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# When Non-Standard Missions Become Standard: Employing Field Artillery Brigades on the AirLand Battle-Future Battlefield

A Monograph
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THE PURPOSE OF THIS MONOGRAPH IS TO DETERMINE HOW HEAVY-FORCE FIELD ARTILLERY BRIGADES CAN BE BEST EMPLOYED ON THE MID- TO HIGH-INTENSITY AIRLAND BATTLE-FUTURE (ALB-F) BATTLEFIELD. THE STUDY FOCUSES ON THE ADEQUACY OF THE FOUR STANDARD TACTICAL MISSIONS FOR FIELD ARTILLERY IN FM 6-20. MY METHODOLOGY BEGAN BY EXAMINING ARTILLERY FUNDAMENTALS TO DEVELOP THE FOLLOWING CRITERIA: LETHALITY, FLEXIBILITY, AND INTELLIGENCE. NEXT, I ANALYZE SOME WORLD WAR II CASE STUDIES USING THE CRITERIA. I THEN EXAMINE THE ALB-F BATTLEFIELD TO DETERMINE NON-DIVISIONAL ARTILLERY REQUIRMENTS THERE. LASTLY, I SYNTHESIZED THE ARTILLERY FUNDAMENTALS, ANALYSES OF CASE STUDIES, AND THE ALB-F REQUIREMENTS TO DERIVE CONCLUSIONS AND IMPLICATIONS. THIS MONOGRAPH CONCLUDES THAT WHILE CREATION OF ARTILLERY DIVISIONS IS A SOLUTION WITH HISTORICAL PRECEDENT, IT IS IMPRACTICAL UNDER ANTICIPATED FORCE STRUCTURE CONSTRAINTS. WE MUST ENSURE THE CORPS ARTILLERY HEADQUARTERS IS ROBUST ENOUGH TO FUNCTION ON THE ALB-F BATTLEFIELD. WE SHOULD ALSO EXPAND THE FOUR TACTICAL MISSIONS IN CURRENT DOCTRINE TO ACKNOWLEDGE THE UNIQUE DEMANDS ON ARTILLERY BRIGADES ON THE ALB-F BATTLEFIELD. I PROPOSE TWO POSSIBLE "NEW" STANDARD TACTICAL MISSIONS.

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## ABSTRACT

WHEN NON-STANDARD MISSIONS BECOME STANDARD: EMPLOYING FIELD ARTILLERY BRIGADES ON THE AIRLAND BATTLE-FUTURE BATTLEFIELD by MAJ Donald C. McGraw Jr., USA, 61 pages.

The purpose of this monograph is to determine how heavy-force field artillery brigades can be best employed tactically on the mid- to high-intensity AirLand Battle-Future battlefield. The study focuses on the adequacy of the four standard tactical missions for field artillery contained in Army Field Manual 6-20.

My methodology began by examining artillery fundamentals and doctrine to develop the following criteria for successful artillery employment: lethality, flexibility, and intelligence. Next, I analyzed some historical case studies from World War II using the criteria. I then examined the AirLand Battle-Future (ALB-F) battlefield to determine non-divisional artillery requirements. Lastly, I synthesized the artillery fundamentals, doctrine, analyses of historical case studies, and the ALB-F battlefield requirements to derive conclusions and the implications of those conclusions.

This monograph concludes that while creation of artillery divisions is a solution with historical precedent, it is impractical under current and anticipated force structure constraints. Therefore, we must ensure the corps artillery headquarters is robust enough to facilitate lethality, flexibility, and intelligence operations on the ALB-F battlefield. Furthermore, we should expand the four standard tactical missions in current doctrine to acknowledge the unique demands on field artillery brigades on the nonlinear ALB-F battlefield. The monograph proposes two possible "new" standard tactical missions.

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## Part 1: INTRODUCTION

The Army must prepare to fight the next war rather than the last one. This simple statement hits at the heart of Army doctrine. A difficult aspect of developing new doctrine is synthesizing anticipated warfighting technologies with future threat assessments to determine a new "how to fight" concept. Our current doctrinal concept, AirLand Battle (ALB), is under intense review. The new doctrinal concept evolving out of this review is called AirLand Battle-Future (ALB-F).

During the evolution of our Army's doctrine in the Twentieth Century there have been many areas of disagreement.[1] One of these areas is the tactical employment of non-divisional artillery (corps artillery or field artillery brigades). Since World War II, there has been considerable interest over how a corps commander should employ non-divisional artillery.[2] A corps commander can either retain the artillery directly under his control or he can provide it in a reinforcing role to the division artilleries.[3]

In light of the current interest in the evolving AirLand Battle-Future concept and the ongoing debate on non-divisional artillery employment, the purpose of my monograph is to determine how heavy-force field artillery

brigades can be best employed tactically on the mid- to high-intensity ALB-F battlefield.

This monograph is significant because it anticipates field artillery brigade employment requirements on the ALB-F battlefield. It also examines current artillery employment procedures to determine their adequacy on the future battlefield and suggests new employment options for the corps commander.

## SCOPE

The Army is developing the ALB-F concept to encompass the entire operational continuum.[4] To focus my examination of non-divisional artillery employment, this monograph is concerned with only the mid- to high-intensity portion of the operational continuum. While I recognize the synergistic effect all forms of fire support create, this paper deals only with non-divisional artillery. Also, there are many aspects of non-divisional artillery employment pertinent for study, such as security of the force or possible enemy countermeasures, but due to space limitations, I will focus only on employment as it applies to the assignment of tactical missions. Finally, issues such as the strategic mobility of the ALB-F force or the availability

of anticipated technologies will not enter into this discussion because my focus is on actual warfighting procedures, rather than actions prior to war.

## ASSUMPTIONS

Two assumptions are fundamental to this paper and to understanding ALB-F. First, ALB-F assumes that significant advances in technologies will be available to the commander.[5] Descriptions of some of the advances in electronics, communications, and artificial intelligence systems are in Appendix A. This assumption is important because it provides the commander with the tools with which he will fight on the ALB-F battlefield. The second assumption is that ALB-F will be a suitable, feasible, and acceptable warfighting concept which will become doctrine. Armed with these assumptions, I will employ a four-step methodology to determine how heavy-force field artillery brigades can be best employed on the mid- to high-intensity ALB-F battlefield.

## METHODOLOGY

My four-step approach to examining the role of field artillery brigades on the ALB-F battlefield begins with an examination of artillery fundamentals and doctrine to develop criteria for successful artillery employment. Next I will analyze some historical case studies in World War II using the criteria I developed. Then I will

examine the AirLand Battle-Future battlefield to determine non-divisional artillery requirements. Lastly, I will synthesize the artillery fundamentals, doctrine, analyses of historical case studies, and the ALB-F battlefield requirements to derive conclusions and their implications of employing heavy-force field artillery brigades on the mid- to high-intensity ALB-F battlefield. In order to develop criteria for successful artillery employment, we must first understand basic artillery fundamentals and doctrine.

## Part 2: ARTILLERY FUNDAMENTALS AND DOCTRINE

Artillery employment has undergone many changes since the first cannon ball was fired.[6] However, one concept of artillery employment has remained constant: Massed fires are more effective than unmassed fires. In other words, artillery lethality increases as one delivers more ordnance on the target in less time. The point is that timeliness, accuracy, and massed fires have a synergistic effect of increasing lethality.[7] This simple fundamental has been the principal driving force behind the development of delivery systems, munitions, artillery organizations, and doctrine.[8]

To mass fires more effectively, artillerists learned to centralize the command and control of their weapons to the maximum extent possible. By centralizing command and

control, a commander can bring more weapons to bear on any one point more quickly.[9] At the same time, commanders realized that not all the guns could be controlled by a single person on the battlefield.[10] The commander's primary challenge when organizing artillery for combat was balancing adequate support for the committed forces with retention of maximum feasible centralized command and control at higher levels.[11] In our Army today, this translates to determining how much artillery the commander places in support of committed maneuver units (primarily brigades) and how much he retains under his (usually division or corps) control (general support artillery).[12]

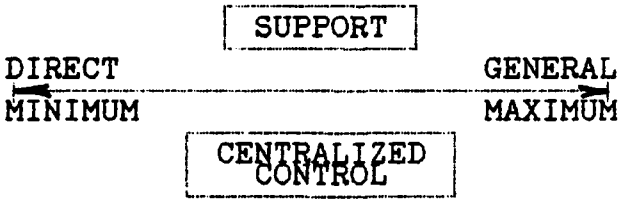



Fig 1

The ultimate objective of massed fires is to increase the lethality of artillery. The degree of centralized command and control is only one aspect of achieving lethality. Another aspect is munitions.

Artillerymen have increased their lethality by making artillery ammunition more deadly. However, despite increased lethality, massed fires have retained their prominence in artillery employment.[13] Artillery

ammunition has gone through many changes, most of which have made the projectile more lethal. For example, dual purpose-improved conventional munition (DPICM) is a vast improvement over conventional high explosive projectiles.[14] Neither history nor my experience has shown that these enhanced lethality projectiles negate the need for massed fires.[15]

The above analysis provides the first criterion for determining successful artillery employment: **LETHALITY**. It has several components. To be lethal, artillery units must mass accurate and timely fires. Additionally, massed fires require more centralized command and control. When using this criterion to evaluate a technique of artillery employment, the more the technique facilitates massing, the better the technique.

Another key to successful artillery employment is that artillery units must constantly adapt to changing conditions on the battlefield and continually prepare for future operations. Therefore, artillery units must be flexible in planning and execution.[16] Flexibility includes responsiveness, rapid repositioning of howitzer formations to respond to a changing enemy and/or friendly situation, and the mental and physical agility to quickly change assigned missions to conduct a new operation. This concept of flexibility is deeply rooted in the ALB terets of initiative and agility.

