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## ABSTRACT

Do current Joint Doctrinal procedures for operational targeting facilitate Joint Vision 2010's operational concept of precision engagement? Operation DESERT STORM proved the criticality of effective joint operational targeting. Additionally, the GULF WAR reinforced the fact that single services no longer conduct war without the support and/or proper integration of other services. Yet, six years later, Joint Doctrine is still vague on operational targeting procedures. JCS Pub 3-09, Joint Fire Support, is still unpublished and heated debate continues between the services over which element in theater should be responsible for this complex task.

This monograph examines the Gulf War and emerging joint and service doctrine to identify which element should coordinate operational fires and joint operational targeting. Focus is on U. S. Army and Air Force issues. Naval and Marine forces combined operation considerations are addressed but not in detail.

The monograph is organized into six sections. The first is the introduction. The second discusses the problem background. The third section examines emerging U. S. Air Force, Army and joint doctrine following the Gulf War. The fourth section examines doctrine and procedures in the Gulf War. The fifth section is analysis and the last section concludes noting the requirement for a Joint Force Fire Coordinator.

# **FORCE XXI PRECISION ENGAGEMENT: THE NEED FOR A JOINT FORCE FIRE COORDINATOR**

**A MONOGRAPH**

**BY**

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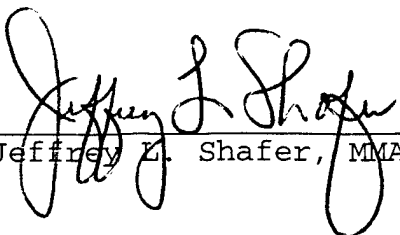
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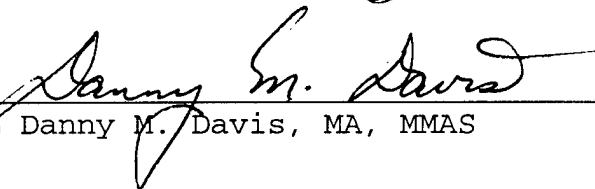
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## ABSTRACT

Do current Joint Doctrinal procedures for operational targeting facilitate Joint Vision 2010's operational concept of precision engagement? Operation DESERT STORM proved the criticality of effective joint operational targeting. Additionally, the GULF WAR reinforced the fact that single services no longer conduct war without the support and/or proper integration of other services. Yet, six years later, Joint Doctrine is still vague on operational targeting procedures. JCS Pub 3-09, Joint Fire Support, is still unpublished and heated debate continues between the services over which element in theater should be responsible for this complex task.

This monograph examines the Gulf War and emerging joint and service doctrine to identify which element should coordinate operational fires and joint operational targeting. Focus is on U. S. Army and Air Force issues. Naval and Marine forces combined operation considerations are addressed but not in detail.

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## SECTION I: INTRODUCTION

Long-range precision strike weapons, coupled to very effective sensors and command and control systems, will come to dominate much of warfare. Rather than closing with an opponent, the preferable operational mode will be destroying him at a distance. Thus far, this idea has been elaborated most in connection with a continental air-land theater, but it seems plausible that long-range precision strike operations may also play a prominent role in power projection, war at sea, and space operations.<sup>1</sup>

The quotation above is from the Secretary of Defense's 1996 Annual Defense Report to Congress. In a section titled, "The Revolution in Military Affairs," the report emphasizes that dramatic improvements in military effectiveness will fundamentally alter the character and conduct of future military operations. The term revolution is not meant to insist that the change is rapid -- indeed past revolutions have unfolded over a period of decades -- but only that the change is profound, and the new methods of warfare are far more powerful than the old.<sup>2</sup>

Development of long range precision strike weapons requires proper joint operational targeting procedures. The Army's ability to engage and effect the battlefield at operational depths is an increasingly contentious issue between the Army and Air Force. The Army's Apache attack helicopter and Army Tactical Missile System (ATACMS) can reach targets at operational depths in excess of 100

kilometers. It conceptually extends the Army's reach into a portion of the battlefield previously considered by the Air Force to be its exclusive domain.

The Army and Air Force role in prosecuting the operational fires during the Gulf War reinforced the fact that single services no longer conduct war without the support and or proper integration of other services. This is reflected in U. S. Joint Chiefs of Staff Joint Pub I, Joint Warfare of the US Armed Forces, which notes, "Campaigns of the U.S. Armed Forces are joint; they serve as the unifying focus for our conduct of warfare."<sup>3</sup> Targeting takes an even more vital role in modern warfare where the variety of weapon systems and precision strike capability place tremendous demands on the joint targeting system. Targeting is today defined by Joint Doctrine as, "the process of selecting targets and matching the appropriate response to them, taking account of operational requirements and capabilities."<sup>4</sup>

Operational targeting effectiveness is essential for successful prosecution of an operational campaign. U. S. Joint Chiefs of Staff Joint Pub 3-55, Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA), defines operational targeting as, "those targets deemed critical to the enemy's capability

to conduct successful campaigns."<sup>5</sup> At the theater level, joint fire support must plan and execute fires to ensure operational targets are adequately covered by a suitable weapon or group of weapons. Fires are planned top down, involving weapon systems of all service components. The targeting effort supporting these fires must be an integrated effort, ensuring the "synchronization of land, air, and sea efforts into a cohesive synergistic whole; joint in nature."<sup>6</sup>

The Gulf War ended six years ago, yet despite the recognized criticality of an effective joint operational targeting process, joint doctrine has been wantonly void of a doctrinal solution. U. S. Joint Chiefs of Staff Joint Pub 3-09, Joint Fire Support, is still not published. An important question considering the significance of operational fires to the future battlefield is who is responsible for coordinating these fires? Emerging joint doctrine proposes dividing the theater among the components to assign and standardize responsibility for specific geographic areas.<sup>7</sup> While there is a need to improve current doctrine for assigning responsibility, there are still problems with this proposal. This method may enhance component operations within the assigned area, however, it may not always promote ease of coordination among services.

Additionally, by segmenting the battlefield, potential gaps could develop along the seams creating the opportunity for potential enemy exploitation.

This monograph will focus on the preceding issues to argue that joint doctrine should standardize an element at the JFC level to plan and coordinate operational targeting. Joint doctrine recognizes the need for centralized coordination, yet it gives latitude to the joint force commander on how he wants to organize his staff when it comes to operational targeting.

## **SECTION II: BACKGROUND**

The modern concept for air and land warfare emphasizes the deep battle. The developments of new technologies provide both the Army and Air Force an enhanced capability to see and attack deep targets with precision by both missiles and manned aircraft. This has sparked the current joint fire support debate between the two services. This does not mean that the Navy and Marines are excluded from this debate, their weapons systems add additional overlap to both Army and Air Force battlespace. However, since in most circumstances the Joint Force Air Component Commander (JFACC) is Air Force I have limited my discussion to the Army and Air Force.

In war, the joint staff at a theater level command will evaluate and choose operational targets for attack to achieve optimum effect on enemy decisive points and centers of gravity consistent with the operational level commander's intent. These could be deep battle targets located where both Army or Air Force assets can attack. The Theater CINC will plan and direct the application of operational fires against these targets to support his campaign plan. Operational fires are the application of lethal or non-lethal firepower planned and synchronized at the operational level to impact on the conduct of the campaign or major operation designed to achieve a single operational objective.<sup>8</sup>

Army and Air Force Doctrine has changed significantly concerning the use of operational fires. The formidable task to defend Central Europe against a numerically superior Warsaw Pact armored force in the mid 1970s forced the Army to reevaluate its doctrine. Doctrinal dialogue between the Army's Training and Doctrine Command (TRADOC) and the Air Force's Tactical Air Command increased after the Vietnam War and in response to the new lethality seen in the 1973 Arab-Israeli War. Still another was the Army's desire to enlarge the scope of operations in its current doctrine from division, to corps and theater level. Concurrent with these

developments, technologies in smart munitions emerged which would assist both services in dealing with this massed armor threat.<sup>9</sup>

Realizing these changes, the 1982 version of U.S. Army Field Manual 100-5, Operations, changed Army Doctrine. Modern land warfare doctrine for the U.S. Army was introduced in the new manual. The operational level of war and the importance of integrating the air and land battles both in the close and deep fight was introduced. One result was a joint Army and Air Force initiative that focused on the interdiction of second echelon deep targets, also known as follow-on-force attack. Both the Army and Air Force agreed on the new AirLand Battle doctrine, however, debate continued regarding the division of responsibility and control over targets in the deep battle area. This was symptomatic of a deeper debate emerging between the two services on the proper relationship needed to conduct joint operations in a campaign.

