NAVAL WAR COLLEGE
Newport, R.I.

Joint Military Operations

Operational Fires: Did They Achieve Maximum Effects During the Gulf War?

Submitted by:

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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5 February 2001

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ABSTRACT

Although there remains debate on the political and strategic success of the Gulf War, there is no doubt that at the operational and tactical levels Operation Desert Storm (ODS) was a decisive military victory. Unquestionably, a major contributor to the victory was the successful, albeit inefficient, use of operational fires. ODS illuminated problems in the areas of doctrine, planning, targeting, and command and control (C2), which prohibited the coalition from realizing the maximum potential from operational fires. Doctrinal voids, isolated planning and targeting, and the absence of a focal point for command and control of operational fires all contributed to their inefficiency during ODS.

During the past ten years individual Service and Joint Publications have attempted to correct these problems, however, little or no progress has been made. While Joint Pub 3-09: Doctrine for Joint Fire Support has resolved the "interpretation issues" surrounding the Fire Support Coordination Line (FSCL), the following issues remain unresolved: controversy over emplacing the FSCL; failure to synchronize operational fires and maneuver; and the absence of a *focal point* for command and control of operational fires. Solutions to these problems are all within the scope of the JFC and share a common foundation in the principle of war -- *unity of effort*. First, the JFC is responsible for the overall performance of his command. He maintains a macro-level perspective, has no *service bias,* and therefore should retain the right to determine the location of the FSCL. Second, the Army utilizes Fire Support Coordinators (FSCOORDs) and Fire Support Elements (FSEs) at command echelons from battalion through corps. A similar organization must be established at the JFC level to serve as the commander's *focal point* for planning and executing operational fires. Finally, commanders at all levels must embrace targeting and understand that it is *not* the sole purview of the fire support community. Effective targeting focuses all combat power and enhances synchronization. JFC's must

incorporate targeting throughout the Commander's Estimate of the Situation (CES) Process rather than as an afterthought.

The JFC must address these problems and implement fixes. During ODS we overcame the inefficient use of operational fires because we had overwhelming firepower, favorable terrain, and an accommodating enemy; however, we may not face such an adversary in the future, and consequently may pay for our inefficiencies with the lives of our soldiers, sailors, marines, and airmen.

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NWCR — A

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED

2. Security Classification Authority:

3. Declassification/Downgrading Schedule:

4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT

6. Office Symbol: C

7. Address: NAVAL WAR COLLEGE
686 CUSHING ROAD
NEWPORT, RI 02841-1207

8. Title (Include Security Classification): OPERATIONAL FIRES: DID THEY ACHIEVE MAXIMUM EFFECTS DURING THE GULF WAR? (UNCLASSIFIED)

9. Personal Authors: Major John M. Kilgallon, USA

10. Type of Report: FINAL

11. Date of Report: 5 February 2001

12. Page Count: 29

12A Paper Advisor (if any): **Colonel Patrick C. Sweeney**

13. Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

14. Ten key words that relate to your paper:
Operational Fires, Fires, Targeting, Fire Support, Desert Storm, Gulf War, "Black Hole," CENTCOM, Unity of effort, JFACC

15. Abstract:

There is no doubt that at the tactical and operational levels Operation Desert Storm (ODS) was a decisive military victory. Unquestionably, a major contributor to the victory was the successful, albeit inefficient, use of operational fires. ODS illuminated problems in the areas of doctrine, planning, targeting, and command and control (C2), which prohibited the coalition from gaining the maximum effects from operational fires. The CENTCOM staff's failure to synchronize the air and ground operations established the foundation for disjointed operations and the inefficient use of operational fires.

Doctrinal voids, isolated planning and targeting, and the absence of a focal point for command and control of operational fires all contributed to their inefficiency during ODS. During the past ten years individual Service and Joint Publications have attempted to address these problems, however, little or no progress has been made. While Joint Pub 3-09: Doctrine for Joint Fire Support has resolved the "interpretation issues" surrounding the Fire Support Coordination Line (FSCL), the following issues remain unresolved: controversy over who should place the FSCL; a lack of synchronization of maneuver and operational fires; and the absence of a focal point for command and control of operational fires. The "fixes" for these problems all emanate from the principle of war "unity of effort." First, the JFC must retain the authority to determine the location of the FSCL at his level. Second, the JFC must establish an organization, similar to the Army's FSCOORD/FSE concept, to serve as his focal point for planning and executing operational fires. Finally, JFC's must ensure that targeting is incorporated throughout the Commander's Estimate of the Situation (CES) Process, rather than as an afterthought.

The JFC must address these problems and implement fixes. During ODS we overcame the inefficient use of operational fires because we had overwhelming firepower, favorable terrain, and an accommodating enemy. We may not face such an adversary in the future, and consequently may pay the price for our inefficiency with the lives of our soldiers, sailors, marines, and airmen.

16. Distribution / Availability of Abstract:	Unclassified	Same As Rpt	DTIC Users
	X		

17. Abstract Security Classification: UNCLASSIFIED

18. Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT

19. Telephone: 841-6461

20. Office Symbol: C

Security Classification of This Page Unclassified

I. INTRODUCTION

The foundation of successful joint operations is the complete integration of all combat power available to the commander. In order to achieve this condition all services must: view the battlefield from a common perspective, utilize common doctrine, and focus their assets toward achieving the commander's objective. Operation Desert Storm (ODS) illuminated problems in the areas of doctrine, planning and targeting, and command and control which inhibited the synchronization of all services' operational fires assets, thereby preventing them from maximizing the potential of operational fires. This loss of synergy resulted in an incomplete effort against the Republican Guard and failure to achieve key objectives of both the Commander in Chief (CINC) and President of the United States (POTUS).[1] As you will see, the genesis of this problem was that Central Command (CENTCOM) inadvertently planned and executed two separate operations. Their failure to achieve *unity of effort* by effectively coordinating the air and ground operations established a foundation for disjointed operations and the subsequent inefficient use of operational fires.

This paper will examine in detail the characteristics of operational fires, how they were employed during ODS, why maximum effects were not achieved, what corrective measures have been implemented during the past ten years, and will conclude by offering solutions for those areas which remain to be fixed.

