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THE ARTILLERY RAID AND THE MULTIPLE LAUNCH
ROCKET SYSTEM -- SURPRISE, FIREPOWER
AND MOBILITY



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attain surprise and maximize the the effects of the weapon systems. Additionally the attack on multiple targets with all available artillery systems will be the most productive means of implementing the FA raid. Finally the monograph develops a scenario that depicts a Field Artillery Raid on the AirLand Battlefield. Keywords: Artillery rockets,

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THE ARTILLERY RAID AND THE MULTIPLE LAUNCH
ROCKET SYSTEM -- SURPRISE, FIREPOWER
AND MOBILITY

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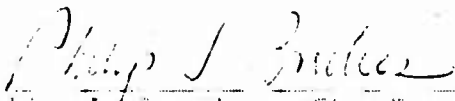
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ABSTRACT

THE ARTILLERY RAID AND THE MULTIPLE LAUNCH ROCKET SYSTEM--
SURPRISE, MOBILITY AND FIREPOWER by MAJ Harold G. Waite Jr.,
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This study examines the U.S. Army Mechanized or Armored Division's capability to conduct a Field Artillery Raid on the AirLand battlefield. It first reviews the historical antecedents of the field artillery raid. From there the study goes on to examine the weapon systems currently available to the Division Commander for conduct of an artillery raid and the targets that are primary candidates for attack by such an operation. Next, the monograph analyzes and evaluates the applicability of this body of information to the battlefield of the future.

A major conclusion is that the Field Artillery Raid is a viable tactic to be used on the battlefield of the future if the raider is equipped with the Multiple Launch Rocket system. It provides the Division Commander with a tactical tool that permits the attack of deep targets previously out of range of artillery systems behind the FLUI. The study also notes that attack on these targets should be conducted in concert with other tactical operations in order to attain surprise and maximize the effects of the weapon systems. Additionally the attack on multiple targets with all available artillery systems will be the most productive means of implementing the FA raid. Finally the monograph develops a scenario that depicts a Field Artillery Raid on the AirLand battlefield.

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INTRODUCTION

The Division Commander on the modern high or mid-intensity battlefield is faced with the dilemma of attempting to defeat, destroy, delay or disorganize the forces of an enemy far superior in numbers. This future battlefield will be "chaotic, intense, and highly destructive."¹ To meet the challenges of this complex problem, the Division Commander must be able to synchronize the effects of all available combat power in order to affect the enemy at the proper place and time. FM 100-5 describes the end product of effective synchronization as a ". . . maximum economy of force, with every resource used where and when it will make the greatest contribution to success and nothing is wasted or overlooked."² Therefore, identifying the most effective use of each element of combat power is not only necessary but mandatory if the AirLand battlefield commander is to succeed.

Every tactical commander evaluates a situation in accordance with a METT-T analysis:

MISSION

ENEMY

TERRAIN

TROOPS AVAILABLE

TIME

He weights each factor of the analysis according to the current and future situation thereby emphasizing both his strengths and the enemy's weaknesses. In the "Troops Available" portion of the analysis, he generally considers his armor and infantry forces as the primary means by which to achieve the objectives required by the "Mission". All other arms, i.e., field artillery, aviation, signal, etc., are considered support and service support and either facilitate or sustain the operations of the "maneuver forces." But the tactical level commander can no longer restrict his thinking to this limited definition of combined arms. A direct result of the myriad of technological and doctrinal changes that have occurred over the past ten years is the AOE Division possessing certain units that are capable of missions previously assigned to "maneuver forces." Thus a commander must maximize the potential of every system first by understanding its capabilities and second by assigning it a mission that either directly or indirectly leads to the defeat, destruction, delay or disorganization of enemy forces in close, rear and deep operations.

Deep operations are not new to U.S. Army doctrine but the application of this concept to the AirLand Battlefield is an elusive matter. "At the tactical level, deep operations are designed to shape the battlefield to assure advantage in subsequent engagements. The principal targets of deep operations

are the freedom of action of the opposing commander and the coherence and tempo of his operations."³ "The enemy's momentum can be altered by attacking high-value second echelon targets, reducing his ability to mass and build momentum."⁴ The critical question then becomes, How does the Division Commander attack deep targets and with what assets? J.F.C. Fuller was an advocate of the tank only forces used in deep operations while B.H. Liddell Hart was a proponent of the combined arms deep effort.^{5,6} Clausewitz felt that "A combination of all three (infantry, artillery, and cavalry) confers the greatest strength."⁷ Thus the "How" portion of the critical question is an "open door" left principally to the imagination of the commander and his staff. The "With What" portion of the question is easier to describe when analyzing the individual weapon systems. Currently the Division Commander possesses the following organic Field Artillery (FA) assets for use in deep operations:

- a. M109 A2 SF Howitzer
- b. Multiple Launch Rocket System (MLRS)
- c. AN/TPQ 37 (Q37) Artillery Locating Radar and AN/TPQ 36 (Q36) Mortar Locating Radar

Consequently the commander must structure the force in relation to the deep mission with no more or no less than the appropriate field artillery assets.

"The mission of the Field Artillery is to destroy, neutralize or suppress the enemy by cannon, rocket, and missile

fire . . ."⁸ It is important to note that, by definition, the Field Artillery is not limited solely to fire support. The enhanced ranges and munitions of current conventional FA weapon systems offer the tactical level commander an increased source of firepower never before experienced. The commander must therefore be able to analyze a tactical situation and recognize an opportunity to employ an FA system in an innovative manner rather than a traditional "maneuver force" operation. If the commander exploits this opportunity, the end product of effective synchronization is possible: i.e., ". . . every resource used where and when it will make the greatest contribution to success."⁹ Consequently the use of a FA system becomes an economy of force operation maximizing a system's firepower and mobility and minimizing exposure to the enemy.