The Air Force was increasingly uncomfortable with the Army's vision of the deep battle. Disliked was the notion that its value was ultimately measured on how successfully it contributed to the Army's land operations. This was captured intellectually in 1988, in Col John Warden's book, The Air Campaign. He argued among other things, that air

superiority was essential in winning a war and "that in Many circumstances it alone (the air campaign) can win a war."<sup>10</sup> Col Warden's theories were tested in the skies over Saudi Arabia, Kuwait and Iraq by executing a successful and largely independent air campaign.

At the same time, the emergence of other technologies including the Joint Surveillance and Target Attack Radar System(JSTARS), the Apache attack helicopter (AH-64) and the Army Tactical Missile System (ATACMS), provided the Army a capability that it argued no longer gave the Air Force a monopoly on prosecuting the deep battle.

Following the Gulf War, and consistent with the growing importance of the unified commands as the nation's warfighters, a tremendous growth in joint doctrine occurred. This coincided with the largest downsizing of the armed forces of the United States since the Vietnam war and at the same time a reduction in resources for all services. Changing doctrine and an increased competition among the services for current and future resources has served to fuel the joint fire support debate between the Army and Air Force.

### SECTION III: DOCTRINE

U. S. Joint Chiefs of Staff Joint Pub I, Joint Warfare of the US Armed Forces, defines joint campaigns as:

"Campaigns of the Armed Forces of the United States are joint; they serve as the unifying focus for our conduct of warfare. Modern warfighting requires a common frame of reference within which operations on land and sea, undersea, and in the air and space are integrated and harmonized; that frame of reference is the joint campaign"<sup>11</sup>

The above quote is prescriptive for the services. In this section I examine both joint and service doctrine emerging since the Gulf War to see how the U. S. Armed forces will conduct future joint campaigns. This is particularly true regarding the debate concerning the prosecution of the deep battle and the planning and execution of joint fire support in support of the JFC's theater campaign.

JCS Pub 1-02 defines a campaign plan as, "A plan for a series of related military operations aimed to accomplish a common objective, normally within a given time and space."<sup>12</sup> Given the increasing importance placed on joint warfare, it is essential that the on going evolution in joint and service doctrine be disciplined and well reasoned. Each service's unique missions and experiences have resulted in doctrine representing not simply a collection of tactics, techniques, and procedures addressing how they conduct war,

but perhaps more importantly, how each service views its role in war.

JCS Pub I notes the intent of the campaign is to sequence and synchronize all available land, sea, air, special operations and space forces against the enemy's strategic and operational centers of gravity.<sup>13</sup> Similarly, Joint Pub 3-0 notes, "Campaigns are joint, they serve as the focus for the conduct of war and often in operations other than war. A wartime campaign is the synchronization of air, land, sea, space, and special operations.<sup>14</sup> Campaign plans form the basis for developing subordinate campaign plans and supporting plans and, under uncertain circumstances, the framework or a series of operation plans for phases of campaigns.<sup>15</sup> It is clear that the intent of this doctrine is to focus subordinate operations through a unity of effort to achieve clearly defined objectives.

The 1993 version of U.S. Army FM 100-5, Operations, states that Army Doctrine is thinking in a new, strategic era. Army Doctrine, "reflects the shift to stronger joint operations, prompted by the Goldwater-Nichols Act of 1986."<sup>16</sup> It still characterizes operations as close, deep and rear but no longer sees itself as subordinate to the Air Force in conducting deep operations. As FM 100-5 notes, "Air interdiction can greatly benefit ongoing Army deep

operations when synchronized with Army interdiction efforts."<sup>17</sup> The manual supports the view that the Army is the nations "proven decisive military force" and "It is the Army's ability to react promptly and to conduct sustained land operations that make it decisive."<sup>18</sup>

The Army's operations manual supports joint doctrine and emphasizes when fighting at the operational level of war, joint and combined operational forces within a theater of operations perform subordinate campaigns and major operations to accomplish the strategic objectives of the unified commander or higher military authority.<sup>19</sup> A lower level of command does not indicate functioning at a lower(i.e.tactical) level of war, it is the intended purpose of a subordinate campaign plan which dedicates functioning at the higher(i.e.operational) level.<sup>20</sup> Thus, an Army weapon system, such as MLRS, in a lower echelon of the command structure may function at the operational level by virtue of it's ability to attack operational targets.

Technologic improvements in all services will continue to give subordinate commands the ability to design campaign plans which will have operational purposes. Multi-service weapon and intelligence collection improvements enhance joint force capabilities. Forces on land, sea and air can reinforce and complement each other at a continuously

increasing rate. The enemy is subject to acquisition, tracking, engagement and battle damage assessment from a variety of systems that belong to the different services.

The leverage of technology enhances the linkages between services for coordination of these joint assets through improved communications and shared situation awareness. New capabilities enable the services to complement each other in the supporting functions such as intelligence collection, fire support, logistics, air defense and aviation. The Air Force can provide moving target indicators and airborne threat intelligence. The Navy can provide interdiction from surface-to-surface cruise missiles and mobility from fast sea-lift ships. The army can contribute missile fire to destroy enemy air defense. These several examples help illustrate the broad scope of knowledge required by a planner to coordinate these capabilities into an operational fires plan. Expertise that is unique to the individual service component is critical in providing mutual understanding of the capabilities and limitations of assets supporting joint operations.

Air Force doctrine attempts to rise above its perceived historically subordinate position to the Army. U.S. Department of the Air Force Manual 1-1, Basic Aerospace Doctrine of the United States Air Force, notes, "Because

that history (aerial warfare) comprises only eighty years, it is not surprising that traditional, two dimensional surface warfare concepts dominate military thinking."<sup>21</sup> The Air Force describes AFM 1-1 as, "... an airman's doctrine-written by air power scholars for use by air power practitioners."<sup>22</sup> It goes beyond the historical mission of supporting the Army and places increased emphasis on campaigns in support of the Joint Force Commander(JFC). In the prosecution of the JFC's campaign, the manual notes that "... aerospace forces can make the most effective contribution when they are employed in parallel or relatively independent aerospace campaigns."<sup>23</sup>

The Air Force views its roles as : (1) aerospace control through offensive and defensive counter air missions,(2) force application through strategic attack missions, interdiction and close air support, followed by (3) force enhancement (airlift, aerial refuel, surveillance and reconnaissance, etc.), and (4) force support which includes operability and defense of bases, logistics and combat support.<sup>24</sup>

The service doctrines prescribe how each service will fight, making doctrine for joint operations all the more important. Joint doctrine must offer a common perspective from which to plan and operate. JCS Pub I states,

"...a crises may unfold rapidly and critical engagements may occur with little time to prepare.<sup>25</sup> Because commanders and staffs can rapidly assemble for combat, Joint Task Force staffs must train and be ready before the conflict. To prepare staff members for short-notice operations, joint doctrine should describe, in sufficient detail, the composition and duties of a joint force. A detailed doctrine for planning joint operations should help provide a common base of knowledge for a more rapid activation of a joint force. As a minimum, this doctrine should reduce some of the questions and experimentation that occurs at the beginning of a joint operation. A detailed doctrine could help standing joint organizations prepare for future operations through planning drills and rehearsals. Joint doctrine is valuable because it establishes uniformity among the services, saves time, improves understanding, and results in increased efficiency.

JCS Pub 3-0 emphasizes the importance of employing operational art and suggests several keys to assure the theater campaign is successfully planned and conducted. One method is ensuring that synergy of the joint force is achieved through a shared understanding of the operational situation.<sup>26</sup> Emphasis is given to depth and simultaneity-- two key aspects of operational art in a campaign, which are

at the heart of deep operations. The intent is to present the enemy simultaneously with more decisions than he can handle, by destroying or disrupting enemy key capabilities and functions throughout his entire depth to overwhelm him and cripple his will to resist.<sup>27</sup>

The Joint Force Commander establishes support relationships between and among the components to ensure a unity of effort and to gain leverage by maintaining and exploiting advantages in combat power across all dimensions.<sup>28</sup> The size, shape and positioning of land and naval areas of operations is dictated by the JFC, and within these areas, a component commander is designated the supported commander and is responsible for synchronizing maneuver, fires, and interdiction, to include designating target priorities.<sup>29</sup> JCS Pub 3-0 notes that air assets are not constrained by theater boundaries and are used by all joint force components, thus the JFC must establish the requisite airspace control measures to deconflict multiple use of required airspace.<sup>30</sup>

The JFC designates the Joint Force Air Component Commander(JFACC) as the supported commander for the JFC's overall air interdiction. Interdiction target priorities within the land or naval force boundaries are considered along with the theater wide interdiction effort.

