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CLOSE AIR SUPPORT DOCTRINE
DYNAMIC FUTURE OR DOGMATIC PAST?

BY
William H. Bryan
Colonel, USA

A RESEARCH REPORT SUBMITTED TO THE FACULTY
IN
FULFILLMENT OF THE CURRICULUM
REQUIREMENT

Advisor: Colonel Robert S. Hinds

MAXWELL AIR FORCE BASE
April 1994

ABSTRACT

TITLE: Close Air Support Doctrine: Dynamic Future or Dogmatic Past?

AUTHOR: William H. Bryan, Colonel, United States Army

Close Air Support (CAS) is our oldest and most controversial air support mission. Although there have been significant changes in technology and force structure in each of the services, the doctrine for the employment of CAS has changed very little. The recent Roles and Missions reports have only increased the debate of how and where CAS is performed. The Army,with its fleet of attack helicopters, now finds itself as a provider of CAS. The Marine Corps has always provided its own CAS and will continue to do so but the evolution of the Joint Force Air Component Commander (JFACC) is causing some concern over the possible loss of CAS assets. The Fire Support Coordination Line (FSCL) has become a point of dispute since the Army has fielded organic weapons systems with increased ranges and seeks to place the FSCL at greater ranges. Consequently, the area that has generally become the zone of action for CAS has grown exponentially. Precision guided munitions (PGMs) have come of age and now give us the capability to strike with lethality with reduced risk of fratricide. Our CAS doctrine needs to be revised and refined to reflect the tremendous advances in technology and changes in force structure and capability that have occured in the armed forces in recent years.

BIOGRAPHICAL SKETCH

Colonel William H. Bryan is a combat veteran with over 23 years of military service in air-ground operations. He is a Master Army Aviator with over 2500 hours of attack helicopter experience. He has conducted close air support operations as an Army aviator in the Vietnam and Gulf Wars. He participated in the development of the draft manual for Joint CAS tactics, techniques, and procedures which was published in January 1994. He has commanded both infantry and aviation units. He has served three tours of duty in Germany, one in Vietnam and Saudi Arabia, and one in Korea in a joint assignment with the U.S. Air Force. In Desert Storm, Colonel Bryan Commanded the 2nd Battalion, 229th Attack Helicopter Regiment which was awarded the Valorous Unit Citation for gallantry against the Republican Guards near Al Basrah, Iraq. Colonel Bryan's awards include two Bronze Stars and 27 Air Medals (three for valor). He is a graduate of the U.S. Army Infantry School, U.S. Army Aviation School, Command and General Staff College, and the Armed Forces Staff College. Colonel Bryan is a graduate of the Air War College, class of 1994.

DISCLAIMER

CLOSE AIR SUPPORT DOCTRINE
DYNAMIC FUTURE OR DOGMATIC PAST?

Close Air Support (CAS) is the oldest air combat mission and is quite possibly the most controversial. The current debate on the Roles and Missions of the United States Armed Forces has only fanned the flames of controversy that engulf the CAS mission. Modern technology and aerospace doctrine has made CAS the least effective method of air power employment in the pursuit of national strategic military objectives.[1] Recent events in Bosnia and Somalia demonstrate that ground combat troops still rely heavily upon close air support to accomplish their combat mission. The division between the soldier and the airman grows however, as the Air Force, faced with budget constraints and downsizing requirements, develops doctrine that clearly makes CAS a secondary mission of its air combat units.[2] To the Army, who depends on the Air Force for CAS, CAS should be a primary mission, with dedicated aircraft.

The Army has always sought to apply the principle of Unity of Command in all of its tactical operations and air support is no exception. The evolution of the attack helicopter solved the problem of control but may have created another problem with CAS.

In February 1993, General Colin Powell, Chairman of the Joint Chiefs of Staff, in his Roles, Missions, and Functions of the Armed Forces report, concluded that the essential battlefield task of close air support "can and should be performed routinely by attack helicopters as well."[3] The Army has developed a maneuver doctrine that includes the employment of attack helicopters. Although not fielded for the CAS mission, attack helicopters have proven themselves more than capable of performing CAS in many combat situations.

The AH-64 "Apache" is the Army's newest and most modern helicopter and is a combat proven, modern technology aircraft. The "Apache" is particularly well suited for CAS with it's Hellfire precision-guided missiles and Forward Looking Infrared (FLIR) night vision system. The "Apache", often criticized and suspect in the minds of many, proved itself more than capable in combat during Operation Desert Storm. Although the Air Force is still charged with providing CAS to the Army, the Army now has its own organic CAS capability.

The Marine Corps' Marine air-ground task force (MAGTF) is organized, trained, and equipped to provide CAS in support of its ground combat elements. Because of the nature of amphibious warfare and expeditionary missions, the Marine Corps must heavily use air support to compensate for its deficiency in organic, indirect fire support. The ability of the

Marine Corps to perform CAS has always been a source of great pride and originates with the indoctrination of every member of the Corps as a Marine rifleman first and foremost. But CAS is only one type of offensive air support, and offensive air support is only one of six different functions of Marine aviation. The Marine Corps considers the organic MAGTF aviation to be a supporting arm in operations where ground combat is the main objective.[4]

Although the debate over CAS — who should do what, for whom, and how,— has gone on since the first CAS mission was flown in World War I, only since the Goldwater-Nichols Department of Defense Reorganization Act of 1986 has the argument intensified. With the evolution of the joint force air component commander (JFACC), the Army, Navy, and Marine Corps have surfaced concerns over the control of their organic air assets. The Army and Marine Corps are particularly concerned with the ability of the joint force to provide CAS to the ground component forces. This paper will review the evolution of CAS, including the roles and missions debates and the perspectives of each service regarding CAS to include the JFACC; analyze the existing CAS doctrinal deficiencies; and propose doctrinal changes that can improve CAS for future conflicts. Since the Navy will only execute CAS as a secondary mission as excess sorties are made available to the joint force commander (JFC), this paper will focus on the issue of CAS between the Air Force, the Army, and the Marine Corps.

WHAT IS CLOSE AIR SUPPORT?

