1352

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Throughout the history of close air support (CAS) there exists a consistent theme of friction and interservice rivalry. There are periods where close coordination and cooperation led to extremely effective CAS. Experiences in North Africa during World War II proved to be a harbinger of CAS throughout the twentieth century. The ineptness of the initial air-to-ground integration evolved by wars end into a synchronized, lethal form of combined arms operations. The troubled relationship between the Army and the Air Force over CAS directly impacts four major areas needed to accomplish effective CAS. Those areas are training, doctrine, trust and dialogue. Because of the troubles experienced in CAS during recent military operations in Afghanistan the Army is once again finding fault with current CAS capabilities. The Air Force admitted that there are problems. They also stress, with much justification, that there is plenty of fault to go around. The conclusion of the thesis is that CAS will continue to be an integral part of joint military operations. The Army and the Air Force must focus on improving training, doctrine, and most importantly, trust before any improvements are realized. The lives of US soldiers may well depend upon the effectiveness of CAS.

15. SUBJECT TERMS
Doctrine; Army; Air Force; Joint operations; Close air support (CAS); Coordination; Cooperation; Interservice rivalry; Combined arms operations; Training; Communication; Afghanistan

16. SECURITY CLASSIFICATION OF:	17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 81	19. NAME OF RESPONSIBLE PERSON Buker, Kathy kathy.buker@us.army.mil
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a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified	19b. TELEPHONE NUMBER International Area Code Area Code Telephone Number 9137583138 DSN 5853138
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MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: MAJ Scott A. Hasken

Thesis Title: A Historical Look at Close Air Support

Approved by:

_____, Thesis Committee Chair
Charles J. Zaruba, M.A., M.B.A.

_____, Member
MAJ O. Shawn Cupp, M.S.

_____, Member, Consulting Faculty
Ronald E. Cuny, Ed.D.

Accepted this 6th day of June 2003 by:

_____, Director, Graduate Degree Programs
Philip J. Brookes, Ph.D.

The opinions and conclusions 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 other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

A HISTORICAL LOOK AT CLOSE AIR SUPPORT, by MAJ Scott A. Hasken, 66 pages.

Throughout the history of close air support (CAS) there exists a consistent theme of friction and interservice rivalry. There are periods where close coordination and cooperation led to extremely effective CAS. Experiences in North Africa during World War II proved to be a harbinger of CAS throughout the twentieth century. The ineptness of the initial air-to-ground integration evolved by wars end into a synchronized, lethal form of combined arms operations.

The troubled relationship between the Army and the Air Force over CAS directly impacts four major areas needed to accomplish effective CAS. Those areas are training, doctrine, trust and dialogue. Because of the troubles experienced in CAS during recent military operations in Afghanistan the Army is once again finding fault with current CAS capabilities. The Air Force admitted that there are problems. They also stress, with much justification, that there is plenty of fault to go around.

The conclusion of the thesis is that CAS will continue to be an integral part of joint military operations. The Army and the Air Force must focus on improving training, doctrine, and most importantly, trust before any improvements are realized. The lives of US soldiers may well depend upon the effectiveness of CAS.

ACKNOWLEDGMENTS

I would first like to thank my wife for her support and patience during my long struggle to finish this thesis. Your involvement helped to transform thought into word. To Mr. Charles Zaruba, MAJ Shawn Cupp, and Mr. Ronald Cuny, my Thesis Committee, thank you for the extra hours each week that you put into making this thesis readable. Finally to Helen Davis for the experience and dedication to the school and students, thanks for your support.

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ACRONYMS

ASP	Air Support Party.
CAS	Close air support.
FAC	Forward aerial controller.
FEAF	Far East Air Force.
JOC	Joint Operations Center.
MTW	Major theater of war.
NKPA	North Korean Peoples Army.
TACC	Tactical Air Control Center.
TACP	Tactical Air Control Party.
SSC	Small scale contingency.

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CHAPTER 1

INTRODUCTION

Among military men, it is commonplace that inter-allied and interservice operations inescapably pose grave difficulties in execution. Differences in equipment, in doctrine, in attitude and outlook stemming from contrasting past experience all inhibit and complicate harmonious interaction. Past successes, however, have shown that these difficulties can be overcome where determination is present and effective procedures have been devised and applied by properly trained troops. Experience also shows that armed forces, not only of the United States but of other nations, have been slow to hammer out the necessary procedures. Often corrective steps have been achieved only after many failures in battle. ***In no area of interservice operations has this phenomenon been more pronounced than in the matter of CAS.*** (Cooling 1990, 535)

Background

The worth of close air support (CAS) as an effective tactical instrument of warfare is one of the most, if not the most, divisive issue between the US Army and Air Force. Prior to the Second World War the Air Service was a growing branch within the Army. To most army generals the value of an effective air corps lay in its ability to support ground troops, adjust field artillery, and conduct aerial reconnaissance. However, the airpower advocates within the Air Service believed that a properly equipped air force could wage war on a completely different scale than ever thought of before. Massive bomber formations could conduct strategic bombing on political, economic, and military targets, forcing the enemy to surrender. To these officers it was a sheer waste of energy and resources to build an air force to support ground operations when true airpower could render ground combat irrelevant.

This thesis will focus on how the relationship between the Army and the Air Force affected CAS doctrine, organization, and equipment development. A secondary

question that will be discussed is whether the need for effective CAS changes between major theater of war (MTW) such as World War II, to small scale contingencies (SSC) like the peace enforcement mission in Somalia. The last question that this thesis will attempt to answer is what lessons on CAS can be learned from nearly sixty years of army and air force history.

In the First World War aircraft were primarily used for reconnaissance or as spotters to adjust artillery fire. Through chance and typical aggressiveness, aviators discovered that their aircraft had the capacity to bomb and attack ground forces with some effect. Before long aviators, like Billy Mitchell and Giulio Douhet, soon envisioned vast armadas of bombers attacking enemy forces before they were able to engage in combat. A few aviators saw the promise of using aircraft as a mobile type of artillery to support an army's movement on the ground. However, most believed the aircraft and strategic bombing to be a new way of waging war. For example, General Mitchell wrote: The advent of airpower, which can go straight to the vital centers and either neutralize or destroy them, has put a completely new complexion on the old system of making war. It is now realized that the hostile main army in the field is a false objective, and the real objectives are the vital centers (Mitchell 2003).

It was not until the United States entered World War II in Northern Africa that a doctrine would develop on how the Army would use its Air Corps in a supporting role to the ground commander as a type of "mobile artillery." It was also in World War II where commanders began to learn that planning for CAS made a significant difference in the execution of air-to-ground operations. Those battles and engagements that were planned thoroughly with the integration of the Air Corps in a ground attack role inflicted heavy

damage on troops and material. These coordinated attacks also had a significant psychological impact on the enemy, and demonstrated tremendous potential as a way to conduct more aggressive joint operations. Conversely, only marginal effects were achieved against enemy forces in battles where there was little coordination between the Air Corps and the ground forces commander.

History appears to show that the need for CAS remains constant within the spectrum of conflict. It does not change based on the size or scope of the battle. CAS requests that come from ground forces in a MTW are no different than those requested during SSCs. Air Force efforts in Korea were primarily directed against strategic targets and air interdiction. However, there are a number of instances where CAS played a critical role in the success of US operations. In Vietnam CAS, on more than one occasion, was the only source of firepower that stood between an American unit surviving or being completely annihilated. Rangers in Somalia would have been routed at one particular juncture if it were not for the efforts of a few aviators flying CAS from OH-6 "Little Birds." Missions in Afghanistan demonstrated that CAS can have devastating effects on enemy capabilities and moral. The military discovered in World War II and continues to learn in Afghanistan, that CAS can be extremely critical to the success of combat operations.

Definitions

Joint Publication (JP) 1-02 defines CAS as: "Air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces that require detailed integration of each air mission with the fire and movement of those forces" (1997, 76).

The Air Force defines CAS as: “The application of aerospace forces in support of the land component commander’s objectives. At times, CAS may be the best force available to ensure the success or survival of surface forces. Since it provides direct support to friendly forces in contact, CAS requires close coordination from the theater and component levels to the tactical level of operations. CAS should usually be massed to apply concentrated combat power, should create opportunities, and should be planned and controlled to reduce the risk of friendly casualties” (Air Force Manual 1-1 1992, 13)

The Air Force also uses another document, The Air Force Basic Document (AFBD), to define CAS: “CAS consist of air operations against hostile targets in close proximity to friendly forces; further, these operations require detailed integration of each air mission with the fire and movement of those forces”(AFBD 1 1997, 48). This is basically the same definition from JP 1-02.

The Army, in its continuing effort to keep pace with the transition to joint operations, changed its definition of CAS in FM 101-5-1 to reflect the definition used in JP 1-02 (FM 101-5-1 1997, 1-28). Similar to the Air Force, the Army does have what could appear to be several different definitions of CAS. For example, field artillery and aviation field manuals discuss CAS in slightly differing terms. However, these FMs do not seek to redefine CAS, rather they attempt to clarify the role that CAS plays on the battlefield.

Limitations

This thesis will not go into a great deal of depth on how the Air Force views CAS. Focusing on the ground forces perspective will help to clearly define what soldiers view

as important or irrelevant to them with regards to CAS. There will be data, facts, and considerations given by commanders and airmen from the Air Force.

The Marine Corps CAS system is not brought into this thesis for several reasons. The first being that Marine Corps aviators consider themselves to be Marines first, aviators second. What that mentality brings is an understanding that their first priority is to their Marine Corps brethren. The Marine Corps settled the CAS debate within their own service by ensuring that each of their aviators understands that they exist to support the ground troops. Also, the Air Force is responsible for the nations strategic air and space objectives. The existence of a separate Air Force frees the Marine Corps to focus on its primary objective of supporting ground forces. The exception to this limitation will be in the discussion on the Korean War. It is impossible to separate the Air Force from the Marine Corps when researching CAS in Korea. During the war the Air Force assumed responsibility for the operational control of all Marine Corps tactical aircraft.

Methodology

This thesis is written in chronological order. Chapter 2 is devoted to World War II and to the three primary theaters in North Africa, Sicily along with Italy, and Western Europe. Chapter 3 is focused on combat in Korea and Vietnam. Chapter 4 will contain an analysis and a review of CAS operations in Desert Storm, Somalia, and the current operations in Afghanistan. Chapter 5 contains a summary of US CAS experiences since World War II and an attempt to demonstrate what ground commanders have thought of the CAS they have received. This chapter will also contains what lessons can be applied to the future of CAS and its value at the tactical level of combat.

Summary

The topic of CAS has filled many of volumes of books, professional magazines, papers and aviator briefing rooms about its effectiveness, complexities, and worth. The question is whether it is beneficial to risk the loss of a multi-million dollar aircraft and a skilled aviator to support ground forces in contact with the enemy? When looking at that question it will aid to examine if CAS changes from battles such as World War II, Korea, Vietnam, Desert Storm, Somalia and Afghanistan. Using these operations as examples are there lessons that the military can apply to future conflicts where ground forces will again request urgent support from the sky?

CHAPTER 2

WORLD WAR II

The US Army and its air force entered World War II without an effective CAS system in place. The split ideologies over the tactical employment of aircraft and the strategic potential of airpower dominated doctrinal discussions between the First and Second World War. As the Army and Air Service entered North Africa the price of their differences and neglect was paid by soldiers and airmen. As US experience grew during the war so did the effectiveness of the CAS, eventually it helped ground attacks overwhelm German resistance across Europe.

The Preparations For War

War on the European continent erupted once again in September of 1939. It took two and a half years before the United States became involved in combat. During that time the Army gave little effort in establishing a competent system of integrating air support into tactical combat operations. Prior to World War II “All three of the air forces (American, British, and German) went to war with close support of ground forces as a secondary mission at best in their perceived scheme of airpower employment” (Muller 1996, 180).

The Army’s early attempts to develop a capable CAS system became mired by interservice rivalry, lack of resources and funding, as well as the fact that the Army was beginning to lose its grip on its fledgling Air Service. The Army was more concerned about keeping the Air Service under their control than developing sound air-to-ground doctrine and tactics. Most maneuver commanders felt that airpower was best utilized by using it as a mobile type of artillery. Meanwhile, the Air Service sought their own

objectives. The most prominent goal was the establishment of their own service, separate from the Army, but equal to it. During this time the Air Service was giving some effort to the integration of air support with ground maneuver forces by participating in studies and providing airmen and aircraft for the Carolina and Louisiana war games. However, those efforts were not as aggressive as the ones meant to improve the strategic bombing abilities and interdiction methods of the Air Service.

Air-to-ground operations during the Carolina and Louisiana war games were designed to assess and develop an effective air-to-ground system. The system used to request air support proved cumbersome and ineffective. A request for air support was transmitted via radio to the division; the air liaison officer reviewed the request and either approved or disapproved the request. If the liaison officer approved the request, he sent it to the Theater Air Support Command (ASC). The ASC would once again review the request to determine if it was a suitable mission to conduct. If approved, the ASC contacted the tactical air command to request an attack aircraft. To the Army this system was totally inadequate. Commanders felt the method of control proved to be too time consuming and not effective. To the Air Service this is what they wanted to accomplish, to keep the control of the aircraft totally out of the hands of the ground commander.