The tactical use of a FA system to be addressed in this monograph is the FIELD ARTILLERY RAID. The Field Artillery Raid is a tactic that has been present (but not widely documented) in a number of forms throughout hundreds of years of warfare. But the terminology and the tactic became commonplace during the Viet Nam War. Because of the unique type of warfare prevalent in Viet Nam, the Field Artillery Raid may or may not be applicable on the AirLand Battlefield against the expected Soviet threat. This monograph will explore the possibilities of its use and its application to the wars of the future.

The important question becomes "Can the Field Artillery Raid by a divisional artillery unit play a decisive role on the AirLand Battlefield?" To assess accurately this specific tactic, this paper will first define the artillery raid and then review in detail the antecedents of field artillery raids, in terms of their force composition, targets and successes and failures. An analysis of key learning points from each historical example will result in a postulated use of the Field Artillery Raid on the battlefield of the future. To "mass the monograph on a narrow front" the paper will restrict its focus to the Mechanized or Armored Division battle in the European theater against the Soviet threat.

HISTORICAL REVIEW

Historically, a raid has been associated with maneuver forces, i.e., infantry, armor and cavalry. FM 71-101, INFANTRY, AIRBORNE, AND AIR ASSAULT DIVISION OPERATIONS uses the following definition: "Raids are limited objective attacks with specific objectives and are followed by a withdrawal or extraction of the raiding force."¹⁰ "Raids are characterized by rapid movement to gain surprise and by rapid withdrawal to avoid decisive engagement."¹¹ FM 100-5, OPERATIONS, defines the raid as "an attack into enemy held territory for a specific purpose other than gaining or holding terrain. The raiding force always withdraws after it accomplishes its mission."¹² But the field artillery raid is an aberration of the maneuver force raid.

It was a combined arms effort, but unlike other types of offensive operations, the entire effort supported the field artillery rather than the maneuver force. The artillery raid was designed to extend available combat power into remote areas and to mass fires on enemy units, base areas, and cache sites beyond the range of artillery at a fixed fire base. Artillery raids involved the displacement of artillery to supplementary positions, engagement of targets with heavy volumes of field artillery and other supporting fires, and withdrawal from the supplementary positions.¹³

To apply this tactic to the AirLand Battlefield and for the purpose of this study, we must create a working definition of the field artillery raid:

A field artillery raid is a form of maneuver centered around a FA system conducted beyond the Forward Line of

Troops (FLOT) on a temporary basis in order to attack a specific target or targets.

To conduct such an operation in a Mechanized or Armored Division, a penetration of the FLOT must be conducted by the maneuver forces with the intent of obtaining and securing an objective. This objective will be used as a firing platform for the field artillery. It is essential to note that this is a complete reversal of roles for the maneuver arms and the field artillery. The artillery raid does not preclude the use of available fire support systems in order to effect the penetration. This tactic merely emphasizes that the field artillery can be used to place the enemy in a position of disadvantage through the flexible application of combat power.

"Clausewitz insists that because of the nature of the art of war, one needs an experienced factor of historical example rather than the pure empirical data of science."^{14,15} For this reason we will study the use of the artillery raid or similar tactical operation and develop the requirements for such an operation on the AirLand Battlefield. The antecedents of the raid that will be reviewed are: the artillery charge at the Battle of Friedland, Pelham's raid at Fredericksburg, Task Force Shuqg of the XIII Corps Artillery and its attack on Essen, the 34th and 60th Artillery Battalions at Thala and El Guetter, and the raids conducted by 5th battalion 27th Field Artillery in Viet

Nam.

THE BATTLE OF FRIEDLAND

In the spring of 1807 Napoleon was in pursuit of a combined Russian and Prussian Army. On 14 June the Emperor had made contact with the enemy forces at Friedland and recognized the weakness of their positions. He attacked, holding General Victor's Corps in reserve. Upon commitment of that reserve to the attack, General Victor employed an innovative, tactical operation. "Victor relied upon his own guns to spearhead his attack. Working in close cooperation with his corps artillery chief, Senarmont, Victor relied on the tactics of the artillery charge to achieve the objective. Senarmont had 36 pieces of artillery, a battalion of infantry, and a cavalry division. These troops were organized into two artillery heavy combined arms teams."¹⁶ The cavalry and infantry units were used as screening forces to secure the flanks of the artillery units. Concurrently the artillery bounded forward, constantly engaging the enemy at closer and closer ranges. Bagration's army was destroyed by this awesome firepower, mobility and surprise; even his counterattacks against this formidable force were useless. The army left the field in disarray and Napoleon pursued to destroy the remaining Prussian and Russian forces.

THE GALLANT PELHAM AT
THE BATTLE OF FREDERICKSBURG

During the months of November and December of 1862. General Burnside of the Union Army was attempting to cross the Rappahannock River at Fredericksburg. His intent was to set the pre-conditions for an attack to seize Richmond. General Lee moved his army to the west of the river in order to block Burnside's advance. As Burnside's attack against the defensive positions of the Confederates began, General Meade's Division became the lead unit to cross the "FLOP". His division attacked in a westerly direction toward the positions of General Jackson. To General Meade's south was General Jeb Stuart's Division. The commander of Stuart's horse artillery was twenty-four year old Major John Pelham. He obtained permission from General Stuart to move two guns forward of the Confederate positions, protected only by sharpshooters, in order to enfilade General Meade's advancing division.