These are reflected in the JFC's apportionment decisions.<sup>31</sup> JCS Pub 3-0 notes that interdiction and maneuver are not independent but complimentary operations, aimed at achieving the campaign plan's objectives. In resolving disputes, emphasis is placed on carefully balancing doctrinal imperatives that may be in tension including the needs of the maneuver force and the undesirability of fragmenting theater/Joint Operational Area air assets.<sup>32</sup>

The JFC must have a clear intent for theater level interdiction--the effort conducted relatively independently of surface force operations. The service components' interdiction contribution should be detailed in the campaign plan. Air interdiction operations must be measured in terms of their success in achieving the theater objectives. In particular, some operations may be dependent on a successful interdiction effort to isolate the battlefield or weaken the enemy force.<sup>33</sup>

Consistent with the JFC's priorities, the land component commander must synchronize maneuver and interdiction in his designated area of operation. The land component commander articulates to the supporting air or naval component commander how he sees interdiction facilitating his maneuver, then provides the supporting

commander as much latitude as possible in conducting interdiction operations.<sup>34</sup>

The Army believes that the land commander must have the ability to orchestrate all aspects of the land battle including not only his organic deep attack capabilities, but also the assets of other components to fight a deep battle out to his forward boundary.<sup>35</sup> Interestingly, perhaps in anticipation of the current debate on joint fire support, FM 100-5 notes that in achieving unity of effort, ownership of assets is less important than the application of their effects toward an intended purpose.<sup>36</sup>

Joint operations tend to be non-linear and the potential for conventional forces to conduct nonlinear operations has increased as technology and doctrine expand the lethality, tempo, and depth of operations.<sup>37</sup> In future conflict, the JFC must plan deep operations that will shape the close battle for subsequent operations. Operational fires are a method of attacking the enemy simultaneously throughout the depth of the theater, and shaping the area of operations for future battles. The joint force can execute close, deep and rear operations simultaneously given the enhanced capabilities to acquire and engage the enemy. This concept of simultaneous engagement implies

attacking committed and uncommitted enemy forces, command and control, lines of communications and logistics.<sup>38</sup>

A variety of firepower is available to the JFC to degrade and shape the enemy's capabilities and activities. Joint firepower is the means the JFC uses to divert, disrupt, delay, damage or destroy the enemy's air, surface, and subsurface military potential. It can be classified as tactical, operational, or strategic, based upon its intended effect.<sup>39</sup> Tactical firepower primarily supports the joint force tactical fight. Ground maneuver commanders exercise the control over tactical firepower that supports the close fight. Tactical firepower includes the use of target acquisition assets, indirect fire assets, fixed and rotary-winged aircraft, and electronic attack assets.<sup>40</sup>

Tactical fires support maneuver forces in direct contact with the enemy by suppressing or destroying direct and indirect fire systems and air defense systems. They screen maneuver by obscuring enemy observation of the battlefield with smoke. They provide countermobility by delivering scatterable mines and by covering obstacles. These fires also include the non-lethal effects of electronic warfare. Tactical fires are fire support.

Strategic firepower is intended to achieve a major impact at the strategic level and thus an impact on the

course of the theater campaign or war as a whole. The intended outcome or effect qualifies the weapon as strategic or operational. An example of strategic fires is a bombing campaign aimed at limiting an enemy's industrial capability. Nuclear weapons are usually categorized as strategic firepower.<sup>41</sup>

Operational fires achieve a decisive impact on a subordinate campaign or major operation. Operational fires are not fire support. They are provided by assets that are not dedicated to supporting ground maneuver in contact. Operational fires may be provided by air power, missile and Special Operations Forces. The target and its decisiveness to the campaign, however, determine if it is operational, not the means of delivery.<sup>42</sup> A key aspect in using operational firepower is integrating it with the land maneuver. U.S. Army FM 100-7, The U.S. Army in Theater Operations, states:

"Operational firepower achieves a decisive impact on a subordinate campaign or major operation. Operational firepower is joint and multinational. It is a separate element of the subordinate JFC's concept of operation, but must be closely integrated and synchronized with his concept for maneuver. In that regard, operational firepower is integrated normally with operational land maneuver for synergistic effect, staying power, and more rapid achievement of strategic aims. Operational firepower is not fire support, and operational maneuver is not necessarily dependent upon operational firepower. Still, operational maneuver can be affected by such fires and can exploit opportunities created by such fires and can exploit opportunities created or developed by the JFC's operational firepower."<sup>43</sup>

The JFC has traditionally given the responsibility for operational firepower to the air component. With the introduction of longer-ranged and precision munitions across all of the services, the ability to provide operational firepower is becoming joint and multinational in nature. Operational firepower can now include cruise missiles, attack helicopters, rocket and missile artillery and Special Operations Forces direct action missions.

Since operational firepower has such a close link with future operations in a campaign, operational firepower is planned top-down. The operational commander establishes the objectives, identifies targets, and then passes them to subordinate units for execution.<sup>44</sup> Subordinate commanders contribute to the operational targeting effort by nominating targets that could enhance their operations. In this way, the operational fire plan is considered to be top-down planned and bottom-up refined. The purpose of operational firepower is to engage the enemy across the depth of the operational area. JCS Pub 3.0 states:

"The evolution of warfare and advances in technology have continuously expanded the depth of operations. Airpower can be projected at greater distances while surface forces are able to maneuver more rapidly and project their influence at increasing depths."<sup>45</sup>

Engaging the enemy across the depth of the theater simultaneously could lead to his exhaustion and collapse from within. Without this, an alternative could be a

battle of attrition with limited depth which could allow the enemy to resupply and fight longer. The simultaneous action offered by operational fires and maneuver reflect Jomini's advocating for combinations of blows upon the enemy.<sup>46</sup>

Simultaneous engagements in a campaign deny the enemy an opportunity to recover and limit his ability to anticipate the next engagements because of their relentlessness.

FM 100-7 lists examples of enemy capabilities that operational firepower can engage:

- Destruction of critical functions, facilities and forces having operational significance.
- Isolation of a specific battle within the battle space.
- Facilitation of maneuver to operational depths.<sup>47</sup>

The Army is the executive agent for the yet approved U.S. Joint Chiefs of Staff Pub 3-09, which will contain the doctrine for joint fire support. Joint fires consist of interdiction and its associated follow-on-force attack, joint fire support, and service fire support. Joint fire support encompasses CAS and other service unique fire support, such as tube artillery and MLRS, mortars, and even naval gunfire. Other joint force fires are considered joint fire support based on their intended effects, such as that portion of the interdiction effort conducted to assist the surface force commander. While these fires have the potential for strategic, operational, and

tactical effects, the two categories of joint fires which directly support the JFC's major operation or campaign are interdiction and joint fire support.<sup>48</sup>

In achieving unity of effort in joint fire support planning, the JFC has the responsibility to ensure the appropriate command, control, and coordination occur between the service components. Currently, the coordination is accomplished by cooperation among the components mainly by use of a Deep Operations Coordination Cell(DOCC) and the Battlefield Coordination Element(BCE). The DOCC is a fire support element at the Army operations level headquarters charged with executing employment of operational fires. The BCE works with the Air Force in coordinating operational fires with the mission to facilitate synchronization of air support for army operations.<sup>49</sup>

Operational firepower could strike at decisive points that lead to the operational centers of gravity. Operational plans during the Persian Gulf War serve as an example. The operational planners focused on multiple centers of gravity. These were the Iraqi leadership, petroleum and electricity targets, and the Iraqi infrastructure. Planners believed that destroying these centers of gravity would devastate the enemy.<sup>50</sup>

Operational firepower creates freedom of action for the ground maneuver commander by isolating a specific battle, or diverting or reducing enemy capabilities prior to battle. The commander must be aware that the classification of a target as strategic, operational or tactical may change as rapidly as operations shift or objectives change.<sup>51</sup> The enemy is subject to the ground maneuver commander's choice of the time and location for the battle.<sup>52</sup>

The enhanced aviation and artillery weapons have made the Army an important operational firepower provider. The AH-64 Apache attack helicopter adds the capability to conduct corps and divisional deep maneuver without the extensive logistical requirements, extended time, or inherent risk of a deep ground maneuver. A corps or division can launch Apaches, employing hellfire missiles, to intercept and destroy lucrative targets. The AH-64 attacks enemy forces under conditions of limited visibility and from a stand-off range of eight kilometers. Equipped with a laser, the helicopter can illuminate targets for employment of precision-guided munitions, including copperhead artillery projectiles and its own hellfire missiles. The hellfire missile has a probability of kill of greater than 90%. Each AH-64 can carry sixteen missiles.