Why did operational fires fail to achieve maximum effects during the Gulf War? The principal reasons were: lack of common doctrine, isolated planning and targeting, and the absence of a *focal point* to command and control operational fires. Conflicting interpretations of *established* doctrinal terms such as the Fire Support Coordination Line (FSCL) contributed significantly to the degraded effects of operational fires. Similarly, inefficiencies were caused by isolated planning and targeting which began in the Air Staff planning cell called "Checkmate," and continued inside the CENTAF non-doctrinal planning group known as the

"Black Hole."[2] Finally, technological advances now provide each service the capability to deliver operational fires – a domain previously dominated by the Air Force.[3] The exponential increase in joint delivery platforms demands that these assets be coordinated. However, currently there is no doctrinal *requirement* for any one person to serve as the focal point for coordination and command and control of all operational fires. The lack of this focal point during ODS contributed to the inefficient use of operational fires. In order to analyze and understand the root cause of these problems, we must first understand the theory of operational fires.

II. OPERATIONAL FIRES IN THEORY

The concept of operational fires has been recognized as an essential element of campaign planning throughout history. Military theorists such as Sun Tzu alluded to the concept of operational fires when he wrote, "There are five methods of attacking with fire. The first is to burn personnel; the second, to burn stores; the third, to burn equipment; the fourth, to burn arsenals; and the fifth, to use incendiary missiles."[4] Delving beyond Sun Tzu's literal words, one can draw a close parallel between the types of targets he discussed and the *five rings* espoused by COL John Warden during ODS.[5] Likewise, Carl von Clausewitz in On War, recognized similar utility in attacking the enemy's infrastructure and logistics in order to destroy his warfighting capability.[6] Clearly, these two theorists realized the importance of operational fires. Why then is a concept that has been around for ages, and is recognized as an essential element of planning campaigns or major operations, so misunderstood by many officers today?

The major obstacle is the lack of a common definition on what constitutes operational fires. An examination of Service specific and Joint publications reveals that operational fires are not clearly defined.[7] To further complicate the issue, these manuals often use terms such as fires, fire support, or firepower interchangeably. This occlusion of terms contributes to the

misunderstanding between operational and tactical fires. Dr. Milan Vego, a recognized operational art theorist and professor at the U.S. Naval War College, defines operational fires in his book, On Operational Art. In general, fires, whether lethal or non-lethal, are considered operational when they have a decisive impact on the conduct of a major operation by: isolating or shaping the battlefield, facilitating friendly operational maneuver, preventing the enemy's operational maneuver, interdicting uncommitted forces, destroying the enemy's critical functions and facilities, severing his logistical support, diminishing his morale, and preventing enemy forces from leaving the theater. Operational and tactical fires differ in their: purpose, location, planning echelon, timing, and desired effects.[8] Although many dissimilarities exist, operational and tactical fires are complementary in nature and when used in concert can produce a synergistic effect. While operational fires focus on restricting the enemy's access to outside resources, tactical fires focus directly on the enemy causing him to expend resources at a greater rate and accelerating his requirement for outside resources. This requirement magnifies the effects of operational fires and may cause the enemy to reach his culminating point.[9]

In order to leverage the effects of operational fires, joint doctrine must develop a clear, concise definition. One possible solution is offered by Major John Burgess in his monograph, "Operational Fires: Maximizing Effectiveness?,"

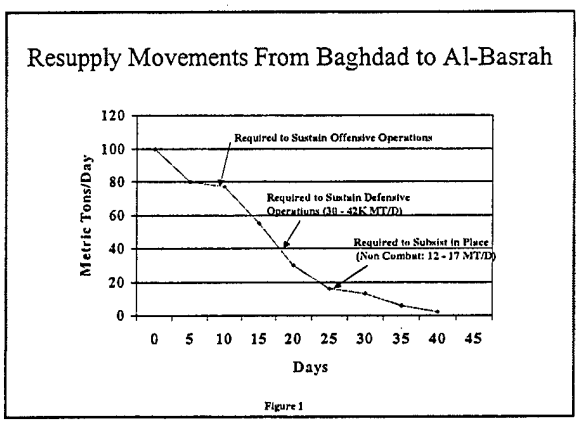
> lethal or non-lethal effects planned as an integral portion of an operational commander's campaign strategy designed to have a significant impact on the conduct of a campaign or major operation, establish conditions necessary for future operations, or cause the adversary to significantly alter his campaign strategy by: degrading, disrupting, denying, or destroying enemy critical functions, facilities, or forces before they can be brought to bear on friendly forces.[10]

Operational fires provide the JFC with a tremendous capability to strike the enemy in depth. That capability, however, can only be leveraged through a common understanding of their purpose, coupled with detailed planning, coordination, and execution.

III. OPERATIONAL FIRES IN PRACTICE DURING OPERATION DESERT STORM

During Phases I-III (air operation) of ODS, operational fires had five operational objectives designed to attack Iraqi centers of gravity.[11] Virtually all of these air operation objectives satisfied the theoretical criteria and proposed definition for operational fires established earlier in the paper. Operational fires during ODS were planned and executed at the operational command echelon; were conducted outside of the area of operations (AO) where the ground operation was planned to occur; and were designed to achieve specific operational objectives. Those objectives were: isolate the battlefield, facilitate coalition operational maneuver, destroy uncommitted Iraqi forces, destroy Iraqi principal forces and facilities, sever Iraqi logistical support, and prevent Iraqi forces from leaving the theater. All of these objectives were accomplished to varying degrees of success. "Lines of communication (LOC's) into the KTO were under attack throughout the operation to isolate Iraqi forces in Kuwait. The objective of this interdiction was to prevent resupply and reinforcement of the field army in Kuwait."[12] The impact of air operations on future ground operations was significant. The continuous bombing blinded both the Iraqi leadership and the Republican Guard thereby facilitating the operational movement of VII and XVIII Airborne Corps westward to their attack positions for the eventual "left-hook."[13] Operational fires were also employed to destroy uncommitted Iraqi forces. Planners targeted the Iraqi operational reserve that was deployed in southern Iraq along the Kuwaiti border. "During the third and fourth week of the air operation, 40-60% of all air strikes were carried out against these troops."[14] Operational fires were successful against many of Iraq's critical facilities identified in the Black Hole's Twelve-Target Sets.[15] Coalition air strikes were particularly effective against leadership and command facilities, electricity production facilities, oil refining and distribution facilities, and railroads and bridges. After only two days Iraq's electrical system was severely damaged. Eleven of their plants had either been damaged or shut down for fear of being hit. Similarly, the allies had damaged over 90