The Department of Defense Dictionary of Military and Associated Terms defines CAS as "air attacks against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces."[5]

Air Force Manual 1-1, Basic Aerospace Doctrine, says: "Close air support is the application of aerospace forces in support of the land component commander's objectives. Since it provides direct support to friendly forces in contact, close air support requires close coordination from the theater and component levels to the tactical level of operations. Close air support produces the most focused and briefest effects of any force application mission; consequently, close air support rarely creates campaign-level effects."[6]

Army Field Manual 100-5, "Operations," defines CAS as "missions (that) support land operations by attacking hostile targets close to friendly ground forces. CAS can support offensive operations with preplanned or immediate attacks. All preplanned and immediate CAS missions require timely intelligence information. CAS missions require positive identification of friendly forces and positive control of aircraft."[7]

Marine Corps FMFM 5-41, "Close Air Support," states: "The Marine Corps fights using maneuver warfare through the application of combined arms. CAS is fully integrated with other supporting arms to support the Marine air-ground task force (MAGTF) commander's plan. The MAGTF commander uses CAS at the decisive place and time to achieve local combat superiority or take advantage of battlefield opportunities. CAS is employed for operational effectiveness and is weighted to the main effort."[8]

In each definition of CAS, there are several common characteristics, some specified, others implied. First, CAS is a mission that is in support of the ground component commander's objectives. Second, CAS must be coordinated and integrated into the ground component commander's tactical plan. Third, CAS requires positive control and identification of friendly forces in close proximity to the target. It is essential to note that none of the definitions specifically address where (how far from friendly ground forces) CAS occurs. It would seem logical that CAS implies that friendly forces are always in "close" proximity to the target. But proximity is a very ambiguous term that is difficult to measure. Consequently, proximity may not be the best measure of where CAS occurs. As long ago as 1970, the Rand Corporation concluded that "battle relevance, rather than battlefield proximity, is the useful criterion." [9]

Because of the way we have structured the battlefield, CAS, technically, is performed from the Forward Line of Troops (FLOT) to the Fire Support Coordination Line (FSCL). The FLOT is determined by the physical location of friendly forces on the ground. The FSCL is determined by the ground component commander and is generally the range of his organic surface fire systems. Before the development and fielding of multiple launch rocket systems (MLRS) and other extended range systems, the FSCL was a "reasonable" distance from the FLOT. But advances in technology, such as the MLRS, has served to extend the FSCL to ranges in excess of 30 kilometers. Thus, CAS could be in the "danger close" range of friendly forces or as far as 30 kilometers (or further) away. The fundamental question becomes, how "close" is CAS to the supported ground commander and his troops? If CAS is executed at ranges that are beyond visual observation (or even beyond hearing) of the supported ground commander and his troops, do we have a disconnect with our existing doctrine and the structure of the battlefield? Any resolution of the CAS debate must first answer these basic questions.

THE EVOLUTION OF CLOSE AIR SUPPORT

CAS first appeared in World War I. Airplanes were used effectively in the ground attack role by both sides in the conflict. Initially, the "close" aspect of CAS pertained more to the aircraft's proximity to the ground than to the friendly forces. The greatest benefit initially appeared to be the tremendous effect on morale that hostile enemy aircraft had on ground troops. But as experience was gained, the potential rewards and risks of CAS began to emerge. "While air power could be rapidly shifted and concentrated, it could not easily be used for close air support on a battlefield with which the pilots were unfamiliar, or one on which the battle lines were shifting or fluctuating."[10]

In the years following World War I, the lessons learned in the application of air power were studied and refined. The CAS mission debate focused on the issue of: could the air-to-air mission be performed by the same aircraft and crews as the ground attack mission, or did the two missions require separate aircraft and specialized units? At least three countries (USA, USSR, ITALY) created and maintained separate units organized, trained and equipped to perform the CAS mission.[11]

Doctrine to support CAS operations was not refined until 1941, and then only as a result of the Louisiana Maneuvers. With Europe already at war, these first-ever Army-level maneuver exercises were the perfect opportunity to experiment with air support. Consequently, War Department Training Circular No. 70, dated Dec. 16, 1941, for the first time assigned the Air Corps with the responsibility of providing ground support as a part of its air force function.[12]

World War II validated CAS as a viable application of air power and identified several requirements that were necessary to conduct successful CAS operations. First, air superiority was mandatory if successful ground support operations were to be conducted. Second, positive target identification was required. Third, a good command and control system, specifically, reliable communications (air-to-air, ground-to-air, and ground-to-ground), was an absolute requirement for the effective employment of air power in support of ground operations. By the end of World War II, we had "broken the code" on the basic requirements for successful CAS operations. These requirements remain valid today as the keystone of our CAS doctrine.[13]

In 1946, the Air Corps published a "distilled" version of CAS doctrine in FM 31-35, "Air-Ground Operations". Unfortunately, the combination of the peacetime environment, the lack of funds to conduct realistic training, and the lower priority of CAS to accommodate the

strategic bomber force caused the hard-won lessons so painfully learned in World War II to be lost. With the arrival of the Korean conflict four years later, many months passed before the Air Force was able to rebuild an effective air-ground organization and perfect procedures for conducting CAS.[14]

The Korean War proved Marine Corps aviation to be the best in providing CAS to ground troops. The primary reasons for this were: CAS was their primary mission; they were trained to do the mission; their equipment was optimized for the role; they were consciously part of a well-honed team; and they were imbued with the traditions of the Corps.[15] These lessons learned from a conflict fought nearly 50 years ago are still valid today and are worthy of study in the resolution of the CAS debate.

Following the Korean War, again, the tactics, techniques, and procedures for conducting CAS were quickly forgotten as the Air Force focused on the strategic nuclear bomber mission. As American forces went into action in Vietnam, the Air Force found itself unprepared to conduct the type of CAS that the ground forces required, and the Army was still arguing for operational control of the CAS aircraft. Eventually, the "warfighters" developed a workable organization with appropriate procedures, but only after several years of hard fought experience and a lot of friction. This experience was verified by the Air Force Air Warfare Board in 1965, that clearly identified the difficulty in conducting CAS as "a failure to develop sound doctrine".[16]

In spite of the ultimate success of CAS and the air-ground team in Vietnam, the Army and Air Force continued to disagree over certain issues involved in CAS operations. Disputes over the need for a specialized aircraft designed solely for CAS, the allocation of CAS sorties per combat day to each Army combat division, and the air-ground command relationship were never satisfactorily resolved. However, no CAS problem caused more strained relations than the Army experiment with armed helicopters. Despite joint service agreements in 1952 and 1957, which specifically limited Army aviation's involvement in CAS operations and acknowledged Air Force control over tactical air resources, the Army continued to expand its fleet of armed helicopters and extensively utilized them in the fire support role, much to the dismay of the Air Force.[17]

Toward the end of the Vietnam War, the United States Senate in 1971 conducted hearings on close air support. These hearings had several purposes. First, to determine what kind of aircraft was best suited to conduct the CAS mission. The Air Force was developing a new aircraft, the AX, later the A-10, and the Army was developing the AH-56A "Cheyenne" as an advanced aerial fire support system. The second purpose was to evaluate the roles and

missions of the services to conduct CAS. Ultimately, the big showdown did not materialize because the "Cheyenne" encountered cost overruns and technical problems. And, despite the historical trend on preparedness, the leadership of the Army believed that the CAS mission should remain with the Air Force. But unlike the previous experience following World War I and Korea, CAS tactics, techniques, and procedures survived post-Vietnam and became an integral element of warfighting doctrine.