A second innovation which influences operational planning is the Multiple Launch Rocket System (MLRS). MLRS replaced the aging 8" or M110A2 howitzer with a battery consisting of nine rocket launchers in the Division Artillery, and a Corps MLRS battalion with 27 launchers. This responsive system provides battalion-equivalent massed-fires in excess of thirty kilometers. The launchers are able to emplace and fire within three minutes, bypassing the traditional manual fire control requirements. The most significant improvement is achieving a battalion mass-effect from a single launcher. In terms of delivery, commanders can use a single MLRS platoon to fire target groups without sacrificing mass effects as happened with a cannon battalion engaging target groups.

The Army Tactical Missile System (ATACMS) replaced the Lance missile as the corps deep fire weapon. The ATACMS gives the corps commander the capability of precision interdiction beyond one hundred-fifty kilometers. Since the ATACMS is fired from the M270 MLRS launcher, commanders do not have to coordinate for an additional artillery battery in the zone, as had been the case with the Lance units.

With the improvement of Army attack helicopters and missile systems, the corps aviation and artillery brigades have become the theater and corps deep attack assets.

Army attack helicopters, supported by suppression of enemy air defenses (SEAD) from MLRS and ATACMS, can range beyond the forward line of troops and engage targets, directly or indirectly (with remote laser-designation). Corps aviation and artillery brigades can now provide the ground maneuver commander an asset that can provide operational fires.

The upgraded Army weapons systems have the range and produce effects that can be synchronized with Marine, naval and Air Force missile and air power for decisive results.

#### **SECTION IV: THE GULF WAR**

Following the Iraqi invasion of Kuwait on 2 August, 1990, the United States deployed to Saudi Arabia to deter further aggression. The United States and Allied forces spent the next five months building their forces and developing an offensive campaign to expel Iraq from Kuwait. The offensive, Desert Storm, began on 17 January, 1991, as a largely independent joint and combined air campaign, led by the U.S. Air Force. The joint and combined ground offensive began on 24 February and in the 100 hour ground war successfully destroyed Iraq's conventional offensive military capability and ejected Iraqi forces from Kuwait.

The 1991 Persian Gulf War is a contemporary example of operational firepower used independently to attack the centers of gravity as well as for interdiction of enemy forces to support ground maneuver. General H. Norman Schwarzkopf, U. S. Commander in Chief, Central Command (USCINCCENT), stated his intentions on the four-phased plan to eject the Iraqis from Kuwait:

"We will initially attack into the Iraqi homeland using air power to decapitate his leadership, command and control, and eliminate his ability to reinforce Iraqi ground forces in Kuwait and Southern Iraq. We will then gain undisputed air superiority over Kuwait so that we can subsequently and selectively attack Iraqi ground forces with air power in order to reduce his combat power and destroy reinforcing units."

In the Pentagon, a group of Air Staff officers known as Checkmate began work on an air campaign plan. The head of the group was Col John A. Warden III, who quickly returned from a Caribbean Cruise when Iraq invaded Kuwait. The plan they developed became known as Instant Thunder, and was briefed to General Schwarzkopf, U. S. Commander in Chief, Central Command (USCINCCENT), on 10 August and General Powell, Chairman Joint Chiefs of Staff (CJCS) on 11 August.<sup>54</sup>

Lt Gen Horner, the U. S. Air Forces Central Command (CENTAF) commander, and at the time serving as the commander, CENTCOM forward, was also appointed by GEN Schwarzkopf, as the first wartime Joint Force Air Component

Commander (JFACC). He received his role and responsibilities as the JFACC directly from the CINC.

The planning for the use of operational fires focused on attempting to isolate Saddam Hussein from the deployed field army and to attack and eject the Iraqi army from Kuwait. In determining the centers of gravity for the operation, a staff led by Lieutenant General Charles A. Horner, developed the targeting priorities for defensive action. The initial priorities, as briefed by Horner, were to gain air superiority and interdict the Iraqi forces while protecting ports and rear areas.

In Washington, D.C., the Air Staff planning cell Checkmate, under Col Warden's supervision, developed an aerial operation to eject the Iraqi forces from Kuwait. Warden analyzed the theater and divided the key enemy capabilities into five concentric rings or centers of gravity for strategic planning. The innermost ring was the Iraqi leadership. The second critical ring was key production targets. Without the support of petroleum and electricity, a modern military machine would be hindered. The third ring was the Iraqi infrastructure, mostly the transportation network. The fourth ring was the Iraqi population and the fifth was the fielded military forces.<sup>55</sup>

The weakness in the plan was that it did not have a provision to attack the fifth ring, the fielded forces. Evidence now exists showing the real center of gravity may have been the Republican Guard and they were not targeted in the Checkmate developed plan.<sup>56</sup>

The plan was modified and expanded prior to execution to include the Iraqi forces, however, Warden's principles remained consistent. The key to defeating the Iraqi fielded forces was to attack the core leadership and sustainment capabilities. By silencing the leadership and crippling the logistics infrastructure, Saddam would not be able to generate or apply his combat power.

The planning effort was dominated by Air Force officers. Schwarzkopf gave Horner latitude in planning the air offensive operations.<sup>57</sup> The Master Attack Plan and the Air Tasking Order (ATO) were developed by Horner's target planning cell, known as the Black Hole.<sup>58</sup> Horner's staff was not joint, it was composed of the officers that served under him as Commander of the Ninth Air Force. His staff expanded to handle the duties of CENTAF and the Joint Force Air Component Commander (JFACC), but, it was manned entirely with Air Force Officers.<sup>59</sup> This fact troubled the other services causing concern on how targets were selected and engaged.

LT Gen Horner's responsibilities as JFACC included planning, coordination, allocating and tasking based on USCINCCENT's apportionment decisions. Additionally, he provided direct coordination with subordinate commanders and supporting forces to ensure integration of air operations within USCINCCENT's Concept of Operations.<sup>60</sup>

Instant Thunder did not adequately address attacking the Iraqi forces in the Kuwait Theater of Operations (KTO). The Black Hole, Horner's planning cell located in Riyadh, was established to gain control of the air planning effort. BG Buster Glosson was appointed as CENTAF director of campaign plans and assigned the task of developing a more comprehensive and detailed offensive air campaign. The result of the Black Hole's planning effort was a four phased sequential campaign plan which Gen Schwartzkoph briefed to Gen Powell on 25 August 1991. Phase one was essentially the same as the strategic air campaign in Instant Thunder. Phase two gained air superiority in the theater of operations. Phase three prepared the KTO for a ground offensive through battlefield preparation. The fourth phase was the ground offensive, which received little attention in previous planning.<sup>61</sup> Brig Gen Glosson, the head of CENTAF's Black Hole targeting cell,

felt that this air campaign plan could potentially win the war without the need for a ground offensive.<sup>62</sup>

An ad hoc planning cell of four graduates of the Army's School of Advanced Military Studies Planning began planning the ground offensive in mid September. This was in response to increasing pressure on the CINC to develop some type of ground offensive to go along with the already approved offensive air campaign. The group was to plan the ground offensive over the next three months.<sup>63</sup> The ground attack was based on two U. S. Corps, attacking west of the Iraq and Kuwait border, to close with and destroy the Republican Guards (one of the three identified centers of gravity) and complete the ejection of Iraqi forces from Kuwait. GEN Schwarzkopf continued to emphasize the criticality of physically destroying the Republican Guards as the centerpiece of the ground offensive.<sup>64</sup>

Coordination between the air and ground planning cells was infrequent and informal. The planning cells were physically separated and coordination was further limited by the constraints placed on both cells in working with others. Only 10 or so personnel from the CENTCOM staff had knowledge of the ground planning group.<sup>65</sup>

In early December, senior army leaders expressed concern for Brig Gen Glosson's plan for the Air Forces to

achieve a 50% attrition of Iraqi forces prior to the ground offensive.<sup>66</sup> The Army's view for shaping the battlefield during the battlefield preparation phase differed significantly from the role the Air Force had planned. The U.S. ground commanders focus was on destroying the Republican Guard and their concerns revolved around their ability to successfully breach Iraqi lines, reduce casualties, and maneuver quickly to a position to close with and destroy the Republican Guard. The Air Force and even the CINC's views on the appropriate means to defeat the Republican Guard was not consistent with the Army's.

