Optimizing Attack Aviation Battle Command in Deep Operations

A Monograph
by

Major J. Mike Simmons

Aviation

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

First Term AY93-94

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	17/12/93	MONOGRAPH

4. TITLE AND SUBTITLE
OPTIMIZING ATTACK AVIATION BATTLE COMMAND IN DEEP OPERATIONS (U)

5. FUNDING NUMBERS

6. AUTHOR(S)
MAJ J. MIKE SIMMONS, USA

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
SCHOOL OF ADVANCED MILITARY STUDIES
ATTN: ATZL-SWV
FORT LEAVENWORTH, KANSAS 66027-6900
COM (913) 684-3437 AUTOVON 552-3437

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*
SEE ATTACHED SHEET

14. SUBJECT TERMS
BATTLE COMMAND
ATTACK HELICOPTER
PHYSICAL DOMAIN
COMMAND AND CONTROL
DEEP OPERATIONS
MORAL DOMAIN
CYBERNETICS

15. NUMBER OF PAGES
54

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNLIMITED

ABSTRACT

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The AH-64 (Apache) attack helicopter battalion has evolved into a preeminent participant in corps and division deep operations battlespace. Despite the new world order and the resultant downsizing of U.S. armed forces, the U.S. Army's AirLand Operations doctrine continues to recognize the importance of deep operations. Based on the outstanding attack helicopter performance during Operation Desert Storm, potential regional conflicts of the future, whether they be of the lesser or major variety, will likely see an increased emphasis on attack aviation's deep capabilities.

This monograph examines battle command theory and doctrine as derived from both classical and contemporary theorists, and compares that doctrine with aviation's deep operation battle command theory and doctrine. An analysis of the physical, cybernetic, and moral domains of war revealed four common characteristics prevalent in an effective battle command system. Commanders must be forward at the decisive point, have absolute communications, collect and disseminate accurate and timely data, and integrate their supporting staff into the battle command process.

This monograph concludes that attack aviation's deep operation battle command tactics, techniques, and procedures are based on the four fundamental characteristics necessary for effective battle command. However, the deep operations doctrine lacks sufficient detailed guidance for establishing a standardized deep operations battle command system. Also noticeably absent from the current attack battalion is a dedicated command and control helicopter capable of operating in the same flight environment that the Apache uses.

Through versatility and ingenuity, attack battalion commanders in Operation Desert Storm overcame the doctrinal deficiencies, and resolved the materiel discrepancy by exercising battle command from an AH-64. With the Army's increased emphasis on short notice, crisis response operations, the time to fix these doctrinal and materiel shortcomings is now.

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major J. Mike Simmons, M.S.

Title of Monograph: Optimizing Attack Aviation Battle Command in Deep Operations

Approved by:

John P. Lewis
Lieutenant Colonel John P. Lewis, M.S. — Monograph Director

Robert H. Berlin
Robert H. Berlin, Ph.D — Director, School of Advanced Military Studies

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

Accepted this 17th day of December 1993

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I. INTRODUCTION

The shift in aircraft types, capabilities, and missions for the modern attack helicopter battalion may mandate appropriate changes in the command and control systems available to and procedures used by the battalion commander. Today's modern attack helicopter battalion is charged with destroying massed enemy mechanized and other forces with aerial firepower, mobility, and shock effect in deep, close, and rear operations.[1] With the night killing systems and extended range capabilities of the AH-64, increased emphasis has been placed on sending Apaches deep. Long before Operation Desert Storm, air maneuver with attack helicopters was cited as the most responsive and sustainable asset available to a corps commander for influencing deep operations.[2] Operation Desert Storm served as the ultimate proving ground to date in validating deep operations employment concepts for attack helicopters.

Despite the general success of attack helicopter deep operations during Desert Storm, the process by which attack helicopter battalion commanders exercised battle command in the deep fight varied significantly. Just as many ground maneuver commanders complained that their tactical communications equipment lacked the range and flexibility necessary to command and control

their forces over the extended distances associated with the Gulf War,[3] so too did air maneuver suffer similar problems.

As a result of these extended distances and the fast paced tempo of the war, attack helicopter battalion commanders were forced to adapt their battle command techniques to fit the conditions. Were these adaptations and deviations from doctrine an anomaly, or does the current AH-64 equipped attack helicopter battalion have the right tactics, techniques, procedures, and equipment for facilitating effective battle command by the battalion commander in future deep operations?

Through an analysis of the theoretical roots of battle command, the evolution of the attack helicopter battalion, and attack helicopter deep operations in Desert Storm, this monograph answers that question and makes recommendations for improvements. Although focused primarily on the existing organization, the findings of this study may be applied to the future Aviation Restructuring Initiative force structure proposal as well.[4]

II. BATTLE COMMAND THEORY AND DOCTRINE

The genesis of battle command theory and doctrine is tied directly to the theoretical underpinnings critical to the concept and understanding of war. The

concept of battle command as a subset of expanded theories on the art of war was mentioned as early as Sun Tzu's time and has since been elaborated upon extensively by numerous military theorists.