Artillery flexibility is linked to initiative in its ability to alter the enemy's tempo and conduct of operations. For example, during an enemy attack, a rapid shift of artillery support from one area of the battle to another might frustrate his attack and shift the initiative over to us. Retaining the initiative requires thinking ahead and anticipating future events.[17]

Agility is a prerequisite for seizing and maintaining the initiative. Physical agility and flexibility in our ability to reposition and shift fires will give us opportunities to take the initiative away from the enemy. Our mental agility must enable us to think faster than the enemy and cause him to react to our intentions and actions rather than us reacting to his.[18] This yields the second criterion: **FLEXIBILITY**.

As shown above, flexibility encompasses many different aspects of artillery employment. According to FM 100-5, flexibility is the only characteristic common to both offensive and defensive operations.[19] For purposes of this monograph, flexibility includes the ability to adapt to the current situation, to foresee and plan for future operations, and to react adequately to unanticipated enemy actions. It acknowledges the artillery fundamental of organizing for combat to "facilitate future operations."[20] When using this criterion to evaluate a technique of artillery

employment, the more flexible the technique, the better it is.

Turning to US artillery force structure and doctrine, we can see that non-divisional artillery units do not have their own forward observers (with the exception that some may have up to four air observers). Instead, they rely primarily on target acquisition sensors for developing targets.[21] For these units to mass their fires, thus increasing their lethality, they must have timely access to the appropriate sensors and intelligence.[22] As we transition to the ALB-F environment and nonlinear warfare, access to accurate and timely intelligence and targeting data becomes even more important to the corps' artillery.[23] An artillery unit that has neither targets to shoot at nor targets that are either timely or accurately located is of little use to the maneuver commander. Therefore, we have the third criterion: **INTELLIGENCE**.

For this monograph, intelligence is the measurement of access to and dissemination of timely and accurate targeting data. When using this criterion to evaluate a technique of artillery employment, the more the technique facilitates access to and dissemination of intelligence, the better it is. In order to apply these criteria in analyzing artillery operations, both past and future, a brief review of artillery tactical missions is in order.

US Army artillery doctrine contains four standard tactical missions for artillery units. These missions are direct support, reinforcing, general support-reinforcing, and general support. For each of these standard tactical missions there are seven inherent responsibilities.[24] (See Fig.2) When analyzing how the commander should employ heavy-force field artillery brigades on the mid- to high-intensity ALB-F battlefield, I will initially do so within the context of these tactical missions since there is currently no plan to modify them for ALB-F.[25] However, I will also propose and examine other missions beyond these standard ones.

INHERENT RESPONSIBILITIES OF FIELD ARTILLERY MISSIONS

| AN FA UNIT WITH A MISSION OF— | DIRECT SUPPORT | REINFORCING | GENERAL SUPPORT REINFORCING | GENERAL SUPPORT |
|---|---|---|---|---|
| 1. Answers calls for fire in priority from— | 1. Supported unit.<br>2. Own observers[1]<br>3. Force FA HQ | 1. Reinforced FA<br>2. Own observers[1]<br>3. Force FA HQ | 1. Force FA HQ<br>2. Reinforced unit<br>3. Own observers[1] | 1. Force FA HQ<br>2. Own observers[1] |
| 2. Has as its zone of fire— | Zone of action of supported unit | Zone of fire of reinforced FA | Zone of action of supported unit to include zone of fire of reinforced FA unit | Zone of action of supported unit |
| 3. Furnishes fire support team (FIST/FSS)[2] | Provides temporary replacements for casualty losses as required | No requirement | No requirement | No requirement |
| 4. Furnishes liaison of— | No requirement | To reinforced FA unit HQ | To reinforced FA unit HQ | No requirement |
| 5. Establishes communications with— | Company FSOs, FSOs, and supported maneuver unit HQ | Reinforced FA unit HQ | Reinforced FA unit HQ | No requirement |
| 6. Is positioned by— | DS FA unit commander or as ordered by force FA HQ | Reinforced FA unit or as ordered by force FA HQ | Force FA HQ or reinforced FA unit if approved by force FA HQ | Force FA HQ |
| 7. Has its fires planned by— | Develops own fire plans | Reinforced FA unit HQ | Force FA HQ | Force FA HQ |

[1]Includes all target acquisition means not deployed with supported unit (radar, aerial observers, survey parties, etc.).

[2]A fire support section (FSS) for each maneuver brigade/battalion/cavalry squadron and one FIST with each maneuver company/ground cavalry troop are trained and deployed by the FA unit authorized these assets by TOE. After deployment, FISTs and FSSs remain with the supported maneuver unit throughout the conflict.

(Fig 2)

When organizing artillery for combat, the commander has the option to modify one or more of the seven

inherent responsibilities associated with the four standard tactical missions. When he does this, he creates a non-standard tactical mission. For example, a field artillery brigade given a mission to reinforce a division artillery may be told that its first priority in answering calls for fire is those from counterbattery radars rather than missions from the reinforced headquarters. This non-standard mission enhances the force's counterfire effort. The concept of modifying standard tactical missions into non-standard ones will be important in my analysis because it will show how a commander can be innovative and enhance one or more of the criteria without deviating greatly from doctrine.

In summary, to maximize effectiveness on the battlefield today and in the future, artillery fires must be lethal. Additionally, artillery units must be flexible in adapting to current situations, planning for future operations, and reacting to unanticipated enemy actions. Lastly, artillery units must have access to timely and accurate intelligence and be capable of disseminating it if their fires are to be effective and lethal. This analysis yields the three criteria used throughout the remainder of this monograph: **LETHALITY**, **FLEXIBILITY**, and **INTELLIGENCE**.[26] Our doctrine has provided us with a structured set of four tactical missions that are designed to satisfy each criterion.[27]

Armed with these criteria, let us now evaluate some past artillery employment examples with the intention of finding trends that may give us solutions to field artillery brigade employment on the ALB-F battlefield.

## Part 3: HISTORICAL ANALYSIS

> We won the war and it was largely won by the artillery. I think it is very important that you now record on paper what you did, not what you think you did, so that the artillery in the next war can start off where you stopped.
> General Patton[28]

In this part I will look at some historical examples of artillery employment during the Second World War. I chose these examples because each involves a large amount of non-divisional artillery and its employment was used to set the conditions for close combat similar to the way ALB-F wants the artillery to set conditions for combat. Using the criteria developed above, I will examine each example to determine the effectiveness of the artillery. In Part 4, I will synthesize the conclusions based on analysis of these case studies with the ALB-F employment of artillery to provide answers to the research question.

### OPERATION FLASHPOINT

On March 24, 1945, at Ø1ØØ hours, 1,Ø25 howitzers, guns, and mortars of the XVI Corps (US) artillery, began one of the largest cannonades fired by the US Army in WW

II. This artillery preparation supported Operation FLASHPOINT, the Ninth (US) Army's assault crossing of the Rhine River. Operation FLASHPOINT was one of three separate army-level operations that made up the 21st Army Group's Operation PLUNDER, the army group's crossing of the Rhine River and subsequent encirclement of the Ruhr industrial region.[29]

The Ninth (US) Army had the mission of conducting an assault crossing of the Rhine River in the southern sector of the 21st Army Group's zone. FLASHPOINT was the crossing of the river by the XVI Corps between the towns of Wesel and Duisburg (See maps at Appendix C). The Ninth Army then consisted of three corps: the XIII, XVI, and XIX. While the XVI Corps conducted the actual crossing, the XIII Corps conducted a feint and fixed enemy forces further to the south and the XIX Corps remained in reserve as an exploitation force.[30]

Since it was the main effort of the Army, the XVI Corps had a large amount of non-divisional artillery available for Operation FLASHPOINT. In addition to the artillery organic to the five divisions attached to the XVI Corps, Corps Artillery consisted of 35 artillery battalions, six tank destroyer battalions, two observation battalions, eight field artillery group

headquarters, and one field artillery brigade headquarters.[31] In summary, the artillery organization for combat during FLASHPOINT was as follows:

> 9 FA Bns attached to forward divisions
> 26 FA Bns under Corps Artillery control in general support

The XVI Corps commander exercised command and control over 26 artillery battalions through two subordinate headquarters and fire direction centers: The 34th FA Bde Headquarters and the XIX Corps Artillery Headquarters. A detailed organization for combat is at Appendix B.[32]

The artillery support of Operation FLASHPOINT was successful and played a large part in the operation's overall success.[33] In the 60 minutes prior to H-Hour, the XVI Corps artillery fired 65,261 rounds of artillery (almost 1,087 rounds per minute).[34] A testament to the effectiveness of the artillery's operation came in the ease by which the assaulting forces were able to accomplish their objectives. The XVI Corps Artillery After Action Report on Operation FLASHPOINT had this to say:

> The artillery preparation proved to be extremely effective and highly successful according to the IPW reports of the 30th Infantry Division. They [the IPWs] were still shocked and in a dazed condition from the artillery pounding... . Many of them were captured in their shelters, foxholes, trenches, and in the cellars of devastated houses. Their stories were generally alike: "Suddenly all hell broke loose...and then we saw the Yanks were on top of us"... . Others [captured officers] who had recuperated from the first shock, expressed

> professional admiration for the barrage, using such terms as "Prima" and "Kolossal".[35]

I will now analyze Operation FLASHPOINT using the criteria of lethality, flexibility, and intelligence to determine the artillery's effectiveness during the operation.