The CENTAF targeting cell, consisting of former members of the CENTAF Black Hole, developed the offensive target list. CENTAF's Tactical Air Control Center(TACC), responsible for guidance, apportionment and targeting, was centrally controlled by Brig Gen Glosson, who in addition to being the chief planner was also the Commander of the 14th(Provisional) Air Division. All services and the coalition were represented in the TACC, however, the overwhelming percentage of the targeting staff was Air Force, including the heads of the KTO cell, Iraq cell, and ADA cell, as well as day and night shift leaders. Thus, this was not a true joint targeting cell.<sup>67</sup> This targeting

cell was separate from the one in CENTCOM which developed its own targeting list. This was not a major problem for the first 72 hours of the offensive since the air effort was almost exclusively focused on strategic targets. However, as the air campaign became more intense and complex, the interaction between these two groups became more difficult.<sup>68</sup>

The CENTAF master target had about 350 targets in January 1991 and was divided into twelve target categories:

1. Leadership/command facilities.
2. Electrical production facilities.
3. Telecommunications and command, control and communications nodes.
4. Strategic integrated air defense system.
5. Air Forces and air fields.
6. NBC research, production, and storage facilities.
7. SCUD missiles, launchers, production and storage facilities.
8. Naval forces and port facilities.
9. Oil refining and distribution facilities.
10. Railroads and bridges.
11. Iraqi army units to include the Republican Guard in the KTO.
12. Military storage and production sites.<sup>69</sup>

This list was to grow to over 700 targets not including targets submitted by ground commanders as part of their battlefield preparation. CENTAF kept the ground commander's targets as a separate group.<sup>70</sup>

The joint and combined air campaign started when the U.S.S. Wisconsin fired eight TLAMS early in the morning on 17 January, 1991. The missiles flew toward Baghdad, their target was the electrical grid that provided all power for

the city. The desired effect was to silence command and control equipment, and, to possibly provoke a rebellion by dissatisfied citizens.<sup>71</sup>

Shortly after the TLAMS were launched, the first direct-fire shot of DESERT STORM was initiated by an AH-64 of the 101st Airborne. As part of Task Force Normandy, Apaches, led by Air Force Pave Low helicopters, attacked and silenced an Iraqi air defense radar site. The destruction of this target opened the western air approach into Iraq.<sup>72</sup>

Later in the afternoon of 17 January, an MLRS/ATACMS crew received a fire mission to engage an Iraqi surface to air missile site over one hundred kilometers away. Once the mission was transmitted to the battery at 6:00 PM, the Army Central Command (ARCENT) deep battle cell and the JFACC staff began to coordinate air-space for the missile. Six hours later, a corridor was cleared and the missile was fired with devastating results to the SAM site.<sup>73</sup> All three of these examples demonstrate the increasing scope of operational fires.

The JFACC was responsible for coordinating airspace in the theater for all service components. Additionally, the JFACC formed a Joint Targeting Coordination Board (JTCCB) to periodically update the targeting priorities and ensure visibility on targeting concerns across the services. Still,

a concern among the ground commanders was that their interdiction nominations were not receiving adequate attention in the air campaign.<sup>74</sup>

The JFACC clearly had the lead in target development and nomination during the early phases of the campaign. Input into the target selection process became more important as the ground commanders developed their battle plans and made requests for air sorties to fly against their targets.<sup>75</sup> Army commanders perceived a lack of emphasis by the Air Force in properly supporting their requests. The ARCENT ground offensive was based on a deep envelopment of Iraqi forces in the west, followed by the rapid closure and destruction of the Republican Guard. Ground commanders did not know when the ground offensive would begin, but they believed about nine days would be needed to prepare the battlefield for a successful ground attack.<sup>76</sup> This would allow a quick penetration of the tactical front lines and the rapid closure on the Republican Guard. They also were concerned about their ability to influence the CINC on the air war, because Schwartzkopf felt challenged when questioned about the campaign plan and tended to react with intense anger.<sup>77</sup>

In response to the Army's perceived lack of emphasis, CENTAF started a campaign to increase attrition of Iraqi

forces in the KTO. To accomplish this, Aircraft began flying lower using a technique of armed recce and using 15 nautical mile square kill boxes, simultaneously attacking both ATO targets and targets of opportunity. This "tank plinking" increased attrition against Iraqi forces in the KTO including the Republican Guard.<sup>78</sup>

Despite the corps commanders' concerns over not getting enough front line sorties, GEN Schwarzkopf remained focused on the Republican Guard and directed Brig Gen Glosson to not go after enemy front line artillery until 3- 4 days prior to the ground offensive for fear of it being replaced. Gen Schwartzkopf was the defacto joint force land component commander (JFLCC) and felt it necessary to be personally involved with the day to day details of CENTAF's targeting efforts.<sup>79</sup>

Despite the concern over air apportionment, ARCENT did not form a deep battle cell until just days prior to the start of the air war. While this probably resulted more from a lack of manpower than a lack of desire, it further complicated an already existing problem on working with the Air Force to shape the battlefield.<sup>80</sup> Gen Yeosock was nervous about the focus of air support, however, when tracking Air Force BDA, he took a cumulative view versus the

sequential view of his corps commanders on the preparation of the theater of operations.<sup>81</sup>

The Air Force commanders and planners strongly denied allegations that the Air Force was running it's own autonomous show and not paying attention to the needs of the other services. They contend that the Army and Marines either did not know how to use the system for requesting target servicing or chose to use their own weapons systems to attack operational targets.<sup>82</sup>

On the 7th of February the DCINC, LTG Waller, became involved with a portion of CENTCOM's targeting process for the battlefield preparation phase. The ad hoc solution was to move the location of the JTCB meetings and have the DCINC act as its single spokesman for ground force commanders. All service components had membership on the board. LTG Waller reviewed the targets nominated from ARCENT and other ground components then passed the target list to Lt Gen Horner, who then briefed the CINC. Lt Gen Horner would then allocate these sorties against the DCINC's list and incorporate them in the ATO. The CINC was briefed on strategic targets and total sorties by aircraft allocated against each Iraqi division in the KTO for the next two days, Gen Schwartzkopf typically would make adjustments.<sup>83</sup> LTG Waller focused exclusively on Iraqi targets in the KTO in front of the fire

support coordination line(FSCL)because the CINC would not allow the ground commanders to move the FSCL until they launched their offensive.<sup>84</sup>

The Army Corps Commanders and ARCENT still continued to complain that the Air Force was not hitting the targets they were nominating. The ARCENT sitrep on the morning of 18 Feb was very critical of Air Force support to the Corps Commanders:

"AIR SUPPORT RELATED ISSUES CONTINUE TO PLAGUE FINAL PREPARATION FOR OFFENSIVE OPERATIONS AND RAISE DOUBTS CONCERNING OUR ABILITY TO EFFECTIVELY SHAPE THE BATTLEFIELD PRIOR TO THE GROUND CAMPAIGN.....ARMY NOMINATED TARGETS ARE NOT BEING SERVICED. EFFORTS MUST BE TAKEN NOW TO ALIGN THE OBJECTIVES OF THE AIR AND GROUND CAMPAIGNS AND ENSURE THE SUCCESS OF OUR FUTURE OPERATIONS"<sup>85</sup>

The corps target nominations were not only disapproved by CENTAF but also by the Third Army commander because several corps targets were not valid--they were either outdated, had already been hit and were awaiting BDA, or they did not meet CINC's criteria.<sup>86</sup> Additionally, the CINC disapproved target nominations and did not attack front line Iraqi divisions if reports showed them at less than 50%.<sup>87</sup>

CENTAF's accomplishments were significant during the battlefield preparation. From 17 January - 28 February 1991, 56.3 % of the over 23,400 coalition air strikes were against Iraqi ground forces in the KTO, 14.8% were against core strategic targets, 13.9 % supported air supremacy, and

15% were uncatagorized.<sup>88</sup> Prior to the start of the ground offensive, CENTAF and CENTCOM estimated 39% attrition of Iraqi tanks, 32% attrition of armored personnel carriers, and 47% attrition of artillery.<sup>89</sup>

CENTAF's BDA estimates for the Iraq KTO on 24 February showed overall unit BDA at 63% vs an ARCENT assessment of 33% for front line units, and a AFCENT assessment of 59% BDA using their most conservative estimates.<sup>90</sup> The Air Force's effectiveness during battlefield preparation was refined after the war, 800 fewer tanks were destroyed in the Iraqi KTO at the start of the ground war-- 40% of Iraqi tanks in the KTO were attrited overall with 20% in the Republican Guard.<sup>91</sup>

The preparation of the battlefield with airpower was effective and some may conclude it was truly the only essential element of the air campaign. When the ground forces began their offensive they found the Iraqi tactical units severely damaged and demoralized. The actual numbers of Iraqi units destroyed or rendered combat ineffective is debatable but what is clear is the air campaign could not end the war by itself. The ground offensive was necessary to force Saddam Hussein's Armies from Kuwait.