percent of Iraq's major oil refineries in only five days effectively causing domestic fuel sales to cease.[16] A focused effort was also levied against the bridges crossing the Tigris and Euphrates rivers. "At the outset of the war, there were 54 railroad and highway bridges across these rivers. Forty-one had been destroyed by the end of the war and four more were badly damaged."[17] In less than 30 days, the destruction of these bridges reduced the amount of re-supply efforts to less than the minimum tonnage required to merely subsist. The destruction of these key facilities rendered the Iraqi army in the KTO unable to conduct offensive operations after only ten days, and combat ineffective after three weeks.[18] (See Fig. 1)



Despite the ***seemingly flawless*** application of operational fires during ODS, the results, while effective, *were not maximized.* In fact, the inefficient application of operational fires contributed significantly to the failure to accomplish two key objectives: eliminating Iraq's offensive capability and destroying the Republican Guard Forces. The failure to maximize the potential of operational fires was caused by differences in interpretation of established doctrine; non-joint planning and targeting; and inefficient command and control.

IV. ANALYSIS OF OPERATIONAL FIRES DURING OPERATION DESERT STORM

As Dr. Milan Vego offers in his book, On Operational Art, in order to ensure that operational fires are decisive, the operational commander must,

> establish techniques and procedures which promote ***unity of effort*** (emphasis added)....Command relationships must be clearly defined and understood by all service components. The arrangements must facilitate the engagement of targets, prevent duplication of effort, and allow for *continuous coordination*

> (emphasis added) among all command echelons involved....Operational fires must be planned and executed at the direction of the JFC....and finally, plans for operational fires must be detailed and *integrated* (emphasis added) with those for ground or amphibious maneuver, otherwise, the entire effort will most likely be a waste of time.[19]

While the employment of operational fires during ODS was hardly a waste of time, the combination of poorly developed and selectively interpreted joint doctrine, "non-joint" targeting and planning efforts, individual service parochialism, and no focal point for command and control all contributed to the failure of operational fires to destroy the Republican Guard and eliminate Iraq's offensive capability. CENTCOM's failure to apply ***unity of effort*** in developing their campaign plan resulted in a "military strategy that was more joint in name than it was in fact."[20] Possibly, the most contentious issue, contributing to inefficient operational fires concerned doctrine.

DOCTRINAL VOIDS AND DIFFERENCES

Technology has fueled a major paradigm shift in the manner in which we fight our wars. The Army, which until recently had only concentrated their efforts out to 50 kilometers (km) beyond the forward line of troops (FLOT), can now engage targets beyond 150km. Likewise, the Air Force which typically focused on that area beyond the scope of ground forces, now can safely attack targets within close proximity to friendlies.[21] Unfortunately, while this meteoric surge in technology has greatly enhanced individual service capabilities, few doctrinal changes have been made to complement these new capabilities. This paradigm shift, coupled with unresolved doctrinal issues, contributed to the reduced effectiveness of coalition operational fires during ODS. Principal among these doctrinal issues were: the Air Force decision to eliminate Battlefield Air Interdiction (BAI) from its mission, the introduction of non-doctrinal coordination measures, and the conflict over the FSCL.

ELIMINATION OF BAI

The air power assembled for ODS was tremendous. Managing the effort of the air armada would be complicated, so early on LTG Horner decided to simplify matters by eliminating BAI as an offensive air category. Planners would now have only two categories of offensive air available – air interdiction (AI) and close air support (CAS). The difference between AI and BAI is significant. AI attacks strategic targets approved by the CINC, while BAI attacks operational targets nominated by corps commanders. BAI provides the corps commander his most powerful asset to operationally shape the battlefield. Horner's decision to *simplify* matters by eliminating BAI as a targeting category was not well received by the Army and Marine Corps. Both of these services had internalized the AirLand Battle Concept, of which BAI was an integral component, since its inception in the early 1980's. The elimination of BAI created doubt among ground commanders that their operational targets would be attacked in a responsive manner.[22] Doubt quickly turned to skepticism as Army commanders discovered that through the end of January, only 12 percent of their nominated targets had been attacked.[23] This concern became the catalyst for the controversy over fire support coordination measures.

INTRODUCTION OF NON-DOCTRINAL COORDINATION MEASURES

In an effort to resolve some of the challenges inherent in planning and executing operational fires, senior planners introduced new, *non-doctrinal* coordination measures such as the Reconnaissance and Interdiction Planning Line (RIPL) and the Battlefield Coordination Line (BCL). These coordination measures were designed to facilitate the planning and execution of operational fires. Although the intent of these measures was good, they only served to increase confusion among planners.[24] While the confusion generated by these recently established, non-doctrinal coordination measures was disconcerting, an even more disturbing fact was the non-doctrinal application of a well-defined coordination measure -- the FSCL.