The Confederate Army looked downstream from its heights to see the toy figures of Pelham's gunners working with cannon whose deadly fires had snarled the enemy flank. Union guns were turned on the exposed crew - four batteries of them. Pelham lost men, but he doubled his rate of fire. . . The firing went on and on, with the one gun somehow surviving the hail of shot from thirty-two enemy guns.¹⁷

"As soon as the Federal artillery found the range of this gun it was moved a short distance, only to open fire once more

from its new position."¹⁸ Major Pelham's raid lasted only thirty minutes and was withdrawn when he had expended all ammunition. Major Pelham had stopped the entirety of General Meade's Division with one gun for a period of thirty minutes and had rendered tremendous damage by ". . . blowing up caissons and continuing to tear the enemy's ranks."¹⁹ After Pelham's artillery was removed from its forward position, the attack resumed but the Union Army as a whole fared very poorly that day and left the field defeated.

TASK FORCE SHUGG

During the month of February, 1945 the XIII Corps crossed the Roer River in Germany and attacked northeast toward Krefeld and Essen. The corps conducted an attack on two axes with the Fifth Armored Division on the right and the Eighty-Fourth Infantry Division on the left. XIII Corps Artillery was commanded by Brigadier General Robert M. Shugg, an extremely aggressive, innovative commander. XIII Corps Artillery consisted of three groups of medium and heavy artillery and was reinforced by the heavy artillery of the 34th Field Artillery Brigade.

Traditional doctrine normally positioned the artillery units to the rear of the maneuver forces. To prevent his corps artillery from becoming entangled in the logistical tail of the corps and limiting the amount of firepower to be brought to bear on the enemy, General Shugg recommended that his units be given

the task of leading the Corps attack. In addition to the attached artillery, the task force was augmented by an observer battalion and a signal platoon. These additional assets would allow timely intelligence and constant communications with the Corps Commander. Of particular note is the fact that not only did the Task Force generate its own targets but Corps could transmit key targets in a timely manner as well. Task Force Shugg was provided flank security by armor and infantry units of the XIII Corps. In fact Task Force Shugg often outran its security and operated as much as ten miles beyond the maneuver elements of the Corps. The operation was extremely successful with Task Force Shugg providing damaging long range fires on a fleeing enemy. The deep artillery fires disorganized and disrupted the flow of enemy forces in an easterly direction. The amount of casualties suffered by the XIII Corps Artillery during this operation were minimal while the German forces were constantly off balance and unable to react against the attacking XIII Corps. "Remarkable as it may seem, there was not one single bart casualty . . . from the Roer to the Rhine and few from the . . . to the Elbe . . . ".20

THE 34TH AND 60TH ARTILLERY BATTALIONS

AT THALA AND EL GUETTAR

On 22 February, 1943 following a four day, 800 mile road march, the 9th Infantry Division Artillery was emplaced along the

road running west from Thala (Tunisia). During the early morning darkness of that day the 12 guns of the 34th Field Artillery Battalion, commanded by Major W.C. Westmoreland, were positioned forward in sector. The battalion was given the mission to engage targets along the main road from Kasserine Pass. The 34th had been positioned by map coordinates dictated by the British. The light of the new day revealed that the enemy was . . . entrenched only 2500 yards distant and there were only three platoons of friendly infantry in front of the artillery . . .

"21 The battalion endured numerous air strikes and continuous bombardment from enemy artillery fire but remained in position. "The unit maintained constant and steady fire with such deadly effect that enemy tank units were dispersed and driven back."22

The 60th Field Artillery was also involved in the battle at Thala and was forced to use one of its units in an extraordinary manner:

The American artillery had excellent observation over German positions and continued to pound them. A sharp artillery duel developed, but the German artillery, being too far to the rear and with poor observation, was relatively ineffective At 0745 observation posts were convinced by enemy movements that a tank attack was in the offing, and Battery C, 60th Artillery, was rushed to an exposed position to engage. It unlimbered and fired steadily at a rapid rate. Soon enemy direct laying weapons got the range, knocked out three of its four guns and forced the battery to withdraw. . . . General Alexander noted: For a moment some tanks succeeded in opening a route across the crest located just south of the village. One field artillery battery, firing at short ranges, knocked them apart."23

A direct result of the 9th Division Artillery arriving in the sector and providing close and continuous fires was the weighting of the British forces with additional firepower. This additional combat power led to Rommel's decision to immediately withdraw on 23 February.

The 34th Field Artillery Battalion spent the month of February at Kasserine Pass before shifting to the south enroute to El Guettar. The 9th division was now assigned to the U.S. II Corps, commanded by M.G. George S. Patton, whose mission was to attack eastward toward the coast of Tunisia. This was to transpire while Montgomery continued to press the Germans in a northerly direction. The Germans resisted the pressure at the El Guettar Pass. On 28 March a massive artillery preparation opened the 9th Division attack at El Guettar. Major Westmoreland recognized immediately that the enemy was withdrawing beyond the range of his guns. He repositioned C Battery three miles closer to the enemy than its previous location. At daylight the Germans identified that C Battery was completely exposed to their artillery fire. The heavy enemy shelling that transpired was so devastating that C Battery's guns were frequently unable to be fired. In addition C Battery was extremely difficult to resupply because of the air strikes and artillery fires directed against the LOC's for the unit. Despite the difficult circumstances, C Battery continued to hold its

ground. Later the unit was forced to erect dummy positions to conceal its lateral repositioning on the battlefield. The U.S. forces continued to exert pressure on the Germans and on 6 April they gave up the El Guettar Pass.

THE 5/27TH FIELD ARTILLERY BATTALION

IN

SOUTHEAST ASIA

During November of 1966, 5th Battalion 27th Field Artillery was operating from a base on the Coastal Plain between the cities of Tuy Hoa and Nha Trang. C Battery, 5/27 FA was assigned the mission of supporting the 9th ROK Division in an operation to destroy enemy forces west of Tuy Hoa. The Division was to attack in a westerly direction driving enemy forces across one mountain range and into the valley between another parallel range. An artillery raid was to be conducted in order to support this operation. The concept of the operation initially called for the 9th ROK Division to conduct a PSYOPS campaign in the region of the attack directing all the civilian population to vacate immediately. The Division would then attack in a westerly direction forcing the enemy across the first mountain range and into the valley floor. As the enemy appeared in the valley, the raiding artillery units would then engage and destroy all forces in the valley. The artillery raid was acting as the "anvil" while the maneuver forces acted as the "hammer."