## SECTION V: ANALYSIS

The first section in this monograph posed that dramatic improvements in military effectiveness will fundamentally alter the character and conduct of future military operations. With this in mind, I examined Joint and Service Doctrine development and joint operational procedures during the Gulf War to lay open issues that must be resolved to successfully fight future battles.

The main issue for analysis is the capability of the Joint Force Commander to integrate and synchronize all aspects of attack and set conditions for victory by ensuring deep strikes are effective and contribute to the defeat of a hostile main battle force. Joint Doctrine puts the burden on the Joint Force Commander to prepare a campaign plan to synchronize the actions of air, land, sea, space, and special operations to achieve strategic and operational objectives. The JFC exercises command and control at the operational level that links the tactical employment of forces to strategic direction.

The JFC organizes his staff and assigns responsibilities as deemed necessary to ensure unity of effort and accomplishment of assigned missions. Joint Doctrine requires the JTF staff to have a common joint perspective from which to plan and operate and more

importantly, the JTF staff must be trained and ready before the conflict.

Considering my research I believe the joint targeting process is the most complex and requires significant JTF staff coordination with the service components. The JFC is responsible for maintaining a ready trained staff to prepare his detailed campaign plan. Yet, joint doctrine does not require the commander to establish a Joint Target Coordination Board(JTCB) nor appoint a Joint Force Fire Coordinator (JFFC) to ensure a unity of effort in accomplishing joint fires for the JTF.

Joint Doctrine gives the JFC several options in forming a JTCB. He may elect to establish a JTCB as a joint activity composed of members of the JFC's staff, the components, and, if required, their subordinate units. Second, he may delegate the responsibility to a subordinate commander (e.g., JFACC), which is what Gen Schwartzkopf did during the Gulf War. If the JFC elects not to establish a JTCB, then the JFC must establish procedures to coordinate and deconflict target requirements.<sup>92</sup> These options do not meet joint doctrine's intent to prepare the joint staff prior to conflict.

The Gulf War demonstrated that the joint targeting process should integrate capabilities and efforts of

national, unified, joint force, and component commands, all of which possess varying capabilities and different requirements. My review of this process in section IV of this monograph exposed some reluctance and disunity among the services during the Gulf War. Perhaps nothing more typified this lack of a unity of effort and a different vision of how to fight than the debate over the Fire Support Coordination Line that continues to be a point of contention between the Army and Air Force. A DOD report on the conduct of the war addressed the targeting issue:

"The theater Commander-in Chief has the key role in theater-level targeting, but this role is not clearly defined in joint doctrine. This lack of definition caused confusion and duplication. Ground force commanders expressed discontent with the JFACC targeting process for not being responsive to pre-G-Day targeting nominations. On the other hand, the JFACC targeting process reacted to CINC direction regarding priorities and maintenance of the over-all deception plan. Difficulties were experienced in nominating and validation targets."

As the JFC, Gen Schwartzkopf provided targeting guidance, objectives, and priorities; and defined the role of the joint targeting coordination board. Lt Gen Horner ran the JTCB and even when another ad hoc arrangement was established to apply more rigor and consistency to the joint targeting process, Gen Schwartzkopf remained personally involved in the targeting process. Absence of a Joint Force Fire Coordinator required the CINC to be the defacto joint forces fire coordinator when dealing with his service

components. This certainly detracted from his primary responsibility to Command the Joint Task Force.

It would be hard to argue that the targeting process failed because the air war was a great success and paved the way for the equally successful ground offensive. However, the implementation and effectiveness of the air campaign's battlefield preparation caused discord between the Army and Air Force. The actual percentages for BDA continued to be argued even after the war ended. This could have been resolved if there had been one central cell in the JTF responsible for coordinating joint fires and assuring adequate fires to attrit what may have been the true center of gravity for the operation, the Republican Guard.

To maximize the capabilities of the joint services operational firepower, the JFC should form a planning and execution cell to centralize these responsibilities above the service component level. The Army has developed doctrine to support its relatively new role in the operational firepower arena. This emerging Army doctrine calls for the formation of a Deep Operations Coordination Cell (DOCC) at echelons above corps, and corps and division level. The DOCC is organized with appropriate joint service, multinational arms, and coalition force representatives.<sup>94</sup>

The deep strike capability provided by ATACMS and the AH-64 gives the Army the means to destroy operational targets traditionally assigned to the Air Force. The Air Force recognizes the difficulty of integrating the longer range weapons provided by the Army and has proposed several solutions to provide unity of command. The Air Force approach is to have the JFACC assume responsibility for planning and executing all air and missile reconnaissance and interdiction missions beyond JFLCC boundaries.<sup>95</sup> This will result in Army assets, such as Apache and ATACMS, being put on the Air Tasking Order(ATO). Army commanders will be reluctant to earmark their assets for use 48 hours in advance.

A joint fires topic I have chosen not to discuss is Theater Ballistic Missile Defense(TBMD). TBMD coordination is a monograph thesis by itself. TBMD requires a solution to the deep strike debate between the services, I only mention this because it is a Joint Force Commander responsibility that influences decisions concerning joint operational fires.

## SECTION VI CONCLUSION

"Precision engagement envisions a system of systems that enables our forces to accurately locate the objective, provide responsive command and control, precisely generate the desired effect, accurately assess the level of success, and retain the flexibility to reengage quickly when required. This concept is a function of precision guidance and standoff capability. It generates desired effects in time and intensity by providing responsive and accurate attack over extended ranges while minimizing unwanted collateral damage."

The preceding quotation is from Col John Clauer Chief, Joint Vision 2010 Branch. I believe technological advances for all services have created this system of systems he envisions for Joint Vision 2010's operational concept of precision engagement. While the Force XXI endstate for all services is still undetermined, the implication is clear. In Future battle, the Joint Force Commander must have the ability to strike and defeat located enemy elements with precision and highly lethal effects, in near-real-time, and at the times and places of his choosing.

The application of combat power against the enemy using continuously new technologies mandates the next logical step in how the military plans to fight -- the development of an improved doctrine. Joint Doctrine cannot be vague but must specify responsibility for planning, targeting, delivering, and synchronizing effects of operational level weapon systems. The preliminary coordination version of JCS Pub

3-09, Doctrine for Joint Fire Support, has been submitted, however, the date for release for this important document is unknown. The publication incorporated recommended changes received from a worldwide review, and Joint Doctrine Working Groups held in January and May 1996. Nevertheless, 35 critical comments could not be resolved--all but six were based on non-concurrence with the definitions of "fires" and "joint fires."<sup>97</sup>

A joint doctrinal solution is necessary to resolve service concerns, especially when each service's target acquisition and prosecution systems overlap. The Joint Force Commander will be challenged by a fluid and dynamic future battlefield and he must have in place a system to coordinate his operational fires. Joint Doctrine should not allow nor should the JFC delegate this critical function to a service component. Coordination of operational fires needs to be accomplished on the JFC's staff.

I propose creation of a Joint Force Fires Coordinator (JFFC) and his immediate staff/section. The JFFC should be co-located with the J-3 in order to maintain operational awareness. The JFFC would be responsible for joint targeting execution planning, chairing the Joint Targeting Coordination Board, coordination of all fire support

coordination measures, and monitoring the selection and attack of operational targets.