In his chapter on estimates in The Art of War, Sun Tzu advocated the criticality of understanding five factors of warfare: the moral influence, weather, terrain, command, and doctrine.[5] Clausewitz too recognized the importance and interrelationship of these variables on the conduct of war. In On War, he discussed similar topics such as military genius, moral factors, military virtues of the army, and terrain.[6] Finally, Antoine Henri Jomini explored related themes in his book The Art of War, with the addition of some specific insights on the question of command and staff relationships.[7]

Grouping these three classical theorists together reveals a commonality among their themes. Warfare and its associated study can be broken down into three separate but related entities: the physical domain, the cybernetic domain, and the moral domain. Command and control, referred to in today's vernacular as battle command, can also be categorized and studied in light of these three domains. Each of these domains thus has a distinct influence on a commander's ability to execute effective battle command.

PHYSICAL DOMAIN

The physical domain of battle forms the baseline for understanding the dynamics of battle command. Physically, the battlefield is an extremely complex and complicated area. The entire process of destruction to include the effects of weapons and munitions, technology, terrain, weather, logistics, and other physical factors are lumped together under this category.[8] Knowledge and understanding of the various elements of the physical domain are an integral component of battle command.

Technology in the form of weapons and munitions modernization continues to be a critical factor in the physical domain of battle. In 1914, Jean de Bloch predicted that war was no longer possible among rational people due to the proliferation of increasingly lethal weapons.[9] World War I followed shortly thereafter and proved Mr. Bloch incorrect. Nonetheless, Bloch was one of the first theorists to recognize the effects technology has on the nature of warfare.

Numerous theorists since Bloch have expounded upon the concepts associated with technology and armed conflict. Christopher Bellamy for example argued that technology, though a key element in the conduct of war, it is only one corner of a larger triangle. The other

two corners, tactical doctrine for using the technological solution, and the individual and collective training required to exploit the technology, must also exist in order to see any advantage accrue to the possessor. That advantage, Bellamy argued, is short lived in most cases, as "ingenious improvisations and technological advances are seldom confined to one side for very long."[10] Thus technology's value is directly proportional to its relationship with the other physical components.

Terrain is a second key component of the physical domain of battle, and one which has been studied and written about for ages. Sun Tzu recognized the essential role that terrain can play in influencing the outcome of a conflict. He devoted two chapters to the subject; one as a general overview, and a second one covering the nine varieties of ground and their associated implications on warfare. The judicious understanding and selection of when and where to fight was extremely important to Sun Tzu. Against a stronger adversary, he felt the advantages of exploiting the terrain could allow weaker troops to win. In fact, his belief in the criticality and ultimate decisiveness of terrain led him to advise military leaders that their knowledge of the ground and weather combined would guide them to total victory.[11]

Clausewitz viewed terrain in a more narrow sense than Sun Tzu, believing that when forces were similarly equipped, terrain played, at best, a minor role in the outcome of a conflict.[12] Yet, Clausewitz did not completely discount the effects of terrain either. He felt the relationship between terrain and warfare was a permanent factor, capable under certain conditions of having a decisive impact, and influential in its ability to both dominate small as well as large areas. He credited geography and ground with influencing military operations in three areas: as an approach obstacle, a visibility impediment, and a cover from fire. To him, terrain's influence was confined primarily to the tactical level, with engagements and logistical operations most effected.[13]

Jomini was able to condense his theory on war to essentially one major point: victory goes to the army which successfully masses its forces against the enemy at the decisive point on the battlefield.[14] Jomini went on to describe in great detail the various conditions necessary to determine just exactly where the decisive point was located. In his theory, controlling the geographical strategic points as well as the decisive geographic points was critical to an army's ability to win. He advocated the study of the topographical features, obstacles, and land effect

combinations found in the potential theater of operations to help determine these decisive points. He went so far as to recommend that distinguished officers be employed in the scientific labor of geographical analysis in order to determine these critical points on the battlefield.[15] Thus terrain formed an essential element of Jomini's theory.

Logistics is the third and final component of the physical domain of battle having a demonstrable effect on battle command theory and doctrine. The argument has raged on for centuries as to which is more important to the successful prosecution of a war: the operational plan or the logistical plan which supports it. Martin Van Creveld stated in Supplying War that before a commander can even begin thinking about the tactical aspects of an upcoming battle, he must first consider the supplies, road networks, and transportation assets necessary to get the force to the fight.[16] The simple solution is to acknowledge that the two are inextricably linked, therefore requiring the commander to alternately divide his attention between the two.

Sun Tzu understood the importance of logistics. He scattered aphorisms on the necessity of equipping, supplying, and moving an army throughout his book. Further, he asserted that an army which lacked heavy

equipment, fodder, food, and stores would be defeated.[16] Thus, other things being equal, only a logistically well prepared army could be victorious. Sun Tzu, like the theorists that followed him, felt the commander of the forces bore the ultimate responsibility for that logistical preparedness.

Like Sun Tzu, Clausewitz also addressed logistical issues as they related to warfare and battle command. In his chapter on maintenance and supply, Clausewitz recognized two distinct features of logistics. First, prior to the initiation of hostilities, logistics can become the supreme determinant of the course of a war. But, once the war has begun, "the feeding and supplying of the troops becomes a secondary matter."[17] Though his view on logistics was shaped in the pre-industrial era of Europe and therefore somewhat limited in scope, Clausewitz recognition of its importance remains profound.