The artillery batteries (one ROK and C/5/27) were airlifted into an extremely small position beyond the second mountain range without the support of any infantry. Therefore the raiding units had to man their own perimeter and conduct their own patrols. The raid lasted approximately four and one-half days. During this period minimal enemy activity was encountered in the vicinity of the battery locations. But the enemy activity in the engagement area was significant. The operation proved to be extremely successful with targets being engaged in the valley for three days. Both batteries fired continuously for that period of time expending large quantities of 105mm ammunition and yielding an extremely high body count. The units were airlifted out of their position at the end of the operation without any casualties.

In August and September of 1967, a provisional battery (D Battery) of 105mm howitzers, assigned to the 5th Special Forces Group Headquarters in Nha Trang, conducted an artillery raid in the vicinity of the To Hap Valley. The To Hap was being used as an LOC by the Viet Cong to reposition and supply units in the region. The concept of the operation was to move D Battery plus four Vietnamese howitzers to a position west of the Special Forces camp located some miles west of Nha Trang. The battery conducted a night move by road to a predesignated position. The movement of the artillery units and the position itself were

secured by one MIKE force platoon. At first light, air observers from the 281st Aviation company flooded the airspace over the To Hap Valley and engaged all enemy forces moving along the valley floor. Between dawn and dusk the reinforced battery engaged numerous "sightings" but the operation yielded very little in measureable results. The raiding force then returned to Nha Trang without incident.²⁴

FORCE COMPOSITION. WEAPON SYSTEMS
AND TARGETS

The field artillery raid or its historical equivalent is an extremely high risk operation. It requires a force to conduct an operation forward of the FLOT in order to move artillery systems within range of specific targets. Positioning beyond the FLOT implies that the full force of the enemy's indirect and direct fire systems could engage the raiding force. Because of the associated risk, why would a Division Commander consider such an operation? The answer is to be able to attack high value targets otherwise out of range of artillery systems and invulnerable to attack by other systems. For example, weather often grounds aircraft and electronic warfare systems may be ineffective. But a field artillery raiding force that departs with current, accurate intelligence would only be affected by the maneuver force's inability to conduct the penetration. Therefore the composition of such a force is critical if the penetration and subsequent attack of specific targets is to be successful. The composition of the maneuver force that supports the field artillery raid is dependent upon the factors of METT-L. But the basic requirements include the mobility to move in and out quickly and the firepower to penetrate enemy forces and guard the artillery unit during the raid. For the maneuver force to conduct a penetration of prepared or fortified enemy positions, an initial planning array of forces should be in a ratio of

3:1.25 More important than the maneuver force composition is the type of field artillery units that would be involved in this operation.

To project the utility or futility of the artillery raid on the AirLand battlefield, it is appropriate to review the capabilities and limitations of the field artillery systems currently available at the Division level. Those systems are the M109A2 Self Propelled Howitzer and the Multiple Launched Rocket System. An additional system that has possibilities for direct or indirect application is the Firefinder family of radars: AN/TPQ 36 Mortar Locating Radar and the AN/TPQ 37 Artillery Locating Radar.

The M109A2 is the primary direct support weapon system of the mechanized or armored division. Its weapons system includes a 155mm cannon with a range of 24km with rocket assisted projectile or 18.1km unassisted. The M109A2 has a cruising range of 220 miles with a maximum speed of 56 kph. The 155mm family of howitzers is capable of firing a variety of ammunition but for purposes of the artillery raid all types of ammunition may not be applicable. The M109A2 has the capacity to carry 34 rounds onboard the vehicle. The ammunition hauling vehicle for the howitzer is the Field Artillery Ammunition Support Vehicle. This vehicle uses the same chassis and power train as the M109A2 and has the same vehicle capabilities with a payload of 90 rounds.

The M109A2 is normally employed with a crew of eight personnel in a battery of eight howitzers. Each firing battery is equipped with a Battery Computer System (BCS). "The BCS will greatly assist artillery batteries in bringing fast, accurate, and highly responsive fire on enemy targets. The system consists of a computer located at battery headquarters and display unit at each weapon. It is capable of stand-alone operations or of interfacing with the full capability of the battalion TACFIRE system. In a matter of seconds, BCS accepts digital fire requests from the forward observer, automatically computes firing data and sends the firing data to each weapon."²⁷

"The Multiple Launch Rocket System (MLRS) is a fully tracked, highly mobile, rapid fire, free-flight solid fuel propellant rocket system that is designed to complement cannon artillery in the counterfire and air defense suppression roles. It can also supplement other fire support systems by engaging high density mechanized targets during surge periods. In addition, MLRS can provide interdiction fires against follow-on forces."²⁸ The 3 man crew is capable of delivering twelve rockets, each thirteen feet in length, containing 644 M77 submunitions (Dual Purpose ICM). The rockets are capable of ranges in excess of thirty kilometers. One launcher firing twelve rockets (within 60 seconds) is equivalent to a battery of 155mm howitzers firing 88 rounds of DPICM. The carrier is an

elongated version of the Bradley Fighting Vehicle with a cruising range of 300 miles and a maximum speed of 58 kph. The MLRS is normally employed in three launcher platoons. Each MLRS platoon is equipped with a Platoon Leaders Digital Message Device (PLDMD) which has a limited but adequate C³ capability for the artillery raid. The projected IOM&E for this organization places a Fire Direction System (FDS) in each platoon. The FDS is a MLRS-specific computer which provides tactical fire control for the MLRS platoon/battery. The capabilities of the FDS include:

- *Performing target analysis by determining the number of rockets to fire and establishing multiple aim points
- *Performing downrange mask checks
- *Storing 3 sets of meteorological data
- *Storing 5 downrange masks
- *Storing 6 air corridors
- *Storing 4 fire plans
- *Storing 10 Survey Control Points
- *Storing 10 Ammunition Resupply Points
- *Storing 45 firing positions
- *Storing 10 fire support coordinating measures
- *Ammunition and fire unit status of 18 launchers²⁸

The ammunition hauler for the MLRS platoon is the Heavy Expanded Mobility Tactical Truck (HEMTT) and ammunition trailer (HEMAT). The HEMTT is a ten ton, eight wheel/eight wheel drive truck with an operating range of 300 miles. The HEMTT and HEMAT allow a two man crew to transport and position eight launch pod containers (48 rockets) anywhere on the battlefield.

The Firefinder family of radars consists of the US6 and US7. These two radar systems can "detect and locate enemy mortars and artillery quickly and accurately for immediate engagement by

friendly weapon systems."²⁹ "The world's first automatic hostile weapon locating systems. Firefinder radars use advanced phased array antenna techniques complete with computer controlled signal processing."³⁰ They function by electronically intercepting the enemy projectiles in flight and mathematically computing their origin. The interception and computation times are virtually instantaneous. These radars are trailer mounted and are transported by wheeled vehicles. The Q36 is manned by 8 crewmen and requires 20 minutes to emplace and 10 minutes to displace, while the Q37 has a 12 man crew with an emplacement time of 30 minutes and a displacement time of 15 minutes.

With this basic understanding of the capabilities of the systems available at the U.S. division level, the types of Soviet targets that can be attacked must be considered. They must be considered because the risk of such an operation must be weighed against the pay-off of attacking any target. The targets that are to be considered by this paper as critical and worthy of attack by a field artillery raid are:

- *Command and Control Nodes
- *Multiple Rocket Launchers—BM 21 and BM27
- *Air Defense Systems
- *Surface to Surface Missile Units
- *Air Defense Radars

Soviet military doctrine is based upon "norms" or performance standards that prescribe the appropriate action in a certain circumstance. These norms are determined by war games and training exercises, but most importantly from historical analysis. Soviet planning is also based upon these norms. Thus strict adherence to the plan is foremost in the mind of every Soviet commander. In order for a Soviet commander to deviate from the approved plan, he must normally verify his actions with his own superior. Although this lack of flexibility may be somewhat overrated by the U.S. intelligence analysts, it is still an indicator of the centralized control that is exercised by the Soviet chain of command. Therefore the importance of targeting key command and control nodes is obvious if U.S. forces are to disrupt or disorganize the plans of the Red forces. Bill Lind subscribes to a similar philosophy in the Maneuver Warfare Handbook: "In the defense as in the offense, you want to shatter the cohesion of the enemy's units, not just kill his troops and destroy his equipment."³¹ Then a key question becomes: What are these command and control nodes and are they worth attacking with a high risk operation such as the artillery raid? The four basic types of Soviet Command Posts are:

The main command post which is located in the rear of an offensive formation or defensive sector (10-15km) and contains the predominance of the staff.³²

The forward command post which is near the first echelon troops (as close as 3km in the Division and 40km in the Combined Arms Army) with a small contingent of staff officers.^{33,34}

The rear area command post which is established for the control of the rear services and service support (approximately 30km to the rear of the Division FLOT).³⁵

The alternate command post which is established with a smaller staff in order to insure command and control if the main command post is lost.³⁶

"Rocket launchers are used to place heavy fire on important targets at decisive moments in an engagement."³⁷ "The area covered by a salvo and its rapid ripple fire make it an excellent delivery system for chemical agents."³⁸ Because of the capabilities and the limitations of the MRL's, they are doctrinally employed as a battery or battalion size element. Each weapon system is positioned 15m to 50m apart and each battery, 1km to 2km apart. The two Multiple Rocket Launchers that are available for use at the CAA level and below are the BM21 and the BM27. The BM21 fires a nine foot, 122mm rocket at a maximum range of 20,380 meters carrying HE, chemical, smoke or incendiary munitions. It is normally positioned within 3km to 6km of the FEBA. The BM27 has a maximum range of 35,000 to 40,000 meters with an HE, chemical or scatterable mine warhead. Its increased range and larger rocket (220mm) make it a formidable artillery weapon.

"The Soviet inventory of tactical air defense weapons includes a variety of missiles, guns, and support equipment. There are air defense systems at every level."⁴⁰ The myriad of weapons include the ZSU-23-4, SA2, SA3, SA4, SA6, SA7, SA8, SA9.

SA11, SA12, and the SA13. But only two systems are likely targets for the artillery raid. The remaining weapon systems are limited by slant ranges or their doctrinal employment. These limitations allow them to be attacked in the divisional first and second echelons by conventional artillery tactics and weapon systems. The SA2 is normally found in the rear area of the front. But the SA2 regiment will position at least two of its batteries 40km to 50km behind the FEBA making it vulnerable to attack by an artillery raid. The SA4 has a slant range of 80km to 100km. Some of the SA4 batteries typically will follow a CAA's forward forces with the other units remaining 25km behind the FEBA.

Of the Surface to Surface missiles that are presently in the Soviet inventory, there are only two that could possibly be ranged by an artillery raid at the divisional level. The Frog-7 has a range of 70km and is capable of delivering HE, nuclear or chemical warheads. The Frog-7 is being replaced by the SS21. The SS21 has an increased range of 120km with similar warhead capabilities. The Frog-7 and the SS21 are the Soviet Division Commander's deep interdiction/nuclear capable weapon system.