Looking at the first criterion, lethality, it is obvious from the brief quote above that the XVI Corps' employment of artillery was lethal. It included the suppression and neutralization of German forces and their artillery and mortars in the assault zones.[36] Although many factors contributed to this success, a primary one was the corps' reliance on fires massed at battalion and sometimes artillery group level.[37] Corps artillery units fired 864 battalion-level or higher massed fire missions during the three-hour schedule of fires that followed the crossing of the river by the divisions.[38] As a result of the artillery's success during Operation FLASHPOINT, the XVI Corps artillery commander concluded, during a post-war conference on the employment of artillery, that "There was no substitute for massed artillery fires."[39]

Several factors contributed to the corps artillery's ability to mass fires so effectively. These factors fall into two broad categories, positioning and command and control. In terms of positioning, the XVI Corps was attacking in a sector about 12 kilometers wide.[40]

Because the sector was so narrow, most artillery battalions could range a large portion of the corps' sector. Additionally, since the corps was attacking across a major river, the corps commander was able to position his artillery well forward in zone to enhance their coverage of the far side of the river.

The second category that contributed to the corps artillery's ability to mass fires was its command and control structure. The XVI Corps commander effectively used the two headquarters he had available to control the tactical operations and firing of the subordinate artillery groups and battalions. He had the 34th FA Brigade Headquarters and fire direction center (FDC) and the XIX Corps Artillery fire direction center. Each of these FDCs had four field artillery group headquarters to control the fires of eleven and fourteen artillery battalions, respectively.[41] Therefore, no headquarters had to command and control more than four subordinate units. This allowed each headquarters to focus their efforts, increase their efficiency, and not have their command and control facilities stretched beyond their capabilities.

Another way in which the corps artillery commander increased lethality was by not remaining tied to doctrinal artillery employment or procedures. To increase the artillery's lethality, the units continued

the preparation fires at one-quarter to three-quarters the maximum rate of fire after the river crossing began.[42] Normally, artillery units executed preparation fires at their maximum rate of fire and once the preparation was over they fired in response to individual calls for fire from forward observers.[43] This continuation of the preparation at a reduced rate caused the Germans to fail to realize that the actual preparation had concluded and that the crossing was underway. Consequently, many Germans were captured before they realized the Americans had even crossed the river.[44]

The corps commander also ensured the artillery was flexible. One way he did this was by organizing the artillery groups so that their mission or the type of targets they were engaging could be shifted without having to reorganize the groups.[45] For example, one group did not fire until the German guns fired at corps units or turned on searchlights. This group then immediately silenced the German's efforts. The group was then able to shift its efforts to a long range interdiction program without reorganizing.[46] By not having to reorganize, they were more capable of adapting to changes in the current situation. While artillery doctrine at the time recommended the assignment of battalions to groups based on caliber, this technique of

doing otherwise, given these circumstances, increased the artillery's flexibility.[47]

Another way in which the corps artillery commander enhanced flexibility in his artillery was by anticipating the ammunition requirements for the operation. Several weeks prior to Operation FLASHPOINT, he began controlling their ammunition expenditures to ensure they would have sufficient ammunition on hand for the river crossing operation. By anticipating the requirements for this future operation, he made sure they were prepared for the large expenditures required during FLASHPOINT.[48]

Switching to the third criterion of intelligence, it is important to note that the corps had two weeks to develop its targets. This meant that targets could be coordinated and well documented, and that target lists could be disseminated to firing units. During the period 11 to 24 March 1945, the S-2 section of XVI Corps Artillery produced targeting data for more than 990 confirmed enemy targets. No enemy target was considered confirmed until it had been verified by more than one source.[49]

What made the S-2's targeting process pay off so well was the manner in which the corps disseminated intelligence data to the subordinate artillery headquarters. Throughout the two weeks preceding the operation, the XVI Corps Artillery S-2 provided a target

information summary twice daily to the XIX Corps Artillery and 34th FA Brigade FDCs. Secondly, the S-2 prepared the target lists in hard copy and updated them as required. The corps artillery S-2 continually refined these target lists and published them daily as D-Day approached. Because these target lists were in hard copy form, they were disseminated down to battalion level. Thus, every artillery battalion in the corps had access to the most current targeting information on the targets they would be required to execute on the day of the operation.[50]

While not specifically one of the three criteria, another way the corps commander improved the artillery's effectiveness was to assign to an artillery group a mission to "reduce" a particular piece of terrain. This is an excellent example of a non-standard mission. For example, the 404th FA Group's mission was "reduction of DUISBURG-WALSUM area." This meant that the group concentrated its fires into this area (in accordance with the schedule of fires prepared by Corps Artillery) to create maximum rubble and disrupt enemy movement.[51] Since this mission is not defined as direct support, reinforcing, or general support, it falls into the category of a non-standard mission. In my judgment, a mission like this is good to keep in mind as it may have some utility on the ALB-F battlefield if, instead of

reduction of an area, it orients on reduction of an enemy force. I will expand further on this in Part 4.

Operation FLASHPOINT was a successful operation, particularly for the artillery. The XVI Corps Artillery's employment of lethal massed fires, flexibility, and good targeting intelligence dissemination contributed significantly to the corps' success. While the British and Americans were fighting their way across Europe with artillery organizations like those used in Operation FLASHPOINT, a different technique was emerging on the Eastern Front.

## THE EASTERN FRONT

During World War II, the requirement for lethality, flexibility, and intelligence functions in artillery organizations drove the Soviet Army to create artillery divisions.[52] They created their first artillery division in the autumn of 1942 out of eight artillery regiments. These artillery divisions were initially used in a counterbattery role to silence the German artillery.[53] Later, their missions expanded to include many other functions.

A typical artillery division in 1944, consisted of six or seven artillery brigades, each with up to four artillery regiments (up to 364 guns, mortars, and rocket launchers). The commander would give these brigades

functional missions such as counterbattery, "long range fires," or "infantry support."[54] As the war progressed, their role expanded to include the destruction of key enemy targets and to create conditions conducive for a breakthrough by maneuver forces. Some of these artillery divisions were further organized into breakthrough artillery corps and consisted of several artillery divisions totalling more than 1,000 artillery pieces. During the Berlin offensive in 1945, the Soviets employed six of these breakthrough artillery corps.[55]

After experiencing the effects of these Soviet artillery concentrations, the German Field Marshal Erich von Manstein recognized their utility and created his own 18th Artillery Division. Despite its short existence, the 18th saw considerable action on the Eastern Front and played a major role in the destruction of the Russian 1st Tank Army south of Cherkassy in the spring of 1944.[56] Applying the criteria of lethality, flexibility, and intelligence to these developments on the Eastern Front reveals some interesting trends.

To achieve lethality, the Soviets and Germans relied on large artillery formations, particularly artillery divisions. By concentrating the artillery in these formations, they created a highly centralized command and control apparatus capable of providing the maneuver commander lethal, massed fires.

These large artillery formations also exhibited flexibility and timely intelligence. During the artillery preparation fires for the Belorussian Offensive in July 1944, for example, the Soviets were able to alter the fireplans of these artillery divisions to counter any German counterbattery fire within five minutes of German return fire.[57] This trend towards maximizing lethality, flexibility, and intelligence through the creation of large artillery formations contrasts with US Army artillery operations. I will analyze it further when I synthesize these case studies with the ALB-F concept of artillery employment.

## Part 4: AIRLAND BATTLE - FUTURE

The US Army's current warfighting doctrine, AirLand Battle, describes the Army's approach to applying combat power at the operational and tactical levels. It is based on securing and retaining the initiative and exercising it aggressively to accomplish the mission. Success on the battlefield depends on our ability to fight in accordance with the four tenets of AirLand Battle: initiative, depth, agility, and synchronization.[58]

The mid- to high-intensity battlefield upon which AirLand Battle doctrine will be executed should be chaotic, intense, and highly destructive. ALB doctrine

recognizes the inevitability of intermingled forces characteristic of nonlinear operations. Additionally, the battlefield will extend both deep into the enemy's rear area and our own, thus blurring the distinction between front and rear.[59]

Before discussing the distinctions between ALB and ALB-F, a general overview is that ALB-F is not a significant departure from our current ALB doctrine. More precisely, it updates ALB doctrine in light of current and anticipated political and technological changes.[60] ALB-F links future army capabilities with projected national interests and strategy. From a strategic perspective, the major difference is that ALB-F is more globally-oriented as opposed to ALB, which is focused on a European battlefield. It also recognizes the need for doctrine on military involvement in peacetime as well as during war.[61] Regardless of this broader view, this monograph will focus on the mid- to high-intensity end of the operational continuum.

The tactical implications of the change from ALB to ALB-F at the mid- to high-intensity conflict level include three significant shifts. First is a shift of emphasis of tactical operations away from the division to the corps. In ALB-F the corps is the primary warfighter, while divisions are execution-oriented command and control headquarters.[62] To accomplish this, the

division-base organization structure in ALB-F is very different from what exists today. Most combat support and combat service support functions (intelligence, signal, air defense, engineer, and chemical) are either moved to the maneuver brigades (forming a combined arms brigade) or to corps. For example, the artillery battalions of the DIVARTY and the forward support battalions of the DISCOM become a part of the maneuver brigade forming a combined arms brigade.[63] Unlike the current heavy divisions and corps, brigades in ALB-F are aligned with the division headquarters based on the factors of METT-T in much the same way we task organize battalions to brigades in current doctrine. Under this concept, the division would be rapidly "tailorable" in the appropriate combat capabilities to meet the particular mission and threat.[64] This concept of aligning brigades with a division headquarters has been expanded to include combat support brigades, like artillery, so that in ALB-F a division might command any combination of maneuver or fire support brigades to accomplish a corps' assigned mission.[65] This means that an ALB-F division might have under its span of control three maneuver brigades, like most do today, or it may have no maneuver brigades. Instead, it might have three field artillery brigades (forming an artillery division) or three attack helicopter brigades (forming an aviation

division).[66] I will examine the concept of forming an artillery division later in my analysis.