Despite the Army's lack of faith in this method of controlling aircraft it became doctrine with the publishing of FM 31-35, *Aviation in Support of Ground Forces*, in April 1942. Key to the doctrine was the establishment of Air Support Commands (ASC). Much to the astonishment of the Army the organization of these new commands had no ground attack capability. The attack tactical air commander provided the aircraft necessary to accomplish the mission. Simply stated, the ASC lacked any attack capabilities and was

structured to keep control of aircraft away from ground commanders. Incredibly, this is the system that was developed after almost two and a half years of preparation for combat. Richard Hallion, considered one of the premier historians on aviation, commented:

Air and ground commanders both were uneasy with the arrangement. Air commanders saw it as drawing off strength that could best be used in the strategic air war against the enemy's heartland and the interdiction missions. Ground commanders saw the air support allotted to them as being too fragmentary, sporadic, and sparse to be much good. These concerns ironically mimicked arguments then raging through the British defense establishment as well, particularly since the American system roughly followed the inspiration of a British RAF-Army system which was, even at that time, undergoing profound revision as a result of lessons learned in France and the Western Desert. (1989, 150)

North Africa

The origins of the military's current CAS doctrine can be found in US experiences in North Africa. The years of neglect and interservice rivalry over priorities and control of air assets left the US totally unprepared for combat in the deserts of North Africa. The initial air effort was so completely disjointed that it satisfied no one and did nothing but increase tensions between air and ground commanders. But it was there in the deserts that the Army and its Air Service began to forge an effective air-to-ground doctrine that laid the foundations for victories in Italy and Western Europe.

The Tunisian campaign was where the US Forces cut its teeth on combined arms warfare. The first few battles revealed tremendous deficiencies in the abilities of the Army and the Air Service to conduct coordinated, effective combat operations. General Dwight D. Eisenhower, Allied Commander-in-Chief in North Africa, was not pleased with any aspect of the air and ground operations. He saw glaring problems in the training

and abilities of the soldiers and airmen arriving in Africa. In letters to the leaders of the Army and Air Corps back in the US, he stressed the need for soldiers and airmen being sent to war to conduct realistic training in CAS before arriving in Africa. Eisenhower believed that the air and ground forces must train together, or they will not be able to work together in combat (Hallion 1989, 169).

Among Eisenhower's chief concern was the command and control of Allied airpower. In an attempt to correct the situation he placed the operational control of all allied air forces in Algeria and Tunisia under one commander Major General Carl A. Spaatz. This assignment, for the first time, gave an aviator the opportunity to coordinate the air effort without the direct involvement of the army ground commanders. He commanded the air forces as a peer of the ground commanders rather than as a subordinate. The appointment of Major General Spaatz gave the Air Service more responsibility in allocating airpower towards its three primary objectives: defeat the Luftwaffe, prevent men and material from reaching the front, and support to ground forces. Spaatz now had more say in how the air service achieved air superiority, interdicted German forces and supplies, and allocated aircraft to CAS operations. The British were not very impressed with Spaatz. They disagreed with his appointment to the position, however, they did agree that "any system of unified Air Command of Torch cannot fail to be better than the present chaos" and that Eisenhower should be free to choose his own subordinates (Syrett 1990, 164).

Unfortunately, Eisenhower's fears would be realized in a few short weeks, during the battle of Kasserine and subsequent fighting to expel Axis from North Africa. Kasserine exposed critical weaknesses in training, doctrine, and leadership and forced a

change in the operations of American units charged with responsibility for support of ground forces (Hallion 1989, 169). On 14 February 1943, Field Marshall Irwin Rommel conducted a surprise attack on US forces. It was an attempt to prevent the British and American forces from combining their forces in North Africa. The performance of US forces during the battle for the Kasserine Pass was so poor that General Bradley would later write that it was probably the worst performance of the US Army in its entire history (Bradley and Blair 1983, 128). Fortunately for the allies the Nazi high command mistakenly forced Rommel to withdraw his forces after just eight days of fighting. Despite the organizational changes Eisenhower put into effect in January, air support during the battle was still inept and not coordinated with ground forces. The lack of communications, ineffective coordination, and poor weather all conspired to make what support was available useless to ground forces. This poor performance was the impetus to again make major changes, not just in the Air Service's command and control, but also in doctrine.

Eisenhower once again radically changed the command structure. He placed command of the allied air forces under British Marshal Sir Arthur Tedder (see figure 1). Spaatz was now working directly for Tedder, an Air Force commander. Marshal Tedder answered only to Eisenhower, not to a ground commander. Spaatz now commanded all the air squadrons that made up the Northwest African Air Forces (NAAF). Working for Spaatz was British Air Marshall Sir Arthur Coningham, he led the Allied Tactical Air Force under NAAF. Upon taking control of the tactical air support, Coningham immediately put into effect the CAS tactics he knew had worked for him and the RAF in

their battles against the Nazi's in North Africa before the Americans arrived (Hallion 1989, 171).

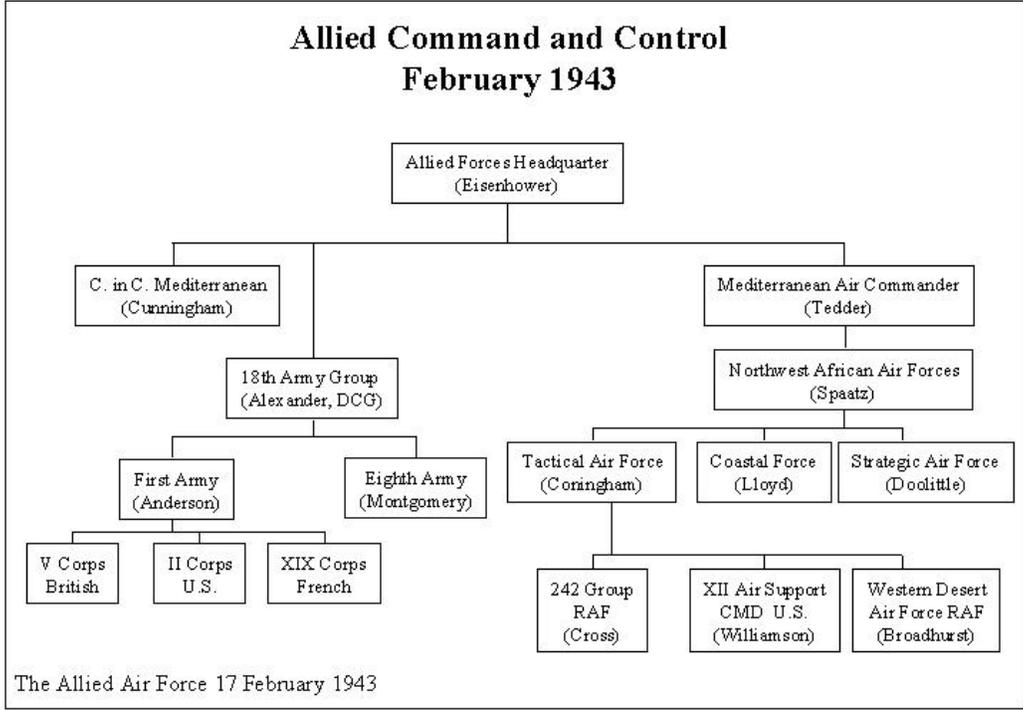


Figure 1. Allied Command and Control Structure, February 1943. *Source:* David Syrett, *Tunisian Campaign, 1942-1943* (Washington DC: Office of the Air Force History United States Air Force 1990), 171.

Coningham adjusted the priorities for employment of tactical aircraft in order to stop the ineffective piecemealing of aircraft into battle. First priority was to the attacks on the Luftwaffe. This was done in an attempt to stop the air attacks and strafing of Allied ground troops. Once the air forces' attained a certain level of air superiority missions to interdict supplies and rear echelon German forces began in order to prevent the sustainment and reinforcement of front line troops.

One of the other changes to come out of the Kasserine failure was the dumping of the doctrine in FM 31-35. A new set of priorities and doctrine slowly emerged for the Army Air Corps during the campaigns in North Africa. In April 1943, General Eisenhower ordered a few of his Army and Air Corps commanders and staff officers to organize a study on the effectiveness of airpower in North Africa. The study was needed because of the doctrinal void caused by the dumping of FM 31-35. It was also an attempt to capture the key control measures and procedures that worked best during the battles in Tunisia and Kasserine. The results of the study were sent to Washington, DC, to the committee working on air and ground coordination. On 21 July 1943, General George C. Marshall received FM 20-100, *Command and Employment of Airpower*, for his signature (Syrett 1990, 184). General Marshall signed the manual as official doctrine before any of the Army ground commanders had a chance to review it or make recommendations. This was extremely significant because in bold capital letters in the opening pages of FM 100-20 this statement, or declaration, is made: “LAND POWER AND AIRPOWER ARE CO-EQUAL AND INDEPENDENT FORCES: NEITHER IS AN AUXILIARY OF THE OTHER” (1943, 4). In other words, this was the Army Air Corps declaration of independence from the Army.

David MacIsaac, in his essay “Air Power,” stated that FM 100-20 went on to spell out that the “inherent flexibility” was seen as the single greatest asset of an air force. Such flexibility could be exploited effectively only if command of the air forces were in the hands of an airman, responsible exclusively to the overall theater commander (MacIsaac 1986, 638). FM 100-20 states the following:

The mission of the tactical air force consists of three phases of operations in the following order of priority:

- (1) *First priority.* – To gain the necessary degree of air superiority. This will be accomplished by attacks against aircraft in the air and on the ground, and against those enemy installations that he requires for the application of airpower.
- (2) *Second priority.* – To prevent the movement of hostile troops and supplies into the theater of operations or within the theater.
- (3) *Third priority.* – To participate in the combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces. (FM 100-20, 1943, 10)

Experiences gained in North Africa were pivotal to the development of CAS doctrine. This new doctrine in FM 100-20 provided the framework for CAS prioritization and resourcing. Without its development the interservice rivalry over the use of airpower would have prevented any further movement forward in CAS effectiveness. FM 100-20 became the foundation by which the Allies attempted to successfully plan air-to-ground integration for the next campaigns in Sicily and Italy. This significant change to doctrine was the beginning in the creation of a better CAS system. As with any new doctrine there still existed issues over the procedures and tactics that needed corrections.

Unfortunately, one cannot state that the events of the first few months of 1943 ended all the problems with air support between the air and ground forces Difficulties remained with applying air over the battlefield. In many cases these difficulties were born of suspicion between air and land “communities” as a result of FM 100-20. But there were very real problems that had to be addressed by the air and land forces, and the most important of these were in the control, communications, and intelligence arenas. (Hallion 1989, 176)

Sicily and Italy

Just as operations in North Africa impacted CAS doctrine, amphibious and land warfare operations conducted in Sicily and Italy played a major role in the refining of the

tactics, techniques and procedures (TTP's) of CAS. These operations also confirmed the prioritization of air superiority, interdiction, and CAS in the new doctrine found in FM 100-20. CAS in Sicily and Italy led to the creation of many of the techniques that the allies used in the invasion of Normandy and the subsequent fighting through France and Germany.

Amphibious operations in Sicily and Salerno demonstrated the complexities and firepower requirements needed to conduct a successful beach landing. If not for the stubborn resistance by army units on the beachhead and the use of all the aerial firepower available to the allies in a close support role, including the use of medium and heavy bombers, US forces might have been thrown back into the sea. After these two amphibious assaults General Eisenhower wrote: "One major lesson should never be lost sight of in future planning that during the critical stages of a landing operations, every item of available force including land, sea, and air, must be wholly concentrated in support of the landing until troops are in position to take care of themselves. This most emphatically includes the so-called Strategic Air Force" (Wilt 1990, 202). Eisenhower with the rest of the allied commanders included all these lessons into the future planning for the invasion of Normandy.

The three major developments in CAS TTPs included the use of aircraft control parties, aerial forward controllers, and the use of medium bombers in a close support role. Again, as in North Africa, these developments did not come without sweat and blood. Many friendly units were accidentally bombed and strafed by allied aircraft. General Bradley, much to his anger and disbelief, was strafed three times in just one day (Hallion 1989, 178). Despite the occasional errors the level of trust and cooperation between the

Army and the Air Corps continued to improve with the increased effectiveness in the CAS system.

Locating aircraft control parties forward with the ground forces was a major improvement in the accuracy and rapid execution of CAS missions along the front lines. A forward control team, commonly referred to as “Rover Joe,” consisted of a pilot and an Infantry or Armor officer. Equipped with maps, photographs, and radios that could communicate with ground units as well as aircraft, these teams called in CAS for units that needed aerial firepower. Aircraft response times rapidly went down as the air forces allocated aircraft for “prearranged” and “on call” CAS. Prearranged CAS was typically coordinated 24 hours out by a requesting unit. The creation of the on call system further reduced the time from request to execution. Those aircraft conducting on call CAS took off to support missions requested by a Rover Joe. Response times dropped to as low as ten minutes with these systems in place (Wilt 1990, 207).