A target acquisition battery is organic to the Soviet Division artillery Regiment with a radar section possessing a mortar and artillery locating capability. The BIG-FRED (HF-50B) and the SMALL-YAWN (AR50M-2P) are the two counter-mortar/counter-

artillery radars available for use against U.S. indirect fire systems. The FLAP WISH (P-15) and the FLAP WHEEL are the two air defense radars that could be targets for an artillery raid. The FLAP WHEEL has a range of 35km which indicates that some of these systems may be deployed forward in support of the first echelon divisions. The FLAT WISH has a range of 250km thus reducing the likelihood of being within 30km to 40km of the FLOT.

In addition to these lucrative objectives, there is a definite possibility that a number of additional targets could present themselves within the range of an artillery raid. The elimination of bridging assets in position or in staging areas could serve to disrupt and disorganize scheduled movements. Massed troops and supplies which are being held in reserve would be excellent targets. Any concentrations of aircraft and fuel depositories that are relatively stationary for some time would be likely targets.

Thus far in the paper, we have looked at the historical use of "artillery well forward" in sector or operations beyond the FLOT, the weapon systems available to the Division Commander to conduct an operation beyond the FLOT and the likely objectives that could be targets for an artillery raid. To determine the future utility of the raid, we must analyze and evaluate each of these areas in detail.

ANALYSIS AND EVALUATION

General Victor's charge at the Battle of Friedland does not meet one of the criteria outlined by the definition of the artillery raid. In this particular operation, he had no intention of returning to his own lines. But the artillery force occupied positions beyond the FLOT, secured by maneuver forces on each flank, and was targeted against a specific objective, i.e., Bagration's forces. This operation was extremely successful primarily due to the overwhelming firepower generated by Victor's artillery pieces and because of the strength of the maneuver force that secured the operation. So strong was the entire force that numerous counterattacks were unable to wrest the initiative from Victor. Thus the strength of the force and the surprise that was gained were instrumental in attaining victory. The AirLand Battlefield commander will be faced with the same dilemma in formulating the composition of his raiding force. It must have sufficient maneuver forces to cross the FLOT as well as withstand any counterattacks. Likewise the artillery system that crosses the FLOT must be able to execute its mission in an expeditious manner.

As we review the circumstances involved in Felham's raid on Fredericksburg, several critical observations may have relevance to the AirLand Battlefield. Although not specifically designed as such, this operation fits the definition of an artillery raid

by being temporary in nature, beyond the forward line of troops and aimed against a specific target. In the execution of this maneuver, Major Pelham proceeded beyond the FLOT to an advantageous location. In so doing he was able to entitle the ranks of General Meade's Division and was able to disrupt the movement of that unit for a period of thirty minutes. However, in losing his position, he had forfeited the advantage of maneuver force security and his unit was attacked by every artillery system within range. The artillery fire was so intense that he lost one of the artillery pieces enroute and a number of soldiers during the raid itself.

In regard to an artillery raid on the battlefield of the future, much the same will be true. Movement beyond the FLOT will expose the artillery systems and the maneuver force to all available firepower within range. But the intense firepower produced by the raid from an unexpected location at targets previously safe from indirect systems can have devastating effects. Thus the artillery unit must be able to deliver large amounts of ordnance in a very short time at high pay-off targets. The survivability of the artillery raid is inversely proportional to the time that it is in direct contact with the enemy.

Task Force Shugg, the 34th and 60th Artillery Battalions, were examples of artillery positioned well forward during WWII. Certain advantages and disadvantages accrued as a result of these

units being positioned in this manner. These units were successful in ranging deep into the enemy's forces, keeping those units not in contact off balance by causing them to react to unexpected fires. Each operated with little or no security forces which made this forward positioning even more tenuous. Not only were the units of the 34th and 60th Artillery Battalions subjected to extremely heavy artillery fire but they were the objects of several maneuver force counterattacks as well. Resupply became rather difficult because of the vulnerability of the LOC's to these units. The lessons of the previous examples continue to militate for a strong maneuver force, a mission conducted in a timely manner and a specific target attacked by sufficient artillery.

The artillery tactics used in Southeast Asia, as described by Colonel Richard H. Sinnreich, combined all the characteristics of the definition of the artillery raid. Both operations were temporary, located in hostile territory, and were centered around artillery systems with specific targets. But missing in the raid in the Tuy Hoa operation was a security force. In fact, the fire base for this raid was positioned within 2km to 3km of an enemy regimental-sized base camp. Either luck or incorrect intelligence estimates of the artillery force kept the enemy from making a strong, coordinated attack. These two operations, one successful and one unsuccessful, point out a vital characteristic of the artillery raid that has not been

previously mentioned. For the artillery raid to attain success it should be conducted in concert with another maneuver operation and should attempt to achieve surprise. If the artillery raid is the "only show in town", the likelihood of failure is extremely high. This is primarily because the enemy will be able to concentrate both maneuver forces and indirect fire systems on the raid while he is virtually unencumbered elsewhere on the battlefield.

The historical examples of artillery raids or "artillery well forward" have pointed out some specific criteria in regards to this type of operation:

- *The Commander must create a strong maneuver and artillery force capable of accomplishing the mission

- *The artillery raid should be conducted in concert with other operations in order to draw attention from the raid itself and to achieve surprise.

- *The raid must be temporary in nature; time is of the essence.

- *The raid must have specific targets that are developed prior to the raid by accurate and timely intelligence.

- *The raid must use mobility to its maximum advantage.

- *The raid must not depend upon the enemy to generate targets during the conduct of the raid.

These historical considerations are not revolutionary but in fact are based upon common sense, which tends to lend even more credibility to their application.