The second shift from ALB to ALB-F is the recognition of the destructive power of high technology "fire and forget" munitions. These smart munitions are characterized by destructive firepower without the requirement for active target designation such as a pulse-code laser designator.[67] In essence they are "fire and forget," terminally guided, precision munitions. Doctrine writers expect the increased lethality of these munitions to give us a capability to destroy enemy formations at longer ranges than we were able to do in ALB.[68]

The third shift from ALB to ALB-F is the increased capability of sensors to pinpoint enemy locations and track their movements.[69] Strategic and operational-level surveillance assets will determine the enemy disposition in detail at extended ranges so that he can be engaged by the long-range, lethal fires noted above.[70] These three changes have a profound impact on how we envision the conduct of battle on the mid- to high-intensity ALB-F battlefield.[71]

AirLand Battle-Future places greater emphasis on the nonlinear battlefield than ALB.[72] Nonlinearity reflects many of the political realities we will face in the near future. The combination of arms control agreements,

reduced force structures, and the cost of modern armies will force the modern commander to fight from more dispersed, noncontiguous areas throughout his area of operations.[73] He will not have enough forces to be everywhere at the same time. This nonlinearity concept indicates the need for phased tactical operations.[74]

The ALB-F operational concept is:

> ...to use multi-disciplined reconnaissance, intelligence, surveillance, and target acquisition (RISTA) collectors to find, track, and target the enemy for destruction by massed indirect fires, followed by fast moving, combined arms teams to complete the destruction of attritted enemy forces.[75]

This fight will take place in four phases. Phase One is the Sensor/Acquisition Phase, when the commander acquires intelligence on enemy actions. Strategic, operational, and tactical reconnaissance and surveillance assets determine the enemy's disposition and begin providing information to the appropriate killing systems. Phase Two is the Fires Phase. All fire assets available to the corps are used here to destroy enemy forces at extended ranges and set the conditions for the third phase. Phase Three is the Maneuver Phase. In this phase, we attack the enemy force at the critical time and place, and through close combat ensure his complete destruction. Phase Four is the reconstitution of the force to prepare

it for further combat action.[76] Having described the four phases of the ALB-F concept, let us look briefly at what the corps artillery does in each phase.

## NON-DIVISIONAL ARTILLERY EMPLOYMENT ON THE ALB-F BATTLEFIELD

Phase One is a positioning phase for the corps artillery. As the RISTA collectors develop the enemy situation and targeting data, the corps artillery units move to positions where they can engage the enemy by long range fires. Imperative during this phase is that the artillery units maintain close liaison with the RISTA agencies so that as the enemy situation develops, the artillery is prepared to adapt to it.[77]

Phase Two is the critical phase for the corps' artillery. In Phase Two all the fire support assets available to the corps are used to destroy the enemy at extended ranges. The primary actors in this phase are the USAF, executing deep interdiction and battlefield air interdiction fires, and the corps artillery with its indirect fires. During this phase the corps artillery brigades are considered the "main striking force" of the corps.[78]

During Phase Three, the maneuver forces attack, exploit, and pursue the disjointed enemy forces. During this phase, the corps artillery units may have one of two

missions. They may continue to fire at enemy formations in depth, a continuation of the Phase Two fires, or they may begin reinforcing the fires of the direct support artillery units fighting with the maneuver forces.[79]

During Phase Four, Reconstitution, the corps artillery units reconstitute their combat power. While reconstituting the force, they must also begin preparing for the next mission or battle.[80] I will now focus on the corps' artillery role in Phase Two and examine the adequacy of current artillery doctrine to support operations in this phase.

I am focusing on Phase Two instead of Phase One because it is the RISTA collectors that play the major role in Phase One, not the artillery. I have not focused on Phase Three because the mission for corps artillery units during this phase is not very different from their employment today. Phase Two is unique for the corps' artillery. During Phase Two:

> Corps artillery brigades will be maneuvered far enough forward to enable them to strike the main enemy force. The artillery brigades are <u>the main striking force of the corps</u> [my emphasis]. They will be positioned to range major avenues of approach and to deliver massive destructive fires on the enemy.[81]

In ALB doctrine, field artillery brigades usually perform one of three missions: counterfire, general support fires for the corps commander, or reinforcement of divisional artillery fires.[82] In none of these ALB

missions are the brigades considered the "main striking force" of the corps. ALB-F expects more from artillery brigades, particularly in the interdiction and attrition of enemy forces (Phase Two) prior to the commitment of maneuver forces (Phase Three).

According to the Field Artillery Center, corps artillery brigades engaging the enemy in Phase Two would receive a mission of general support (to the corps).[83] The responsibility of orchestrating the artillery battle then falls on the shoulders of the corps fire control element.[84] This fire control element would be located forward in the battle area with, or act as, the corps tactical command post (TAC). They would manage all fires in the corps area, including artillery, army aviation, air force aviation, and any other asset available to the corps.[85] Using the criteria developed in Part 2, I will now analyze the effectiveness of a general support mission for artillery brigades executing Phase Two of the ALB-F concept.

The ALB-F concept requires artillery to be lethal. Our doctrine acknowledges the importance of massed fires and accurate smart munitions.[86] In my judgment then, the critical aspect of lethality in ALB-F is the ability to adequately command and control (C2) the artillery to ensure units are positioned to mass their fires. Since the ALB-F battlefield is expected to be extended and

nonlinear, management of the artillery units to ensure massed fire capability will be a challenge. However, new communications networks and systems such as the Global Positioning System will assist the corps fire control element in orchestrating this battle.[87] The mission of general support also facilitates better C2 because it is the most centralized mission we have in current doctrine.[88] Therefore, as long as the corps fire control element can maintain adequate command and control over the artillery forces and ensure their ability to mass fires at the critical times, the force should be as lethal as the corps commander requires.

Flexibility on the ALB-F battlefield will be a must for success. By its definition, the general support mission is the least flexible of our standard tactical missions. This is due to the higher headquarters (corps) retaining positioning authority and priority of calls for fire over all the artillery units.[89] For anything other than an emergency move to avoid an enemy attack, a field artillery brigade would have to obtain the permission of the corps fire control element before moving one of their subordinate battalions. Therefore, by the yardstick of flexibility, general support may not be the best mission for the corps artillery in ALB-F. Later, I will propose some alternatives to the general support mission that increase flexibility.

Another key aspect of flexibility is the brigade's ability to facilitate future operations. To sustain a prolonged Fires Phase, the artillery brigade must resupply itself. This resupply effort will concentrate primarily around classes I, III, and V. Since they will be operating forward of the corps main maneuver forces, long lines of communications and supply routes are expected. Keeping these routes open will be essential if the corps artillery units are to sustain their efforts. With the general support mission, it will be the responsibility of the corps artillery headquarters to ensure this sustainment.

In addition to sustaining their current operations, the corps field artillery brigades must plan for the transition from the Fires Phase to the Maneuver Phase. During the Maneuver Phase, the commander may call upon them to perform many of the same missions they perform today in the ALB doctrine (counterfire, general support, and reinforcing divisional artilleries). The general support mission facilitates this transition. Because of the high degree of centralized command and control, corps artillery headquarters should be working closely with the corps headquarters and anticipating the transition to Phase Three. Therefore, corps artillery headquarters

could begin moving the artillery units into positions that would best facilitate linking up with the maneuver forces as Phase Three begins.

In the area of intelligence, access to and dissemination of targeting information will be critical to the artillery's ability to accomplish its Phase II mission. A general support mission suggests that the majority of the targets will be passed to the firing units from the corps fire control element. In my judgment, there is a potential logjam if this is the case.[90] It is possible that the corps fire control element staff will become overwhelmed with targets because of the number of RISTA collectors operating in the corps area. Later, I will propose some alternatives to the general support mission that enhance the artillery's ability to use the targeting information that is available.

In summary, giving the corps artillery brigades a mission of general support to execute Phase Two on the ALB-F battlefield is good in terms of lethality but questionable in terms of flexibility and intelligence. Because of the centralized nature of the general support mission, flexibility is reduced and a potential logjam for intelligence dissemination exists. Armed with this thorough understanding of the ALB-F concept, let us see how history synthesizes with ALB-F to determine how we

can best employ non-divisional artillery on the mid- to high-intensity ALB-F battlefield.

## SYNTHESIS OF ALB-F AND HISTORICAL ANALYSES

In World War II, armies increased the effectiveness of their non-divisional artillery by creating large artillery formations. While US artillerymen were unsuccessful in their attempts to create an artillery division in each corps at the end of the war, the Soviets took artillery formations to another level by creating artillery corps. As shown above, force designers have suggested the concept of forming a unit such as an artillery division under the ALB-F concept.

While the creation of an artillery division may seem radical by today's standards, let us look at the advantages an ALB-F artillery division might give us. An ALB-F artillery division would operate subordinate to the corps headquarters. The division staff's entire focus would be on conducting the fires phase of the battle and setting the conditions desired by the corps commander for the maneuver battle.

In terms of lethality, a division headquarters is available to dedicate itself to ensuring all the conditions necessary for massing fires are present. They could coordinate the movement of all units and ensure that mutually supporting fires are available.

Additionally, the division staff could play a major role by orchestrating the sustainment and self-protection efforts of the brigades. With a division staff dedicating its efforts to the employment of several artillery brigades, the organization should be capable of dealing with current operations and simultaeously planning for the future. Thus the division would have a good deal of flexibility.