Aerial forward controllers, from the XII Tactical Air Command, were known as Horsefly. The system for controlling fighters and medium bombers, and heavy bombers in the near future, worked much the same way as the Rover Joe system. The obvious difference was that the controller flew over the battlefield. This allowed a much better view for the controller to guide the aircraft onto the target. Placing the controller in the air also increased the communications capabilities by negating the line of sight problems with the ground-based systems. The aerial forward control system, along with the Rover Joe, not only improved the coordination and effects of CAS, but significantly improved US soldiers morale while equally devastating the morale of enemy soldiers (Wilt 1990, 210). When the XII Tactical Air Command deployed to England in preparation for the

Invasion of Normandy, it took the Horsefly system with it. The system stayed in use for the duration of the war in Europe and is an early version of the Forward Aerial Controller (FAC) in use today.

The use of heavy bombers, thought of by a grounded Horsefly pilot, was first attempted in the Italian campaign. The idea was to call forward heavy bombers to interdict moving columns of enemy vehicles or to use them in a close support role along the front. One unit in particular, the 42nd Bomb Wing, took to the mission with enthusiasm. They established exchange programs to increase bomber pilot's knowledge of infantry tactics. The unit went so far as to place pilots on the ground with the infantry, and to put soldiers in the aircraft during actual CAS missions. All of this cooperation led to the development of effective interdiction and close support by heavy bombers. Although most allied bomber units and pilots disagreed with the use of heavy bombers in a CAS role, the German response was much different. In contrast, German accounts bitterly note the overwhelming Allied air superiority in Italy which resulted in the Luftwaffe being unable to intervene and protect German ground forces, and the demoralizing and paralyzing effectiveness of the fighter-bomber (Hallion 1989, 186).

Like North Africa, CAS in Sicily and Italy evolved from ineffective procedures and hazardous tactics into one in which ground commanders came to trust and rely on. Amphibious and tactical operations during these two campaigns were tremendously important to the continued development of an effective CAS system. With refined procedures in control from the ground and air, the allocation of aircraft to support preplanned and on call CAS, to the development of medium and heavy-bombers in a

close support role, soldiers and airmen approached the attack on Germany with confident determination.

Normandy to Berlin

The American CAS system would show that it had learned from the mistakes, and the successes, in Africa and Italy. From the breakout of Normandy, to the Falaise Pocket, in the Ardennes, across the Rhine River and into the countryside of Germany, allied airpower in support of ground forces made significant contributions to ground operations.

Planning for the Normandy invasion used all of the lessons learned from Africa, Sicily, and Italy. It was a sound plan with air-to-ground operations thoroughly coordinated. Newly designed Air Support Parties (ASP), modeled after the air control parties of Italy, were attached to units for the invasion. Unfortunately, only one of the ASP's made it to the beach intact. There were just thirteen requests to conduct CAS that day. It was a significant blow to the Air Corps that tactical air support played only a minor role on the beaches of Normandy.

The ineffectiveness of CAS proved to be short lived for the Allies. Once the ASP's were reconstituted and reassigned to combat units their performance demonstrated the years of collective air-to-ground experience gained in other theaters of operation. Operation Cobra established one of the finest examples of air-to-ground integration in modern warfare.

Operation Cobra was the name given to the campaign to expand the beachhead and begin the long road to Berlin. With air superiority all but accomplished, allied tactical air command played a key role in supporting ground commanders in the push to expel the Nazi's from France.

Throughout Operation Cobra air-to-ground integration was continually refined and improved upon. One particular innovation brought about the strongest of reactions from the Air Force. It was the employment of massed heavy bombers used for the first time in the close support role. Unlike in Italy, where heavy bombers were used in small numbers, in the European Theater fleets of heavy's were used to support ground troops. The idea of heavy bombers in close support proved to be an extremely divisive issue amongst General Eisenhower's commanders. In Italy the use of heavy bombers was almost universally supported in an interdiction role, and received lukewarm support in a close support role. Europe was totally different. General Spaatz, who was adamantly opposed to the idea, wrote: Complete lack of imagination exists in the minds of Army Command, particularly Leigh-Mallory, who visualize best use of tremendous air potential lies in plowing up several square miles of terrain in front of ground forces to gain a few miles of advance. The only thing necessary to move forward is sufficient guts on the part of the ground commanders (W. A. Jacobs 1990, 267).

Overall the results of heavy bombers proved to be inconclusive. The most successful aspect of the heavy bombers was the effect that it had on the disposition of enemy troops, their communications, and the integrity of their defense. Enemy soldiers told of the anger, horror, and loss of hope on seeing armadas of heavy bombers with no sign of the Luftwaffe to counter them. The effects of heavy bombers on US tactics received mixed reviews. In order for US ground troops to take advantage of the bombing, attacks had to be precisely timed to make the most of the enemy's confusion and disorganization. There were numerous occasions of poor coordination and fratricide. The most serious incident was the accidental bombing of the 30th Infantry Division: 25

soldiers were killed, and 131 were wounded (Hallion 1989, 208). The effects from such large bombs tore up the ground and either limited mobility or provided the defenders with cover from direct fire. Despite these types of setbacks ground commanders found the bombings to be useful in the breaking of stubborn German defenses.

The most successful coordination technique mastered during the march across Western Europe was the “armored column cover,” developed in General Quesada’s 9th Tactical Air Command. Two pairs of P-47 Thunderbolts were made available to fly continuously over moving armored columns. In addition to conducting CAS, they conducted reconnaissance ahead of the ground forces, sometimes as far as thirty miles in front of armored formations to report enemy locations and engage strongpoints. This partnership in close support and air interdiction ensured freedom of maneuver and, more importantly, that the momentum on the ground was sustained.

By the end of July 1944, Quesada's armored column cover operations were receiving enthusiastic support from armor and air forces personnel alike. The 2d Armored Division, for example, had three air support parties: one with the division commander, and one with each of its two Combat Commands. Combat Command A (CCA) found the system particularly useful; their air liaison officer (from the armored forces) rode in a Sherman tank whose crew was entirely AAF except for the tank commander. The tank commander could communicate with his fellow tankers via an SCR-528 radio, while the air liaison officer had an SCR-522 to communicate with the column cover flight. Column cover consisted of four P47s relieved by another flight every thirty minutes. (Air-Armor Partnership, 2003)

With an almost unlimited amount of fighter-bombers and medium bombers available, US ground forces enjoyed readily available aircraft to conduct CAS. So many aircraft were available to conduct CAS because the allies had gained and maintained air superiority months before the landing in Normandy. The staggering number of aircraft available led many ground commanders to continue to plan for and use CAS in more and

more of their missions. Battalion commanders made comments from all across the European Front about CAS availability and effectiveness: “They are on call by any unit down to a platoon, calling through company and battalion. Then the ASP contacts the air cover and gets a strike within a matter of minutes. I have seen the air strike within three minutes after the call was made. We like to know the air is there. We want it all the time. . . . We could have not gotten as far as we did, as fast as we did, and with as few casualties, without the wonderful air support that we have consistently had” (Hallion 1994, 224).

The air-to-ground relationship that was established during Operation Cobra lasted until the end of the war. The Army and its Air Force had finally reached a level of trust and confidence in each other that resulted in highly synchronized and lethal combination of fire and movement. The cooperation and effectiveness of CAS during World War II in Western Europe still stands as the finest example of CAS in a MTW.

Summary

From the frustrations in the deserts of Africa, to the steady improvements in Italy, to the lethal synchronization of the armored column support, the Army and its Air Force left a legacy of uncommon air-to-ground cooperation. CAS in World War II matured beyond the expectations of many airmen and soldiers. Without question the effects of tactical airpower made significant impacts along the front lines. Not only was CAS a morale boost for the soldiers, but it proved just as destructive to the German resistance and will to fight.

To the ground commanders CAS was instrumental in victories across Europe. Senior Army commanders often praised the coordinated efforts of the Army Air Force.

Bradley wrote General Hap Arnold a letter and stated: "I cannot say too much for the very close cooperation we have had between Air and Ground. In my opinion, our cooperation is better than the Germans ever had in their best days." (Hallion 1989, 227). Division and battalion commanders were also quick to agree that tactical airpower over the battlefield carried undeniable destructive power. These commanders and soldiers were witnesses to the physical and psychological damage of airpower over the battlefield. The British historian and author B. H. Liddel-Hart wrote "Airpower is, above all, a psychological weapon and only short-sighted soldiers, too battle-minded, underrate the importance of psychological factors in war" (Liddel-Hart 2003, 1).

By the end of the Normandy campaign, all the elements and relationships for the rest of the tactical air war in Europe were in place: forward observers and controllers, occasional airborne controllers, radar strike direction, "on-call" fighter-bombers, armored column cover, night intruders, to name just a few. In only thirty-six months, the Allies had recovered from the disappointment of a Brevity and Battleaxe to orchestrate an unprecedented invasion and breakout. Normandy was neither the victory of a single branch of arms, nor the victory of a single nation. Instead, it is the classic example of complex combined arms, multi-service, and coalition warfare. The battlefield triumphs of airpower were part and parcel of infantry-artillery-armor assaults on the ground. It was true air-land battle. (Hallion 1989, 223)

Unfortunately, it cannot be said that from the summer of 1944 up until today that the two services enjoyed this type of success in air-to-ground operations. As a matter of fact, it is just the opposite. Once combat operations have concluded, the tactics, techniques, and procedures hammered out by trial, error, blood and sweat are left on the battlefield with the enemy. This pattern of friction at the onset of combat, followed by a steady increase in success, to the attainment of effective cooperation will persist in most of the conflicts that the US gets involved in from World War II up to the current operations in Afghanistan.

CHAPTER 3

KOREA AND VIETNAM

1945-1950

US involvement in a theater war remained a possibility throughout the cold war, but the US actually fought only in limited wars during that time. Unfortunately, the airpower community had forgotten the lessons in CAS and battlefield air interdiction (BAI) learned by Ninth Air Force in the European Theater of operations and by Fifth Air Force in the Pacific Theater of operations. Further, it made no effort to preserve the lessons learned, to train for future applications, or to maintain the aircraft needed for CAS. General O. P. Weyland, commander of Far East Air Forces (FEAF), commented, "What was remembered from World War II was not written down, or if written down was not disseminated, or if disseminated was not read or understood." (Fedorchack 1994, 5).

CAS in the Korean War was a divisive issue for the duration of the entire conflict.

The Army was continually at odds with the Air Force over the organization, allocation of CAS aircraft, and the personnel resourcing of tactical air control parties (TACP). The mindset of the Air Force was that the Korean War represented an anomaly, that it was not the true nature of the conflicts that the US was going to face in the future. Therefore it resisted any notion of change and jealously guarded their absolute control over airpower. With the introduction of Navy and Marine Corps CAS system the rivalry between the services further intensified.

Leading up to the Korean War there were few doctrinal changes to CAS operations. FM 100-20 and the 1946 edition of FM 31-35, *Air-Ground Operations*, varied little from the experiences learned in Europe. Doctrine specifically stated that command of all air assets rested with a single theater air force commander, who answered only to the overall theater commander. The theater air force commander appointed a tactical air force commander who was responsible for the tactical employment of airpower. He

worked in cooperation with his counterpart, the ground forces commander, to allocate the use of airpower to either interdiction or CAS. These two commanders established the Joint Operations Center (JOC), located at ground forces army headquarters, to coordinate tactical air operations (Millet 1990, 347). All CAS missions required the approval of both air and ground commanders. But because the airmen both owned and apportioned Air Force CAS assets under this system, they basically controlled all aspects of the CAS system. (Lewis 1997, 30)

Korea - The First Six Months

The first six months of combat revealed the glaring differences in how the Air Force and the other three services viewed CAS operations. Air Force high performance jet aircraft designed to rule the skies in air to air combat proved to be ineffective in a CAS role. The Navy and Marine Corps used slower, but more rugged piston driven aircraft that were better suited for tactical air operations. Although the Air Force still had TACPs from World War II there was only one squadron in the entire force. It was filled with neither trained personnel nor equipped to perform its mission in Korea. The Navy and Marines were much better prepared to control air assets on the battlefield. They had a sufficient number of trained fighter pilots filling their battalion TACP positions. Besides the obvious differences there existed the ideological difference as well. The Air Force placed interdiction above CAS, while the Navy and Marine Corps looked at the two missions as equals, but always with the mindset that airpower was there to support the ground soldier.

While the North Korean Peoples Army (NKPA) pushed rapidly south towards Pusan CAS was the Army and Air Force's top priority. UN forces were vastly

outnumbered and had little artillery to disrupt NKPA attacks to the south. The fire support capability of the Army was so bleak that untrained Far East Air Force (FEAF) strategic bomber crews were called upon to conduct both interdiction and close support missions. The lack of aerial firepower persisted until more air support arrived in the form of Navy and Marine Corps tactical air. Once it was apparent that the tactical situation had stabilized the Air Force quickly changed its priority to air interdiction missions. Leaving, for the time being, the Navy and Marine Corps to conduct CAS across the peninsula.

From the time the Naval and Marine air assets arrived in theater the argument over the control of CAS, and the employment method, caused significant debates among the services. The differences in the systems spanned from the organization to the tactics, procedures, and priority of CAS. The only similarity in the two systems was the placement of fighter pilots in the TACPs to control the air support. The TACP in the Marines and Navy CAS organization were assigned down to the battalion level, the Air Force went no lower than division. This level of control in the Marines and Navy system allowed for rapid response, better communication, and more accurate targeting. These forward controllers were peers, friends, and classmates of the aviators flying the missions. They were more times than not on first name bases with each other.