"General Douglas MacArthur observed in 1935, almost as a warning, that military doctrine (tactics) is decisively influenced by the characteristics of the weapons available and by the means at hand for maneuvering, supplying and controlling combat forces."³⁹ Ideally the weapon system to be used in the artillery raid must be highly mobile, have sufficient range to attack necessary targets, adequate lethality for damage of specific targets, and most importantly present a fleeting target to the enemy. The most likely weapon system in the divisional inventory is the Multiple Launch Rocket System. The weapon system is track mounted and carries the equivalent of 88 rounds of 155mm DPICM. In addition the system carries its own on-board Stabilization Reference Package (SRP) and Position Determining System (PDS). The SRP provides direction and the PDS determines the exact location of the launcher, thus reducing the need to survey beyond the FLOT. The addition of the Fire Direction System to the MLRS platoon increases the technical fire control capability of the platoon to the equivalent of a 155mm battery headquarters. Thus the artillery raid equipped with an MLRS platoon would consist of three launchers and an FDS equipped M577. An equivalent 155mm unit would require eight guns, one FDL track, one survey vehicle and a total of 254 rounds. The emplacement time of an MLRS launcher is approximately one to two minutes while a firing battery takes 8 minutes. Displacement time is 8 for a 155mm battery but is one to two minutes for an

MLRS launcher platoon. Worthy of mention is the fact that the MLRS could fire all rockets in less than sixty seconds while it would take a howitzer battery in excess of eight minutes to fire an equivalent payload. The range is also critical with the MLRS outdistancing the 155mm unassisted DPICM by 12+ km.

Whether a Q36 or Q37 radar accompanies the artillery raid is situationally dependent. None of the historical antecedents of the raid used this type of acquisition system. The difficulty associated with emplacement and displacement make these radars somewhat cumbersome and unsuitable for mobile operations, not to mention the fact that one of these systems represents 20% of the target acquisition assets in the division. However, these radars could generate targets during the raid that previously could not be ranged by divisional artillery assets. Probably the best use of these radars is to remain behind the FLOT, identifying critical enemy indirect fire systems and transferring the targets directly to the MLRS platoon track by digital communications. This procedure should not be the primary source of targets for the raid. This would mean that the targets for the raid would be dependent upon the enemy "acting" during the operation. This may not occur and the effort expended to position an artillery unit across the FLOT would be wasted.

The objective of the artillery raid is the most important ingredient of this operation. The target must be a critical

component of the enemy's combat power. If it does not meet this criterion, then the commander has taken a great risk with little opportunity for pay-off. In the discussion of the most likely targets for attack by the artillery raid, a number of individual systems were listed and described. The BM21 although possessing a range of 20+km is generally positioned 3km to 6km behind the FEBA. The BM27 has a much greater range of 35km to 40km but should be positioned similar to the BM21. Consequently only those systems previously out of range should be attacked by the artillery raid. The BM27 with its greater range and larger payload would make an excellent target for an artillery raid if several systems were concentrated at one grid location. If the location of each firing battery within a MRL battalion had been previously determined, then each could be attacked simultaneously by one or multiple MLRS launchers. This capability of the MLRS would negate the illusive nature of the MRL and its ability to displace quickly after firing.

Soviet Air Defense Weapons fall into the same category as the MRL's: extremely difficult to locate but a primary target especially if any cross-FLDT airmobile, air assault, or air cavalry operations are planned. The MLRS launcher is capable of attacking 12 separate targets during one firing. After each rocket fires, the launcher automatically shifts to the next designated target. This capability is ideal for attacking

systems that operate in pairs such as the Air Defense weapons. A three launcher platoon could possibly engage 36 separate, "known" Air Defense systems. This could lessen the enemy counter-air threat in a particular sector of the battlefield. The key to this type of operation would be the ability to identify these systems prior to the execution of the raid. The most likely targets would be the SA2 and the SA4 because of their slant ranges and doctrinal battlefield positioning.

The possibility exists that the MLRS raid could attack a Frog-7 or SS21 site. These missiles are probably employed by individual weapon system, thus making their identification and subsequent attack an extremely difficult affair. The Division Commander cannot rule out the possibility that intelligence gathering systems can locate high pay-off targets of this nature. Elimination of these nuclear capable systems could be decisive.

U.S. target acquisition assets are crucial to survivability as well as to the lethality of the indirect fire systems in the counter-fire role. The criticality of Soviet acquisition systems is equally as important. If the "eyes" of the Soviet artillery can be eliminated, the firepower of their numerous artillery tubes become somewhat limited. The problem with attacking only the radars is the redundancy the Soviets maintain in their sound ranging, surveillance radar and reconnaissance units, not to mention their aviation assets. Solely targeting the radars for

elimination by an artillery raid would not prove to be an effective target for such a high risk operation.

Of the array of targets discussed in this paper, the target with the highest pay-off appears to be command and control nodes. These command posts are critical to Soviet operations. The Division Commander must decide which target(s) to engage in the artillery raid. But the solution may lie in not selecting any one of the command posts but in attacking all of them simultaneously. Of course the key is the acquisition of these headquarters. Once the identification is accomplished, then a timely attack is necessary. All three nodes need not be attacked by the raid itself because the main and the forward command posts are normally positioned within range of systems behind the FLDI. But the simultaneous attack and destruction of the forward, rear and main command posts of the Soviet Division could render that unit disorganized for some time. In addition the Forward Command Post of the Combined Arms Army can be within range of the raiding MLRS platoon thus making another lucrative target.