Finally, since the intelligence staff at a division headquarters is more robust than it is at any artillery headquarters, the ability to conduct intelligence processing and dissemination is greater. In general, the advantage to creating an artillery division instead of having the corps artillery headquarters/fire control element control the artillery is that the division would have a larger staff to perform the same functions. While the creation of larger artillery formations is consistent with historical precedence, it would have some drawbacks.

First of all, we have never formed a unit like an artillery division. Convincing a major general that he and his staff are to command and control three artillery brigades rather than three maneuver brigades may not be an easy task. Perhaps, as the Army becomes more comfortable with the concept of mid- to high-intensity

nonlinear warfare, the advantages of a robust command and control organization, such as an artillery division, might become more readily acceptable.

Additionally, since the corps commander would probably not form an artillery division in peacetime, (rather, he would form it based on the situation and factors of METT-T), the division staff would have a significant training challenge to ensure they were trained to act as a command and control headquarters for either maneuver forces or artillery forces. To be trained to perform as an artillery division headquarters, a division would need to practice their role. While command post exercises will help increase proficiency, there is still the need to practice on a full scale, such as by conducting a field training exercise. In these days of shrinking defense budgets and force structure, opportunities for conducting exercises like this will be limited.

Finally, the rationale that more or larger is better fails to account for quality. It is strictly a quantity-oriented solution. In my judgment, a division staff would lack the necessary expertise to employ such a large concentration of artillery. A corps artillery staff, however, with a more robust operations and intelligence staff would possess the required expertise.

Another way in which commanders historically increased the effectiveness of their artillery was to assign them non-standard missions, as was the case of the 404th FA Group's mission to "reduce" the Duisburg-Walsum area during Operation FLASHPOINT. I propose two such non-standard missions in lieu of the standard general support mission for ALB-F. The first is what I will call the "Area Support" mission and the other the "Direct Attack" mission.

The commander could give an artillery brigade a specific area responsibility rather than trying to be responsive to the force as a whole, as the general support mission suggests. In this instance, the brigade might respond directly to the sensor systems that the commander assigned to collect targeting data in the specific area. We could call this an "Area Support" mission. There are several advantages associated with this mission. Looking at lethality, if the commander assigned an area of responsibility that corresponded to the brigade's ability to project combat power, in other words, adequately mass fires, then the brigade would be more lethal. In terms of intelligence, the brigade should be better able to focus its intelligence efforts if its area of responsibility was a finite subset of the overall corps' sector. A disadvantage may accrue in the criterion of flexibility, however. Since the focus would

be on a specific area rather than the corps' area as a whole, the brigade may become too focused and less able to react to actions taking place outside their area. Certainly the possibility exists that this artillery's efforts might be "wasted" if no enemy appeared in their area. Therefore, they would have to be flexible enough to shift areas rapidly.

Another possible option for a field artillery brigade's mission is to make it more enemy-focused. For example, the commander may assign an artillery brigade a specific enemy formation to attack during Phase II of the battle. Therefore, the brigade would direct all its efforts, i.e. intelligence collection and fires, against that specific enemy unit. We could call this a "Direct Attack" mission. This type of mission would have almost the same advantages and disadvantages as the area direct support mission because the enemy formation will be confined to a specific area. It will, however, require the brigade to be more flexible since they will be oriented on a dynamic force rather than a fixed piece of terrain. The enemy force could do any number of things; for example, it could change its direction of movement and thus require the artillery brigade to react accordingly to engage them. But since the brigade would

be focused on a specific unit, they could focus their intelligence efforts against a specific enemy and tailor the munitions they carry to enhance their lethality.

In Appendix F, I have summarized each of these proposed missions in relation to the seven inherent responsibilities we associate with our current four standard tactical missions. Given this synthesis of history, fundamentals, doctrine, and the ALB-F concept, several conclusions emerge, each involving several implications.

## Part 5: CONCLUSIONS AND IMPLICATIONS

Deciding upon methods for employing tactical formations, such as artillery brigades, requires a great deal of specific, situational information. In this case the information is more abstract. No one can predict ith perfect certainty what the future battlefield will look like. However, by using history and fundamentals of artillery employment I can make some conclusions about how heavy-force field artillery brigades should be employed on a mid- to high-intensity AirLand Battle-Future battlefield.

ALB-F, like all our past doctrines, requires a lethal artillery force. To be lethal, artillery must mass its fires using a centralized command and control structure. In addition to being lethal, the artillery

must be flexible. It must be capable of adapting to changing battlefield situations in order to provide continuous fire support and survive on the nonlinear battlefield. Finally, the artillery must have a sufficient intelligence collection and dissemination capability to support the massing of fires and flexibility.

One way to ensure a lethal and flexible corps artillery force is to build a C3I structure that maximizes these criteria. Command, control, communications, and intelligence is the glue that binds our force together, making it lethal and flexible. The most efficient way to do this is to have a robust enough headquarters element that can perform these C3I functions. On the surface, given the choice between a corps artillery headquarters with its 176 personnel and a division headquarters with 274 to perform the same task of controlling several artillery brigades operating forward of the corps' maneuver forces, the division appears to be a much better equipped headquarters. It has more personnel and equipment to accomplish this mission. But as I indicated in the previous section, this solution would be based on the concept that quantity is better than quality. Given my analysis above, I recommend against the creation of artillery divisions. Instead, we must ensure that the corps artillery

headquarters and fire control element are robust enough, in terms of personnel and equipment, to employ the artillery brigades on the ALB-F battlefield. Additionally, to assist the corps artillery in orchestrating the Fires Phase of the battle, we should expand our standard tactical missions.

Our current artillery doctrine contained in FM 6-20, with its four standard tactical missions, supports accomplishing each of the criteria (lethality, flexibility, and intelligence) but not with maximum efficiency. A field artillery brigade operating forward of the bulk of the corps' maneuver forces as the initial strike force of the corps, with the critical mission of attritting enemy forces and establishing conditions for their destruction by maneuver, would receive a mission of general support by today's doctrine. While the commander may modify this mission to some degree, making it a non-standard mission, I believe we can be more efficient by expanding our repertoire of standard tactical missions to take into account the new demands of artillery brigades on the ALB-F battlefield.

Expanding the standard tactical missions to include "Area Support" and "Direct Attack" recognizes the changes from ALB to ALB-F and provides more efficient missions for the artillery brigade in the fires phase of the ALB-F battle. Both of these missions enhance the artillery

brigade's ability to be lethal, flexible, and handle the intelligence functions better than a general support mission. By focusing on a specific area or enemy, the brigade can be more aggressive in accomplishing its mission rather than being reactionary and responding to calls for fire from the force artillery headquarters as a standard general support mission suggests.

The implications of expanding our standard tactical missions from four to six are significant in that it acknowledges the increasing probability of nonlinear warfare and prepares the force to fight it. If the US Army artillery community came to a consensus to include these two missions as standard tactical missions, implementation would be a simple matter of including them in future revisions of doctrinal publications.

How should heavy-force field artillery brigades be employed on a mid- to high-intensity AirLand Battle-Future battlefield? I believe we need to expand our present four standard tactical mission to recognize the challenges inherent on the nonlinear battlefield and provide the corps artillery with a more robust command and control headquarters so that it can perform its mission as the primary strike force of the corps.

APPENDIX A: AirLand Battle-Future Emerging Technologies[91]

1. Global Precision Locating System (GPS) - Provides accurate location data to units and soldiers as well as distance and direction to friendly units. This system is in various stages of fielding. It will facilitate artillery operations by providing positioning data to firing units and friendly unit locations to fire support elements.

2. Smart "fire and forget" warheads - Reduces the requirement for target designators, thus reducing the number of soldiers in the most lethal part of the battlefield. These munitions will have the capability to selectively attack unique target sets.

- Sense and Destroy Armor Munition (SADARM) (155mm)
- Terminally Guided Munitions (TGM) (MLRS)

These munitions are in various stages of development and fielding.

3. Extended range fire support systems (150-200 kms) - Enables US forces to rapidly saturate an area, hit selected targets, and facilitate the separation and isolation of enemy echelons. The Army Tactical Missile System (ATACMS) is being fielded now.

4. Distributed communications networks to enhance the capability for dispersed operations over greater distances without degradation of combat effectiveness. An example is Mobile Subscriber Equipment, MSE. These systems will improve the artillery's ability to exercise command and control over subordinate elements and maintain communications with higher headquarters. MSE is currently being fielded.

5. Improved electronic warfare capabilities to facilitate more control over the electromagnetc spectrum.

- Expendable Jammer (EXJAM, 155mm projectile)
- Ground Launched TACIT RAINBOW (GLTR)

These munitions are in various stages of development. They will provide the artillery with a non-lethal munition for attacking enemy command and control facilities.

APPENDIX A: AirLand Battle-Future Emerging Technologies (cont'd)

6. Improved adverse weather, day/night, near-real time intelligence capabilities using environmental effects decision aids, artificial intelligence, unmanned aerial vehicles, weather satellites, and increased reliance on space support systems to enable the commander to "see the battlefield" and make timely decisions.

- All Source Analysis System (ASAS)
- Joint Surveillance and Target Attack Radar System (JSTARS)
- Pioneer Unmanned Aerial Vehicle (UAV)
- AN/UPD-7 Radar Surveillance System
- Improved GUARDRAIL V

These systems are in various stages of development and fielding. They will assist the artillery by providing more timely and accurate targeting data then we have today.