THE ROLES AND MISSIONS DEBATE

In the post World War II period, the United States' need for integrated warfighting vis-a-vis separate military services was reviewed by Congress. In 1947, Congress passed the National Security Act of 1947 which established the Joint Chiefs of Staff as a permanent, formal body and created the United States Air Force as a separate service.[18] On the same day that the legislation was signed into law, President Truman signed an executive order that specifically fixed the Air Force with the responsibility for providing air support to land and naval forces. Despite the new law and the executive order, the in-fighting among the services continued to grow. It became apparent to then Secretary of Defense, James Forrestal, that something must be done to decide "who will do what with what." Consequently, the Joint Chiefs of Staff assembled at Key West, Fla., in March 1948 and thrashed out a broad outline for service functions. This document has become known as the "Key West Agreement" and to this day, serves as a guide for the roles and missions of the military services.[19]

The Key West Agreement was, until recently, interpreted as limiting CAS to fixed-wing aircraft. The Army's experiment with armed aircraft in the post-Korean War period, caused concern in the Air Force that the CAS mission was being sought by the Army. Consequently, there were several inter-service agreements that further limited the Army's level of organic air support but gave it the "green light" to pursue the development of a helicopter force.[20]

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 requires the Chairman of the JCS "to periodically recommend such changes in the assignment of functions as the Chairman considers necessary to achieve maximum effectiveness of the Armed Forces."[21] Consequently, then Chairman William Crowe, submitted to Congress the first Roles and Missions review in September 1989. In direct response to a congressional inquiry, Admiral Crowe concluded that the idea of transferring the CAS mission to the Army was a moot point since the ability to perform CAS is already present in the Army as well as the Air

Force, Navy, and Marine Corps.[22]

Both the Chiefs of the Army and Air Force strongly disagreed with the Chairman and his assessment. They issued a joint statement that said "attack helicopters lack the speed, lethality, and flexibility" to perform the CAS mission. The new Chairman, General Colin Powell, forwarded to Congress a new Roles and Missions report in November 1989. In it, he differed with Admiral Crowe's position on CAS and affirmed those of the service chiefs of the Army and Air Force.[23]

In February 1993, Chairman Powell again issued a revised roles and mission report. This report reversed the 1989 position on CAS and adapted Admiral Crowe's position that CAS was a mission now resident in all four of the services, and Army attack helicopters can and should perform the CAS mission. Additionally, the Chairman noted that the Marine Corps trains and fights as a combined arms air-ground team, supported by organic aircraft that can operate from carrier decks and austere expeditionary sites ashore. Further, chairman Powell argued, despite the calls by some for its elimination as an unnecessary redundancy, Marine Corps tactical air provides a unique capability that is essential to our national military strategy.[24]

The roles and missions of America's armed forces have evolved just as the national security needs have changed. The advances in technology, a dramatically changed world order, recent combat experiences, and fiscal realities all combine to drive the engine of change in our strategy to meet the future requirements of national defense. An effective warfighting doctrine must be refined if we expect to successfully meet the challenges of the 21st century.

THE AIR FORCE CAS PERSPECTIVE: GLOBAL REACH FOR AMERICA

Air Force Manual 1-1, Volume 1, Basic Aerospace Doctrine of The United States Air Force, lists the combat (warfighting) missions as counterair, counterspace, strategic attack, interdiction, and close air support.[25] Although there is no specific priority listed, it is generally accepted that a prerequisite for air action is air superiority. Following that, interdiction of enemy forces before they reach the main battle area is preferable to allowing friendly ground forces to become engaged. Close air support then, logically, becomes the third priority for the application of air power.

Air superiority is clearly priority number one. In fact, without it, there can be no other priorities. Air forces must have the freedom to maneuver and interdict enemy ground forces without fear of enemy air attack. Ground forces must be able to focus exclusively on the

enemy ground forces without fear of a threat from the air. There is little doubt that air superiority is a mission that only the Air Force can accomplish and is an absolute requirement for any successful combat operation.[26] Air superiority is a theater necessity and "until it is won, any effort not contributing to it is diversionary and should only be undertaken in emergency situations".[27]

Air interdiction can destroy enemy forces, delay and disrupt their maneuver, and cause the diversion of scarce enemy resources.[28] Our recent experience in Desert Storm proved that a well-planned investment in interdiction pays extremely high dividends. This was apparent as ground forces maneuvered against a shattered enemy after more than 30 days of relentless interdiction.

The value of interdiction to ground maneuver forces is tremendous. Successful interdiction can literally destroy and defeat the enemy ground forces without direct contact with friendly ground forces. At a minimum, interdiction will reduce friendly causalities because the enemy will have been attrited and his combat power significantly reduced. General Mike Loh, Commander of the USAF Air Combat Command has stated: "One of our goals is to try not to be involved in close air support, to try and do a better job a little deeper so that you can, with (airborne battlefield surveillance) and other equipment, avoid direct contact with the forward line of troops and relieve, to a great extent, the Army's direct contact. That's where we can make a tremendous contribution."[29]

General Loh's statement reflects the fiscal realities of today's defense budget and a "fight smarter" attitude. Specifically, no longer will we have the luxury of fielding redundant systems that operate only in a limited area of the warfare spectrum. Just because we are no longer able to acquire systems that are solely dedicated to the specific mission of CAS, it can not be assumed that the Air Force's resolve to conduct the mission is lessened.