Jomini expanded the concept of logistics beyond just feeding and equipping the army. He also included details of moving and lodging the forces, directing march columns, and refining the concepts for their employment as dictated by the commander.[18] Further, building upon concepts established by Clausewitz, he distinguished lines of operation from lines of communication, and showed the logistical linkage

between the two.[19]

The physical domain is a driving force and one of the primary considerations when a commander designs an operation to include his application of battle command. FM 100-5, Operations, describes the four major physical elements of the environment of operations as geography, terrain, weather, and infrastructure. It concludes that commanders are responsible for understanding these elements and their impact on military operations.[20] Thus, the theoretical lineage of the physical domain is clear: from Sun Tzu, Clausewitz, and Jomini, to the Army's capstone doctrinal manual on operations.

CYBERNETIC DOMAIN

Complications related to the physical factors of terrain, weather, logistics, and technology have led to an increased emphasis on cybernetics to assist commanders in executing battle command. The cybernetic domain involves the factors of organization, command, control, communications, and information flow within a unit. Organization gives the unit its basic shape and composition, whereas command provides the purpose, direction, and motivation necessary to achieve some aim. Conversely, control regulates and minimizes deviation from the established aim. Communication ensures that the flow of information through the organizational structure continually supports the

battle command requirements.[21]

Though the term cybernetics is relatively new in the military lexicon, it has long been the subject of military theorists. Sun Tzu addressed command and doctrine in his chapter on estimates, describing them as two of the essential elements for victory.[22] Clausewitz, though he never individually addressed the components of cybernetics, understood the processes involved. He noted that carrying on the complex activities associated with war required the gift of great intellect and temperament: the military genius.[23] Jomini, on the other hand, went to great pains to describe how staff work must support the needs of the commander. Staffs were charged with the ultimate goal of enabling the commander to make more rapid and better decisions.[24]

In Command In War, Martin Van Creveld recognized the expanding need for cybernetic systems to assist the commander in executing battle command. He stated that the problems of battle command have grown exponentially in modern times primarily in two areas. First, demands made upon command systems have increased due to the enhanced complexity, mobility, and dispersion of modern armies. Second, communications and data processing technology has flourished to the point of information overload for the commander on the scene. Van Creveld

goes on to describe an ideal command system as one which gathers information accurately, continuously, comprehensively, selectively, and fast. The cybernetic process, then, should assist the commander's decision making through a series of organizations, procedures, and technical means.[25]

The problem on today's modern battlefield is that the ultimate desire for perfect knowledge has a tendency to cause the commander to be positioned further to the rear where the cybernetic systems are located. This leads to a contradiction in battle command: coordinating is best carried out at a fixed and detached point in the rear, whereas motivating is best accomplished from a position out front among the troops.[26]

In Men Against Fire, S.L.A. Marshall, known primarily as an advocate of the moral domain of battle, also recognized the criticality of the cybernetic domain. Marshall understood the effect that communications and information flow could have upon an army, citing them as "the soul of morale in combat and the balancing force in successful tactics."[27] He stressed establishing and supporting both formal and informal chains of command to enhance information flow in an organization and restore some semblance of order to a chaotic battlefield. Marshall also stated that

regardless of a commander's individual brilliance, without full and accurate information at the point of impact, failure was most likely to occur.[28]

Numerous doctrinal concepts concerning the cybernetic domain are directly attributable to the theoretical concepts just discussed. The July 1993 draft edition of FM 101-5, Staff Organizations and Operations, describes cybernetics as a system which includes personnel, equipment, communications, facilities, and procedures utilized for battle command. It goes on to state that the effective use of cybernetics to facilitate equally effective battle command requires organizations well versed and trained in doctrine, tactics, techniques and procedures, and capable of providing the commander with information that assists in proactive decision making. The organization's ability to think though a problem with a common doctrine as a binding force contributes immeasurably to effective battle command. Doctrine, therefore, establishes the baseline for potential success.[29]

Communications is also recognized in Army doctrine as a vital link between command (the vision of an operation) and the outcome of control (the battlefield activities which subordinates conduct). Commanders are expected to use communications to either tighten or

loosen control of their units. However, commanders must not become overly fixated with sophisticated systems for executing battle command. Personally issuing orders to subordinates is recognized as the best technique available.[30]

FM 100-5, Operations, continues the theme of personal involvement by the commander in his execution of battle command. It states that the battle command system must permit tactical leaders to position themselves wherever they can best command without depriving them of their ability to respond to opportunities and changing circumstances. The related tools of implementing command decisions such as staffs, computers, communications, and intelligence serve as control mechanisms for the commander. All of these taken together should allow the commander freedom to operate, delegate authority, lead from any critical point on the battlefield, and synchronize actions across the entire area of operations.[31]

The cybernetic domain has a profound influence on battle command techniques and procedures. Facilitating proactive decision making, faster than the enemy's ability given the same conditions, is the main benefit of an effective cybernetic system. Rapid advances in technology have both assisted and stymied the commander's capability to lead his organization in

combat. Sources of intelligence and information continue to increase, but the processes and techniques used to synthesize and act upon the data lag behind. Regardless of the supporting cybernetic systems, however, the commander must ultimately determine his battle command style.[32]

MORAL DOMAIN

The moral domain of war forms the third and, argued by many, the most important component of battle command. General John W. Vessey Jr., former Chairman of the Joint Chiefs of Staff, argued that people, not technological systems, are the heart of command and control systems.[33] Dr. Roger J. Spiller, Professor of Combined Arms Warfare at the U.S. Army Command and General Staff College, shares General Vessey's view. Dr. Spiller stated that because technology has received so much attention in military thought and practice, many people are inclined to think that the key to understanding war lies exclusively in technological application. That approach, according to Dr. Spiller, is both false and misleading.[34] Emotions, as vested in the concept of will, are an integral part of war and therefore must be considered too.[35]

The concept of the moral domain of warfare is immersed in the human dimension, as it is concerned with the disintegration and breakdown of will. Dr.