FIRE SUPPORT COORDINATION LINE CONFLICT

"Everyone must understand and use common terms – maneuver commander and fire supporter, Army and Air Force, and our allies. The most important and misunderstood term during ODS was the FSCL."[25] ODS revealed disparity among the services regarding responsibility for the coordinated employment of combat power beyond the FSCL. The FSCL, in accordance with both Army and Joint Doctrine, is a *permissive* fire support coordination measure designed to facilitate the expeditious attack of targets beyond the line by all assets – surface, sea, and air.[26] The problem during ODS manifested itself in the individual service interpretations of the FSCL, and the service rivalry over control of the battlefield beyond the FSCL which has gone unresolved since 1989.[27] The joint definition is reasonably clear and was understood by the Army, Navy, and Marine Corps to be a *permissive* measure. However, the Air Force, not being an advocate of the "big sky--little bullet" theory, was concerned with the possibility of fratricide caused by the combined volume of aircraft and numerous surface assets capable of providing operational fires. This concern led them to interpret and apply the FSCL as a *restrictive* measure. This interpretation "flew" despite *established* joint doctrine. Joint Publication 1-02 Department of Defense Dictionary of Military and Associated Terms states, "that supporting elements may attack targets forward of the FSCL without prior coordination with the ground commander, provided the attack will not produce adverse surface effects on or to the rear of the line."[28] The JFACC's requirement to coordinate fires beyond the FSCL made the employment of operational fires by the ground commander's organic assets such as the Army Tactical Missile System (ATACMS), with a range in excess of 150 kilometers, and attack aviation far less responsive.[29] On numerous occasions the employment of Army delivered operational fires against deep targets was delayed or even cancelled because of the time-consuming process of clearing fires well beyond the FSCL. One example of this problem involved an ATACMS mission to strike a key Iraqi surface-to-air (SAM) missile site

located well beyond the FSCL. Never before had the Air Force been required to compete with Army missiles for airspace. The confusion inherent in deconflicting this strike caused the mission to take in excess of six hours to fire.[30] Attempting to overcome the elimination of BAI and the JFACC imposed *restrictive* nature of the FSCL, ground commanders began to extend the depth of the FSCL. The Army believed that by pushing the FSCL deeper, they would both increase the responsiveness of their organic assets and have greater control over air assets thus enhancing their ability to engage their operational targets. However, the VII and XVIII Airborne Corps commanders established the FSCL *so* deep that their organic assets lacked the ability to observe or engage the Iraqis throughout the entire area. Unfortunately, "these actions had the unintended effect of providing the Iraqis a sanctuary from coalition air power and ultimately permitted the virtually unimpeded escape of the Hammurabi, Medina, and Al Faw Republican Guard Divisions to Iraq."[31] As Bernard Trainor states in his book, The General's War, "after the war it became clear that the positioning of the FSCL was one of the most important miscalculations in the final hours of the war."[32] The combination of the JFACC's decision to eliminate BAI, the introduction of non-doctrinal terms, and the conflict over the FSCL created confusion and mistrust among the services and reduced the potential effects of operational fires. This loss of synergy significantly limited the coalition's ability to destroy the Republican Guard and eliminate Iraq's offensive capability. Arguably, these doctrinal issues may have been avoided through a more joint planning effort.

PLANNING OF OPERATIONAL FIRES

The basis for *all* planning within the joint command is the JFC's concept of operations. AirLand Battle Doctrine emphasized the importance of integrating the assets of *all* services -- land, air, and sea -- to achieve the commander's objective.[33] This concept implies that planning for an operation cannot and ***must not*** be the responsibility of any single service. The likelihood of any single service fighting a war by itself is virtually non-existent. Therefore, effective

processes must be established for ensuring that the planning and execution of operational fires is integrated within the overall campaign plan. Unfortunately, due to the compartmentalized nature of both the "Black Hole" and "Jedi Knights," both the air operation and the ground operation were planned in relative isolation.[34] As Mark Mandales, President of the J. de Bloch Group stated in his book, Managing Command and Control in the Persian Gulf War, "The combination of overwhelming air force representation in the Black Hole with the extreme secrecy of the planning effort reduced the amount of interaction and coordination with CENTCOM and component staffs."[35] The fact that operational fires enjoyed some success during ODS cannot be disputed; however, neither can the fact that compartmentalized planning prevented a truly unified effort and significantly reduced the potential of operational fires. The Black Hole's isolated planning, overwhelming air force representation, and minimal interaction with both CENTCOM and service component staffs resulted in an operational fires program that was not completely in concert with the CINC's overall intent for the operation. In a briefing conducted on August 10th, the CINC directed that the Republican Guard be bombed the very first day, and every day after that. This directive, however, was not incorporated into the overall plan developed by the Black Hole. Instead, the staff had developed a *phased* plan which would not immediately attack the Republican Guard despite the CINC's insistence that the strategic air effort, air superiority phase, and attack of the ground forces occur *simultaneously*.[36] Furthermore, the secretive planning efforts of the Black Hole created mistrust among the Army and Marine ground commanders that their nominated targets were being attacked. This mistrust reached a peak ten days prior to the ground operation and caused ARCENT to question the effectiveness of the air effort in preparing the battlefield. In an effort to "appease" the ground commanders, the CINC changed his targeting priority and directed the shifting of air operations south, away from the Republican Guard, and toward the front line units. The end result of this shift was that air strikes were moved south prematurely, and the

elite Iraqi forces were provided a respite from coalition operational fires while front line troops, who were arguably already combat ineffective, were unnecessarily pounded.[37] This shift in air strikes directly contributed to the failure to destroy the Republican Guard and eliminate Iraq's offensive capability. The planning of operational fires also suffered from a lack of unity of effort. While the JFACC was granted the authority to govern the air operation for the coalition, the other services perceived that the planning was biased toward air force interests and neglecting the interests of the other services. The perception that their nominated targets were not being attacked led the Marine Corps to *game* the Air Tasking Order (ATO) system and remove a percentage of their aircraft for marine corps specific missions. The Marine's manipulation of the air force dominated system contributed to a lack of unity of effort and ultimately less aircraft available to prosecute the JFACC's air operation.[38] Service parochialism, combined with a lack of true joint planning and unity of effort prevented operational fires from achieving maximum effectiveness during ODS. The lack of unity of effort was also prevalent in the targeting effort.

TARGETING

Targeting focuses all combat power, direct and indirect, and must be integrated into the overall planning process. During ODS, the failure to integrate the targeting effort with the overall campaign plan resulted in the inefficient use of operational fires assets. The CENTCOM staff delegated most of the targeting responsibility to the JFACC, effectively divorcing the targeting process from the JFC's overall campaign planning, and causing a disconnect between the CINC's operational objectives and the targets being attacked. This disconnect contributed to an inefficient use of operational fires assets.[39] While the CINC did establish a Joint Targeting Coordination Board (JTCB), it did not conduct its first meeting until ten days after the air operation commenced, and then did not function as the coordination and synchronization activity it should have. Oftentimes, the JTCB was left in the dark concerning

targeting priorities when the CINC, in his JFLCC role, issued his changes in targeting guidance directly to the JFACC. ARCENT had difficulty reacting to these last minute changes and frequently developed new targets based on old information. The end result was an inefficient use of operational fires as pilots were unable to locate targets based on old data.[40] All of the problems associated with the inefficient application of operational fires – doctrinal interpretation, planning, and targeting – were exacerbated by command and control issues.