Consequently, the Air Force has opted for a ground-attack variant of the F-16 to replace its aging fleet of A-10s. At face value, this aircraft appears to be a very capable CAS platform. It will be fielded in several variants that all incorporate systems that aid in target identification, navigation, fratricide prevention, and survivability. Recognizing the tremendous improvements in ground forces night-fighting capability, the aircraft will be equipped with a FLIR system for low-altitude navigation and target detection. Its primary survivability will be accomplished through speed, which could reduce its effectiveness as a CAS asset. It should be noted that the aircraft will also be fielded with the APG-66 airborne radar which will also give it significant air-to-air capability necessary to establish at least local air superiority with

enough confidence that CAS missions can be successfully undertaken.

There is no indication that the Air Force has changed its position or its desire to perform the CAS mission. Advances in technology and economic constraints have however, dramatically changed our ability to perform the CAS mission. History tells us that the keystone of successful military operations is a valid doctrine that supports peacetime training and consequently enhances readiness and combat effectiveness. CAS doctrine must be reviewed and revised to reflect the changing requirements, capabilities and fiscal realities of America's armed forces.

THE ARMY'S CAS PERSPECTIVE: DECISIVE VICTORY

As a result of the "Key West Agreement," the Army relies on the Air Force for CAS of its ground forces. Despite perceptions to the contrary, the Army has never sought the CAS mission from the Air Force. Even when the Air Force offered the mission to the Army in the late 1980s, the Army politely turned the offer down. Why, then, did the Army continue to develop its fleet of attack helicopters that are now considered CAS capable platforms? It appears that the underlying issue (almost subconscious) is the basic doctrinal Principal of War, specifically, Unity of Command. The Army's keystone doctrine, FM 100-5 "Operations," defines Unity of Command:

> ***For every objective, seek unity of command and unity of effort.*** At all levels of war, employment of military forces in a manner that masses combat power toward a common objective requires unity of command and unity of effort. Unity of Command means that all the forces are under one responsible commander. It requires **a single commander** with the requisite authority to **direct all forces** in pursuit of a unified purpose.
>
> Unity of effort, on the other hand, requires coordination and cooperation among all forces — even though they may not necessarily be part of the same command structure — toward a commonly recognized objective....Unity of effort — coordination through cooperation and common interests — is an essential complement to unity of command.[30]

The Air Force's basic doctrine of "centralized control, decentralized execution" or Unity of Command, directly conflicts with the Army's Unity of Command. "Centralized control, decentralized execution" has proven to be the most efficient application of airpower in the pursuit of operational and strategic objectives. The pursuit of tactical objectives is still an item

of debate with the Army. There is a basic rule that all successful Army officers learn early in their careers. If you don't own it, if you can't wrap your arms around it, if it's not parked in your motor pool, then you had better not count on it if you need it!!! CAS, clearly fits this example. More significantly, many Army officers have had both good and bad experiences with CAS. But, as is human nature, the one bad experience often is the one with the most significant impact. It is this mentality that has influenced the Army in its desire to lessen its total dependence on the Air Force as its primary provider of CAS and fires in close proximity to friendly forces.

In the years since Vietnam, the Army's basic warfighting doctrine has evolved as maneuver warfare. With the Army's long history of "attrition warfare" based doctrine, the evolution of a maneuver doctrine was a significant (perhaps revolutionary) achievement. In recent years, it has been called The Active Defense, Airland Battle, Airland 2000 and, most recently, Operations. In every case, the basic doctrine integrates the combined effects of the Army combined arms team and air power. The goal is to concentrate overwhelming combat power at the decisive point and achieve decisive victory. The only problem has been that the Air Force has never relinquished operational control of its air power, even when allocated for CAS in the tactical fight. The Army has never felt comfortable with this, and, as mentioned earlier, began to seek alternatives to CAS.

Armed helicopters appeared in the Army in the 1950s and were initially used as armed reconnaissance platforms. Their light firepower (machine guns) and limited capability made them useful as scouts in the cavalry. But those with vision saw the potential. As Vietnam escalated, the armed helicopter evolved into a fire support system and units were organized as aerial rocket artillery in addition to the already established air cavalry. Although the ground commanders utilized CAS provided by the Air Force, the love affair with the armed helicopter became passionate. Consequently, the Army began development of the ill-fated AH-56A "Cheyenne" helicopter. Although this system was immediately seen for what it was capable of (close air support), the Army proclaimed it a fire support system and, in fact, designated it the Advanced Aerial Fire Support System or AAFSS. As mentioned earlier, the "Cheyenne" was canceled but **it clearly demonstrated the Army's desire to provide its own organic aerial fire support.** Throughout the Senate debates over close air support and the acquisition of the A-10 or the AH-56A, the Army strongly denied that CAS should be transferred to the Army with the acquisition of the "Cheyenne".[31]

In the mid-1980s, the AH-64A "Apache" entered service with the Army. Quickly, it became apparent that this machine was a potent aerial fire support system — **and a lot**

more. Fielded primarily as a tank killer, this helicopter proved itself capable of aerial fire and maneuver and is most effective at night with its state-of-the-art night vision and target acquisition systems. And, in the Army's view, the best part is, **it's organic to the ground commander**. But the Army still refuses to see the "Apache" as a CAS asset, recognizing its versatility as an aerial maneuver platform that has tremendous flexibility in its application of lethal firepower. The Army believes that the "Apache" compliments the CAS mission of the Air Force, but is not a substitute for it.

The Army is generally satisfied with the CAS system as it exists today with one major exception — control. Any changes in the CAS doctrine should address the supported commander's desire to control all of the combat power allocated to him in support of his land objectives. This should not be interpreted as an attempt by the Army to acquire its own Air Force. The Army does not want to take on additional requirements that the Air Force currently performs. The issue is control and, indirectly, reliability. Although attack helicopters are now considered CAS capable assets, they live and operate in the "ground environment" and are organic to ground maneuver units. Doctrinally, they will remain under the control of the ground commander regardless of the mission that he assigns them.