James J. Schneider described morale as "the magnitude of will within an army," further citing that leadership is the critical factor in sustaining and revitalizing the morale in an organization.[36]

Clausewitz, perhaps the most renowned proponent of the moral domain, also identified the criticality of strong leadership in the moral equation, citing the skill of the commander as one of three principal moral elements.[37] Further, he felt that military spirit, created and sustained by strong leadership and vested in professional pride and unit esprit, was one of the most important moral elements in war.[38] Clausewitz viewed war as an inherently complex endeavor, a combination of both art and science which required military leaders with great imagination, extensive education, and possessed with the physical and moral courage to take action.[39]

Morale can further be defined as the qualitative measure of the willingness to act in a certain situation. In Lord Moran's Anatomy of Courage, fear, "the response of the instinct of self-preservation to danger," is cited as a common factor which influences both morale and motivation. Moran felt that fear had to be acknowledged and managed, both individually and collectively.[40] Strong leadership can significantly influence the moral domain by acting as the regulator

of that individual and collective will, resulting in high performance and morale, and resistance to stress and fear.

In Combat Motivation Anthony Kellet supports Moran's conclusions on the linkage between morale, leadership, and fear. He also saw common primary goals, unit esprit, training, socialization, discipline, and ideology as elements which can mitigate the effects of fear. Regardless of these other elements, he felt that human motivation and behavior were the keys to combat effectiveness. Summarized, Kellet emphasized the importance of strong leadership to meet the immediate needs of men in danger and allay their anxieties.[41] Based on a study of American lieutenants commissioned between 1961 and 1964, he concluded that successful combat leaders gave clear directions, showed consideration for their troops, and led by example.[42]

The need for clear orders, consideration, and leading by example are themes also found throughout S.L.A. Marshall's Men Against Fire. Clear orders, in the form of frequent and precise lateral and vertical information flow, were cited by Marshall as "the soul of morale in combat."[43] Marshall felt this type of verbal sharing of knowledge and consideration for subordinates' information needs helped soldiers to

understand their personal responsibility in the fight, and thus carry it out. Finally, Marshall advocated leadership by example and shared sacrifice. His interviews with thousands of soldiers during World War II revealed that troops expected to see their officers working and moving with them. Marshall added that morale among the soldiers was impaired when the leaders shirked danger.[44]

A common thread in the theoretical discussions of the moral domain is the need for strong, decisive leadership located at the critical point of action. Current Army doctrine echoes this sentiment.

FM 100-5, Operations, clearly takes the lessons of the moral exponents to heart, describing soldiers as the centerpiece of the Army's doctrine and warfighting ability. Further, it states that wars are fought and won by soldiers, not machines, and that the human dimension of war will be as decisive in the future as it has been in the past. Further, it cites the human dimension, broken down into physiological and psychological factors, as the critical component between victory and defeat. Leaders are charged and expected to inculcate a sense of moral ascendancy into their subordinates through proper training and leadership.[45]

The ever expanding, distributed battlefield of the

future will likely cause increased psychological hardship on combatants. The fog of war, as evidenced in psychological stress, can be mitigated through effective training, unit cohesion, and a strong sense of leadership which is imbued into each member of the organization.

Again, however, leadership is cited by Army doctrine as the key factor in motivating soldiers. Leaders must inspire confidence and understand the conditions which lead to battlefield stress. To fully comprehend the physiological as well as psychological stresses on the battlefield, the effective leader must share in the dangers and hardships through forward presence.[46] A strong sense of shared sacrifice and leading by example enables the leader to remain connected in the moral spectrum of the battlefield.[47]

The modern context of battle command is described in a recent Army concept paper as the art of battle decision making, leading, and motivating soldiers to accomplish missions. It goes on to state that the two critical components of battle command are the ability of the commander to decide and to lead. Since battle command is described as predominantly an art form, commanders must supplement their scientific analysis, control, and direction with instinct and intuition.[48] Battle command's foundation thus rests

ultimately on the ability of the commander, as he is recognized as the "most essential dynamic of combat power."[49]

Commanders are expected to possess specific capabilities when it comes to exercising battle command. They must have an understanding of the cybernetic systems, organizations, equipment, and processes available. Additionally, they must not only be tactically and technically proficient with respect to the physical aspects of combat, but must also provide purpose, direction, and motivation in order to enhance effectiveness in the moral domain.[50]