COMMAND AND CONTROL

Unity of effort demands that the JFC have a single coordinator for operational fires. In ODS, CENTCOM did not have a permanent joint organization, modeled after the Army's Fire Support Element, to be the *focal point* for planning and executing operational fires. During ODS this responsibility was delegated to the JFACC who controlled the majority of the assets being used to conduct operational fires. "While the success of the JFACC system in organizing a unified air effort is widely acknowledged, the perception of its ability to manage an effective plan of operational fires has met with much less enthusiasm."[41] ODS highlighted the challenges faced by the JFACC in planning, coordinating, prioritizing, and deconflicting operational fires not only across boundaries, but also across Service components. This function cannot be conducted on an ad-hoc basis, it must be permanently staffed and properly resourced to effectively accomplish the mission. During ODS, the absence of coherent joint doctrine on command and control of operational fires, coupled with the difficulties in coordinating operational fires from all service components, resulted in the effects of operational fires not being maximized. Had the JFACC established a "joint" coordination cell with adequate representation from all of the services, command and control could have been significantly enhanced and the effects of operational fires maximized.

Despite the aforementioned problems concerning doctrine, planning, targeting, and command and control, operational fires during ODS were effective, albeit not to maximized.

Arguably, the inability to maximize their potential effects contributed to the failure to destroy the Republican Guard and to eliminate Iraq's offensive capability. The challenge facing the services today is overcoming these barriers to effective joint operational fires and establishing an environment that integrates individual service capabilities into a seamless joint fire support system to plan and execute operational fires.

V. CHANGES SINCE OPERATION DESERT STORM

Today's technologically advanced weapons, with their increased range, accuracy, and lethality, afford all services the means to employ operational fires. Ideally, these deep operations are well synchronized and seamless. ODS, however, demonstrated that both individual Service doctrine and Joint doctrine required substantial improvement to make this a reality. Both the Army and the Air Force have taken measures to correct the inefficiencies noted in the planning and execution of operational fires during ODS. In addition to publishing a new version of FM 100-5, Operations, which emphasizes "depth and simultaneous attack," and FM 100-7, Decisive Force: The Army in Theater Operations, which "assigns the land force commander responsibility for managing interdiction operations within his AO," the Army has established two new organizations to facilitate the synchronization of operational fires – the Deep Operations Coordination Cell (DOCC) and the Battlefield Coordination Detachment (BCD).[42] As outlined in FM 100-7, Decisive Force, the DOCC is designed to:

> provide centralized coordination and management of Army Forces deep operations . . . in order to ensure the effective and efficient employment of critical assets and facilitate the synchronization of joint operations . . . The DOCC coordinates with the Air Force through the BCD....The BCD was developed after its predecessor, the Battlefield Coordination Element, was revealed in ODS after-action reports as being understaffed and largely ineffectual. The BCD is located within the air operations center (AOC) and is designed to facilitate the synchronization of joint air operations with Army ground maneuver and fires, to coordinate joint air support, and to facilitate the exchange of operational and intelligence data.[43]

Similarly, the Air Force has published new doctrinal material, replacing AFM 1-1 with its new capstone publication, Air Force Basic Doctrine (AFDD-1), and further defined its JFACC

concept in the publication of Organization and Employment of Aerospace Power (AFDD-2). Current Air Force doctrine has been influenced considerably by both the lessons learned from ODS and its former Chief of Staff, General McPeak, who espoused that an airman should control the deep battle. While the efforts of both services to correct the inefficiencies of ODS are noble, they were each doing so from their own Service perspective rather than from a Joint perspective and thus in many cases they have only exacerbated the problems! Failure to resolve differences on control of the deep battle, supporting and supported command relationships, and the restrictive or permissive nature of the FSCL have left the services no closer to a solution for maximizing the efficiency of operational fires than they were immediately after the Gulf War.[44]

Fortunately, Joint doctrine has resolved several of the contentious *unity of command* type issues between the Army and Air Force concerning deep operations. Joint Publication 3-09: Doctrine for Joint Fire Support, (Joint Pub 3-09), specifies that within the JFLCC's area of operations, the land component commander is the supported commander, and therefore responsible for synchronizing airpower and firepower. The JFACC is a supporting commander inside the land commander's AO. Outside the land commander's AO, the JFACC is the supported commander, and thus responsible for synchronizing airpower.[45] Additionally, Joint doctrine now requires coordination between the JFACC and JFLCC. This requirement, coupled with a properly staffed JTCB, should facilitate synchronization of the deep battle and enhance operational fires. While Joint doctrine has resolved supported versus supporting commander issues, and requires coordination between the JFACC and JFLCC, it does not provide adequate guidance on *how* to synchronize the deep battle. At issue once again, is the FSCL. Joint doctrine, while establishing the FSCL as a permissive measure, still leaves us with an unsatisfied JFACC who is concerned about *where* the FSCL will be located. From the Air Force perspective, empowering the land component commander (LCC) to establish and

position the FSCL is risky business. Because the LCC has tactical control over and responsibility for synchronizing both airpower and firepower in his AO, the temptation exists to place the FSCL deep within his AO thereby reducing the coordination requirements with the JFACC for airpower. Until this issue is resolved the temptation will exist for the LCC to reduce his coordination requirements and maximize his flexibility by placing the FSCL deep in his AO. Unfortunately, placing the FSCL too deep limits the JFACC's flexibility to engage deep targets and potentially weakens the combat power of the land component commander.[46]

VI. RECOMMENDATIONS

While the publication of Joint Pub 3-09 has resolved the issue of supporting versus supported commander, and has clarified the permissive nature of the FSCL, several problems affecting the efficiency of operational fires remain: placement of the FSCL, command and control, and the targeting process. All of these problems fall within the purview of the JFC to fix and could easily be solved by simply adhering to the principle of war -- *unity of effort.*

In regard to placement of the FSCL, there is only one individual charged with synchronizing every aspect of the operation and held accountable for the command's overall performance -- the JFC. Delegating the authority to establish the FSCL to one of the component commanders entails risk. The component commander, operating with a limited perspective, may decide to extend the FSCL in order to improve his *own* flexibility; however, this may inadvertently have a negative impact on the JFACC's ability to support the operation. By retaining the authority to place the FSCL at his level, the JFC effectively eliminates this possibility. The JFC, operating without the influence of service parochialism and possessing a better perspective on the operation as a whole, is a better candidate to decide when and where the FSCL should be established.