In assessing the effectiveness of Marine CAS, Colonel Paul Freeman, USA, commanding officer of the 23d Infantry, wrote that: "The Marines on our left were a sight to behold; they had squadrons of air in direct support. They used it like artillery. It was 'Hey, Joe, this is Smitty. Knock off the left of that ridge in front of Item Company.' They had it day and night." Freeman ended with: "We just have to have air support like that" (Bevilacqua, 2001). Comments like these began to come from all over the Korean

Peninsula as more and more army units were witnessing the finely tuned CAS system within the 1st Marine Division. The Air Force instinctively could see what was coming. They knew the Army was going to do all that it could to change the existing doctrine into something similar to what the Marines had. The Air Force felt it had come too far to allow any control of aviation to go back to a ground commander. The air support was so effective that General Stratemeyer, commander of FEAF, said, “The Navy and Marine Corps wanted both to kill North Koreans and to challenge the Air Force doctrine for CAS” (Millet 1990, 368).

When 1stMAW [Marine Air Wing] pilots weren't supporting the 1stMarDiv they were in the air over the nearby 7th Infantry Division. The superb effectiveness of this support led BGen Homer W. Kiefer, the division's artillery commander, to write: Again, allow me to reemphasize my appreciation for the outstanding air support received by this division. The Marine system of control, in my estimation, approaches the ideal, and I firmly believe that a similar system should be adopted as standard for Army divisions. (Bevilacqua 2001)

Over time more and more Army units were taking advantage of the Marines and Navy CAS. Its ease of use, seemingly unlimited supply, and deadly accuracy lead many battalion commanders and above to begin to question the Air Force about supporting such a system. Chief among the voices for change was the X Corps commander, General Almond. He had experience with effective air-to-ground operations in Italy during World War II. Almond attended the Air Control Tactical School in 1938 because he thought that in order to utilize airpower effectively a ground commander had to understand it as best he could. He knew CAS better than any other general in the Army that was fighting in Korea. His arguments to MacArthur were probably the most damaging to the Air Force than any other officer in war.

In December of 1950 UN Forces were again attacked by the NKPA. In the now famous battles of the Chosin Reservoir, General Almonds X Corps successfully withdrew with the assistance from the 1st MAW. The support that the Marines gave has been described by some as being brilliant. Marine Corps CAS destroyed seven divisions of NKPA (Millet 1990, 373). At the same time Eighth Army was also having to conduct a withdraw due to the pressure from the attacking enemy. The Air Force and Eighth Army staffs were unable to effectively coordinate CAS (Lewis 1997, 42). The 25th and 2nd US infantry division did little damage during their retrograde south.

The disparity in the effectiveness of the CAS heightened tensions between the Army and Air Force. It also increased the pressure on the Air Force, and General Stratemeyer, to do something about the assault upon their CAS doctrine. Stratemeyer found what he needed in the withdraw of X Corps to the south. Before the Inchon landing MacArthur designated X Corps as an independent command, enabling Almond to plan, prepare and conduct his own combat missions. Once X Corps withdrew to the south it ceased to be an independent command and again fell under the control of Eighth Army. This meant that the 1st Marine Division and 1st Marine Air Wing, attached to X Corps, also fell under Eighth Army. Stratemeyer used existing agreements between the Army and Air Force that stated all tactical airpower in Eighth Army supported all UN missions in his argument for control over Navy and Marine Corps tactical air. MacArthur agreed to the change and changed CAS in the Korean War from then on (Millet 1990, 373).

September of 1951 turned to be a watershed for CAS in the Korean Peninsula. Truce talks broke down and UN Forces attacked north to seize key terrain in a mountainous region known as “the punchbowl.” During the three weeks of intense

fighting the 1st Marine Division had a difficult time securing their objective. The Marines suffered far more casualties than what was expected. All though air support was planned through the JOC the dedicated air support that the Marines were use to having was not there. Forward Air Controllers called in 182 CAS missions, 127 were received by the JOC, and only 24 of those missions came quick enough to do any good. Delays averaged two to four hours. Major General Gerald C. Thomas, 1st Marine Division's commanding officer, was severely angered and troubled at the lack of CAS. He also felt that the 1,700 casualties that were incurred by the Marines could have been less if he had had the proper support Marines were use to (Millet 1990, 371).

General Thomas was so critical of Air Force CAS that he requested the JOC provide him only Marine air support over his division and that he had to have more of it. General Everest, Fifth Air Force commander, sensing that the issue over CAS was getting out of control again, told General Weyland, new FEAF commander, he would do what he could. General Everest quickly met with Eighth Army commander, General Van Fleet, and in effect told him that he should squash the Thomas rebellion before it infected Army divisions (Millet 1990, 381). Clearly the Air Force was attempting to keep the argument over CAS out of sight of MacArthur and the service Chiefs of Staff.

The significance of these arguments cannot be ignored, or their importance overstated. The Army ground commanders were looking for a system based on the Marine Corps model. The Marines by this time in the war wanted to get back to the level of support that they trained to and their doctrine called for. The Air Force, by their own admission, made deliberate efforts to quell these concerns and stall decisions about organization of TACPs and availability of aircraft.

The Air Force was blessed with good luck in October 1951. Just as the Thomas issue was heating up, the Joint Chiefs of Staff ordered all UN ground forces into a defense posture, due to the resumption of peace talks between North Korea and the UN. The only offensive capability allowed General Ridgway was aerial firepower in the form of air interdiction. The stalemate on the ground reduced the requests for CAS by the ground commanders. The need for CAS diminished based on the limited movement of UN Forces along the forward line of troops (FLOT). From October 1951 through the signing of the armistice in July of 1953 communist forces attempted only two major offensive operations. UN forces limited themselves to defensive warfare and repelling minor communist attacks along the main line of resistance (MRL). Arguments between the Army and Air Force over CAS allocation, resourcing and TACP manning faded into the background.

Summary

By the close of hostilities, the Air Force had relearned the lessons of World War II and had used this knowledge to improve its support of ground operations. As was the case after World War II, however, the lessons of Korea were set aside and forgotten, a fact reflected in Secretary of the Air Force Thomas K. Finletter's comment that "the Korean War was a unique, never-to-be-repeated diversion from the true course of strategic airpower." (Fedorchack 1994, 7)

The above statement represents some of the thinking of the Air Force after the Korean War. The Air Force thought that they had improved upon their ability to conduct CAS, but they never really progressed to the point that their level of CAS was as effective as the Navy or Marines. Lack of training and outdated doctrine before the war impacted CAS effectiveness. There still existed a genuine lack of trust between the two services over the control of air assets. It's closer to the truth to say that the effectiveness

of CAS in the Korean War was truly difficult to measure. There were periods of tremendous tactical achievement. However, those achievements were shrouded by the realities of two separate services with differing ideologies about tactical air support. General Stratemeyer stated exactly what the fear of the Air Force was; that the Army wanted to scrap the existing CAS doctrine and rewrite it after the Navy and Marine Corps model.

The performance of the 1st Marine Division when it operated with its organic air support was far above any Army division in the same combat environment. Their CAS proved to be a vital asset whether they were withdrawing south towards Pusan or attacking north towards the 38th Parallel. After the Air Force gained operational control of the 1st MAF the effectiveness of the 1st Marine Division was noticeably less effective. This is not coincidental, it clearly demonstrates the true value of CAS to combat along the front lines.

In the end, CAS in Korea proved to be more about compromise and temporary fixes than it was about meaningful change. The Air Force successfully fought off Army attempts to transform existing doctrine and organizations into one that looked like the Marine Corps system. To the Army, CAS designed after the Marines provided the ground commander exactly what they wanted; plenty of responsive, accurate and dedicated CAS. Unlike the dramatic changes that took place during World War II, CAS during the Korean War showed little development. After the war the efforts by the Air Force to resist change continued. They successfully fought to have joint boards assessing doctrine based on experiences in Korea disbanded. One of the boards was going to recommend that the theater air commander's absolute control over air assets be modified (Millet

1990, 399). In 1957 the Air Force continued to separate itself from the CAS mission by disbanding the 6147th Tactical Control Group, it was the only airborne FAC unit left in the Air Force. It is apparent that the Korean War did nothing to change the view of CAS for the Air Force or Army. Both services entered the 1960's ill prepared for another limited war. Ironically, one in which CAS would play a larger role than it had in World War II or Korea.

VIETNAM

The role of CAS within the Army and Air Force would forever change due to the Vietnam War. CAS development in Vietnam is defined by three significant events. The first was the reintroduction of the airborne FAC and its' associated command and control architecture. Ironically, the system that got reintroduced was the same system that was scrapped by the Air Force shortly after the end of the Korean War. During Vietnam the airborne FAC became an absolute necessity for soldiers on the ground. The other significant events were the development of the armed helicopter and the AC-130 Gunship. They marked a significant change in the capabilities of the US military to conduct CAS. These two advances, and other developments in technology, transformed CAS from a purely daytime mission to a fulltime, day and night, highly lethal form of tactical airpower performed not just the by the Air Force, but, more importantly, by the Army as well.

Reintroduction of the FAC

The arrival of Air Force advisors early in 1961 marked the beginning of its involvement in Vietnam. A steady build up of forces between 1961 to 1965 allowed the Air Force necessary time to develop the command and control structure needed to be

successful in Vietnam. What started as purely an advisory role, with extremely tight rules of engagement, escalated into a fulltime commitment of American military might.

It became obvious to the Air Force that CAS operations in Vietnam were going to require airborne FACs. The Air Forces had disbanded their only tactical control squadron after the Korean War. To most of the fighter pilots the ability to control tactical aircraft in the close fight became a lost art. Experienced pilots from World War II and the Korean War prepared to help the Air Force reestablish the TACP and the FAC system.

As US Air Force advisors arrived they soon discovered that the command and control structure of the Vietnamese Air Force (VNAF) CAS system was woefully inadequate. Request for CAS initially took ninety minutes from the first radio call to the arrival of the aircraft. Radical changes were needed to transform the ineffective air-to-ground operations into one that could better support soldiers on the ground. In 1964 Lieutenant General (LTG) Joseph H. Moore took command of the 2nd Air Division, the unit responsible for air operations in South Vietnam. LTG Moore developed the Tactical Air Control Center (TACC) to replace the old Air Operations Center. Changes in procedures, personnel, and equipment were made in the CAS system from the battalion up to the corps level. The most critical development was the way CAS requests were received and approved. Each level of command within the TACC structure was responsible to continuously monitor the air request net. As requests for CAS were made, each command level had five minutes in which to either accept or deny the request. If five minutes passed with no response it was considered approval and the request went to the next command level in the TACC structure. This improvement dramatically reduced the initial ninety minutes down to forty minutes a requesting unit had to wait for air

support. The TACC system was fully adopted in 1965 and stayed intact for the duration of the war.

In the TACC structure the TACPs were the 'end of the line'. The TACP was comprised of one air liaison officer, a FAC, and a radio operator. The single most important person was the FAC. Initially it was thought that the TACPs would remain on the ground, as they had done in Korea. But the terrain and vegetation in Vietnam made that impractical. FACs became airborne again to afford themselves the best view of the tactical situation. The legacy of the airborne FAC was an incredible tale of courage and complete commitment to the soldiers and marines fighting in the jungles below.

To qualify to be a FAC an aviator needed a minimum of one-year experience as a fighter pilot. The most successful FACs were those aviators that combined their experience with a knowledge of CAS procedures and organizations, along with an ability to clearly mark targets, and calmly talk the pilot into position to attack. They had four main responsibilities. First, to advise tactical commanders on air operations. Second, was know the communications architecture and the tactical air control system. Third, guide aircraft to the targets in close proximity to friendly forces. And finally, to mark friendly locations and civilians on the battlefield and report the battle damage to the ground commander. These responsibilities were accomplished day or night above dense jungles and steep terrain, in searing heat or pouring rain. All of this with the knowledge that they were guiding high performance aircraft sometimes to within 50 or 75 yards of friendly forces.

Although the Vietnam War required a large amount of resources and personnel, the number of available Air Force fighter pilots compared to the number of Army

battalions allowed the Air Force to assign FACs down to the battalion level throughout Vietnam. Strangely, this is exactly the same system that General Almond, and the rest of the Army commanders, wanted during the Korean War. FACs were assigned directly to a specific Army unit. The FACs familiarity with the terrain, vegetation, and the normal day to day activities of his designated area was a significant advantage. It also guaranteed that the FACs and the soldiers in the unit would build a bond of trust and commitment. It worked just as the Air Force and Army had hoped. Close relationships were developed and the determination to support the soldiers under his care led to very effective CAS operations. Face-to-face meetings often occurred between the FACs and the company commanders, platoon leaders, and NCOs of the unit. "An Army captain admitted: "Until I really talked to the FAC and found out the effects of 20 Mike-Mike [20-mm ordnance], I really didn't know that you could shoot it as close as, what is it, 50, 75 feet you can bring it in" (Sbrega 1990, 436).

The equipping and manning of FACs far exceeded any other commitment the Air Force made to CAS at any time before or after. At its highest level there were over 800 FACs assigned to four separate squadrons throughout Vietnam. Their impact on the effectiveness of CAS was never questioned. Whether on the ground or in the air, FACs demonstrated that when trained and resourced, air support was dramatically more lethal, responsive and, synchronized with ground operations.