The Army's battle command doctrine is thus predicated on an amalgamation of the physical, cybernetic, and moral domains of war as represented by both classical and contemporary theorists. Commanders at any level armed with the ability to recognize, understand, and exploit the linkage between these three domains increase their chances of having an effective battle command system. Derived from the theoretical constructs previously analyzed, an effective battle command system is therefore characterized by four essential components: forward presence of the commander at the decisive point; absolute communications; accurate and timely data collection and dissemination and; the linkage and integration of the commander with

his supporting staff. This system, in turn, promotes victory by enabling the commander to go where he can best influence the action through his moral and physical presence, and the expression of his will.[51] After all, as General John W. Foss, former commander of the U.S. Army Training and Doctrine Command stated: "Who is better than the commander on the ground, forward at the decisive point, to recognize and seize opportunity?"[52]

III. AH-64 ATTACK HELICOPTER BATTALION EVOLUTION

Attack helicopters, which came of age in the jungles over Vietnam, were originally designed as fair weather, daytime fighters. Aerial fire support of ground maneuver forces was their primary mission. Fighting the battalion, therefore, was a relatively simple process. The aviation battalion commander influenced the battle effectively in a UH-1 command and control helicopter orbiting in close proximity to the action. The UH-1 was comparable in speed to the AH-1, could loiter for extended periods at altitudes above the threat weapon systems, and had a sufficient complement of communication systems. It brought to the battlefield a personal element of command largely lost in modern times and bridged the gap between the line and staff functions.[53]

The Vietnam buildup and subsequent strategy of

counterinsurgency accelerated the development and fielding of armed helicopters. As a part of the 1963 Howze Board airmobility concept study, Army aviation was fully integrated with ground maneuver forces in an experimental air assault division. This division ultimately evolved to become the First Cavalry (Airmobile) Division and was activated and sent to Vietnam in the summer of 1965. As a result, airmobility and the helicopter were inexorably linked, with a modified UH-1 "gunship" dedicated to providing the ground commander with close-in fire support. These armed helicopters, aircraft specially modified to provide fires for ground maneuver forces, were first mentioned at this time as part of the division's air cavalry combat brigade.[54]

As the Vietnam War progressed, combat missions for helicopters were expanded and refined, but employment remained exclusively focused in support of the ground maneuver commander.[55] Helicopters evolved from multi-role armed versions such as the UH-1 and OH-6, to a dedicated attack helicopter, the AH-1. However, experiences gained from Vietnam and the 1973 Arab-Israeli War, coupled with the Soviet build-up in Central Europe, led to the need for both an advanced attack helicopter and the doctrine to go with it.[56]

Typifying these changes in doctrine, as early as

1971 the AH-1 equipped attack helicopter battalion was mentioned as a maneuver unit capable of limited independent operations, such as a raiding force.[57] The 1976 version of FM 100-5, Operations of Army Forces in the Field, brought about sweeping changes which emphasized combined arms teams and joint operations. The emerging advanced attack helicopter (AH-64) was seen as a centerpiece for the "active defense" scenario envisioned in Europe.[58]

The 1982 and 1986 versions of FM 100-5 broadened the Army's doctrinal focus and took advantage of advanced weapon systems such as the AH-64. It turned away from "active defense," opting for an initiative-oriented "AirLand Battle" approach instead. The deep attack became a leading idea and technique for extending the battlefield and shaping the close fight.[59] Army aviation was envisioned as a principal player in the new doctrine.

Attack helicopter units in particular kept pace with these doctrinal developments. In 1984 they changed their primary emphasis away from fire support to predominantly air maneuver.[60] In 1986 Army aviation published its first doctrinal manual devoted exclusively to attack helicopter operations.[61] By 1989, the AH-64 was doctrinally accepted as a premier deep attack weapon due to its modern systems

capability.[62] The AH-64 was designed primarily to defeat enemy armor at extreme ranges in virtually all weather and visibility conditions through the use of the Hellfire missile. It was built with the latest technology available for both enhancing survivability and acquiring and destroying enemy targets. Key to the aircraft's capability was the integration in design and function of the forward looking infrared (FLIR) imagery for piloting and targeting.[63] This system formed the backbone for its deep attack employment considerations.

In addition to the AH-64, the attack helicopter battalion is also equipped with the UH-60 helicopter. The UH-60 was designed and built as a replacement for the UH-1 as a modernized utility helicopter capable of functioning on an advanced lethality battlefield. By definition, its primary function is to transport personnel and cargo, but it can be modified to accomplish almost any mission. It comes standard with four radios: two FM secure, one UHF, and one VHF. It has no organic night vision systems such as the FLIR on the AH-64. It can carry additional fuel on external tanks for extended range and loiter time. Additionally, it can be configured into an aerial command and control platform with a standardized communications package added. It easily accommodates a crew of four and 11 passengers, and is armed with two

7.62 millimeter machine guns for self protection.

The OH-58 observation helicopter completes the attack battalion's helicopter inventory. The OH-58 was designed to function primarily as a reconnaissance platform, but is technologically inferior to either the UH-60 or AH-64. The OH-58 has no organic night vision systems or armament, no external fuel carrying capability, cannot keep up with either the UH-60 or AH-64, and only accommodates four personnel under ideal conditions. Partnered with the AH-64, its inefficiency is analogous to the combination of the M1A1 tank with the M113 infantry fighting vehicle.