THE MARINE CORPS CAS PERSPECTIVE: SEMPER FIDELIS

Since its inception during World War I, the Marine Corps' aviation assets have been justified in relation to their value in support of ground operations. The first Marine Corps aviator, Alfred A. Cunningham, defined the rationale for Marine aviators. This statement still accurately describes the attitude of many Marines toward the utility of close air support:

> The only excuse for aviation in any Service is in its usefulness in assisting troops on the ground to successfully carry out their operations.[32]

Today, the primary purpose of Marine aviation remains the support of the Marine rifleman on the ground. Although Marine air assets perform several different functions other than CAS, CAS remains the main mission and primary focus of aviation operations. As stated earlier, the Marine Corps considers the organic MAGTF aviation to be a supporting arm in operations where the ground commander's land force objectives are the main effort.[33]

The primary difference in the way the Marine Corps provides CAS to the ground combat element and the method the Air Force uses in supporting the Army is ***control***. Marine

aviation is organized, trained and equipped to be the aviation combat element of a MAGTF. Because they are integrated into the ground combat elements scheme of maneuver and are directly responsive to its needs, Marine aviation assets offset shortcomings in organic indirect fire support. The fundamental concept of employment of Marine aviation is that it must permit "centralized coordination and supervision of air operations at the highest level, while incorporating decentralization of control authority to subordinate agencies."[34] But the primary reason the Marines maintain their aviation organization as they do "is the same reason any commander would if allowed — dedicated, flexible, far-ranging, potent, reliable, organic combat power that fights (and wants to fight) your fight; not prosecute an independent air campaign or stay aloof at the 'operational' level."[35]

The Marine Corps has both fixed and rotary wing assets. The primary a[illegible]t are the FA-18, the AV-8B, and the AH-1W. The Marine Corps recognizes two t[illegible] of CAS missions: CAS in the traditional sense; and close-in fire support (CIFS). CIFS is CAS performed by rotary wing aircraft. Because of their ability to vary their airspeed, marine helicopters have proven themselves to be extremely capable CAS platforms. Unlike the Army, the Marine Corps has not developed a maneuver doctrine for its attack helicopters, relying upon them solely as a fire support system.

In summary, the Marine Corps CAS doctrine reflects the mission of the Marine Corps: support of expeditionary forces in the attainment of land-force objectives. The commitment to effective and responsive CAS has been the most significant factor that has set the Marine Corps apart from the other services and has forged the air-ground team that is the basis for the MAGTF concept.[36]

CAS AND THE JOINT FORCE AIR COMPONENT COMMANDER

Another element in the CAS equation is the evolution of doctrine for the Joint Force Air Component Commander (JFACC). Although the JFACC could be designated to any of the services, it will normally be assigned to the service who has the preponderance of the air assets in the theater. This will usually be the Air Force unless the operation is maritime in which case the JFACC would probably be Marine or Navy. JFACC doctrine is consistent with the Air Force's long accepted principle of "centralized contol-decentralized execution".

Joint Pub 1-02, "Department of Defense Dictionary of Military and Associated Terms" defines JFACC.:

> The joint force commander (JFC) will normally designate a joint force air component commander (JFACC). The JFACC's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the JFC's apportionment decision). Using the JFC's guidance and authority, and in coordination with other service component commanders and other assigned or supporting commanders, the JFACC will recommend to the joint force commander apportionment of air sorties to various missions or geographic areas.[37]

The primary concern of the Army, Navy, and Marine Corps is the control that the JFACC will exercise over their organic air assets, specifically those necessary to directly support their specific requirements — Close Air Support. The Joint Chiefs of Staff Omnibus Agreement of 1986 required the Navy and Marine Corps to provide all excess sorties to the JFACC for apportionment and reallocation. Some Marine and Naval officers have raised concern that this concept will spell the end of Marine fixed-wing aviation and force the Marine Corps ground commanders to rely on the Navy for fixed-wing air support, much like the Army relies on the Air Force for CAS.[38] Although the argument has logic, it is without foundation. Joint Pub 3-01.2, "Landing Force Operations" states:

> The MAGTF commander will retain operational control of his organic air assets. The primary mission of the MAGTF air combat element is the support of the MAGTF ground element. During joint operations, the MAGTF air assets will normally be in support of the MAGTF mission. The MAGTF commander will make sorties available to the Joint Force Commander, for tasking through his air component commander for air defense, long-range interdiction, and long-range reconnaissance. Sorties in excess of MAGTF direct support requirements will be provided to the Joint Force Commander for tasking through the air component commander for the support of other components of the joint force or the joint force as a whole.[39]

The Chairman, JCS, in his Roles and Missions report of February 1993, raised the concern of Army officers when he concluded that CAS was an essential battlefield task that could and should be routinely performed by attack helicopters. Although the Army's concern

is valid, Air Force doctrine does not seek control of attack helicopters in the CAS role. The Air Force's ***JFACC Primer*** dated February 1994 states:

> Army Aviation assets are normally retained for employment as organic forces; current Army doctrine considers Army Aviation forces as maneuver units. However, some Army helicopters could be employed in close air support operations; some Army helicopters could also be employed in interdiction, in which case they may come under the purview of the JFACC when the JFACC has been tasked to plan and execute the theater interdiction effort.[40]

The Naval Doctrine Command has published a draft manual on the JFACC organization and processes that specifically addresses Army attack helicopters. There are some distinct differences from the Air Force perspective (notice the absence of CAS or any reference to it):

> Army aviation assets are organic to Army units and are used by the Army Forces Commander (ARFOR) as an integrated member of the combined Service support to the combined arms team. Normally, all Army aviation assets are employed and controlled by the ARFOR. Army attack helicopters are formally tasked by mission-type orders to a battalion or squadron, which executes the mission as an integral unit/maneuver element.[41]

The exact role that the JFACC will play in the execution of CAS is still evolving. But the JFACC will not enhance our warfighting ability if our basic CAS doctrine is flawed. If the benefits of the JFACC are to be fully realized, our warfighting doctrine, specifically CAS doctrine, must be revised to reflect the dynamic changes in technology and joint warfighting that have evolved.

CAS DOCTRINAL DISCONNECTS

Although CAS has been a mission of the armed services for over 70 years, the basic doctrinal principles have changed very little. CAS owes its origin to ingenuity to compensate for shortcomings in organic fire support. Early artillery systems lacked the range and accuracy to adequately support ground soldiers. The potential of the airplane was quickly recognized and thus, CAS was born. Control measures were developed to manage the battle and the assets that fought it. Thus was born the Fire Support Coordination Line.

Today, JCS Pub 1-02, defines the FSCL as:

> A line established by the appropriate ground commander to insure coordination of fire not under his control but which may affect current tactical operations. The (FSCL) is used to coordinate fires of air, ground, or sea weapons systems using any type of ammunition against surface targets.... The establishment of the (FSCL) must be coordinated with the appropriate tactical air commander and other supporting elements.[42]

The FSCL is nothing more than a boundary that the ground commander uses to define the limits of his tactical fight.[43] The ground commander controls all fires short of the FSCL and usually restricts the fires of other services unless properly coordinated. Beyond the FSCL, targets can be attacked by the Air Component Commander through the application of Air Interdiction (AI). The Army also has interdiction assets that can be employed beyond the FSCL, specifically the Army Tactical Missle System and attack helicopters.