Command and control issues continue to diminish the effectiveness of operational fires today. While joint doctrine espouses "jointness" and unity of effort, Joint Pub 3-09 does not

provide the JFC with a coordination cell specifically intended to address operational fires in support of the joint operation. The joint warfighting staff desperately needs a focal point for planning, coordinating, and executing operational fires. The army utilizes fire support coordinators (FSCOORDS), who work directly for the commander, and fire support elements (FSEs) at every level from battalion through corps to accomplish this mission. The FSEs include representatives from the sister services to facilitate the coordination of service specific assets. In order to ensure that maximum effects are attained from operational fires, a permanent organization modeled after the Army's FSCOORD and FSE concept must be established at the JFC level. It doesn't matter *who* or from *which* service the FSCOORD is from, as long as the position is established and the associated FSE is staffed with sufficient representation from all services. Implementing this concept would provide the JFC a permanent organization charged with synchronizing the fire support assets of all services in order to maximize the effects of operational fires. The FSCOORD would serve as the JFC's *focal point* for planning, allocating, and executing operational fires for the joint force based on the JFC's guidance. The FSE, with representatives from all service components, would serve as the conduit for information flow between the respective services. This concept has worked very effectively for the Army from battalion through corps. Implementing it at the JFC level not only *makes sense*, but also provides the commander with a truly joint effort, better synchronization of fire support assets, and more efficient operational fires.

The last, and arguably *most broken,* impediment to executing efficient operational fires is the targeting process. While joint doctrine has established the JTCB to provide broad targeting oversight functions for the joint force, it has not resolved the *root cause* of the targeting disconnect -- the perception that targeting is a function specific to fire supporters. In reality, nothing could be further from the truth. Targeting is a systematic process for applying combat power and affects the total force. It is the ***JFC's*** tool for coordinating, synchronizing, and

focusing *all* of his combat power, not just his operational fires assets. Oftentimes, targeting is not conducted until after the maneuver plan has been developed resulting in an ineffectual operational fires plan. The JFC must integrate targeting into the decision-making process from the beginning, addressing maneuver and targeting decisions *simultaneously* rather than *sequentially*. As planners develop courses of action, targeting must be integrated to ensure that all methods of combat power are being considered.[47] By applying the decide, detect, deliver, assess targeting methodology to planning an operation or campaign, the JFC can ensure that *all* of his combat power is synchronized, focused on obtaining his objectives, and that the effects from operational fires will be maximized.

VII. CONCLUSION

As stated in Joint Vision 2020, "The joint force, because of its flexibility and responsiveness, remains the key to operational success in the future. The integration of core competencies provided by the individual Services is essential to the joint team ... To build the most effective force for 2020, we must be fully joint: intellectually, operationally, organizationally, doctrinally, and technically."[48] The analysis of *why* we failed to maximize the effects of operational fires during ODS revealed four problem areas: lack of common doctrine, isolated planning and targeting, and the lack of a focal point for command and control. While the doctrinal issue is almost resolved, problems in the other areas remain. All of these problems are within the JFC's scope to resolve. The JFC *must* address these problems and *implement* fixes. During ODS we were fortunate. We overcame the inefficient use of operational fires because we had overwhelming firepower, favorable terrain, and an accommodating enemy; however, we are unlikely to face such an adversary in the future, and may pay for our inefficiency with the lives of our soldiers, sailors, marines, and airmen.

ENDNOTES

[1] BG Robert H. Scales, Jr, Certain Victory: The U.S. Army in the Gulf War (Washington, DC: Brasseys, 1994), pp. 111, 173-176; Bernard Trainor and Michael Gordon, The General's War (New York: Little, Brown and Company, 1995), p 429.
President Bush had established several objectives for the operation: unconditional withdrawal of Iraqi forces from Kuwait, restoration of Kuwait's sovereignty, destruction of Iraqi capability to produce and employ weapons of mass destruction, and *destruction of Iraq's offensive capability*. Failure to achieve this last objective was evidenced by the Republican Guard's attacks against the Kurds in southern Iraq. Similarly, in a briefing in October, the CINC left no ambiguity about the mission at hand. The Republican Guard were not to be routed, they were not to be made "combat ineffective." They were to be *destroyed*. Yet, after six months of planning, neither the ground offensive nor the bombing (operational fires) destroyed the Iraqi field forces, nor did they cut off the Iraqi escape routes. More disturbing is the fact that CIA analysts determined that 365 tanks that escaped were T-72's from the Republican Guard. Although the devastation on the battlefield was considerable, the gate was never closed and many of the Iraqi Republican Guard forces escaped.

[2] Thomas Keaney and Eliot Cohen, Gulf War Air Power Summary Report (Washington, DC: U.S. Government Printing Office, 1993), pp. 147 – 151.
This ad-hoc group often circumvented the planning, coordination, and targeting input from other services by taking over many of the doctrinal functions of a Joint Target Coordination Board (JTCB).

[3] Advances in technology resulted in the development of such weapon systems as the Multiple Launch Rocket System (MLRS) with a range in excess of 30km, the Army Tactical Missile System (ATACMS) with a range in excess of 150km, the Apache Helicopter, and the Navy's Tomahawk Cruise Missiles. These *new* weapons systems provided all services the capability to deliver operational fires and fueled the necessity for integrated planning.