Currently, there are four doctrinal publications for attack helicopter battalion employment in deep operations: FM 100-15, Corps Operations; FM 1-111, Aviation Brigades; FM 1-112, Attack Helicopter Battalion and; Corps Deep Operations Handbook. Additionally, while not recognized as a doctrinal publication, LTC Patrick J. Bennett's "AH-64 (Apache) Battalion 'Deep Attack' Tactics, Techniques, and Procedures" manual is a primary source for deep attack methodology and is used at the Aviation Officer Advanced Course for instruction.[64] An analysis of these five manuals reveals the key battle command components of forward presence, absolute communications, accurate data collection and

dissemination, and integration of the supporting staff are all recognized and addressed in aviation's deep attack doctrine.

Combining these four components with the Army's doctrine of the physical, cybernetic, and moral domains of battle command results in aviation battle command techniques whereby the attack helicopter battalion commander is tasked in general terms to position himself on a deep attack where he can best lead the battalion and accomplish the mission. This can be done from any location or vehicle he chooses, however, all the sources list the commander forward with the fighting force in a UH-60 airborne tactical command post.[65]

There are several reasons why the attack helicopter battalion commander is tasked with leading his battalion from a forward position in a deep attack operation. Aviation deep attack doctrine and associated literature cites supporting examples from all three of the domains of battle.

In the physical domain the commander must fully understand what effects terrain, weather, and the environment are having on the mission. Attack helicopter battalion commanders, like their ground maneuver counterparts, are equally charged with understanding and exploiting the physical domain of

battle. Knowledge and experience gained in technology, terrain, weather, logistics, and the environment must be considered in both the planning and execution of a mission. These physical aspects of war are one of the primary influences on how the commander executes battle command of his unit in all operational environments. Technological advances aside, there still remains no substitute for actually being on, or in close proximity to, the disputed ground.[66] Physically locating himself forward allows the commander through aerial observation to make personal assessments of the situation and evaluate options.[67] These personal assessments should enable him to make better and more rapid decisions on how to employ his forces more effectively.[68]

Within the cybernetic domain there is a major problem area which mandates the commander's forward presence: communication. Typical deep attack missions can cover distances up to 300 kilometers from the forward line of troops. In that scenario current radio range limitations preclude the forward deployed aircraft from reaching the rear command posts.[69] Simply stated, if the commander is not with the flight, he risks losing communication with them. Without communication there can be no battle command.

Since communication with higher headquarters can

be so tenuous on deep attacks, the commander must also bring along sufficient staff personnel to facilitate effective battle command. Typically, the S3, S2, and Fire Support Officer are expected to assist the commander in exercising battle command and must therefore locate in close proximity to him.[70] While battle command is ultimately the commander's responsibility, doctrine fixes the requirement for continuous command and control of battalion operations on the S3 section.[71] As in any operation, however, the commander has the final say as to the composition, nature, and tasks of his accompanying command group.[72]

In the moral domain, the reasons for the commander's forward presence are no different than for any other operation. As mentioned earlier, leadership at the decisive point can significantly influence the moral domain by acting as a regulator of individual and collective will. This shared sacrifice and leadership by example approach helps the commander to mitigate fear and stress and better enables the battalion to accomplish its mission. Aviation doctrine thus agrees with Army doctrine: the commander remains the key to success or failure.[73]

There are several reasons which encompass elements of the physical and cybernetic domains as to why the UH-60 is the recommended battle command platform for

the battalion commander in attack helicopter deep operations. The UH-60, by virtue of its design, is a highly versatile aircraft capable of being configured in a variety of ways. The aircraft's spacious cargo area allows the commander to bring along whatever augmentation he may need in the way of personnel or equipment. If there were a need for immediate downed pilot recovery, the UH-60 is equipped to handle the extra load. Additionally, the aircraft can sustain speeds equal to or greater than the AH-64 and is capable of extended loiter time when outfitted with auxiliary fuel cells.

The UH-60 has a dedicated flight crew, thus enabling the commander to focus solely on the conduct of the battle. Conversely, the AH-64 and, to a lesser degree, the OH-58 place a high cockpit task load on the commander as he must be part of the flight crew.[74] This potentially degrades his battle command effectiveness while simultaneously increasing the possibility of his direct involvement in the fight.

From a communications perspective, the UH-60 is superior to the AH-64 and OH-58. The AH-64 suffers degraded communication range capability due to the design characteristics and location of its antenna systems.[75] The OH-58, on the other hand, has acceptable range capability, but only one secure radio.

Additionally, the UH-60 can be easily modified to accept additional communications hardware as the mission dictates, a procedure for which the AH-64 and OH-58 are ill-suited.

The past thirty years have seen the attack helicopter evolve from a fire support platform to an aerial maneuver asset capable of employment across the spectrum of conflict. With the advent of the AH-64 and the accompanying doctrinal emphasis on attacking in depth, attack helicopter battalions have become primary resources for deep attack employment. Battle command techniques for such operations parallel those used by ground based maneuver commanders. Consequently, aviation deep operations battle command doctrine emphasizes the primacy of the commander by placing him out front in a dedicated command and control aircraft, with the ability to interact with his staff as necessary. The physical, cybernetic, and moral components all factor into the battle command equation when the attack battalion goes deep. Desert Storm, however, revealed a materiel deficiency which required attack battalion commanders to modify their implementation of deep attack doctrine.