It is important to note that the FSCL "debate" is not the issue in the Marine Corps that it is between the Army and Air Force. This is due directly to the Marines ability to provide their own air support. Because the Army depends on the Air Force for most air support, where the FSCL is placed has become the dividing line of the tactical (and doctrinal) fight between the two services.

The FSCL has also become the boundary for CAS. Although it is doctrinally correct to attack targets short of the FSCL with AI, we have generally come to believe that CAS occurs when fixed-wing air assets attack enemy forces short of the FSCL, regardless of the proximity of friendly forces.[44] As the range and capabilities of organic surface weapon systems have increased, so has the distance of the FSCL from the FLOT. With the fielding of the Multiple Launch Rocket System (MLRS) and the Army Tactical Missle System (ATACMS), ground commanders now routinely extend the FSCL to distances of 30 kilometers or more. The net result is that the area that now encompasses CAS has grown exponentially. Figure 1 illustrates how the battlefield boundaries delineate where CAS is conducted on today's modern battlefield. Is this doctrinally correct? How can CAS be considered in close "proximity" to friendly forces if those forces can not see or even hear the effects? Do we really need to apply all of the control measures that we have developed for CAS if there is no potential for fratricide? It should be painfully clear that for whatever reason, we are now conducting CAS

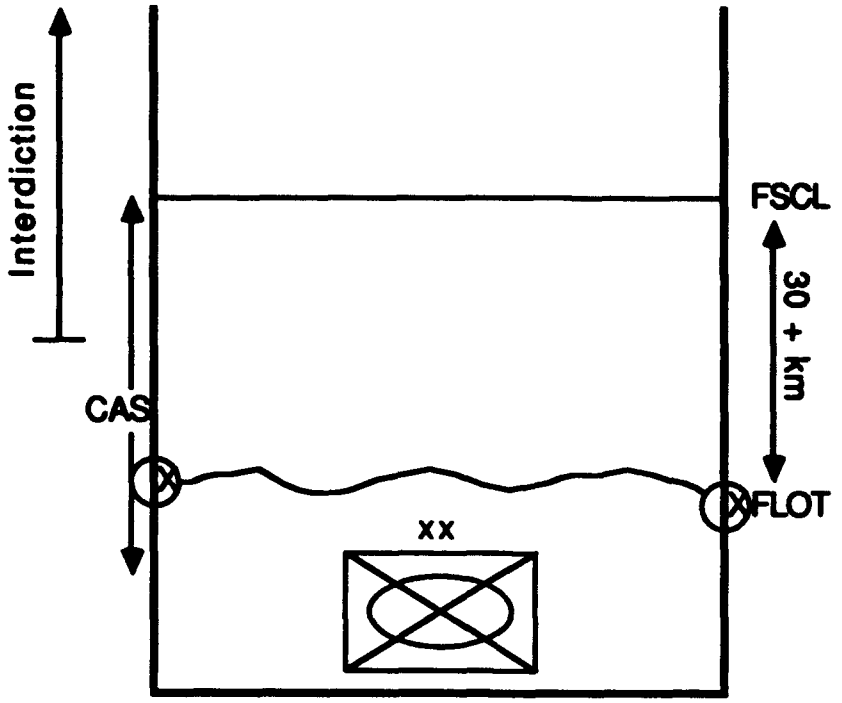

Figure 1

missions on parts of the battlefield that do not qualify for that mission. There is little doubt that some sort of combat power must be applied, but to continue to define all air support conducted short of the FSCL as CAS is clearly not doctrinally correct. As Lt Col (Ret) Gary L. Dikkers, USAF, has pointed out, Confucius said: "The beginning of wisdom is calling things by their proper names."[45]

As mentioned earlier, control of CAS has always been a point of concern for most ground commanders. With the Air Force retiring the A-10, and fielding a ground-attack version of the F-16, control of CAS assets becomes an even bigger concern — not to mention the JFACC and the questions raised by the emerging role that he will play. Doctrinally, the control of CAS needs to be reviewed and clarified.

The ground commander is the supported commander in the close fight and logically, he should have control of all assets employed in his support. The Air Force doctrine of "centralized control and decentralized execution" has stood the test of time and clearly is the best application of air power in the pursuit of theater and operational objectives. But the tactical battle is still a question of debate and the retirement of the A-10, a somewhat dedicated CAS aircraft, will only heighten the debate. It is time to put parochial views and emotion

behind us and get on with business. The focus of the debate should be on the best way to accomplish the combat objectives of the Joint Force Commander. Competition between the services for command and control of assets must be put aside. Lt Col Brian W. Jones, USAF, recognized this and has proposed a new joint definition of CAS:

> "Close air support missions integrate aerospace assets into the fire and maneuver plan of surface force commanders at all levels; toward that end, the joint force commander procedurally authorizes temporary tactical control of CAS assets to surface force commanders for specified mission execution".[46]

Temporary tactical control of air assets in support of the ground commander is a concept that not only makes sense, it synchronizes air and land power in pursuit of the combat objectives of the Joint Force Commander. The Air Force doctrine of centralized control, decentralized execution is combat proven in interdiction and strategic attack of theater objectives — operational and strategic levels of war. The tactical level of war, however, remains the responsibility of the ground force commander. He who must live with the effects of land warfare should have tactical control over all assets that are available to accomplish the JFC's stated objectives.

The Israelis have developed a CAS doctrine of "centralized allocation, decentralized control" that allows a great deal of flexibility for the supporting commander and places the supported commander in control of execution.[47] The battlefield successes that the Israelis have enjoyed should encourage us to revise our CAS doctrine to meet future challenges on the battlefield.

As technology has advanced, so has the lethality of the modern battlefield. With increased lethality comes reduced survivability. Although the performance of the the Air Force in Desert Storm was nothing short of remarkable, we should not ignore the potential for heavy losses that advances in technology have made possible. With the proliferation of modern, high technology weapons to anyone who can meet the asking price, even the most low-technology opponent has the potential to strike with lethality. This is especially true in air defense. The world-wide proliferation of shoulder fired "stinger" type weapons could make the CAS mission one of the most difficult and deadly for high performance aircraft. One need only look to the effectiveness of the Afghanistan resistance against the Soviets to reach this conclusion.