## ENDNOTES

- <sup>1</sup> William J. Perry, "Technology for the 21st Century Warfare," 1996 Annual Defense Report to the President and the Congress (Washington, D. C.: U. S. Government Printing Office, March 1996), p.83-84.
- <sup>2</sup> Ibid, p 84.
- <sup>3</sup> U. S. Joint Chiefs of Staff, Joint Pub 1, Joint Warfare of the US Armed Forces.(Washington, D. C. : U. S. Government Printing Office, 1995), p.IV-1.
- <sup>4</sup> U. S. Joint Chiefs of Staff, Joint Pub 1-02 , Joint Dictionary. (Washington, D. C. : U. S. Government Printing Office, 1995), p.II-1.
- <sup>5</sup> U. S. Joint Chiefs of Staff, Joint Pub 3-55, Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA). (Washington, D. C. : U. S. Government Printing Office, 1993), p.IV-2.
- <sup>6</sup> Headquarters, Department of the Army, Blueprint of the Battlefield, TRADOC Pamphlet 11-9, (Fort Monroe, VA: 27 April 1990), p. 7.
- <sup>7</sup> Dennis J. Reimer and Ronald R. Fogleman, "Joint Warfare and the Army-Air Force Team," Joint Forces Quarterly (Spring 1996): p.11.
- <sup>8</sup> U.S. Department of the Army, FM 100-7, The Army in Theater Operations, (Washington, D.C.: Government Printing Office, 1995), p.5-3.
- <sup>9</sup> John L. Romjuc, "The Evolution of the AirLand Battle Concept," Air University Review (May-Jun 1984), p. 11.
- <sup>10</sup> John A. Warden III., The Air Campaign Planning for Combat, (Washington, D. C.: National Defense University Press, 1988). P. 169.
- <sup>11</sup> U. S. Joint Chiefs of Staff, , Joint Pub 1 , Joint Warfare of the US Armed Forces (Washington, D. C. : U. S. Government Printing Office, 1995), p.IV-1.
- <sup>12</sup> U. S. Joint Chiefs of Staff, , Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms, (Washington, D. C. : U. S. Government Printing Office, 1994), p. 62.
- <sup>13</sup> Ibid, p. IV-2.
- <sup>14</sup> U. S. Joint Chiefs of Staff, , Joint Pub 3-0, Doctrine for Joint Operations,(Washington, D. C. : U. S. Government Printing Office, 1995), p.III-5.
- <sup>15</sup> Ibid, p. III-9
- <sup>16</sup> U. S. Department of the Army, FM 100-5, Operations, (Washington, D. C.: U. S. Government Printing Office, 1993), p.vi.
- <sup>17</sup> Ibid, p.2-19.
- <sup>18</sup> Ibid, p. 1-4.
- <sup>19</sup> Ibid, p. 6-2.
- <sup>20</sup> Ibid, p. 6-2.
- <sup>21</sup> U. S. Department of the Air Force, AFM 1-1, Basic Aerospace Doctrine of the United States Air Force (Washington, D. C.: U. S. Government Printing Office, 1992), Vol. 1, p. 15.
- <sup>22</sup> Ibid., P. vii.
- <sup>23</sup> Ibid., p. 9.
- <sup>24</sup> Ibid., pp. 6-7.
- <sup>25</sup> Joint Pub 1, p.3.

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- <sup>26</sup>Joint Pub 3-0, p. III-14.
- <sup>27</sup>Ibid., p. III-11.
- <sup>28</sup>Ibid., p. III-14.
- <sup>29</sup>Ibid., p. IV-13.
- <sup>30</sup>Ibid., p. III-33.
- <sup>31</sup>Ibid., p. xiii.
- <sup>32</sup>Ibid., p. IV-13
- <sup>33</sup>Ibid., p. IV-13-15.
- <sup>34</sup>Ibid., p. IV-13-15.
- <sup>35</sup>Albert R. Hochevar, James A. Robards, John M. Schafer, and James M. Zepka, DEEP STRIKE: The Evolving Face of War, Joint Forces Quarterly, Autumn 1995, p.82.
- <sup>36</sup>FM 100-5, p. 6-13.
- <sup>37</sup>Ibid, p. IV-8
- <sup>38</sup>Joint Pub 3-0, p. IV-14.
- <sup>39</sup>U.S. Department of the Army, FM 100-7, The Army in Theater Operations, (Washington, D.C.: Government Printing Office, 1995), p.7-4.
- <sup>40</sup>Ibid, p. 7-4.
- <sup>41</sup>Ibid, p. 7-7.
- <sup>42</sup>U. S. Joint Chiefs of Staff, Joint Pub 3-55, Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA), (Washington, D. C. : U. S. Government Printing Office, 1993), p.IV-2.
- <sup>43</sup>FM 100-7, p. 7-4.
- <sup>44</sup>FM 100-7, p. 7-5.
- <sup>45</sup>Joint Pub 3.0, p. III-11.
- <sup>46</sup>Antoine Henri Jomini, Summary of the Art of War, Roots of Strategy, Book 2, ed. BG J. D. Hittle, (Harrisburg: Stackpole Books, 1987), p.473.
- <sup>47</sup>FM 100-7, p. 7-5.
- <sup>48</sup>Albert R. Hochevar, James A. Robards, John M. Schafer, and James M. Zepka, DEEP STRIKE: The Evolving Face of War , Joint Forces Quarterly, Autumn 1995, p.83.
- <sup>49</sup>FM 100-7, p.5-9.
- <sup>50</sup>James A. Winnefeld, A League of Airman: U.S. Air Power in the Gulf War (Santa Monica: Rand Corporation 1994), p. 67.
- <sup>51</sup>U. S. Joint Chiefs of Staff, Joint Warfare of the US Armed Forces Joint Pub 3-55, Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA), (Washington, D. C. : U. S. Government Printing Office, 1993), p.IV-2.
- <sup>52</sup>FM 100-5, p.6-14.
- <sup>53</sup>Thomas A. Keaney and Eliot A. Cohen, Gulf War Air Power Survey Summary Report, (Washington, D.C.: U.S. Government Printing Office, 1993), p. 27.
- <sup>54</sup>Ibid, p.37.
- <sup>55</sup>Winnefeld, p. 67
- <sup>56</sup>Winnefeld, p. 67

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- <sup>57</sup>Keaney and Cohen, *Gulf War Air Power Survey*, 151.
- <sup>58</sup>*Ibid*, p. 150.
- <sup>59</sup>*Ibid*, p. 147.
- <sup>60</sup>*Ibid*, p. 148.
- <sup>61</sup>*Ibid*, p. 38.
- <sup>62</sup>*Ibid*, p. 171.
- <sup>63</sup>Richard M. Swain, COL (Ret) U. S. Army, "Lucky War" Third Army in Desert Storm (U. S. Army Command and General Staff College Press, Fort Leavenworth, Kansas, 1994), p.75.
- <sup>64</sup>*Ibid*, pp. 83,90.
- <sup>65</sup>*Ibid*, p.77.
- <sup>66</sup>*Ibid*, p. 182.
- <sup>67</sup>Daniel J. Muir, USN, "A View from the Black Hole", Naval Institute Proceedings, (Oct 91), pp. 85-86.
- <sup>68</sup>*Ibid.*, P. 86.
- <sup>69</sup>Keaney and Cohen, *Gulf War Air Power Survey*, p. 42.
- <sup>70</sup>Col Richard B. Lewis, USAF, "JFACC, Problems Associated with Battlefield Preparation in Desert Storm", Airpower Journal, (Spring 94), p. 5.
- <sup>71</sup>Rick Atkinson, Crusade: The Untold Story of the Persian Gulf War, (New York: Houghton Mifflin Company, 1993), pp.58-59.
- <sup>72</sup>BG Robert H. Scales, Certain Victory: The US Army in the Gulf War,(Fort Leavenworth, KS: U.S. Army Command and General Staff College Press. 1994), pp. 158-160.
- <sup>73</sup>Scales, Certain Victory, p. 193-194.
- <sup>74</sup>Keaney and Cohen, *Gulf War Air Power Survey*, p. 153.
- <sup>75</sup>Keaney and Cohen, *Gulf War Air Power Survey*, p. 154.
- <sup>76</sup>Swain, p.185.
- <sup>77</sup>Swain, p. 185 .
- <sup>78</sup>Lewis, pp. 8-9.
- <sup>79</sup>Lewis, p. 13.
- <sup>80</sup>Swain, p. 186
- <sup>81</sup>*Ibid.*, p. 189.
- <sup>82</sup>Winnefeld, A League of Airman, p. 82.
- <sup>83</sup>Lewis, pp. 6-7.
- <sup>84</sup>Keaney and Cohen, *Gulf War Air Power Survey*, p.157.
- <sup>85</sup>Swain, p. 189.
- <sup>86</sup>Lewis, p. 17-18.
- <sup>87</sup>Lewis, p. 19.
- <sup>88</sup>Keaney and Cohen, p. 65.
- <sup>89</sup>USCINCCENT Situation Report, dtd 232115Z Feb 1991, as noted in Keaney and Cohen, p. 105.
- <sup>90</sup>Lewis, pp. 12-13.