A New Era in CAS

The two significant differences between CAS operations in World War II and Korea from Vietnam was the arrival of armed helicopters and the development of the Gunship, such as the AC-130. These new developments provided the ground commander

new weapons platforms that existed for sole purpose of supporting the soldiers on the ground from the air. The appearance of the helicopter and gunship signified a dramatic shift in CAS operations.

The first true test of CAS coincided with America's first large-scale battle in Vietnam. The commitment of LTC Hal Moore's 7th Cavalry into landing zone X-ray in the Ia Drang valley was the harbinger for CAS in Vietnam. This three-day battle demonstrated the importance of the combined firepower of CAS, armed helicopters and field artillery to the infantrymen in Vietnam. LTG Moore, thinking about the battle of Little Big Horn, would later write, "I was determined that history would not repeat itself in the valley of the Ia Drang. We were a tight, well-trained, and disciplined fighting force, and we had one thing George Custer did not have: fire support" (Moore 1992, 86). As LTG Moore points out, CAS from A1-E Skyraiders, high performance jets, and armed helicopters was instrumental in preventing a numerically superior NVA force from overrunning his unit.

The armed helicopter marked a new era for the Army and to a large extent the Air Force too. The Army no longer relied solely on the Air Force to provide CAS. The operational control of the helicopter became a divisive issue between the Army and the Air Force. The Air Force felt that they were responsible for all aircraft operating above the jungles of Vietnam. The Army looked at the helicopter as organic equipment, much like a piece of artillery or a jeep. The Air Force viewed this as a deliberate incursion upon their responsibility to provide tactical airpower over the battlefield. The Army attempted to reassure the Air Force that armed helicopters were simply a mobile form of artillery. In 1968 the Army published FM 6-102, *Field Artillery Battalion Aerial Artillery*, to support

its case that attack helicopters were not for CAS. The Air Force had reason to doubt the Army's honesty. The Air Force was so concerned over the arrival of armed helicopters that it conducted several studies to determine the impact that the armed helicopter had on CAS. One such study found that Army units were increasingly relying more and more on organic fire support from armed helicopter units assigned to Corps and Divisions. For example, in 1969 the troops of the 25th Infantry Division received almost all of their fire support from armed helicopters (Sbrega 1990, 455).

Although armed helicopters were effective in the CAS role their effectiveness was not as important as the impact that their arrival had on the control of airpower. These type aircraft allowed the Army to control tactical air support, something that it could not do with Air Force aircraft. "In 1968 one Air Force briefing paper set the position of the Air Force: "We are concerned that [Army] overenthusiasm may result in the substitution of armed helicopters for more survivable tactical fighters with a consequent loss in overall combat power" (Sbrega 1990, 455).

The Air Force had reason to be concerned. From 1965 to 1969 the number of helicopters in the Army ballooned to over 5,000. The Air Force envisioned further Army incursions upon their responsibilities such as aerial reconnaissance, interdiction, and even air superiority. The Air Force cited the 1952 and 1957 joint service agreements that limited Army aviation's involvement in CAS operations as well as recognized the Air Forces absolute control over tactical air assets. Their objections were heard but not heeded. The Army continued to build airmobile and attack helicopter units throughout the war.

The arrival of the helicopter in Vietnam transformed the way the Army looked at CAS and had a lasting impact on air-to-ground operations ever since. Army division commanders quickly realized they had their own organic CAS aircraft. Most of the commissioned officers flying helicopters were infantry, armor, and field artillery lieutenants and captains. They understood better than the Air Force pilot the tactical situation and had a grasp on maneuver warfare far above any fighter pilot. These pilots had experience on the ground and trained or fought with their fellow Army soldier.

The second significant development in the evolution of tactical aircraft was the creation of the gunship. For years the Army pushed for the development of an aircraft specifically built to conduct CAS. The Air Force's focus was always on strategic bombers and air to air superiority fighters; they never saw the need for a single role CAS aircraft. High performance jets were never the ideal platform to conduct CAS. Their speed prevented the pilot from being able to see small fleeting targets in the dense jungle. The ability to loiter over the battlefield also limited these high performance jets due to the fact that they consumed vast quantities of jet fuel. The war in Vietnam, and to some extent lessons from Korea, were forcing them to change their mind.

Late in 1965 the Air Force responded to demands for a better CAS aircraft. Much to the surprise of those in the military, it came from an aging fleet of C-47 transport aircraft. The C-47 was selected due to its stability, loiter time, and ability to carry multiple miniguns capable of firing 6,000 rounds per minute. The AC-47, better known as "Puff, the magic dragon," was the first in a series of transport aircraft that were modified to perform CAS. Their early performance was so successful that the Air Force quickly developed better systems on more capable aircraft. The final model was the AC-

130 Spectre. Not only did the Spectre have miniguns, but it also had a 105-millimeter (mm) cannon capable of day or night pinpoint accuracy. Its fire support proved so precise that it is still in service today.

The most prolific event for CAS in Vietnam was probably the siege of Khe Sanh. 6,000 Marine and South Vietnamese Rangers held out for 78 days against a force three times its size. Those involved in the fight were quick to say their survival was due to the efforts of tactical airpower from jets, gunships and B-52 heavy bombers. By the time the siege was broken, tactical aircraft flew almost 25,000 sorties and expended more than 95,000 tons of ordnance. The after-action estimate of 15,000 enemy killed in action led one State Department official to describe Khe Sahn as “the first major ground action won entirely, by airpower” (Sbegrà 1990, 453).

The arrival of the AC-130 marked a significant event for the Air Force. It was the first successful aircraft built specifically for CAS. From its inception as the Army Air Service, the Air Force had resisted the concept of a single role close support aircraft. Since its inception many US servicemen claimed to owe their lives to the gunship. Although vulnerable to surface fire due to its lack of maneuverability the effectiveness of the gunship made it one of the most sought after CAS assets in the Vietnam War. Like the armed helicopter, the gunship’s development in Vietnam transformed CAS on the battlefield.

The effectiveness and value of CAS in Vietnam can be found in the words of the soldiers that fought in the jungles. Interviews during and after the war reveal that CAS in Vietnam was vital to their survival and relatively easy to get. The support was so abundant that soldiers conducting search and destroy missions between 1965-1968 went

into the jungle with preplanned air support 91 percent of the time. CAS became so responsive that soldiers began to use the twenty-forty rule when planning their missions. On average immediate requests for CAS arrived on station in twenty minutes if the aircraft was diverted from another mission, and just forty minutes if the aircraft had to be scrambled from the air base. An Army officer said of CAS in Vietnam, “Actually, it’s the best that I have ever seen, having fought as an enlisted man in World War II, as a Company Commander and a Platoon Leader in Korea. It was probably the most responsive and finest that I could imagine” (Sbrega 1990, 469)

Clearly CAS in Vietnam had made dynamic and lasting changes to the application of airpower. Refinements to the tactical air request procedures and the ability to conduct day and night CAS through the development of the gunship and armed helicopter improved CAS operations to levels not seen since World War II. One study conducted by the Air Force on CAS in Vietnam concluded that just for the psychological reasons alone, CAS played a major role in the war in Vietnam. This conclusion runs consistent with findings of other studies conducted at the end of both World War II and the Korean War.

Summary of Korea and Vietnam

Korea brought a new kind of warfare that surprised the Army and the Air Force. Both services were prepared for a MTW in Europe, with the likelihood of having to deal with a viable nuclear threat. The two services were ill equipped to conduct combat on the Korean battlefield. Traditional roles of air superiority and strategic bombing gave way to interdiction and CAS missions. Had the lessons of Korea been applied to the development and training of the services prior to Vietnam US forces would have been better prepared for combat against the North Vietnamese.

The Vietnam War was significantly different from World War II and Korea in regards to CAS. After the Vietnam War the helicopter was firmly established in the Army. The air control system and gunships also became integral parts of the Air Force. Both services believed that unlike the lessons of World War II and Korea, the CAS lessons learned in Vietnam were not going to be forgotten. Another significant difference was the lack of interservice rivalry that took place. This can be traced to the fact that the Army now had its own tactical air asset and knew that it did not have to rely as much on the Air Force as it did before. The Army was also clearly pleased with the Air Forces' development of the AC-130 gunship and the start of the A-10 Warthog program. With all of these changes taking place there was little for the two services to argue about.

Ground commanders and soldiers alike have credited CAS with having a tremendous impact on the success or failure of their operations. The wars in Korea and Vietnam demonstrated that US soldiers needed support from the air just as much as soldiers in World War II. In many ways the non-linear battlefield of Vietnam increased the need for rapid, maneuverable fire support.

Experiences in Vietnam greatly improved the abilities of the armed forces to conduct CAS in a difficult and challenging environment. The Army and Air Force were now equipped to conduct CAS with multiple types of aircraft. The command, control and doctrine were also thought to be in place to prevent the tremendous amount of friction over CAS that normally presided at the beginning of combat operations. The two services had come a long way in gaining a high degree of trust in one another over the issue of CAS. Unfortunately, despite all of the experience and trust, the realities of reduced

budgets, new equipment designs, and changing doctrine begin to erode the capabilities that took the better part of a decade to create.

CHAPTER 4

DESERT STORM TO AFGHANISTAN

Developments Between Vietnam and Desert Storm

The mid 1970s was a period of tremendous turmoil and uncertainty in the US military. The Vietnam War profoundly affected the country's psyche and the military confidence and morale (Gable 2003, 1). Studies conducted to assess the military's capabilities against the growing expansion of Soviet communism showed "a serious imbalance of military power by the United States and its NATO allies in relation to the rising military might of the Soviet Union" (TRADOC 2003). Additionally, studies on the Arab-Israeli War concluded that wars with modern technology were becoming more lethal and required better trained and equipped soldiers than what the current US military had on hand (Gable 2003, 2). In response to these imbalances the US military, guided by General DePuy as TRADOC commander, developed the doctrine of the Active Defense, published in 1976, called FM 100-5, *Operations*.

Along with these doctrinal developments the Army also launched one of the most massive modernization programs in its history. The development of the "big five" saw the fielding of the M1 Abrams, M2 Bradley, multiple launch rocket system (MLRS), the Apache helicopter, and the Patriot air defense missile system (TRADOC 2003). The senior leaders that guided the Army after Vietnam forged a new military. This new military was designed to win a war with America's most likely adversary: Russia. War would come, not on the rolling terrain of Europe, but on the open deserts of Iraq.

Remarkably, during this period CAS was not a major concern between the Army and Air Force. The Army was satisfied with the level of CAS it received during Vietnam.

The A-10 Warthog was in service in the Air Force and the new Apache attack helicopter was now an integral part of the Army.

While the Army transformed in the early 1980's from the Active Defense to AirLand Battle, an ad-hoc planning group was assembled by the Army and Air Force to study how the two services could better operate in a joint environment. Air to ground integration was a key element of the AirLand Battle doctrine. The product of a years worth of study is a document known as the 31 Initiatives (Davis, 1987, 5). Initiative number 24 was dedicated to CAS.

It [Initiative 24] required no implementation or development. That this mission required reaffirmation spoke to the traditional distrust the two services felt toward one another on this issue. If the two services followed the intent of this initiative, with the Army trying not to acquire or agitate for its own fixed-wing CAS aircraft and the Air Force not only giving to its CAS mission the resources it requires but insisting that its CAS forces display genuine and effective cooperation and coordination with the ground units they support, then this initiative may turn out to be the most far reaching of all. (Davis 1987, 72)

The Army's transformation out of the Vietnam era to the modern one was about to be put to the test. However, it would not be in the rolling hills of Europe as expected, but in the deserts of Iraq. For all of the developments in air support doctrine, command and control, and equipment, CAS would not get the opportunity to be put to the test. The Gulf War was far too abrupt to stress the air to ground relationship or its abilities.

Desert Storm

The Gulf War, unlike many of the wars previous before it, did not create a major transformation in CAS operations. Airpower was a dominant force during the entire conflict, but it was of little use in the tactical role. The initial air campaign was designed

to attack strategic and operational targets, not tactical ones such as Iraqi soldiers and mechanized or armored units in forward defensive positions. Once the ground war started the air campaign was to shift more tactical air support to the forward units. However, ground forces were so effective against the Iraqi forces that the need, or the opportunity, to conduct CAS did not materialize.

The role of CAS in Desert Storm was severely limited primarily due to the pace and duration of the war. Ground combat units were moving so quickly that coordination between the air and ground forces was tremendously difficult. The fear of fratricide consumed all levels of command, especially after the incident of fratricide near Al Khafji late in January when an A-10 and an A-6 accidentally killed US Marines and Saudi soldiers (Clancy and Horner 1999, 490). The view of most ground commanders was that CAS was not necessary given the nature of the war. General Franks, the VII Corps commander, stated: “Most of the time it [CAS] was not the right thing to do with air, it did not complement the direct fire fight. If we would have focused it all up close, you would have stopped the momentum of the ground attack, because of fratricide and so forth. So to keep the momentum of the ground attack moving, the divisional commanders pushed the CAS deeper” (Costello 1997, 31).