IV. OPERATION DESERT STORM

Historian Michael Howard stated that in times of peace, it is the task of military science to prevent

doctrine from being too badly wrong.[76] Desert Storm served as the most recent laboratory for determining if the Army's AirLand Battle doctrine was in fact "about right" or in need of substantial changes. A general overview of Desert Storm battle command techniques coupled with a more detailed analysis of attack helicopter deep operations battle command procedures indicates that the doctrine was both utilized and validated. While some aspects of the deep attack doctrine had to be modified in actual application, the tactics, techniques, and procedures proved to be fundamentally sound.

As a general overview, Desert Storm commanders at all levels commented consistently that their presence and visibility forward on the battlefield made important contributions to their overall mission accomplishment. In numerous after action reviews, leading from the front was specifically cited as significantly increasing morale and bolstering unit confidence. Battle command in Desert Storm was characterized by the commander locating himself at the decisive place and time on the battlefield.[77]

The 1st Infantry Division went so far as to require their maneuver battalion commanders to aggressively position themselves forward to facilitate their seeing and reading of the battlefield. This

technique enabled the commanders to communicate directly with their soldiers, to get their perspective and concerns, and to make an assessment of their fighting spirit. These various forms of input and conduits of information empowered the commander with the ability to make better, more timely decisions at the "tip of the spear."[78] Analogous to the biblical good shepherd, good commanders knew their soldiers, and they knew him.[79]

Adding to the positive effect of forward leadership, the troops were able to see their commander sharing the same hardships and dangers as themselves. This was credited with fostering the teamwork, esprit, and unit cohesion which is deemed so vital to organizational effectiveness and success on the battlefield.[80]

As equally important as forward presence was the commander's ability to remain calm and collected under fire. LTC Edward Dyer, Commander of 1-37 Armor, 3d Brigade, 1st Armored Division, commented that he was concerned throughout Desert Storm that his soldiers perceive him as being in complete control of the situation. He therefore made a conscious effort to diffuse potential panic simply by remaining calm when communicating with his subordinates. Additionally, key staff personnel such as the S2, S3, and Fire Support

Officer located in close proximity to the commander provided invaluable assistance in the battle command process.[81] These critical staff officers added to the commander's ability to lead and direct his unit by assisting in the lateral and vertical information flow, as well as in the decision making process.

In Desert Storm, the classic attack helicopter deep attack, with its hours of pre-planning and intelligence preparation, was rarely conducted. Contrary to doctrine, most of the deep attack missions enjoyed dedicated support from numerous Air Force systems which would normally not be available for Army missions. These dedicated systems coupled with the ineffectiveness of the Iraqi air defenses resulted in some changes in tactics, techniques, and procedures.

Attack helicopter deep operations were thus characterized by shortened planning cycles, and near real-time routing information for ingress and egress avoidance of Iraqi air defense systems. Both of these were significant departures from established procedures. As a result, deep attacks were performed more frequently and with greater success than was anticipated prior to the war.[82] Part of the doctrinal deviation can be attributed to the performance of the weapons systems. Just like the M1A1 tank and the M2 infantry fighting vehicle, the AH-64 proved to be far

more lethal and accurate than previously imagined.[83]

Despite these shortened planning times, attack helicopter battle command procedures for deep operations in Desert Storm generally adhered to the Army's fundamental doctrinal battle command principles. Synonymous with ground maneuver commanders forward presence, the vast majority of attack helicopter battalion commanders were out front, airborne, and closely involved in the battle. With few exceptions, most of these commanders flew from the front seat of a standard AH-64.

By positioning themselves forward at the decisive point, the commanders felt they were able to focus their combat power more effectively and better control the tempo of the operation. A common technique used by battalion commanders was to personally lead the first of three attack helicopter companies into the fight. Key members of the battalion staff (operations, intelligence, and fire support) were located nearby in an aerial tactical command post (UH-60) in order to assist in the battle command process. Using his staff as a relay, the commander would then maintain communications with either his aviation brigade commander or ground elements, and loiter in the area of operations in order to cycle other attack companies into the fight.[84]

Many of the UH-60s carrying the primary members of the commander's battle staff were specially configured with additional communications capability to enhance command and control. These aircraft were also able to conduct both prisoner pick-up and combat search and rescue for downed crewmen. The modified UH-60s allowed the staff to maintain contact with its supported higher headquarters, while simultaneously relaying reports and information between the commander and his subordinate units. Occasionally, the battalion S3, in a UH-60, replaced the battalion commander for short periods of time and took over the attack.[85]

In addition to the previously mentioned shortened planning cycles and dedicated Air Force support, the utilization of the AH-64 for deep attack battle command was the most significant deviation from established deep operations doctrine. Numerous deep attacks during the war had the battalion commander on board an AH-64 instead of on the doctrinally prescribed UH-60. Several reasons were cited for this technique.