7. Anti-tactical missile defense system to assist in protecting and sustaining our force.

8. Multi-spectral smokes and obscurants to degrade enemy acquisition systems and facilitate protection of the force.

## APPENDIX B: Operation FLASHPOINT Artillery Organization for Combat[92]

1. Each committed division received three artillery battalions to augment the fires of their organic division artilleries. Additionally, the divisions conducting the assault each received a division artillery from an uncommitted division to reinforce their fires.

2. The corps commander retained 26 artillery battalions under his direct control.

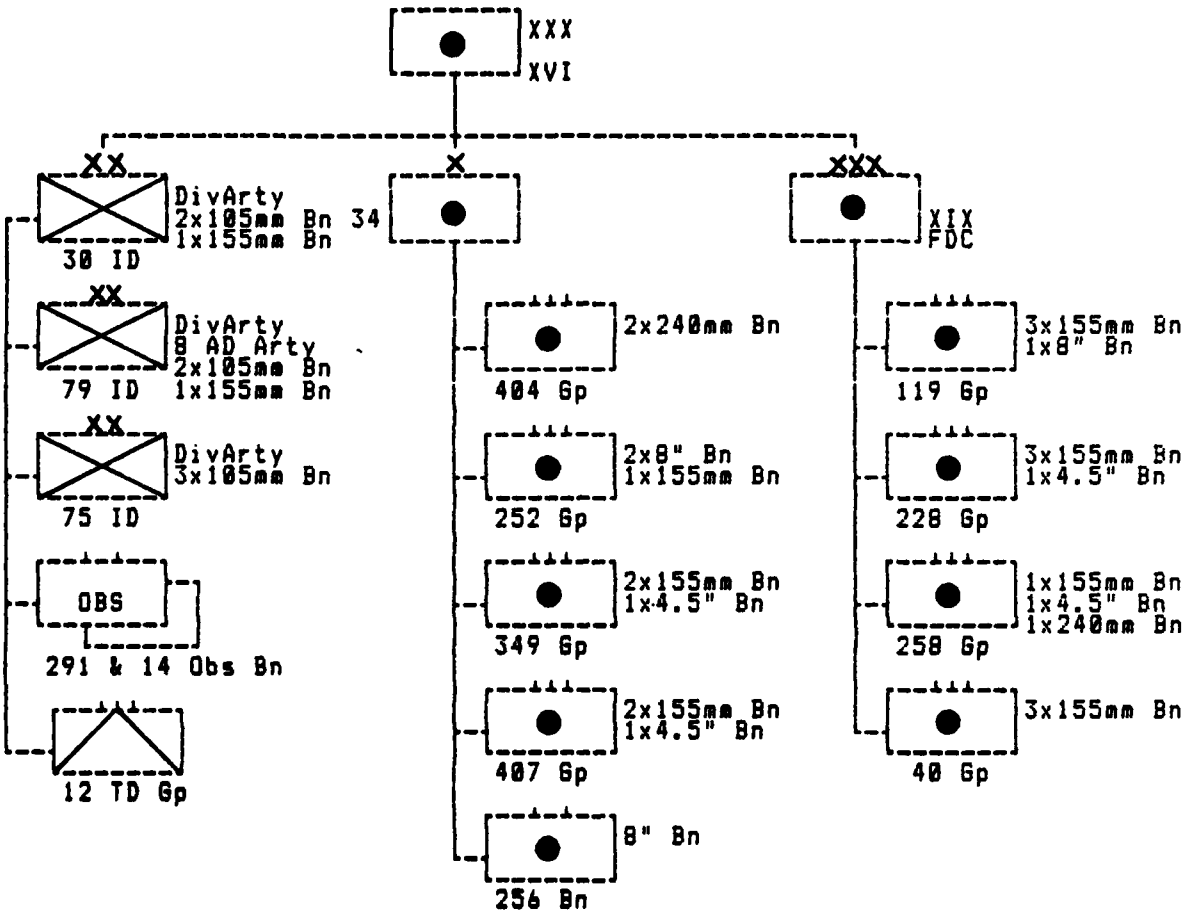
3. There are three major differences between this artillery organization and what we might see today:

a. There were more artillery battalions available to the XVI Corps Commander than would probably be available to a corps commander today.

b. During FLASHPOINT the battalions attached to the committed divisions did not have an overall controlling headquarters, like an artillery group headquarters, attached with them. Today, when we attach corps artillery units to a division, we usually attach them with an FA brigade headquarters to facilitate command and control.

c. The XVI Corps commander retained control over most of the corps' artillery. Our tendency today is to attach most of the corps artillery down to committed divisions, retaining little artillery in general support of the corps.

APPENDIX B: Operation FLASHPOINT Artillery Organization for Combat (cont'd)



APPENDIX B: Operation FLASHPOINT Artillery Organization for Combat (cont'd)

30 Inf Div
- 30 Inf Div Arty
- 35 Inf Div Arty
- 25 FA Bn, 105H
- 65 FA Bn, 105H SP
- 751 FA Bn, 155H

79 Inf Div
- 79 Inf Div Arty
- 8 Armd Div Arty
- 70 FA Bn, 105H
- 696 FA Bn, 105H SP
- 215 FA Bn, 155H

75 Inf Div
- 75 Inf Div Arty
- 691 FA Bn, 105H
- 692 FA Bn, 105H
- 275 FA Bn, 105H SP

291 FA Obsn Bn
- 14 Obsn Bn

34 FA Bde (GS)

404 FA Gp (Reduce DUISBURG-WALSUM)
- 272 FA Bn, 240H
- 269 FA Bn, 240H
  - A/256 FA Bn, 8"G

252 FA Gp (Reduce DINSLAKEN-WALSUM)
- 743 FA Bn, 8"H
- 788 FA Bn, 8"H
- 516 FA Bn, 155G

349 FA Gp (GSR 79 Div Arty)
- 754 FA Bn, 155H
- 666 FA Bn, 155H
- 777 FA Bn, 4.5G

407 FA Gp (GSR 79 Div Arty)
- 758 FA Bn, 155H
- 351 FA Bn, 155H
- 211 FA Bn, 4.5G

256 FA Bn (-) 8"G (GS)

APPENDIX B: Operation FLASHPOINT Artillery Organization for Combat (cont'd)

XIX Corps Arty (GS)
119 FA Gp (GSR 3Ø Inf Div Arty)
2Ø3 FA Bn, 155H
967 FA Bn, 155H
739 FA Bn, 8"H
978 FA Bn, 155G

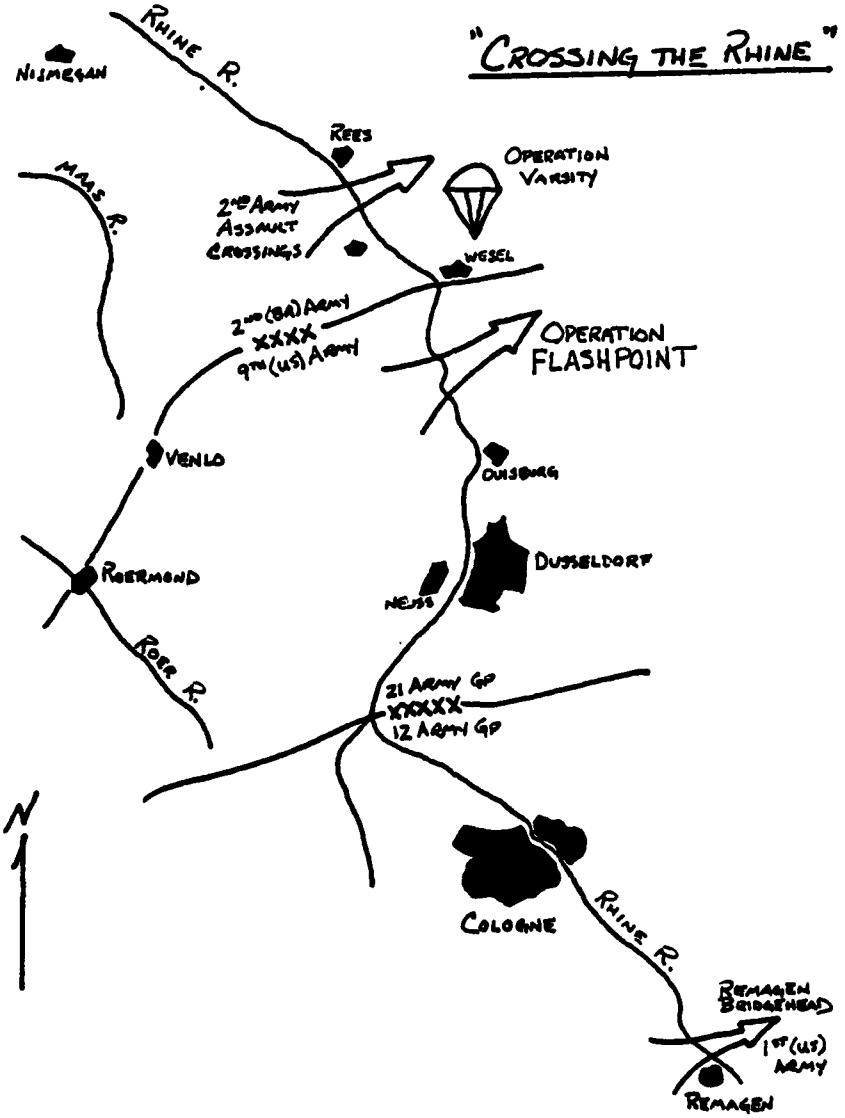
228 FA Gp (GSR 3Ø Inf Div Arty w/ 2 Bn, Reduce DINSLAKEN-WALSUM)
228 FA Bn, 155H
963 FA Bn, 155H
793 FA Bn, 8"H
979 FA Bn, 155G