If there is still any doubt, study the results of the Israelis in their experiences against formidable air defenses of the Egyptians during the Yom Kippur War of 1973. After having

relatively no problems overcoming Arab air defenses in 1967, the Israeli Air Force lost 50 planes in the first three days of the 1973 war while confronting the interlocking batteries of surface-to-air missiles.[48] Total losses of CAS aircraft, the A-4 and the F-4, totaled 53 and 33, respectively.[49] This is a loss rate that no air force can afford for very long. "Any defense system capable of inflicting such losses must be suppressed quickly or the air arm will be unable to play a part in the land battle."[50] The question remains, is CAS a viable mission for high performance, fixed wing aircraft on todays lethal, high technology, integrated battlefield?

Of all the developments in technology, none has had a greater impact on warfighting than precision guided munitions (PGMs). The world was introduced to them and their incredible capability during Operation Desert Storm. Americans, and most of the civilized world, watched, in amazement, narrated video tapes of American aircraft striking their targets with precision accuracy. Time and again, targets were destroyed with one bomb or missile that, in previous wars, normally would have required multiple sorties or fire missions to achieve the desired results.

Many of the PGMs fielded in U.S. armed forces today are "beam riding" laser weapons. Hand-held laser designators are now common equipment in Army and Marine ground forces and are thoroughly compatible with those of Air Force platforms. The only requirement is that both the laser designator and the PGM must be on the same frequency, much like a common frequency is required for radio communication. Consequently, the air-ground team is now capable of fully integrated, precision attacks against point targets in close proximity to friendly forces.

The Army's "Apache" helicopter employs the "Hellfire" Missile as its primary weapon. The Marine Corps has also equipped their AH-1Ws with the "Hellfire". Although it is designed specifically to defeat all known armor threats, the "Hellfire's" laser guidance and high explosive warhead make it an excellent weapon for employment by ground forces against point targets in close proximity. Perhaps the best aspect of this concept is that the aircraft (launch platform) does not have to "close" with the enemy target or even visually acquire it. There are only three parameters that are necessary for employment of PGMs. First, the target must be in range of the weapon; second, the designator and the weapon must be on the same laser frequency; and third, the weapon must have terminal laser guidance to the target. All of these requirements are easily coordinated and, in fact, are routinely conducted in training scenarios. The obvious question is: "Why have PGMs not emerged in our CAS doctrine as the principle weapon of choice?"

The time has come to end our dependence on aircraft employing "dumb" bombs for

CAS. There are many reasons why we should do this but the most compelling is **it makes sense**. Why do we continue to send our "national assets" (in today's fiscal environment, that's exactly what our aircraft are) in "Harm's way" when we now have the capability to destroy enemy targets with pin-point accuracy, and place them at minimum risk? The critics of this idea will immediately point out the cost of PGMs which are very expensive when compared to conventional munitions. But they are relatively inexpensive when compared to the cost of replacing a ground attack aircraft and it's crew. The question is not "can we afford it," but rather "can we afford **NOT** to".

DYNAMIC CAS DOCTRINE

The time has come to transition from the traditional dogma that has characterized our CAS doctrine for so many years and move into the 21st century with a dynamic doctrine that accurately reflects the changes in technology, economy, tactics, and future battlefields. Consequently, the following changes in CAS doctrine should be implemented:

The Army should assume primary responsibility for CAS from the Air Force. The Army now has the organic capability in its fire support systems to adequately handle most of the CAS situations that it can expect to encounter. The Air Force should retain CAS as a secondary mission for those situations that require more assets and capabilities than the Army can provide. The Army's arsenal of extremely accurate ground-based fire support systems now allows ground forces to do the job of CAS more effectively and efficiently than air forces, and with less risk.

The Army's attack helicopter fleet is an excellent CAS system, in addition to its enormous maneuver capability. Because attack helicopters are resident in the ground commanders organization and consequently are integrated into the scheme of maneuver, their effectiveness as CAS platforms is greatly enhanced over that of the existing air-ground system of today. The Army's doctrinal concern of Unity of Command is now solved and the ground commander has CAS assets under his operational control.

The Army, however, needs to exercise caution in utilizing Army aviation assets as CAS. Army aviation has proven itself as the most versatile and flexible maneuver asset in the Army today. The "Comanche", when fielded in the next few years, will only add to this capability. If Army aviation becomes the "new Army Air Corps", we will have severely limited our capability to achieve land force dominance and the net result will be the simple substitution of Army airframes for Air Force airframes.

By accepting CAS as a secondary mission, the Air Force can focus its effort on what it does best: air superiority, strategic attack, and interdiction. This would end the inter-service conflict of roles and missions that has never been satisfactorily resolved. The JFACC debate would also become moot since other missions would no longer be competing with the CAS mission for resources and priority.

The Marine Corps remains the primary provider of CAS for expeditionary forces. The current MAGTF organization is combat proven and has stood the test of time. We should follow the sage advise of "if it's not broken, don't fix it." There are some equipment deficiencies that must be addressed if the Marine Corps is to continue to provide the level of CAS that future conflicts will require.

The recent decision not to equip the Marine Corps with the multiple launch rocket system needs to be reviewed. This deficiency will only require the Marine Corps to maintain its dependency on aircraft which are growing obsolete. The MLRS is a combat proven system that is available now and would greatly increase their ability to provide close fire support to Marines ashore.

The AH-1W is a formidable attack helicopter, but it is a modernized version of an aircraft that flew initially almost 30 years ago. The Marine Corps needs to look to the future. The Army is in the final stages of developing the "Comanche" attack helicopter to compliment the "Apache." The "Comanche" is truly a state-of-the-art helicopter that could easily be adapted to the mission of Marine aviation. Cooperation with the Army on this project would save dollars and provide Marines with modern, high-tech rotary wing air support.

The AV-8B is also showing its age. Although it is an extremely accurate and reliable air-to-ground system, it too, is old technology. Specifically, its infrared signature makes its survivability in the CAS environment questionable. The Marine Corps has recognized this deficiency and has initiated a program that will significantly upgrade the capabilities of the AV-8B in surviviability and night-fighting. But, like the AH-1W, the AV-8B is an old aircraft with limited potiental.