Commanders felt that the UH-60 was not properly equipped to see the battle due to its lack of organic night vision systems. The UH-1 and OH-58, besides being too slow, were also disqualified as a result of their lack of night vision systems. Conversely, commanders had the luxury of using dedicated AH-64s for

command and control as most of the attack battalions had one or two additional AH-64s beyond their assigned 18. In most cases, only when the maintenance posture precluded him from using an AH-64, or when he needed direct access to his staff, did the commander utilize a UH-60 for battle command.[86]

To compensate for the deficiencies as well as capitalize upon the strengths of both the AH-64 and the UH-60, several battalions adopted a combined approach for deep attack battle command. In their deep attacks against the Iranian Medina and Adnan Republican Guards Divisions on the 26th and 28th of February, both attack battalion commanders of the 1st Armored Division were forward in AH-64s. Physically and morally, by utilizing the AH-64 with its combined night capability and target acquisition systems, the commanders were better able to influence the fight. The cybernetic oriented shortcoming of poor communications associated with the AH-64 was overcome by having their S3s in close proximity in specially modified command and control UH-60s. Their brigade commander felt that this combination resulted in a well-controlled and well-orchestrated battle.[87]

Another example of this combined approach was provided by the 2-229th attack helicopter battalion in their battle to cut the causeway over the Al Hammar

lake on the 27th of February. Here again the battalion commander positioned himself forward in an AH-64 for battle command, while his S3 operated nearby in a combination command and control/search and rescue UH-60. When asked why he chose to operate from an AH-64, LTC Bill Bryan, commander of the battalion, responded that due to the distances covered and the mission profiles that were flown, the only place he could effectively fight his battalion was from the front seat of an Apache. He added that the UH-60, though equipped with better communications, was less than optimum due to its lack of a FLIR and target designation system.[88]

LTC Bryan also applied an innovative technique for incorporating his OH-58s into the battle command process. To remedy the communications problems caused by the excessive ranges of their deep attacks, the battalion's OH-58s were dropped off at fixed intervals between the forward line of troops and the deep attack position to act as radio relays. These aircraft enabled the commander to maintain effective communication with his higher headquarters throughout the operation.[89]

Attack helicopter battalion commanders operated out front on deep attacks in Operation Desert Storm. Contrary to doctrine's recommendation of two UH-60s for

command and control of a deep attack, they did so primarily from AH-64s with key staff personnel tucked close behind in UH-60s. This combination approach to battle command enabled the commanders to successfully mitigate the negative effects of the technological inadequacies of the AH-64 and UH-60, while simultaneously dealing with the increased tempo that was a characteristic of the Gulf War. From their forward positions, they displayed agility by quickly shifting combat power, and overcame the effects of friction through accurate reads of the enemy situation and subsequent rapid decision making.

V. Summary/Conclusions

Based on the review of the Army's battle command theory and doctrine, the evolution of the AH-64 equipped attack helicopter battalion, and the historical examples of deep attack operations derived from the Gulf War, the Army does need to make some changes in the doctrine, tactics, techniques, and procedures for the attack battalion's deep attack battle command system. Just as the Israelis learned from their 1967 and 1973 wars with Egypt that a dedicated, specially configured command and control helicopter is essential for deep operations[90], so too did the Gulf War demonstrate the same finding for the attack battalion on deep operations. While the

doctrinally prescribed UH-60 is ideally suited for command and control in most mission profiles, it is marginal at best in the deep attack role.

To fully complement the capabilities of the AH-64 and become a true member of the deep attack team, the UH-60 should be modified to serve as a deep attack battle command tactical command post for the battalion commander and select members of his staff. To better enable the commander to influence and synchronize the fight, the aircraft should be upgraded with FLIR, video tape capability, the UH-670 command and control console, an automatic target handover system, and external fuel tanks. With this aircraft, the commander could then operate in the same environment as the AH-64, yet remain separated from the actual conduct of engaging enemy forces.[91] A second UH-60 with the same systems would be necessary for redundancy.

If funding is an issue, the combined technique of the commander in an AH-64 with his staff nearby in a UH-60 will suffice, albeit with some modifications. The problem of limited radio range in the AH-64 will have to be rectified if the commander is expected to lead effectively from that aircraft. Additionally, attack battalion commanders when operating from an Apache must be careful not to become overly fixated with fighting the aircraft and not their battalion.

They must maintain a sense of balanced detachment from the unimportant, yet instinctively recognize the vital.[92] While attack battalion commanders were not specifically mentioned as having this problem during Desert Storm, it was a common problem with ground maneuver commanders.[93]

Assuming the UH-60 as the aircraft of choice, aviation doctrinal publications need to be more specific both on the functional responsibility and authority of the airborne tactical command post as well as the appropriate staff members necessary to facilitate effective battle command. While the commander will always be the key to his organizations configuration, some specificity is currently lacking in the publications. For example, the command and control evaluation criteria for an attack battalion commander in the Mission Training Plan for the Aviation Brigade and Battalion tasks the commander to direct operations, but does not give sufficient details as to how.[94]

Standardization of the deep attack command post makes sense for numerous reasons. Efficiency and organization should be enhanced. More detailed training standards can be taught and evaluated at the Aviation Warfighting Center. This, in turn, should reduce unit training requirements of new commanders and staff personnel. Commanders can then spend less time

devising battle command systems, and more time training and perfecting the techniques necessary for use with the standardized system.[95]

The aforementioned solutions will resolve aviation's deep attack battle command dilemma by facilitating an even better system for forward command presence, absolute communication, accurate data collection and dissemination, and integrated staff support. Just like their ground maneuver counterparts, attack helicopter battalion commanders are the critical component in an effective battle command system. To exploit the positive attributes of the physical, cybernetic, and moral domains of war, they must exercise battle command in deep operations from the same geographic location as their subordinates. Regardless of the aircraft selected for deep attack battle command, the commander's experience, intuition, and application of doctrinal principles are the ingredients for success. Detached command is ineffective, and a recipe for disaster.[96]

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