258 FA Gp (GS)
959 FA Bn, 4.5G
258 FA Bn, 155G
265 FA Bn, 24ØH

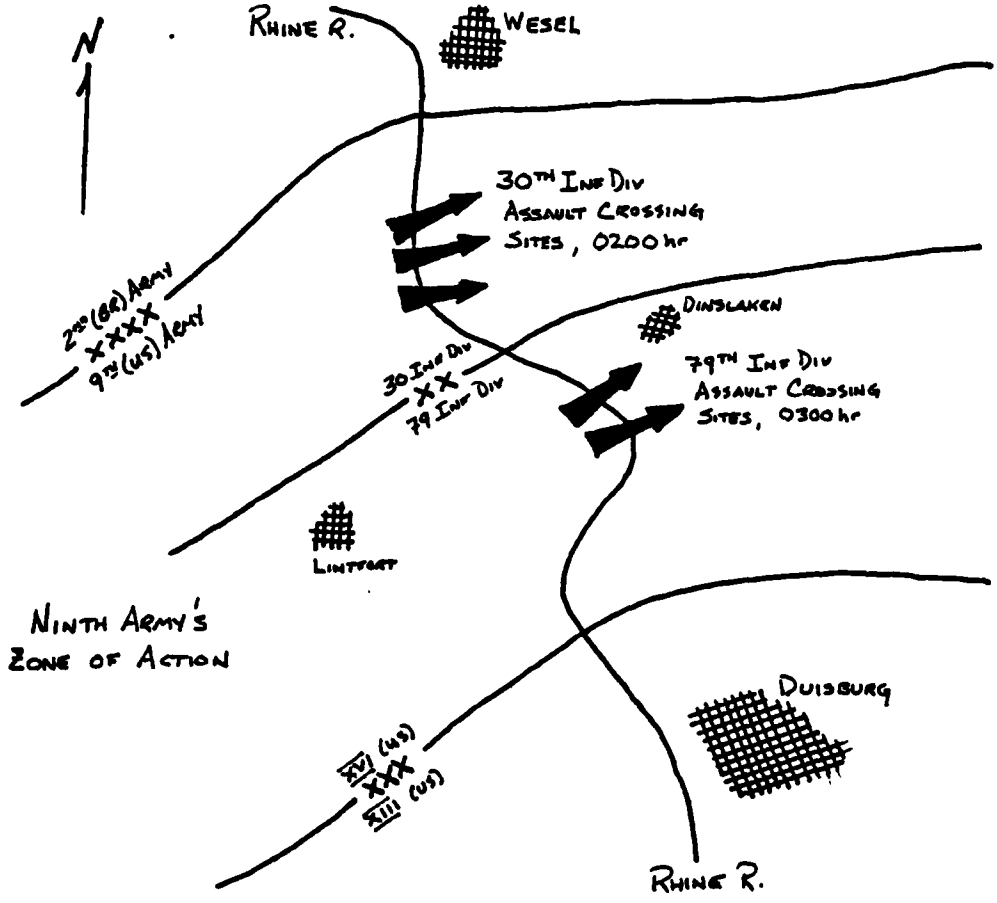
4Ø FA Gp (Under control 12 Br Corps, Reduce WESEL)
547 FA Bn, 155G
548 FA Bn, 155G
549 FA Bn, 155G

12 TD Gp (Direct Fire Support)
8Ø7 TD Bn attached

APPENDIX C: Operation FLASHPOINT Maps[93]



APPENDIX C: Operation FLASHPOINT Maps (cont'd)



APPENDIX D: Proposed World War Two US Artillery Division

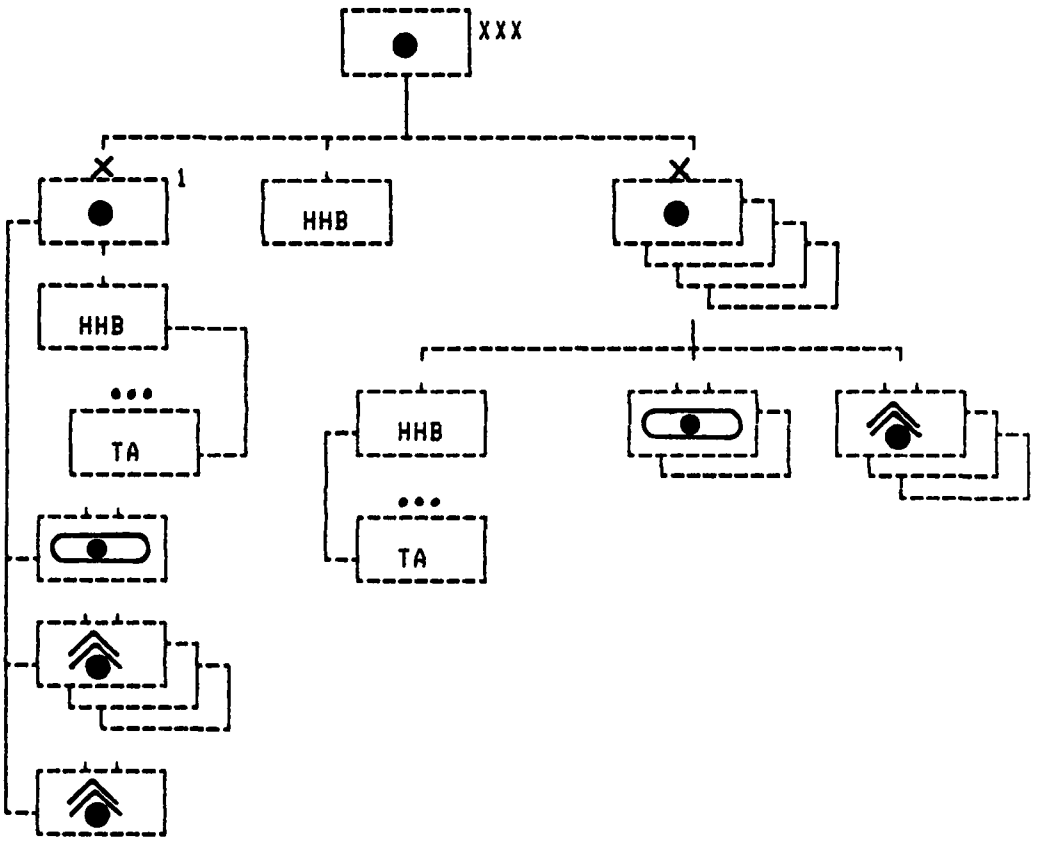
In the Report of the General Board, US Forces, European Theater, "Organization and Equipment of Field Artillery Units," Study Number 59, the board recommended that for a corps consisting of three infantry divisions, an artillery division consisting of the following should be organized:

1 - Div HQ
1 - Div HHC
1 - Div Band
1 - Ord Co, Med Maint
1 - Quartermaster Detachment
1 - Signal Co
1 - FA Observation Bn
4 - HHB, Arty Group or Regiment
3 - FA Bn, 1Ø5mm How (towed)
3 - FA Bn, 155mm How (towed)
2 - FA Bn, 155mm Gun (towed)
1 - FA Bn, 155mm Gun (SP)
3 - FA Bn, 2Ø3mm How (towed)
1 - FA Bn, 24Ømm How (towed)

If the Corps consisted of a different number of subordinate divisions or type of divisions, only the type of artillery battalions in the artillery division would change.

The Board recommended that each corps should be authorized an artillery division. Although many senior artillery commanders advocated the formation of artillery divisions, the recommendation was never approved. Primarily, the size of the peacetime Army after the war was too small to support such organizations.[84] Secondly, many senior officers felt that by returning to regimental organizations, vice field artillery groups, many of the tactical and administrative problems encountered by non-divisional artillery battalions during World War II would be solved (Artillery groups were temporary organizations, while regiments would be permanent).[85]

APPENDIX E: Proposed AirLand Battle-Future Field Artillery Brigade Organizations




1 - This brigade is different from the other four. It has an extra MLRS Bn (instead of a cannon battalion), to provide the corps with "deeper" capability.

APPENDIX F: Proposed Area Support and Direct Attack Mission Matrices

| | AREA SUPPORT | DIRECT ATTACK |
|---|---|---|
| 1. Answers calls for fire in priority from--[1] | 1. Assigned sensors<br>2. Force FA HQ<br>3. Forces in zone* | 1. Assigned sensors<br>2. Force FA HQ |
| 2. Has as its zone of fire-- | Assigned by force FA HQ | Assigned by force FA HQ based on enemy activity[2] |
| 3. Furnishes fire support teams-- | No requirement | No requirement |
| 4. Furnishes liaison officer--[3] | 1. Forces in zone*<br>2. Force FA Intel section | Force FA Intel section |
| 5. Establishes communications with-- | Forces in zone* | No requirement |
| 6. Is positioned by-- | FA unit commander or as ordered by force FA HQ | FA unit commander or as ordered by force FA HQ |
| 7. Has its fires planned by-- | Develops own fire plans with force FA HQ assistance | Develops own fire plans with force FA HQ assistance |

* Any combat forces deployed forward in the corp's zone, such as a counterreconnaissance force in the form of an armored cavalry regiment.

This matrix describes the seven inherent responsibilities associated with the two missions, Area Support and Direct Attack, which I developed earlier in this paper. The major differences between these responsibilities and the ones associated with a standard General Support mission are outlined below:

1. The priority in which calls for fire are answered facilitates more rapid intelligence dissemination in comparison to the priority they are answered in a General Support mission.