The Gulf War is truly unique in that there is little evidence of any friction between the Army and the Air Force over the issue of CAS. General Chuck Horner, the Joint Forces Air Component Commander (JFACC), developed what he called Push CAS (Clancy and Horner 1999, 244). Aircraft were allocated at regular intervals to specific areas where ground forces were in contact. It was in effect the same system of providing tactical air support that the Marine Corps used, and one in which the Air Force for years

argued was a waste of resources (Castello 1997, 28). It was also a system that clearly pleased the Army commanders due to the large numbers of aircraft apportioned to CAS.

Most of those CAS sorties did not execute the mission as planned. Again, the ground commanders could not justify slowing the momentum of the attack when there was no need for it. The aircraft were diverted forward by the airborne battlefield command and control center (ABCCC) to conduct air interdiction (Castello 1997, 28).

Lessons about CAS during Desert Storm are harder to discern than in previous wars. Although air support played a key role, it was not as dominant at the tactical level as it had been. Again, its limited use was due to the pace of the war and how quickly ground units secured their objectives. That is not to say that there were no lessons learned. Fire support coordination measures, such as the fire support coordination line, had a significant impact on the ability of the Air Force to attack certain targets. Fratricide still continued to be a problem for the military despite technology. These lessons will continue to reappear on the battlefield in future conflicts.

Somalia

The US involvement in Somalia began as Operation Provide Relief, also known as UNOSOM I. It was an airlift operation to provide humanitarian relief to a starving population that had already seen approximately 500,000 Somalis dead from hunger and starvation. Despite the success of the operation security in the region grew worse. Over time rival clans in Somalia began to react to the continued presence of UN and American forces. Operation Restore Hope was initiated. The operation provided humanitarian assistance to the Somalis and restored order to southern Somalia. As the security in Somalia increased more relief supplies entered the country. Eventually UNOSOM II was

initiated to consolidate, expand, and maintain a secure environment for the advancement of humanitarian aid (Allard 1996, 19). It was during UNOSOM II that armed clan members loyal to Mahammed Farah Aidid attacked a convoy of Pakistani soldiers, killing twenty-four of them. The next day UN Security Council Resolution 837 was passed, which called for the apprehension of those responsible for the attack (Allard 1996, 20). The US established a SOF task force, Task Force Ranger, to conduct the mission of apprehending the warlord Aidid and his lieutenants.

Major General Garrison commanded Task Force Ranger (TFR). It was comprised of elements from 1st Special Forces Operational Detachment-Delta (Delta Force) and rangers from the 3rd Battalion 75th Ranger Regiment. Air support was provided by the 160th Special Operations Aviation Regiment (SOAR) that had MH-60 Black Hawks for lift support and AH-6J Little Bird attack helicopters for CAS.

The raid on 3 October 1993 was the seventh that TFR had conducted in Somalia (Bowden 1999, 4). While all the previous missions had been a success, the friction of combat was about to descend upon TFR. Mobs of armed Somalis were rushing to the objective minutes after the helicopters arrived at the objective area to drop the rangers off in their designated blocking positions. Less than forty-five minutes after the assault began Black Hawk Super 61 was hit by a rocket-propelled grenade (RPG) and crashed five blocks from the target house. For the next fourteen hours TFR fought to secure their wounded and dead comrades and attempted to escape the city streets of Mogadishu back to the safety of the airfield. Eighteen soldiers died, over 80 were wounded, and the 160th lost one more aircraft in the city. The six Little Birds from the 160th were the sole air support that the rangers had.

“Of all the environments in which to conduct operations, the urban environment confronts Army commanders with a combination of difficulties rarely found elsewhere” (FM 3-06 2002, 2-1). CAS was especially difficult due to the nature of an urban environment. Telephone wires and poles and buildings are potential hazards to flight that must be taken into consideration when aircraft attempt to engage targets. The close proximity of friendly and enemy forces also increases the potential for fratricide. AH-6 pilots faced all of these conditions while they supported the pinned down rangers.

Despite the difficult environment none of the Little Birds were shot down nor was there a single case of fratricide. One of the combat controllers near the first crash site Air Force SSgt. Jeffrey Bray developed tactics and techniques during the battle that allowed him to mark friendly force locations so that helicopter gunships could destroy close enemy concentrations (Oliveri 1994). These results were achieved through the close cooperation between Air Force combat controllers and the AH-6 pilots in years of training and development of TTPs. Stressing the difficulties of urban CAS, the AH-6 pilots attributed the success of their mission to extensive urban training. By focusing training on close fires amidst built-up structures and close coordination with the ground elements, AH-6 aircrews were able to deliver effective close fires resulting in substantial enemy casualties (Rudder 1997, 22).

CAS during the battle proved to be a deciding factor in the outcome of the fight. Interviews with rangers, and with Somalis that were present that day, tell a story of courage and commitment that prevented TFR from suffering far worse casualties. The ability of the pilots to engage targets so close to friendly forces and not have one incident of fratricide comes from the hours of training and close coordination that exist among

SOF. “The AH-6’s at times provided CAS as close as fifteen meters, redefining the word ‘close proximity’ (Oliveri 1994).

The Little Birds provided extremely effective air support throughout the battle. To a man, the soldiers pinned down around the first crash site credit brave and skillful Little Birds’ pilots with keeping the Somali crowds at bay. The Somali fighters we interviewed in Mogadishu agreed. They believe the helicopters were the only thing that prevented a total rout of the pinned down force. (Bowden 1999, 340)

The effectiveness of CAS during the battle in Mogadishu is truly an example of what a high degree of training and cooperation can achieve, even in the demanding and difficult environment of MOUT. The habitual training of SOF ground troops with the 160th SOAR was instrumental in the effectiveness and accuracy of the CAS.

Afghanistan

Combat operations in Afghanistan represented the first armed conflict of the Global War on Terror (GWOT). The fighting against Taliban and al Qaeda forces was unlike any the US has fought in before. Beginning 2 March 2002, US and coalition forces launched the first major ground offensive, Operation Anaconda, to destroy hundreds of suspected Taliban and al Qaeda forces hiding in eastern Afghanistan. The operation lasted over two weeks, with the most desperate fighting taking place during the first seven days. Eight US and three coalition soldiers died during the intense fighting.

Operation Anaconda brought CAS back into the forefront for Army soldiers (Grant 2003). Ground forces deployed in Afghanistan enjoyed the luxury of having all of the airpower they could use due to several significant factors. Air superiority, air supremacy for that matter, was never in question as the Taliban and al Qaeda did not have an air force to challenge control of the sky. Additionally there were few, if any,

strategic or operational targets to attack in Afghanistan, leaving virtually all of the airpower available to conduct CAS. Ground forces during Operation Anaconda were without any field artillery assets. A conscious decision was made by the commanders to leave the 105 mm towed systems in the US. It was felt that mortar and air support was sufficient to provide all the fire support the ground forces needed (McElroy 2002, 5).

The CAS operations conducted during Operation Anaconda again proved vital to the survival of US forces. During the fight almost every conceivable type of aircraft was used as a CAS platform; Apache and Cobra attack helicopters, AC-130s, F-16s – 18s, A-10s and even B-52s (McElroy 2002, 7). Conventional forces from the 18th Airborne Corps through the nation's most elite SOF units would use helicopters, high performance jets and heavy bombers as CAS to gain an advantage over a well entrenched enemy.

Soldiers from the 101st Airborne (ABN) Division air assaulted into their landing zones just as dawn approached on 2 March. Within minutes of the soldiers landing strong resistance from unexpected Taliban and al Qaeda fighters firing from fortified positions in caves pinned them down. Immediate requests for CAS filled the radios. First on the scene were five AH-64 Apache helicopters from the 101st ABN. In what is now known as a heroic battle, helicopter crews braved intense small arms and RPG fire time after time in the successful attempt to neutralize enemy mortar positions (Billingsley 2002). By evening the Apaches had done all they could, 4 were shot out of the fight by RPG's or small arms. Fixed wing assets provided the rest of the air support needed that day. An Air Force TACP and an enlisted terminal air controller (ETAC) "controlled hundreds of deliveries from everything in the inventory: fighters, bombers, AC-130s, Navy, even a few French aircraft" (A Message From Operation Anaconda 2003). Through the use of

effective CAS from helicopters to Air Force jets the tide of the battle turned towards the Americans.

The second major engagement where ground forces relied heavily on the support from air assets occurred March 4th. The battle is now called the Battle of Roberts Ridge, named for the Navy SEAL Petty Officer 1st Class Neil Roberts who lost his life on that night. It was a fifteen-hour fight that cost the lives of seven US SOF soldiers.

Servicemen speak in awed tones about the quality of the CAS provided by the Air Force during the battle. When the fight started, it was an AC-130 gunship circling overhead that was keeping al-Qaeda heads down with devastatingly accurate fire from its 105 mm howitzer. Then, as daylight forced the slow-moving gunship to retire, fast-moving, high-flying F-15E Strike Eagles and F-16 Fighting Falcons picked up the slack, hurling bomb after bomb onto enemy positions with pinpoint accuracy. (Naylor 2003, 5)

For the remainder of Operation Anaconda US lead forces maintained the upper hand against the Taliban and al Qaeda forces. The fire support that enabled US soldiers to gain the advantage came from CAS aircraft. Without question air support provided the means by which conventional and unconventional forces were able to defeat extremist forces unwilling to surrender and willing to fight to the death.

As in other conflicts the Army and the Air Force developed new tactics in air to ground integration. “The fusion of Special Operations Forces spotting targets on the ground and long-range bombers firing at them from the air, Afghan war is a lab for US innovation.” (Loeb 2002). Joint Direct Attack Munitions (JDAM) were also making it possible for heavy bombers, such as the B-52, B-1, and B-2, to conduct CAS. The JDAM is a GPS-guided munition that can give a near-precision, all-weather, day or night capability. Major General Walter E. Buchanan III, Air Force director of operations and training said: “If we have a way to identify a target, we can hit it. This allows us to have

bombers doing close-air support and interdiction that they never would have been able to do in the past” (Dougherty 2002).

The battles in Afghanistan without question brought CAS back into mainstream conventional forces vocabulary. It had been over a decade, some say since Vietnam, since Army ground forces relied this heavily on air support. As more soldiers become exposed to the tremendous capabilities of the Air Force and Army attack helicopters the potential for more requests for CAS in future missions can be expected to increase.

“The AC-130 emerged as the platform of choice at night. Its effectiveness was amazing. Every light infantry division needs an AC-130 squadron. These platforms should be available for all light infantry training and military operations around the world” (Bentley 2002, 13). Statements like these, made by LTC Christopher Bentley Deputy Fire Support Coordinator during Operation Anaconda, are sure to generate interest among military planners for the foreseeable future. LTC Bentley further went on to say that Army forward observers should be school trained at the Air Force Joint Firepower Controllers Course and be certified as TACP’s (Bentley, 2002, 14). The Air Force vehemently opposed this idea fifty years ago when General Almond did the same thing during the Korean War. It is safe to say that the same issues over CAS that existed over a half century ago still exist today.

Operation Anaconda not only brought the issue of CAS back into the forefront for soldiers but for the entire Air Force community as well. Tactical air support was provided by every platform imaginable. From Army helicopters to Air Force bombers, air superiority fighters, and CAS aircraft as well. The support to the ground forces brought

the two services back to the issue of CAS and demonstrated what a true capability tactical air support is.

Summary

CAS operations after the Vietnam War followed much the same pattern as that of World War II. The Air Force and Army at the end of World War II had a tremendous ability to conduct CAS. Within a few years that ability all but disappeared. After Vietnam that same capability existed, however due to lack of training, resources and doctrinal development that ability ceased to exist.

Desert Storm did not provide the military the opportunity to evaluate its CAS capabilities. The lack of use led to a false sense of security that the Army and Air Force still retained the ability to conduct effective, synchronized, joint tactical air support. Somalia also proved inconclusive for joint capability between conventional Army and Air Force assets. It demonstrated what was possible when close coordination, effective doctrine, intense training, and trust combined together to produce what was considered a brilliant example of air to ground operations.

The combat operations in Afghanistan proved that in order for CAS to be effective there must exist all of the same characteristics that made air support effective in World War II, Vietnam, and Somalia. Not only does doctrine need to be effective but it must also be understood and soldiers must train using it. Organizations have to be there to plan, support and execute air support operations in a joint environment. Finally there has to be cooperation between the Army and the Air Force that leads to effective CAS. This kind of support can only be achieved through trust and dialogue.

CHAPTER 5

CONCLUSION

This thesis focused on how the relationship between the Army and the Air Force affected CAS, and whether the interservice rivalry over air support affected the development and effectiveness of CAS. One of the other questions this paper researched is whether the need for CAS changes from a MTW to SSCs. Specifically, does the size and scope of the mission have an impact on the level of tactical air support needed by ground forces? Finally, what are the lessons learned from the last sixty years of air-to-ground operations. How can the experiences of the Army and Air Force assist the military in preparing for the future of CAS?

The Effects of Interservice Rivalry

CAS doctrine, equipment development, organization, and training have suffered due to the friction that exists between the Army and Air Force. The tenuous relationship between the two services has existed for over six decades. And for those six decades the Army and the Air Force have argued the case for and against the use of aircraft in a tactical role. Compromises over CAS doctrine, organization, and allocation have only been made when absolutely necessary. A “middle of the road” mentality prevails during periods of peace. During war there are periods of radical change, and also times where the resistance to change is just as stringent as before the war.

