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ARE MOTORIZED INFANTRY FORCES ESSENTIAL TO THE UNITED STATES ARMY?

A Monograph

by

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Infantry

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This paper first looks at historical examples of motorized forces. Next it examines the spectrum of conflict and the threat which help predict where, and what type of war our forces may face. From this analysis, it is determined that the operational requirements of rapid deployability, tactical

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mobility and antiarmor firepower, as identified by General Meyer in 1980, exist today. Then the paper examines mechanized, light and motorized forces in terms of these operational requirements. From these results, it can be determined which type of force best meets the three criteria overall and whether the motorized force is needed in the force structure.

The conclusion of the paper is that a motorized infantry force with an armored gun system is needed to complement the existing mechanized and light forces. Our nation lacks a credible ground force projection capability. We do not have the capability to get quickly to a contingency theater with the right force, to fight and win. In other words, our force structure does not fit our deterrence strategy.

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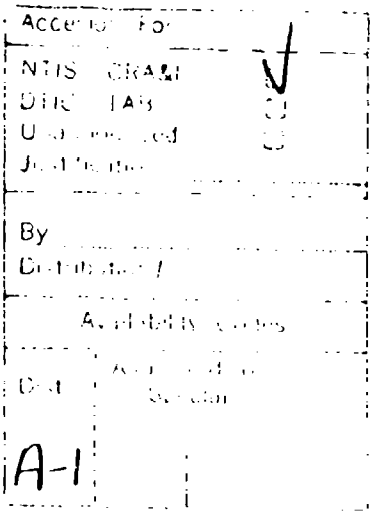

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ABSTRACT

ARE MOTORIZED INFANTRY FORCES ESSENTIAL TO THE US ARMY? by Major Richard J. Marchant, USA, 50 pages.

The purpose of this monograph is to determine whether the need exists for a motorized infantry force. In 1980, a shortfall existed in our ground force projection capability. Our heavy forces lacked rapid deployability and our light forces, although deployable, lacked tactical mobility and firepower. The Army Chief of Staff directed that a new force be developed to fill the gap between heavy and light forces. This force was later designated the motorized force. After eight years of exhaustive testing and verification, the Army decided to discontinue this force. The question remains whether motorized infantry forces are essential to the Army.

This paper first looks at historical examples of motorized forces. Next it examines the spectrum of conflict and the threat which help predict where, and what type of war our forces may face. From this analysis, it is determined that the operational requirements of rapid deployability, tactical mobility and antiarmor firepower, as identified by General Meyer in 1980, exist today. Then the paper examines mechanized, light and motorized forces in terms of these operational requirements. From these results, it can be determined which type of force best meets the three criteria overall, and whether the motorized force is needed in the force structure.

The conclusion of the paper is that a motorized infantry force with an armored gun system is needed to complement the existing mechanized and light forces. Our nation lacks a credible ground force projection capability. We do not have the capability to get quickly to a contingency theater with the right force, to fight and win. In other words, our force structure does not fit our deterrence strategy.

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INTRODUCTION

On 25 June 1950, North Korea attacked into South Korea. As the main attack of infantry and armored units advanced toward Pusan, General MacArthur faced the dilemma of marshalling and moving sufficient combat troops to delay the North Koreans. Meanwhile, the Joint Chiefs rushed reinforcements from the United States, sixteen sailing days away.(1) General MacArthur's worst problem was that he had no deployable forces available on short notice to upset the North Korean's timetable.(2) Lack of deployment flexibility resulted in Task Force Smith, a battalion-sized force of regular US infantry, being sent as a temporary solution.

Task Force Smith lacked sufficient antiarmor firepower and mobility for its mission. U.S. infantry 75mm recoilless rifles and 2.63 rocket launchers were ineffective and bazooka rounds bounced off the North Korean T-34 tanks. The Task Force quickly found itself surrounded by a more mobile enemy. Twenty-nine out of thirty-three North Korean tanks successfully maneuvered around or through the Task Force's defensive positions.(3) Lack of effective firepower and mobility contributed to the Task Force's defeat.