2. The zone of fire in Direct Attack is focused on enemy activity.

3. Liaison officers are furnished to enhance intelligence dissemination and to assist forces deployed forward of the artillery (such as an ACR). No such mission exists in the General Support mission.

## ENDNOTES

1 These areas of doctrinal disagreement include organizational issues such as square vs triangular divisions as well as how-to-fight issues like the active defense or the conduct of deep battle in ALB doctrine.

2 The extent of the debate over non-divisional artillery employment is evident by the comments of the General Boards and Observer Reports during World War II and the numerous articles on the subject in professional journals such as Military Review and the Field Artillery Journal. Many of these articles are cited in this monograph.

3 FM 6-20, "Fire Support in the AirLand Battle," Washington, DC, 17 May 1988, pp. 2-11 and 2-11.

4 "Future-AirLand Battle," USACGSC Directors OPD Read Ahead Packet, TAB B, pp. 12 through 20.

5 Ibid., TAB B, p. 3.

6 Bailey, J.B.A., Field Artillery and Firepower, Oxford: The Military Press, 1989, pp. 333 through 336.

7 FM 6-30, "Observed Fire Procedures," Washington DC, 17 June 1985, p. 1-3.

8 Bailey, pp. 4 through 17.

9 Ibid., p. 23.

10 Ibid., p. 24.

11 FM 6-20, p. 2-10.

12 Ibid., pp. 2-8 through 2-11. This concept embraces the fundamentals for organizing field artillery for combat.

13 Bailey, p. 13.

14 FM 6-30, p. 1-4.

15 This is my own conclusion. The requirement for artillery to be massed in order to be effective has remained constant in history. World War I had very large concentrations of artillery as did World War II (as I show later in Operation FLASHPOINT). My personal experiences on

various REFORGER exercises, BCTPs, and CTC rotations confirm that massed fires are equally important today.

16 FM 6-20, pp. 1-7 and 2-10.

17 FM 100-5, "Operations," Washington, DC, 5 May 1986, p. 15.

18 Ibid., p. 16.

19 FM 100-5, pp. 97 through 98, 133 through 134.

20 FM 6-20, p. 2-10.

21 FM 6-20-2, "Division Artillery, Field Artillery Brigade, and Field Artillery Section (Corps), Washington, DC, 30 Sep 1983, p. 1-4.

22 Bailey, pp. 12 and 16.

23 "AirLand Battle Future Alternate Base Case Study, Phase II," Combined Arms Center, Ft. Leavenworth, KS, 30 Mar 90, p. VI-1.

24 FM 6-20, p. 2-9.

25 "AirLand Battle Future Alternate Base Case Study, Phase III," Combined Arms Center, Ft. Leavenworth, KS, 19 Apr 90, p. VI-2.

26 FM 6-20 includes many other fundamentals such as the fundamentals of organizing artillery for combat and an analysis of how field artillery employment impacts on each of the principles of war. Because of the space limitations of this paper, I have derived lethality, flexibility, and intelligence from these fundamentals because of their applicability to tactical artillery employment and the assignment of tactical missions.

27 FM 6-20, pp. 2-8 through 2-9.

28 Hallock, Robert F. COL, "Why Not the Group," Field Artillery Journal, Nov-Dec 47, p. 362.

29 "Analysis of Operations VARSITY and FLASHPOINT," Command and General Staff School, 2nd Command Class, Recent Operations Subcourse, 8 July 1946, p. 2.

30 Ibid., p. D-5.

31 "FLASHPOINT," The Rhine Crossing, Mar 24, 1945, After action report prepared by the XVI Corps Artillery, October 1945, pp. 59 through 61. An artillery group in World War II is essentially the same as an artillery regiment. A group usually consisted of two to four artillery battalions. Group headquarters, however, often commanded different battalions based on the tactical situation rather than commanding the same battalions throughout the war like a regiment would have.

32 Ibid., pp. 59 through 61.

33 Ibid., pp. 44 through 45.

34 Ibid., p. 44.

35 Ibid., pp. 44 through 45.

36 MacDonald, Charles B., The Last Offensive, Center of Military History, United States Army, USGPO, Washington, DC, 1984, pp. 305 through 306.

37 This is the result of my analysis of Operation FLASHPOINT. In researching this operation, I determined there were five possible candidates for being the proximate cause for success. These were maneuver planning and execution, intelligence collection and dissemination, engineering operations, deception planning, and artillery operations. After comparing these five areas, I believe it was the artillery's operations that most significantly contributed to the operation's overall success.

38 "Field Artillery Operations ' Report of the General Board, US Forces, European Theater, Study Number 61, p. 56.

39 Ibid., p. 106.

40 "FLASHPOINT," p. 47 and scaled from maps contained in the report.

41 Ibid., pp. 59 through 61.

42 "AGF Report No. 957," p. 25.

43 Ibid., p. 25.

44 "FLASHPOINT," pp. 44 through 45.

45 "Field Artillery Operations," Study Number 61, p. 106.

46 "AGF Report No. 957 - Corps Artillery Organization and Equipment," War Department Observers Board, APO 887, 18 May 1945, p. 25.

47 "Field Artillery Operations," Study Number 61, p. 102.

48 "FLASHPOINT," pp. 5, 13, and 29 through 30.

49 "FLASHPOINT," pp. 26 through 27.

50 O'Steen, James E. LTC, "Artillery Targets Across the Rhine," Field Artillery Journal, Aug 45, p. 479. This article provides an excellent, in-depth analysis of the targeting process used by the XVI Corps Artillery during FLASHPOINT.

51 "FLASHPOINT," p. 45.

52 Klein, Robert E. MAJ, "A Field Artillery Division," Field Artillery Journal, May-Jun 74, p. 54.

53 Bellamy, Chris, The Red God of War, London: Brasseys, 1986, p. 50.

54 Ibid., p. 58.

55 Ibid., p. 50.

56 Mitcham, Samuel W. Jr, Hitler's Legions: The German Army Order of Battle, World War II, NY: Stein and Day Publications, 1985, p. 474.

57 Bellamy, p. 58.

58 FM 100-5, pp. 14 through 15.

59 FM 100-5, pp. 2 through 3.

60 "Future-AirLand Battle," TAB B, p. 1.

61 "Future-AirLand Battle," TAB B, p. 1 and 17 through 19. ALB-F doctrine will include military involvement in nation building: "the NCA also will require Army forces to support actions which are led by the nonmilitary instruments of our government."

62 Ibid., TAB B, p. 30.

63 "AirLand Battle Future Alternate Base Case Study, Phase I," Combined Arms Center, Ft. Leavenworth, KS, 26 Feb 90, pp. III-9 through III-10. While the DISCOM and DIVARTY

headquarters will remain in the division base force structure, their subordinate battalions will belong to the combined arms brigade.

64 "AirLand Battle Future Alternate Base Case Study, Phase I," p. III-10.

65 "AirLand Battle Future Alternate Base Case Study, Phase I," p. VI-5.

66 Conversation with Mr. Bob Keller, Force Design Directorate, CACDA, Ft. Leavenworth, KS, 13 Aug 90. Mr. Keller confirmed that it is possible, under the ALB-F concept, to have a division headquarters command and control several field artillery brigades as I postulate in this monograph.

67 "Future-AirLand Battle," TAB B, pp. 3 through 6.

68 Ibid., TAB C, p. 15.

69 Ibid., TAB B, p. 27.

70 Ibid., TAB C, p. 13.

71 Ibid., TAB C, pp. 13 through 14.

72 "AirLand Battle Future Alternate Base Case Study, Phase II," p. VI-A-10.

73 Ibid., p. IV-A-5.

74 "Future-AirLand Battle," TAB C, pp. 9 through 12.

75 "AirLand Battle Future Alternate Base Case Study, Phase I," p. III-2.

76 "Future-AirLand Battle," TAB C, p. 12.

77 "Future-AirLand Battle," TAB C, pp. 13 through 14.

78 Ibid., TAB C, p. 15.

79 Ibid., TAB C, p. 16.

80 Ibid., TAB C, p. 17.

81 "AirLand Battle Future Alternate Base Case Study, Phase I," p. III-3.

82 FM 6-20-2, pp. 1-4 and 1-6. On rare occasions a field artillery brigade may have a direct support mission, such as to an armored cavalry regiment during a covering force operation.

83 This is my own conclusion. They would not be direct support because there is no maneuver element forward for them to be direct support to. While some elements of a brigade may be in a reinforcing role, they will be reinforcing another artillery unit that is general support. Therefore, they are also in general support.

84 "AirLand Battle Future Alternate Base Case Study, Phase I," p. III-5.

85 Ibid., pp. III-6 through III-7. According to MAJ(P) John Raletz, Joint Doctrine Division, CACDA, the Field Artillery Center does not anticipate any changes to the four standard tactical missions for field artillery in ALB-F. A corps artillery brigade would receive a general support mission during Phase Two of the ALB-F concept (conversation with the author on 27 November 1990).

86 FM 6-20, p. 1-5.

87 "Future-AirLand Battle," TAB B, pp. 4 through 5.

88 FM 6-20, p. 2-9.

89 Ibid.

90 This is my assessment based on the size of the intelligence staff at the corps fire control element. The way to avoid overburdening this staff is to share some of the downlinks and processing responsibilities with the artillery brigades' headquarters.

91 "Future-AirLand Battle," TAB B, p. 3.

92 "FLASHPOINT," pp. 59 through 61.

93 Conquer: The Story of the Ninth Army, Washington DC: Infantry Journal Press, Apr 47, pp. 204 through 205.

94 Klein, p. 51.

95 Cathrae, William F. MAJ, "Artillery Divisions," Military Review, Oct 46, pp. 27 through 31.

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