<sup>91</sup>Keaney and Cohen, pp. 107-108.

<sup>92</sup>Joint Pub 3-55, p IV-6.

<sup>93</sup>United States Department of Defense, Conduct of the Persian Gulf War; Final Report to Congress (Public Law 102-25), Washington DC, Department of Defense, April 1992, p. 246.

<sup>94</sup>FM 100-7, p. 7-6.

<sup>95</sup>U.S. Department of the Air Force, Joint Force Air Component Commander (JFACC) Primer, (Washington, D.C.: U.S. Government Printing Office, 1994), p. 32.

<sup>96</sup>John Clauer, Col, USMC, Future Warfare: Preparing for the 21st Century, A Common Perspective, Joint Warfighting Center's Newsletter, October 1996 Volume 4, No. 2., p.6

<sup>97</sup>Michael L. Smith, LTC, USA, Director, Doctrine Organization Updates, Joint Warfighting Center's Newsletter, October 1996 Volume 4, No. 2., p.21

## Bibliography

### Books

Atkinson, Rick, Crusade: The Untold Story of the Persian Gulf War. New York: Houghton Mifflin Company, 1993.

Gordon, Michael R. and Bernard E. Trainor. The General's War: The Inside Story of the Conflict in the Gulf. Boston: Little, Brown, and Company, 1995.

Antoine Henri Jomini, Summary of the Art of War, Roots of Strategy, Book 2, ed. BG J. D. Hittle. Harrisburg: Stackpole Books, 1987.

Keaney, Thomas A. and Cohen, Eliot A., Gulf War Air Power Survey Summary Report. Washington, DC: US Government Printing Office, 1993.

Scales, Robert H., BG USA, Certain Victory: The US Army in the Gulf War, Fort Leavenworth, KS: US Army Command and General Staff College Press, 1994.

Schwartzkopf, Gen. H. Norman, written with Peter Petre. It Doesn't Take a Hero. New York: Bantam Books, 1992.

Swain, Richard M., COL (Ret) USA, "Lucky War": Third Army in Desert Storm, Fort Leavenworth, KS: US Army Command and General Staff College Press, 1994.

Warden, John A. III, The Air Campaign Planning for Combat, Fort Lesley J. McNair, Washington, D. C.: National Defense University Press, 1988.

Winnefeld, James A., Preston Niblack, and Dana A. Johnson. A League of Airmen: U.S. Air Power in the Gulf War. Santa Monica, CA: RAND Corporation, 1994.

---

Government and Military Publications

- U. S. Joint Chiefs of Staff, Joint Pub 1, Joint Warfare of the US Armed Forces. Washington, D. C. : U. S. Government Printing Office, 1995.
- U. S. Joint Chiefs of Staff, Joint Pub 1-02, Department of Defense Dictionary. Washington, D.C. : U. S. Government Printing Office, 1995.
- U. S. Joint Chiefs of Staff, Joint Pub 3-0, Doctrine for Joint Operations. Washington, D.C.: U. S. Government Printing Office, 1995.
- U. S. Joint Chiefs of Staff, Joint Pub 3-09, Doctrine for Joint Fire Support, Second Draft. Washington, D.C.: U.S. Government Printing Office, 1995.
- U. S. Joint Chiefs of Staff, Joint Pub 3-55, Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA). Washington, D. C. : U. S. Government Printing Office, 1993.
- U. S. Joint Chiefs of Staff, Joint Pub 3-56.1. Command and Control for Joint Air Operations. Washington, D. C.: U. S. Government Printing Office 1994.
- U.S. Department of the Army. Field Manual 6-20-2, Tactics, Techniques, and Procedures for Corps Artillery, Division Artillery, and Field Artillery Brigade Headquarters. Washington, DC: U.S. Government Printing Office, 1993.
- U.S. Department of the Army. Field Manual 6-20-10, Tactics, Techniques and Procedures for the Targeting Process. Washington, DC: U.S. Government Printing Office, 1989.
- U.S. Department of the Army. Field Manual 6-20-30, Tactics, Techniques, and Procedures For Fire Support For Corps and Division Operations. Washington, DC: U.S. Government Printing Office, 1989.
- U.S. Department of the Army. Field Manual 100-5, Operations, 1993. Washington, DC: U.S. Government Printing Office, 1993.
- U.S. Department of the Army. Field Manual 100-7, Decisive Force: The Army in Theater Operations. Washington, DC: U.S. Government Printing Office, 1995.
- U.S. Department of the Army, TRADOC Pamphlet 11-9, Blueprint of the Battlefield, Fort Monroe, VA: Department of the Army, 1990.
- U.S. Department of the Army, TRADOC Pamphlet 525-5, Force XXI operations. Fort Monroe, VA: Department of the Army, 1994.
- U.S. Department of the Air Force. Joint Force Air Component Commander (JFACC) Primer. Washington, D.C.: U.S. Government Printing Office, 1994.
- U. S. Department of the Air Force, AFM 1-1, Basic Aerospace Doctrine of the United States Air Force. Washington, D. C.: U. S. Government Printing Office, 1992.
- United States Department of Defense, Conduct of the Persian Gulf War; Final Report to Congress (Public Law 102-25), Washington DC, Department of Defense: 1992.

---

U.S. Armed Forces Staff College. AFSC PUB 2, Norfolk: National Defense University, 1992.

#### Archives

Fort Leavenworth Desert Storm/ Desert Shield archives for Third US Army and VII Corps, Command and General Staff Library, Fort Leavenworth, KS, 1992.

Army Historical Archives System. VII Corps Gulf War After Action Report. Ft Leavenworth, KS: Combined Arms Research Library, 1992.

Army Historical Archives System. Tate Papers: AAR Gulf War. Ft Leavenworth, KS: Combined Arms Research Library, 1993.

#### Articles

Clauer John, Col, USMC, Future Warfare: Preparing for the 21st Century. A Common Perspective, Joint Warfighting Center's Newsletter, (October 1996)6.

Cline, Dennis C., COL, USA and LTC Joe G. Taylor, Jr. "Deep Interdiction: The MLRS Deep Strike Option." Field Artillery, (April 1993)15-18.

Emerson, Harry M. III, COL, USA and MAJ Michael T. Edwards. "Deep Operations: A Look From BCTP at the Process." Combat Training Centers Bulletin No. 94-1, (March 1994)21-22.

Hochevar, Albert R., Robards, James A., Schafer, John M., and Zepka, James M., "DEEP STRIKE: The Evolving Face of War", Joint Forces Quarterly, (Autumn 1995)80-85.

Lewis, Richard B., Col, USAF, "JFACC, Problems Associated with Battlefield Preparation in Desert Storm", Airpower Journal, (Spring 94)4-6.

Muir, Daniel J., USN, "A View from the Black Hole", Naval Institute Proceedings, (Oct 91)85-86.

Reimer, Dennis J. and Fogleman, Ronald R., "Joint Warfare and the Army-Air Force Team," Joint Forces Quarterly, (Spring 1996)9-15.

Romjue, John L., "The Evolution of the AirLand Battle Concept," Air University Review, (May-Jun 1984) 10-15.

Smith, Michael L., LTC, USA, "Doctrine Organization Updates," Joint Warfighting Center's Newsletter, (October 1996)21.

#### Unpublished Works

Bush, Charles C., MAJ, USA, The Role of the Division Deep Operations Cell in Force Projection Operations, Fort Leavenworth, KS, US Army Command and General Staff College, June 1992.

---

Deptula, David A., COL, USAF, Firing For Effect: Change in the Nature of Warfare, Arlington, VA: Aerospace Education Foundation, 24 Aug 1995.

Gisler, Frederick S., MAJ, USA, Joint Force Fire Support: Who is the Coordinator, Fort Leavenworth, KS, US Army Command and General Staff College, May 1991.

Jauron, Lester C., MAJ, USA, The Fire Support Coordination Line: Should it Delineate Area Responsibilities Between Air and Ground Commanders, Fort Leavenworth, KS, US Army Command and General Staff College, May 1993.

White, Philip O., LTC USA, The Role of the Army Tactical Missile System in Joint Warfare, Carlisle Barracks, PA: Army War College, 15 April 1993.

Zook, David H. III, MAJ, USA, The Fire Support Coordination Line: Is It Time to Reconsider Our Doctrine, Fort Leavenworth, KS, US Army Command and General Staff College, June 1992.