This historical example provides valuable lessons. Our military leaders need the capability to project ground forces across the globe. We must have a capability to deploy rapidly. Forces once sent to protect national interests need to be properly equipped to defeat the enemy. On arrival, this force must be capable of fighting a fast tempo battle. Failure to meet these criteria may result in the defeat of the initially committed force. A response

with inadequate forces, or the wrong type of force, may lead to a more costly escalation. In the past decade, experiments with the High Technology Light Division (HTLD), later called the Motorized Division, were attempts to preclude some of these problems.

In the late seventies, the fall of the Shah of Iran and the later Soviet invasion of Afghanistan prompted the United States to take a closer look at Third World combat contingency areas. The threat included not only the Soviet Union, but also "the heavily armed Soviet surrogates and independent, military sophisticated Third World Nations."(4)

Protection of our national interests against Third World threats required a credible power projection capability and a flexible force structure. However, a shortfall existed in U.S. ground force projection. Our heavy forces with tactical mobility and antiarmor firepower lacked rapid deployability. In contrast, our light forces with rapid deployability lacked tactical mobility and antiarmor firepower.

Meanwhile in 1979, TRADOC's Combined Armed Center began conducting the Light Infantry Division '86 Study. The study's purpose was to develop light divisions with significantly increased fire power to meet worldwide challenges.(5) This study described the concept for the light division as a "unit able to deploy rapidly [to contingency areas or to a developed theater]...Antiarmor firepower and battlefield mobility were its emphases."(6) The Light Infantry Division '86 Study was the basis for the conceptual development of the High Technology Light Division.(7)

Subsequently in 1980, the Army Chief of Staff directed that a

medium force be developed to fill the gap between heavy and light forces. In the White Paper General Meyer stated,

> Medium force packages for rapid deployment missions should be capable of rapid response worldwide and capable of countering an initial armored until heavier force packages can reinforce. These forces will be characterized by tactical mobility and armor defeating capability.(8)

General Meyer directed the operational requirements of rapid deployability, tactical mobility and antiarmor firepower based on possible contingency missions against a Third World armored threat. Thereafter, experiments with the HTLD began.

In 1983, following two years of assessment of the HTLD, the Department of Defense Science Board reaffirmed these operational requirements and strongly supported continued efforts to develop a "lean, mobile, hard-hitting, sustainable combat division that can be deployed rapydly to trouble spots around the world."(9) The Board "unanimously agreed that the Army made the correct decision [in creating the High Technology Light Division] and that it was an appropriate response to a critical national need."(10)

The purpose of this paper is to determine whether the need exists for a motorized infantry force. The intent behind the motorized force was to provide the Army a capability to rapidly respond to a Third World armored or mechanized threat. Yet eight years following the identified need, exhaustive testing and certification, the experiment with motorized forces was abandoned due to mandated personnel reductions and budget constraints.(11) Nevertheless, our worldwide national interests and contingency missions remain. Additionally since 1980, the armored capability in

the Third World has grown significantly.(12) Therefore we need to closely examine whether motorized forces are essential to the US Army.

The paper will first look at historical examples of motorized forces. Then, it will examine the operational requirements for a motorized force. This will be accomplished by analyzing the spectrum of conflict; by addressing the operational requirements directed by General Meyer; and by identifying the present threat. This analysis will determine whether the operational requirements of rapid deployability, tactical mobility and antiarmor firepower exist today.

Once these points are made, the paper will examine mechanized, light and motorized forces in terms of these operational requirements. These terms will be defined and examined in separate sections. In these sections, a comparison will be conducted between mechanized, light and motorized infantry forces. From these results, a conclusion can be made as to whether the motorized infantry is needed, or whether the existing mechanized and light infantry are sufficient.