[4] Samuel B. Griffith, The Art of War (New York: Oxford University Press, 1963), p. 141.

[5] Bernard Trainor and Michael Gordon, The General's War (New York: Little, Brown and Company, 1995), pp.78-79.
COL John Warden, the head of the Air Force planning group "Checkmate" had written a paper in 1988 designed to encourage people to reevaluate how to use airpower. His "five rings" paper put forth the argument that a war could be won by applying airpower against key enemy centers of gravity thereby compelling the enemy leaders to do what you want. Warden essentially depicted the battlefield as a dartboard with five rings. The innermost ring represented the enemy's leadership and decision-making capability. The next ring represented the enemy's military and economic production capability – the materials necessary to sustain not only war, but life itself. The third ring represented the enemy's means of moving civilian and military traffic – roads, bridges, airfields, and ports. The fourth ring represents the enemy population and its food sources. In theory, attacking these would break the enemy's will to resist. The fifth ring represented what Warden viewed as the *least important* target – the enemy's military. Warden's rationale for this was that this ring existed only to protect the four inner rings and that by attacking the enemy's inner rings first one could theoretically compel the enemy to do your will without directly engaging his armed forces. Conceptually, Sun Tzu's methods of attacking by fire, developed in the 4th Century B.C., closely parallel Warden's five rings and represent some of the same characteristics of operational fires. In Sun Tzu's work the five rings are depicted as follows: the innermost ring (enemy leadership and decision making capability) would require the use of "incendiary missiles" to attack them deep in their territory; the second ring (enemy military and economic production capability) is represented by Sun Tzu's concept of "burning arsenals;" the third ring (enemy's means/equipment for moving civilian and military traffic) is represented by Sun Tzu's concept of "burning equipment;" the fourth ring (enemy population and food sources) is represented by Sun

Tzu's concept of "burning stores;" and the fifth ring (enemy's military) is represented by Sun Tzu's concept of "attacking personnel" in the field.

[6] Howard, Michael and Peter Paret, ed., On War (Princeton, NJ: University Press, 1984), p. 181.

[7] Having analyzed the following joint and service specific manuals, I have found no *common* term which explicitly defines operational fires: Joint Publications: 3-0 Doctrine for Joint Operations; 5-0 Doctrine for Planning Joint Operations; 3-09 Doctrine for Joint Fire Support; Army Field Manuals: FM 100-5 Operations; FM 3-0 Operations; AFDD-1 Air Force Basic Doctrine; and Naval Doctrine Publication 1: Naval Warfare.

[8] Milan Vego, On Operational Art, 4th Draft (Newport, RI: Naval War College, 1999), pp. 289 – 296. The following explanatory footnote is taken from Professor Vego's work, On Operational Art, 4th Draft. Much of the information is cited directly from Dr. Vego's work. The purpose of operational fires is to achieve a decisive impact on the outcome of a campaign or major operation. They are conducted in the operational and strategic depth of the enemy's defense. In contrast, the purpose of tactical fires is to support forces in direct enemy contact. They are designed to have a decisive impact on battles or engagements. Operational and tactical fires also differ in the locations in which they take place. Operational fires generally are conducted outside the campaign or major operations area of operations, while tactical fires are conducted within the area of operations. A third contrast between operational and tactical fires occurs in the planning level for each. Operational fires are integral to the Joint Force Commander's (JFC) campaign plan and are generally planned at the operational command echelon, while tactical fires are planned and executed at the tactical command echelon. Yet another difference relates to the timing of operational fires and tactical fires. Operational fires are normally conducted well in advance of a major operation or campaign, while tactical fires generally commence shortly before the operation, and intensify as the operation proceeds. A final contrast exists between the desired effects of operational and tactical fires. The objective of operational fires is to have an operational or strategic effect on the enemy forcing him to react operationally, while the objective of tactical fires is to have an immediate impact on forces in direct contact with the enemy.

[9] John C. Burgess, "Operational Fires: Maximizing Effectiveness," (Unpublished Research Paper, U.S. Naval War College, Newport, RI: Naval War College: 1996), p.4.

[10] Ibid, 6.

[11] Department of Defense, Conduct of the Persian Gulf Conflict: Final Report to Congress, (Washington, DC: 1992), p. C-14.
The five objectives of operational fires during Phases I - III of ODS were, "Isolate and incapacitate the Iraqi regime; destroy Iraq's known NBC warfare capability; gain and maintain air superiority; eliminate offensive military capability by destroying key military production, infrastructure, and power capabilities; and render the Iraqi army and its mechanized equipment in the KTO ineffective thereby causing its collapse."

[12] Fred Frostic, Air Campaign Against the Iraqi Army in the Kuwaiti Theater of Operations (Santa Monica, CA: RAND, 1994), p.6.

[13] Douglas W. Craft, An Operational Analysis of the Persian Gulf War (1992), p. 37.

[14] Vego, 303.

[15] The Twelve Target Sets were the "categories" of targets developed by planners to attack during the air operation. The 12 categories are: Leadership and Command Facilities; Electricity Production Facilities; Telecommunications and Command, Control, and Communications Nodes; Strategic Integrated Air Defense Systems; Air Forces and Air Fields; NBC Weapons Research, Production, and Storage; Scud Missiles, Production and Storage; Naval Forces and Ports; Oil Refining and Distribution Facilities; Railroads and Bridges; Iraqi Army Units in KTO; Military Storage and Production Sites.

[16] Trainor, 224, 315.

[17] Frostic, 21.

[18] Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress, (Washington, DC: 1992), p. 134.

[19] Vego, 294.

[20] Trainor, 310.

[21] Dewayne P. Hall, "Integrating Joint Operations Beyond the FSCL: Is Current Doctrine Adequate?" (Cadre Paper, U.S. Air War College, Maxwell Air Force Base, AL: 1997), p. viii.