CAS should be specifically defined and limited to "close" proximity of ground forces. Current doctrine defines the area of the battlefield where CAS occurs in terms of the relationship of friendly forces to the FSCL. As mentioned earlier, the distance of the FSCL from the FLOT has grown exponentially. Consequently, the area of the battlefield that is now serviced by CAS is enormous. Somehow we lost the focus of what CAS is all about. CAS should be defined in terms of the distance of enemy forces to friendly forces. The FSCL still serves a vital function but it is time to disconnect it from CAS.

The proliferation of precision navigation systems such as the Global Positioning System (GPS) has made it possible to determine the precise location of both friendly and enemy forces on the battlefield. This capability, in addition to Precision Guided Munitions, now allows a degree of control over maneuver forces that has never before been achievable. The control and confidence that we now have allows us to engage enemy forces in extremely close proximity to friendly forces with reduced risk of fratricide.

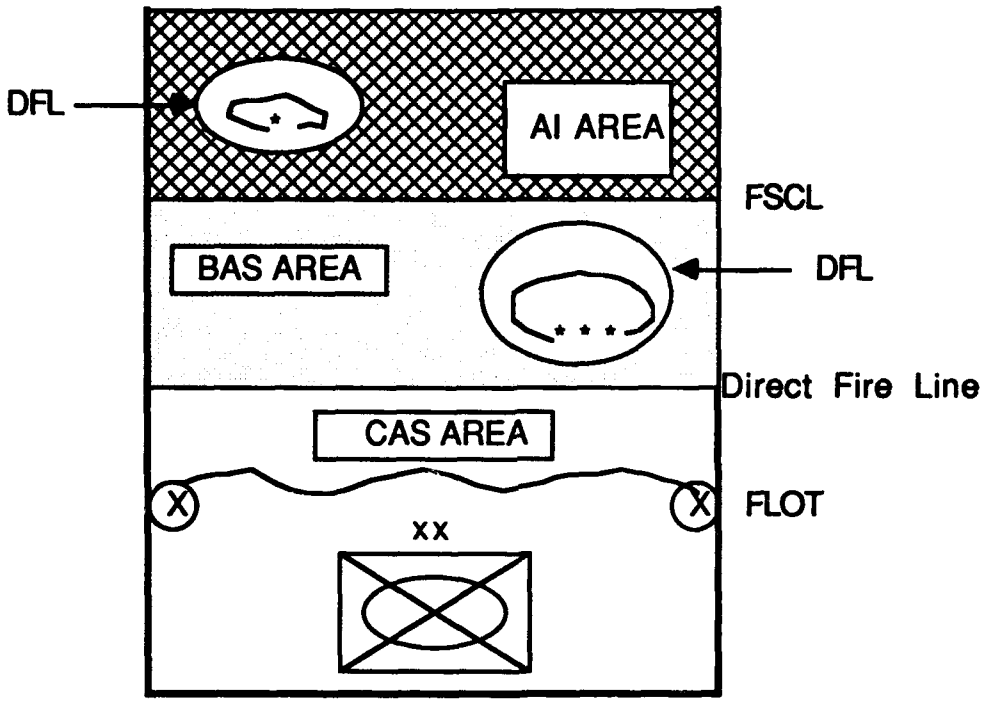

Figure 2

To accommodate this enhanced capability, we should define "close proximity" as "within the range of direct fire weapons of the ground maneuver forces." Since most of these forces are equipped with anti-tank weapons, the range of the Direct Fire Line (DFL) should, generally, be in the 3-4 kilometer range. It is within this area that CAS should occur. Anything beyond the DFL would not pose a fratricide risk and could be attacked with interdiction or battlefield air support. What is important is to change the focus of CAS to the position of friendly forces relative to enemy forces versus the FSCL. This is illustrated in Figure 2.

Precision guided munitions should become the primary CAS weapon. PGMs have come of age and have dramatically changed the ability of American armed forces to effectively and decisively defeat enemy forces with minimum risk of fratricide and greatly increased survivability. If we do not use PGMs in CAS we have failed to learn from our recent successes on the battlefield.

PGMs are fielded in all of our armed forces and are inter-service compatible. Their use allows ground forces to effectively employ aircraft and indirect fires with a greatly reduced risk of friendly causalities from fratricide that has always been present in the traditional CAS mission. There will always be a risk of fratricide because of the human element and humans make mistakes. But PGMs, GPS and future emerging technologies will reduce the threat to ground forces. The use of PGMs allows the ground commander to protect his force and decisively and effectively defeat the enemy. Our CAS doctrine should reflect PGMs as the weapon of choice for employment against enemy forces in close proximity to friendly forces.

CONCLUSION

Although our ability to perform CAS has changed dramatically in the years since World War II, the basic doctrine for CAS has changed very little. Although we now have PGMs, GPS, MLRS, low-observable aircraft, organic attack helicopters, reliable communications, and a multitude of other emerging technologies, our doctrine is basically unchanged from that which we developed as a result of our experiences in Korea and Vietnam. If we expect to meet the challenges of the 21st century and maximize our warfighting capabilities we must seek doctrinal change that is dynamic.

The United States Air Force defines doctrine in Air Force Manual 1-1, Volume 1:

> Doctrine is what we have learned about aerospace power and its application since the dawn of powered flight. While history does not provide specific formulas that can be applied without modification to present and future situations, it does provide the broad conceptual basis for our understanding of war, human nature, and aerospace power. Thus, doctrine is a guide for the exercise of professional judgment rather than a set of rules to be followed blindly. It is the starting point for solving contemporary problems.
>
> ***Doctrine should be alive — growing evolving, and maturing.*** New experiences, reinterpretations of former experiences, advances in technology, changes in threats, and cultural changes can all require alterations to parts of our doctrine even as other parts remain constant. ***If we allow our thinking about aerospace power to stagnate, our doctrine can become dogma.***[51]

The United States Army defines doctrine in Field Manual 100-5:

> Doctrine is the statement of how America's Army, as part of a joint team, intends to conduct war and operations other than war....doctrine must be definitive enough to guide specific operations, yet remain adaptable enough to address diverse and varied situations worldwide.
>
> ***Doctrine should reflect new technology and its potential for the future,*** as well as its effects on Army operations....Doctrine seeks to meet the challenges facing the Army by providing the guidance to deal with the range of threats to which its elements may be exposed.[52]

Doctrine is to warfighting as the gospel is to religion. It is the basis for our beliefs and our convictions. It determines our values and ethics. It is tempered by our personal beliefs gained through experience and wisdom. CAS doctrine is no exception. If we do not make dynamic changes, we will stagnate in dogma. Perhaps it is time for a **"New Testament."**

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