This attack of several command posts may be the answer to the nature of the targets considered suitable for an artillery raid. Because of the ability of the MLRS to attack numerous targets as easily as one, why not develop a target list composed of numerous, high pay-off targets? It is possible for one launcher to attack 12 different targets and a platoon could

attack 36 targets. But for greater disruptive and destruction effects, fewer targets with more rockets per target would be preferable. In addition to the raid's engagement of targets, the artillery systems behind the FLOT would be employed to attack targets within range. Consequently the raid's target list and the subsequent list for the direct support and reinforcing artillery units would be developed by the FSE at Division. The attack of those targets would have to be coordinated in order to synchronize the effects of all field artillery systems in the Division sector.

CONCLUSIONS AND SUMMARY

The battlefield of the future will be the critical test of a commander's ability to orchestrate all available manpower and firepower to attain success. He must be able to call upon every resource and use it in doctrinely-approved tactics or in a bold, innovative and imaginative manner. The artillery raid is a viable tactic for the Division Commander on the AirLand Battlefield. Its implementation can gain the initiative for the tactical level commander through the use of surprise, firepower and mobility. The Multiple Launch Rocket System is not only the most mobile artillery system on the battlefield today but the most powerful as well. The system's technological advances make it elusive as well as destructive. The Field Artillery Raid equipped with an MLRS unit maximizes surprise, firepower and mobility in order to attack targets previously out of range. These targets should be based upon the most current intelligence available to the target analysts. Most importantly, the targets must be predetermined and scheduled with additional fires of the artillery available to the Division Commander. The best targets appear to be those deep targets that can lessen the freedom of the enemy commander and disorganize or disrupt his movement of forces, i.e., command and control nodes, air defense weapons systems and radars, the multiple rocket launchers-BM21 and BM27, and possibly massed concentrations of troops, equipment or

aircraft. MLRS offers today's Division Commander a unique and powerful weapon but its utilization in an operation of this sort demands timely intelligence and adequate security for the artillery systems. The capabilities of the MLRS provide an extension of the battlefield deep into the second echelon and both gain time and free space necessary for ground and air forces to defeat the enemy near the FLOT.

A Field Artillery Raid on the AirLand Battlefield will not be an everyday occurrence, nor should it be. If properly developed and implemented, the raid can be a tool that might set the preconditions for tactical victory. A possible scenario for an artillery raid at Division level might be configured as follows:

The Division Commander has identified numerous targets that are considered to be of high value, some of which are currently out of range of artillery systems behind the FLOT. Based upon the current rate of battle it will be several hours before the FLOT undergoes a significant enough change to engage these targets. The passing of each minute increases the probability of losing these targets because of battlefield movements. The Division Commander decides to conduct a penetration of the FLOT to obtain an objective to be used as the firing platform for an MLRS raid. As the division conducts limited counterattacks within the defensive sector, or conducts a demonstration in an area apart from the MLRS raid, the raiding force begins to move. The maneuver force to conduct the penetration, secure the flanks, and secure the artillery firing position would be a battalion sized task force. This task force would be targeted against a Soviet company size unit in order to achieve the necessary 3:1 force ratio. The artillery force would be composed of an MLRS platoon (3 launchers) and an M577 Command Post Vehicle (FDS equipped). The MLRS platoon would move approximately 500m to 700m behind

the forward elements of the attacking task force. It would remain within the flank security of the unit. Once the task force had attained the required depth, the launchers would deploy immediately to defilade firing positions. Upon receiving attack instructions from the Division FSE or at a prearranged time, the target list would be attacked. The Division Artillery would be coordinating the fires of the direct support and reinforcing artillery units in order to engage targets within range. Within minutes after arrival at the position in the enemy's forward area, an entire array of targets would be attacked. In addition, the radars could identify key weapon systems that respond to the schedule of targets. Upon acquisition, the targets are transmitted digitally to the MLRS platoon for immediate engagement if time and ammunition allow. Upon completion of the target list and with no new targets, the raiding force would fight back to the friendly FLOT along a predetermined route.

In an attack of this nature, the accuracy of the intelligence is paramount. The worst-case scenario for this operation is an attack on targets producing no damage, the acquisition and engagement of numerous U.S. artillery assets to include the raiding artillery, and severe damage to the penetrating maneuver force. The best case is complete destruction, disorganization, and delay of enemy forces and the incapacitation of that unit for a period of time. By taking such a risk, the Division Commander has attained the end product of effective synchronization . . . "maximum economy of force, with every resource used where and when it will render the greatest contribution to success. . . ."

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15. Major Thomas G. Waller. Continuous Thunder: The Challenge of Artillery Support for the Close Battle. Ft. Leavenworth. 1985. p. 9.
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26. ----- . United States Army Weapon Systems 1986. Washington, D.C., 1984, p. 73.
27. F.C. 6-60, p. v.
28. Ibid., p. 1-13, 1-14.
29. U.S. Army Field Manual 6-20. Fire Support in Combined Operations. Washington D.C., 1984, p. 1-6.
30. U.S. Army Weapon Systems 1986, p. 75.
31. William S. Lind. Maneuver Warfare Handbook. Boulder, 1984, p. 21.
32. U.S. Army Field Manual 100-2-1. The Soviet Army: Operations and Tactics. Washington, D.C., 1984, p. 6-5.
33. Col. Ghulam Dastagir Wardak, an Afghani officer trained and educated by the Soviets at the Frunze Academy and the Voroshilov Academy spoke to the SAMS students on 28 Oct 1986. During his briefing on Soviet operations he

discussed the locations of Soviet command posts in the offense and defense. In addition he gave graphical representations of Soviet units in the defense to each student. These hand-outs also depicted the locations of the command posts.

34. F.M. 100-2-1. p. 3-11.

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36. Ibid.. p. 3-3.

37. Ibid.. p. 9-11.

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39. Department of the Army Pamphlet 20-200. The Writing of American Military History, A Guide. Washington, D.C., 1956. p. 12.

40. F.M. 100-2-1. p. 11-2.

41. F.M. 100-5. p. 12.

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