[22] Scales, 174-179.
The "31 Initiatives Dialogue" of 1984 led the Army to expect that the Air Force would comply with the mutually accepted agreements on battlefield air interdiction. Therefore, LTG Horner's decision to eliminate BAI was a *significant emotional event* for the VII and XVIII ABN Corps commanders. AirLand battle doctrine, implemented in 1982, relied on the premise that some percentage of ground attack airpower would be directed against deep enemy formations such as their operational reserve. The intent of BAI was to take away the enemy's freedom of maneuver, his sustainment capability, and his will to resist thereby shaping the battlefield, and providing the Corps Commander with a significant combat multiplier. Since a large portion of AirLand Battle Doctrine was centered on the use of airpower to shape the operational battlefield, Generals Luck and Franks were understandably concerned when BAI was eliminated. In their eyes, eliminating BAI reduced their ability to shape the battlefield.

[23] Trainor, 319-320.
Following the Air Force targeting procedures, Army commanders submitted target lists to the air war planners. Of the 1185 targets submitted by the Army by the end of January, only 202 (17 percent) had been included on the ATO, and only 137 (12 percent) had actually been attacked. The Marines experienced similar challenges dealing with the Air Force dominated system and rather than complain, decided to limit their involvement with the Air Force operation and concentrate instead on preparing the battlefield in front of where their ground forces would operate.

[24] Gregory B. Schultz, "Coordinating Operational Fires for the Twenty-First Century," (Unpublished Research Paper, School of Advanced Military Studies, U.S. Army Command and General Staff College, Fort Leavenworth, KS: 1998), p.38.
CENTCOM planners, in an effort to reduce confusion and streamline the process of planning, executing, and deconflicting operational fires, established non-doctrinal coordination measures such as the Reconnaissance and interdiction Planning Line (RIPL) and the Battlefield Coordination Line (BCL). The RIPL was designed to separate strategic and operational interdiction targeting, while the BCL was used to specify areas for attack aviation. Unfortunately, these *new* measures had the unintended effect of increasing confusion among planners.

[25] Hall, 8. Joint Universal Lessons Learned System Operation Desert Storm, 1992, p.26. On-Line. Internet, 25 December, 1996. Available from http:/www.dtic.dla.mil/gulflink/db/army.

[26] U.S. Joint Chiefs of Staff. Doctrine for Joint Fire Support, Joint Pub 3-09. (Washington, DC: 1998), p. A-2.

[27] Hall, 2.

[28] Joint Chiefs of Staff, Department of Defense Dictionary of Military and Associated Terms, Joint Pub 1-02 (Washington, DC: December 1989), p. 144.

[29] Army Tactical Missile System (ATACMS) is one of the corps commanders assets to provide operational fires. ATACMS provides the commander with an all weather, day or night capability to engage critical enemy targets as deep as 150 kilometers.

[30] Scales, 193-4.

[31] Kent Laughbaum, "Synchronizing Airpower and Firepower in the Deep Battle," (Cadre Paper, U.S. Air War College, Maxwell Air Force Base, Maxwell, AL: 1999), pp.37-38.

[32] Trainor, 411-412.

[33] Scales, 174.
While AirLand Battle Doctrine was "Army Doctrine," the "31 Initiatives Dialogue" of 1984 held between the Army and Air Force led the Army to expect that the Air Force would comply with the mutually accepted agreements on battlefield air interdiction. Although there were no formal written agreements between the two, there was a mutual understanding that both parties accepted the AirLand Battle concept.

[34] Trainor, 96-7, 159-162, 472; Thomas A. Keaney and Eliot Cohen, Gulf War Air Power Summary Report, (Washington, DC: 1993), 147-151.
The "Black Hole" was the nickname given to the highly compartmentalized team of predominantly air force planners who were charged with developing the air operation. The "Jedi Knights" was the nickname given to the highly compartmentalized group of army planners charged with developing the ground operation for the CINC.

[35] Mark Mandales, Thomas Hone, and Sanford S. Terry, Managing Command and Control in the Persian Gulf War (Westport, CT: Praeger, 1996), p. 15.
The combination of overwhelming air force representation in the Black Hole with the extreme secrecy of the planning effort reduced the amount of interaction and coordination with CENTCOM and component staffs.

[36] Scales, 174-6.

[37] Laughbaum, 44-50.
The continuous pressure by the corps commanders on the CINC ultimately caused him to "appease" them and shift the focus of the air effort further south toward the front lines. Operationally, this resulted in a decreased number of sorties against the Republican Guard's Hammurabi, Medina, and Tawalkana Divisions, thereby providing them a respite, and an unnecessary increase in the number of sorties against the already ineffective first and second echelon Iraqi units. Despite the CINC's emphasis on destroying the Republican Guard, the lack of a unified effort resulted in only 10% of the strike sorties being directed at them.

[38] Trainor, 72.

[39] This disconnect was evident during the initial air operation concept briefed by the JFACC to the CINC just two days prior to the start of the air operation. The JFACC briefed a sequential plan which would first attack strategic targets in Iraq, and would *eventually* attack the Republican Guard forces. This plan contrasted greatly with the guidance that the CINC had provided as early as August which emphasized a *simultaneous* attack and striking the Republican Guard forces throughout the operation. Had the targeting not been conducted in isolation, this disconnect likely would not have happened. During the air operation, the CINC further *disconnected* the targeting effort from the campaign plan, and the stated objective of destroying the Republican Guard, by redirecting air assets from striking Republican Guard forces to inefficiently pounding already decimated 1st and 2nd echelon units.

[40] Scales, 180-1.

[41] Burgess, 2.

[42] Laughbaum, 47-49.

[43] Ibid, 50.

[44] Ibid, 45-56. Former Air Force Chief of Staff, General Merrill McPeak emphasized that "the close battle should be fought by ground forces under the command of a land component commander . . .while the deep battle should be fought by air forces under the command of an air component commander.

[45] U.S. Joint Chiefs of Staff, Joint Publication 3-09: Doctrine for Joint Fire Support (Washington, DC: 1998), p. I-3.

[46] Laughbaum, 61-62.

[47] Rigby, Randall MG, "Targeting for Combat Power," Field Artillery (January – February 1996): 1.

[48] U.S. Joint Chiefs of Staff, Joint Vision 2020, America's Military: Preparing for Tomorrow, (Washington, DC:2000), pp. 2-5.

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