At the center of the argument is the fundamental question of how airpower should be used in war. The Air Force believes that airpower is most efficient when attacking strategic type targets and least efficient when attacking tactical targets in close proximity to ground forces (AFM 1-1 1992, 16). The Army looks to the Air Force as an integral

part of a joint team that attempts to provide overwhelming combat power at the decisive point during the battle. As shown in this study of CAS history, these arguments remain consistent from the start of World War II until the present day. This is not to imply that the Army and the Air Force do not cooperate to achieve common objectives or agree upon national strategy. But it is quite obvious from research that the employment of airpower at the tactical level has a significant amount of resistance.

Foundational Issues

There are four foundational issues that are at the core of the relationship between the Army and the Air Force. These issues are training, doctrine, trust, and dialogue. The success or failings of CAS operations are nested within these issues. How well the Army and the Air Force cooperate are tied closely to how well they manage these four issues. Each of these issues are dependent upon one another and join together to make air support more effective.

Of these four foundational issues training is the one area that suffers the most from the arguments over CAS. The lack of training has an immediate impact on the abilities of the services to conduct CAS. Even with the most reliable and technologically advanced equipment that advantage becomes negligible, or even meaningless, without the proper amount of training.

The Korean War is a prime example. The US had a technological advantage in high performance jets, and Air Force aviators trained continuously to quickly establish air superiority. But those same highly skilled aviators could not effectively conduct CAS. They received no training in how to employ airpower tactically. There exists much the same situation today. In December of 2002 five retired four star generals, two are former

infantry officers and three are former strike-fighter pilots, warned the Pentagon of “severe deficiencies in the strike aircraft, tactics, equipment and training involved in CAS” (Cox 2003, 26). They further went on to say “Our armed forces’ ability to provide and employ effective CAS is waning” (Cox 2003, 26).

Further evidence that the armed forces need more training came when the US Army Safety Center conducted an investigation of the 5 December 2002 fratricide incident. In that particular incident three Americans and five Northern Alliance soldiers lost their lives when a JDAM dropped from a B-52 struck within 100 meters of their position. The Safety Center found that the fratricide was caused by the “TACP supporting the ground operations [was] unfamiliar with the operation of a laser range finder, [and] mistakenly transmitted his own coordinates as the target coordinates” (Gruetzmacher, Holtery and Putney, 2002). In fact a high percentage of the fatalities involved in fratricide are attributed to lack of situational awareness, or human error, not from malfunctioning equipment or munitions (Boatner and Patterson 1992).

Training is what allows aviators and soldiers to become familiar with their doctrine, equipment and to truly know how to integrate combat power. With effective training comes effective performance. It allows soldiers to be ready to conduct their mission when required to do so in combat.

Doctrine is the next foundational issue. Doctrine drives the modifications and developments of organizations, training, and equipment. It also defines how a military is going to leverage its capabilities against potential enemies.

In almost every conflict undertaken by the US, CAS doctrine was known to be ineffective due to the lack of attention it received during times of peace. World War II,

Korea and Vietnam all had serious issues concerning CAS doctrine. In World War II and Vietnam those doctrinal deficiencies were corrected as the war continued. They were improved upon only after the need to change was forced upon the services due to the poor performance and threat of failure. The ineptness of air-to-ground integration in North Africa during World War II was overcome by the development of a workable doctrine in FM 100-20. CAS in Vietnam improved as the Air Force and Army realized that new organizations and command and control functions had to improve to increase the effectiveness of air-to-ground integration and synchronization. Korea is the one example where the resistance to change quelled any improvements to doctrine. The concerted efforts of the Air Force not to improve the CAS system increased the level of friction and distrust between the two services.

Doctrine is the centerpiece of any effective military. Without a sound doctrine to guide the employment and training of soldiers and airmen in the task of CAS it will continue to suffer from errors and mistakes that could potentially cost the lives of more servicemen. As capabilities of any military change they must also change the doctrine that is used.

Trust is an issue that is vital to the success of any employment or discussion of CAS. When forces enjoy full trust in each other the success of CAS operations increases exponentially. At the end of World War II soldiers and airmen worked together in close cooperation to refine and develop better procedures to employ airpower in a tactical environment. The armored column cover proved to be extremely successful in the allies' march across Europe. This technique evolved out of the trust that soldiers and airmen placed in one another.

Just as in Europe SOF units that deployed to Somalia as part of Task Force Ranger enjoyed a significant amount of trust in one another. A level of trust that enabled TACPs to call CAS to within fifteen meters of friendly forces on the ground. That kind of trust comes by experiences gained in training and time spent developing effective CAS procedures.

These two examples stand in stark contrast to the friction that has come about because of recent comments over CAS during operations in Afghanistan. Army commanders felt that CAS was unresponsive and did not provide the support when needed. This issue has once again widened the gap in the amount of trust that the two services require to build better doctrine, training, and the organizations required to perform CAS.

The issue of dialogue follows much the same pattern as the developments in doctrine. When the US entered World War II there was little if any dialogue that existed between the Army and the Air Corps over CAS. Again history shows that the Army and its Air Corps failed in their attempt to develop a clear, workable air-to-ground doctrine. Not because they were unable to do so, but because they simply could not agree on what it needed to be. Lee Kennet noted in his essay on CAS “Developments to 1939”: “The lack of dialogue between air and ground leaders had more serious effects on the evolution of CAS than on any other aspect of airpower.” (Kennet 1990, 58).

That lack of dialogue still exists today. Prior to the recent combat experiences in Afghanistan little has been said about CAS since Vietnam. The arguments heated back up again due to the incidents of fratricide and the fracas created by statements made by the 10th Mountain commander, Major General Hagenbeck, over the lack of CAS

responsiveness. The unfortunate deaths of several American, Canadian and Afghanistan forces forced the Army and Air Force to re-look at CAS. Air Force Chief of Staff,

General John Jumper had this to say in a recent interview:

What we did see was some conflict that arose about CAS and we had a disturbing article that described some lack of coordination in Operation Anaconda. The leadership of the Air Force and the Army have gotten together and we've confronted this head-on. In a recent meeting of all the Air Force and Army four-star generals, we went through this piece-by-piece. There is enough fault to go around in this lack of coordination of CAS and we have taken positive steps to make sure that we compensate for those errors. The fact of the matter is that we haven't done CAS in earnest and in great quantity since Vietnam and we have institutional problems that we have to overcome. We have to work harder with the Army in peacetime to make sure that all elements of our CAS are well understood. (Jumper 2003)

Senior leaders of the services agree that changes need to be made; however arguments over the degree of change to the CAS system have already begun to surface.

General Richard Myers, Chairman of the Joint Chiefs of Staff and F-15 pilot, acknowledges that adjustments need to be made in "organization, some doctrine, some tactics, techniques and procedures, some technological changes, training, I mean across the whole gamut of things" (Cox 2003, 26). An unidentified Air Force pilot working in the Pentagon rejected the notion that only minor improvements need to be made. He stated: "We need to stop and do a full accounting of the system and the failures. Because unless we correct this [problems with CAS], we open ourselves to legitimate charges that we are cooking the books, just like Enron did" (Cox 2003, 26).

Effective military operations come from hard, realistic training. That training has to be grounded in sound doctrine. Truly effective doctrine evolves from servicemen being committed to their profession and engaging in honest discussions and dialogue. All of these foundational issues are integral to the building of effective CAS systems. If CAS is

to improve for the future profound changes in the ideologies of the Army and Air Force must occur. Without increasing the level of trust between the two services little if any improvement will be made. To continue as the military has for the past six decades will lead to continued frustrations and ineffective air support.

Differences in the Spectrum of Conflict

From the study of these conflicts it can be determined that whether in a MTW or in a SSC ground commanders will use all the firepower against the enemy they have available. CAS is a tactical form of airpower, its effects are usually directed at individual targets. The effects of CAS allow the ground unit to either gain the initiative or withdraw from superior numbers of enemy. Whether the engagement occurs during a major battle or a street fight does not matter to the forces on the ground.

World War II and Somalia stand in contrast to one another in size and scope of the conflict. However, there are corollaries to the need for CAS in World War II that compare to Somalia. Soldiers looking to break out of the lodgment established after the Normandy invasion relied on CAS to create an opportunity to gain the initiative. Air-to-ground support provided those opportunities that the ground forces used to push across Europe. Soldiers in Somalia heavily relied on CAS provided by Little Birds to keep Somalis from overrunning their positions as well as creating opportunities to withdraw back to secure areas. It proved to be just as effective, and necessary, as the CAS provided to the soldiers in World War II.

The planning for CAS has also been consistent in the spectrum of conflict. Commanders in the jungles of Vietnam planned for the use of airpower or armed helicopters in practically every mission. Ground commanders clearly saw the need to

have air support available, and it did provide critically needed firepower throughout the duration of the Vietnam War. Likewise, corps and divisional commanders in the Gulf War planned the use of multiple CAS sorties against suspected Iraqi defenses. Although not used as extensively as it has in other conflicts, CAS was a vital part of the scheme of maneuver planned by ground commanders in Iraq. Finally, commanders in Afghanistan relied on airpower as the sole means of fire support because US forces had no field artillery in theater. They had no choice but to plan for the use of Air Force and Army CAS assets. These platforms provided life saving support to soldiers in desperate need of fire support.

Combat throughout the 20th Century and into the 21st shows that there is little difference to the soldier on the ground between a MTW and a SSC. In each of the examples above the different levels of war have no impact on the level of planning or use of CAS. Soldiers will need, and should be provided, all of the firepower that the nation can reasonably provide to them. Planners of future deployments should be well aware of history and plan for the use of CAS assets in every deployment, regardless of the level of conflict.

Lessons for the Future

The Air Force and its support of ground troops at the tactical level is clearly a tremendous capability that when planned and coordinated provides an overwhelming amount of combat power. Enemy troops show little ability to withstand continued attacks from the combined effects of air and ground fire. As with many forms of combine arms warfare there must exist sound doctrine, efficient command and control systems, and effective procedures and tactics in order to coordinate and direct all of the firepower.

The study of CAS from World War II up to present operations in Afghanistan reveals common traits that exist when CAS is thought to be effective. Those common traits are, the establishment of air superiority, a coherent command and control organization exists, and close cooperation that leads to effective air-to-ground tactics and procedures.

It is universally agreed that air superiority must be achieved as the first priority in any military campaign. Although known since World War I, it took until early in World War II for the Army to learn and apply this lesson. Once air superiority is established it increases the number of attack aircraft that can be used in an interdiction or CAS role. It also has the added benefit of preventing air attacks against US troops.

Effective command and control organizations must be established for the coordinated employment of air and ground forces directed against common objectives. This applies towards strategic level objectives all the way through to tactical targets. The command structure of the Army and Army Air Corps in North Africa is an excellent example of ineffective command at the strategic and operational level. The lack of planning for the efficient use of airpower reduced the effectiveness of ground and air operations. It also allowed the German ground and air forces to operate free from concentrated attacks by US air forces. Similarly, an ineffective command and control structure in the early stages of the Korean War prohibited the efficient use of tactical aircraft throughout the theater. Attempting to coordinate every tactical air mission the CAS command and control structure of the FEAF was so overwhelmed by the number of planned missions that it gave back to the Marine Corps partial control over tactical air assets (Lewis 1997, 42). Ironically, it was the FEAF that argued for control of all tactical

air assets in the Korean Theater late in 1950. Six months later they were completely over tasked and unable to function efficiently. The adjustments made to these organizations made them much more responsive to the needs of the theater down to the tactical level commanders.

Finally, CAS becomes more effective as procedures and tactics are developed for its employment. These procedures and tactics can only be developed through a close working relationship that is based on knowledge of CAS operations, trust, and cooperation. Somalia best embodies the example of where a high degree of cooperation led to effective CAS. Air Force TACP's used their knowledge of existing SOP's to rapidly adjust them for the difficulties of urban terrain and the changing tactical situation. That was only possible with a firm foundation in their existing procedures and tactics that those SOF units thoroughly trained on in previous exercises.

Although conventional units are not afforded the resources that SOF units enjoy they demonstrate the level of fidelity that can be achieved through cooperation and training. Those procedures and tactics can only be developed through close coordination and training between air and ground forces.

It is also worth noting that in each of the conflicts studied, new procedures, or refinements to existing ones, were developed making the CAS more effective and lethal. Lessons on air-to-ground integration were taken from Italy and applied to combat in France. Those techniques were further refined during the early stages of the break out across France and Germany. Vietnam also demonstrates the giant steps taken in CAS. Even as new equipment was introduced aviators and ground troops were quickly able to

adjust and establish new procedures and tactics. Again this demonstrates how vital trust, cooperation, and dialogue are to effective CAS procedures and tactics.

Summary

CAS is clearly a tremendous capability that has been used in every war that the US has entered since World War I. History shows that when coordinated and synchronized with ground forces CAS is a decisive tactical element of combat power. As with any form of combat power CAS must have the doctrine, organization, equipment and training in order for it to be of use to the military. For all that to take place there has to be a commitment by both the Army and the Air Force to ensure that it gets done.

Before any real changes can occur in CAS, and this point cannot be stressed enough, there has to be a reckoning between the ideological differences of the Army and the Air Force. It has to start at the general officer level; they are responsible for the direction of the military. As General Jumper stated in the quote in this chapter, these types of discussions are taking place now. But the perception is that these changes will be only slight modifications rather than the dynamic changes that are required. The soldiers and airmen conducting CAS are looking for significant changes to be made.

The types of changes that are needed are not much different than what was needed at the beginning of World War II. As US forces entered World War II its CAS doctrine, organization, equipment, and training were well below what was needed. By the end of the war the Army and its Air Corps had transformed every aspect of air-to-ground integration and created an air-to-ground team that has not been seen since. The assumption that the war drove the two sides to change is not correct. During the Korean War the need to change CAS operations existed there as well, yet very little was changed.

What enabled those changes to be made during World War II was trust. Although there was little trust between the two prior to the war, by the end of combat there was a deep sense of trust between them. The commitment between air and ground forces greatly helped the evolution of CAS doctrine, organization, and equipment.

Those foundational issues of training, doctrine, trust and dialogue, discussed in this chapter are vital to the improvement of CAS. Dialogue between officers at all levels in the Army and Air Force will create the conditions necessary for trust to grow. The development or refinement of doctrine enables the US military to remain dominant and flexible to the ever changing threat and tactical situation. And, above all, the Army and Air Force must conduct realistic training to help create effective TTP's to further increase the effectiveness of CAS.

The military must choose to resource the training necessary to maintain the proficiency in CAS operations. It also must encourage the sustainment of those command and control structures that are best suited to plan for and integrate airpower at the tactical level. Air-to-ground operations are tremendously difficult in the chaotic environment of combat. Army and Air Force personnel must conduct extensive training to remain proficient in CAS operations. Although it is one of the most difficult missions to accomplish the services have an obligation to conduct as much realistic training as resources allow. There are no short cuts to proficiency.

The interservice rivalry and friction that exists between the Army and Air Force over CAS must end. Air support in World War II became more effective as the cooperation and coordination between the airmen and the soldiers improved. New doctrine, organizations, equipment and training are needed to continue to improve an

already dominant capability. But those improvements will only come when the two services begin to trust one another.

APPENDIX A

RECOMMENDATION FOR FURTHER STUDY

1. Would the victory in Desert Storm have been as decisive on the ground without the initial bombing campaign? There is a research being conducted to challenge the assumption that the air campaign “neutralized” Iraqi ground forces prior to the start of the ground war.
2. What impact did the arrival of the armed helicopter have on CAS? There is a great deal of evidence to support the assumption that the Air Force was adamantly opposed to the idea of armed helicopters. The Air Force believed that the Army violated agreements when they armed helicopters. How did this affect the Air Force and its development of the AC-130 and the A-10 Warthog?
3. How have CAS operations changed with the arrival of the joint direct attack munition (JDAM)? Operations in Afghanistan marked the beginning of the use of JDAMs in a CAS role. Any aircraft, to include strategic and heavy bombers, carrying these munitions are now capable of conducting CAS.
4. How will the moves to integrate Army attack helicopters into the close fight effect CAS operations? As the Army begins to change its employment of Apache helicopters will it have the same impact on the Air Force that the Cobra had back in the 1960s?
5. How did the Army and the Air Force transform CAS between Operation Anaconda in Afghanistan and OPERATION IRAQI FREEDOM in Iraq? CAS in Afghanistan was marked by bitter infighting among the services over response times and fighter pilots lack of CAS abilities. During combat in Iraq new techniques were developed prior to the war to increase CAS effectiveness, especially in urban an environment.
6. Is it feasible for the military to integrate the Army, Air Force, and Navy Command and General Staff Colleges into three Joint institutions? As the military pushes further and further to achieve a truly joint atmosphere it seems logical to combine the intermediate level education of the four services to achieve that endstate.

REFERENCE LIST

- Allard, Kenneth. 1996. *Somalia Operations: Lessons Learned*. Washington, DC: National Defense University Press.
- Bentley, Christopher F. LTC USA. "Afghanistan: Joint and Coalition Fire Support in Operation Anaconda." *Field Artillery Magazine* September-October 2002, 11-15. [journal on-line]; available from <http://sill-www.army.mil/FAMAG/>; internet; accessed 14 March 2003.
- Bevilacqua, Allan C. MAJ USMC (Ret). 2001. Marine Corps Aviation in the Korean War, the First Year. [database on-line]; available from <http://www.mca-marines.org/leatherneck/Mayaviation.htm>; internet; accessed 19 January 2003.
- Billingsley, Dodge. "Afghan Experience Model for Iraq Conflict" *The Salt Lake Tribune*, 10 November 2002. (np). [journal on-line]; available from http://www.sltrib.com/2002/nov/11102002/nation_w/15199.htm; internet; accessed 10 March 2003.
- Boatner, Mike MAJ USA, and MAJ Bill Patterson, USA. 1992. Fratricide: Reducing Self-Inflicted Losses. *Combat Training Center Newsletter*, April; [journal on-line]; available from http://155.217.58.58/cgi-bin/atdl.dll/call/92-4/a_call92-4.htm#vign4; accessed 18 March 2003.
- Bowden, Mark. 1999. *Black Hawk Down, A Story of Modern War*. New York, New York: Atlantic Month Press, 1999.
- Bowden, Mark. (n.d.) *Black Hawk Down*. [database on-line]; available from <http://inquirer.philly.com/packages/somalia/ask/ask10.asp>; accessed 10 March 2003.
- Bradley, Omar N., and Clay Blair. 1983. *A Generals Life: An Autobiography*. New York, New York: Simon and Schuster.
- Center for Air Force History. 1992. Air-Ground Teamwork on the Western Front: The Role of the XIX Tactical Air Command during August 1944, Washington, DC.
- Clancy, Tom and GEN Chuck Horner USAF (Ret). 1999. *Every Man a Tiger*. New York, New York: G. P. Putnam and Sons.
- Cooling, Benjamin Franklin. 1990. *Case Studies in the Development of Close Air Support*. Washington, DC: Office of the Air Force History United States Air Force.

- Costello, Peter A. III, MAJ USAF. 1997. *A Matter of Trust: Close Air Support Apportionment and Allocation for Operational Level Effects*. Maxwell Air Force Base, Alabama: Air University Press.
- Cox, Mathew. 2003. "Pushing the Wrong Button." *The Army Times*, 3 March, 24-26.
- Davis, Richard G. 1987. *The 31 Initiatives: A Study in Air Force: Army Cooperation*. Washington, DC: Office of Air Force History, United States Air Force.
- Dougherty Tim, Tech. Sgt. USAF. 2002. "Bombers: A formidable weapon in fight against terrorism," [database on-line]; available from <http://www.globalsecurity.org/military/library/news/2002/03/mil-020308-usaf01.htm>; accessed 10 March 2003.
- Fedorchak, Scott A. CPT USA. 1994. "Close Air Support, Repeating the Past Again." *Aerospace Power Journal*. vol. Spring. (np). [journal on-line]; available from <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj94/fedor2a.html>; accessed 27 January 2003.
- Gable, Christopher. (n.d.) "Doctrine, Active Defense." [database on-line]; available from <http://call.army.mil/Products/jrtc-history/act-def/act-def.pdf>; accessed 15 March 2003.
- Grant, Rebecca. "The Clash About CAS," *Journal of the Air Force Association*. (np). [journal on-line]; available from <http://www.afa.org/magazine /Jan2003 /0103cas.asp>; accessed 10 March 2003.
- Gruetzmacher Jeffrey K., CDR USN, LTC Michelle Joerin Holtery, USA and MAJ Jonathan R. Putney, MAJ USAF. 2002. "Fratricide: The Ultimate Cost of Joint Interoperability Failure." [database on-line]; available from <http://www.jfsc.ndu.edu>; accessed 15 March 2003.
- Hallion, Richard P. 1994 D-Day 1994: Air Power Over the Normandy Beaches and Beyond. [database on-line]; available from <http://www.aero-web.org/history/wwii/d-day/17.htm>; accessed 18 January 2003.
- _____. 1989. *Strike From the Sky; The History of Battlefield Air Attack 1911-1945*. Washington and London: Smithsonian Institution Press.
- Headquarters, United States Air Force. Air Force Doctrine Document. 1997. 1 September. Washington, DC: Government Printing Office.
- _____. 1992. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, Volume 1, Washington, DC: Government Printing Office.

- Headquarters Department of the Army, 2002. *Field Manual 3-06, Urban Operations*, November. Washington, DC: Government Printing Office.
- _____. 1943. Field Manual 100-20, *Command and Employment of Air Power*, 21 July. Washington, DC: Government Printing Office.
- _____. 1997. Field Manual 101-5-1, *Operational Terms and Graphics*, 30 September. Washington, DC: Government Printing Office.
- Jacobs, W.A. 1990. *Battle for France*, In *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling Washington, DC: Office of the Air Force History United States Air Force.
- Joint Chiefs of Staff. 1997. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, Washington, DC: Government Printing Office.
- Jumper, John General USAF. Interview with General John Jumper, Air Force Association Symposium, [database on-line]; available from <http://www.aef.org/pub/jump203.asp>; accessed 18 March 2003.
- Lewis, Michael MAJ USAF. 1997. *Lt Gen Ned Almond, USA, A Ground Commander's Conflicting View with Airmen over CAS Doctrine and Employment*. Maxwell Air Force Base Alabama: Air University.
- Liddel-Hart, B. H. (n.d.) Great Aviation Quotes, [database on-line]; available from <http://www.skygod.com/quotes>; accessed 16 February 2003.
- Loeb, Vernon. 2002. "Afghan War a Lab for US Innovation," [database on-line]; available from <http://www.dawn.com/2002/03/28/int13.htm>; accessed 10 March 2003.
- MacIsaac, David. 1986. *Voices from the Central Blue: The Air Power Theorists*. In *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret, Princeton New Jersey: Princeton University Press.
- McElroy, Robert H. 2002. "Fire Support for Operation Anaconda." *Field Artillery Magazine* September-October 2002, 5-9. [journal on-line]; available from <http://sill-www.army.mil/FAMAG/>; internet; accessed 14 March 2003.
- A Message From Operation Anaconda, October 4 2002 [database on-line]; available from <http://www.republika.pl/nowaarmial/nowaarmia/ress/448sot100402.htm>; internet; accessed 10 March 2003.

- Millet, Allan R. 1990. *Korea, 1950-1953*, In *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling Washington, DC: Office of the Air Force History United States Air Force.
- Mitchell, William GEN USAF (RET). (n.d.) [database on-line]; available from <http://www.brainyquote.com/quotes/m.html>; accessed 17 February 2003.
- Moore, Harold G. LTG USA (RET). 1992. *We Were Soldiers Once and Young*. New York, New York: Random House.
- Murray, Williamson and Allen R. Millet. 1996. *Military Innovations in the Interwar Period*, New York, New York: Cambridge University Press.
- Muller, Richard R. 1996. *The German, British, and American Experiences 1918-1941*, In *Military Innovations in the Interwar Period*, ed. Murray, Williamson and Allen R. Millet, New York, New York: Cambridge University Press.
- Naylor, Sean D. (n.d.) “*An act of Courage, Surrounded by Death, a Young Pararescueman Chose to Save Lives: and Lost His.*” [database on-line]; available from <http://www.pjsinnam.com/PDF%20docs/AF%20Times%20Cunningham.pdf>; accessed 10 March 2003.
- Oliveri, Frank. 1994. *Heroes at Mogadishu*. (np). [journal on-line]; available from <http://www.afa.org/magazine/June1994/0694gyros.asp>; accessed 7 March 2003.
- Operation Restore Hope*. (n.d.) [database on-line]; available from http://www.fas.org/man/dod-101/ops/restore_hope.htm; accessed 8 March 2003.
- Rudder, Steve MAJ USAF. 1997. *The Role of Close Air Support in Peace Operations* [database on-line]; available from <http://www.globalsecurity.org/military/library/report/1997/Rudder.htm>; accessed 8 March 2003, from
- Sbrega, John J., 1990. *Southeast Asia*. In *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling Washington, DC: Office of the Air Force History United States Air Force.
- Syrett, David. 1990. *Tunisian Campaign*. In *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling Washington, DC: Office of the Air Force History United States Air Force.
- Tate, Frank W. MAJ USA. *Army Attack Aviation Returning to the Close Fight: Impact of the MOUT Environment*, School of Advanced Military Studies Monograph, US Army Command and General Staff College, 2001.

- The Air-Armor Partnership. (n.d.) [database on-line]; available from <http://www.aero-web.org/history/wwii/d-day/7.htm>; accessed 17 January 2003.
- Thompson, Wayne and Nalty, Bernard C. 1996. *The U.S. Air Force and the Korean War*, Air Force and History Museum Program, Washington, DC.
- TRADOC. (n.d.) *Doctrinal Renaissance*. [database on-line]; available from <http://tradoc.monroe.army.mil/historian/pubs/TRADOC25/chap6.htm>; accessed 6 March 2003.
- Wilt, Alan. 1990. *D-Day, 1944*. In *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling Washington, DC: Office of the Air Force History United States Air Force.

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