Additionally, motorized force concepts must support AirLand Battle Doctrine. Therefore the paper will examine motorized force tactics and employment techniques. This will be accomplished by addressing how the force fights; what types of missions are assigned; and by specifically analyzing the light attack battalion's deep attack capability.

HISTORICAL TRACES

> It is my intention not to stray beyond the limits of the technical possibilities of today. Yet I could not deny myself the right to study new methods of employment for new weapons. There will always be men eager to voice misgivings, but only he who dares to reach into the unknown will be successful.(13)
>
> Heinz Guderian

History provides us with lessons resulting from experiments with motorized type forces. Current motorized force concepts can be traced to these historical examples. This section addresses motorized forces as part of the German blitzkrieg concept, U.S. tank destroyers, U.S. attempts to create experimental motorized divisions in World War II (WWII), and actual motorized forces used by U.S. commanders in combat. In addition, this section looks at the motorized infantry concept which surfaced in the Reorganization Objective Army Division (ROAD). Finally, this section addresses the recent Chadian experience with motorized forces in the desert.

In May 1940, the Germans shocked the world with their blitzkrieg victory over France. The Germans attacked through the Ardennes in Belgium to the French channel coast with a concentration of armored, motorized infantry and supporting air and artillery forces.(14) The German plans called for concentrations of approximately two panzer divisions and two or three motorized divisions, followed by regular infantry divisions on each thrust point.(15) At the heels of the tanks, the motorized infantry followed in wheeled vehicles, half-tracks and cross-country lorries.(16) German commanders capitalized on the infantry's mobility. The motorized infantry was easily concentrated and

integrated into combined arms teams.

The mobility inherent in the motorized infantry force provided flexible employment options to the commander. The commander used them to switch his main effort swiftly to the decisive breakthrough point.(17) Next, the motorized infantry force exploited successful breakthroughs. Missions assigned to these forces included holding and expanding ground gained, securing key terrain, protecting the flanks and often continuing the attack deep into enemy territory and rear area.(18) The Germans effectively used the motorized infantry's tactical mobility to maintain the initiative and tempo of the battle in depth. This flexible capability allowed the commander to effectively respond to uncertainty and developing situations.

The U.S. responded to the shocking defeat of the French Army by producing and fielding tank destroyers.(19) In Seek, Strike, and Destroy, Dr. Christopher Gabel describes tank destroyer doctrine. This doctrine envisioned tank destroyer units employed offensively in large numbers against a massed enemy. In 1942, the Tank Destroyer Field Manual 18-5 placed a high premium upon mobility and firepower in offensive operations:

> Rapidity of maneuver enables tank destroyer units to strike at vital objectives, fight on selected terrain, exercise pressure from varied and unexpected directions, and bring massed fires to bear in decisive areas. Tank destroyer units obtain results from rapidity and flexibility of action rather than by building up strongly organized positions. Tank destroyers depend for protection not on armor, but on speed and the use of cover and concealment.(20)

The tank destroyer, rarely employed by doctrinally prescribed methods, provided flexibility and firepower to the commander. During combat situations, commanders did not face massed enemy tank

formations. As such, tank destroyer doctrine was misunderstood, mishandled and occasionally disregarded by commanders.(21) Often, U.S. commanders employed the additional firepower of the tank destroyer in "penny packets" throughout the division.(22) Nevertheless, battlefield experience and necessity dictated the use and employment of the tank destroyer as an assault gun. The tank destroyer was effectively used against tanks, enemy positions, or as an indirect fire weapon. In short, this system provided the infantry with much needed firepower against a variety of targets.

In addition to the German motorized forces mentioned earlier, the U.S. attempted to create motorized divisions in WWII; however, these units were experimental and short lived. The motorized force was conceived as an infantry division equipped organically with trucks for simultaneous transport to the scene of combat.(23) Five divisions, the 4th, 6th, 7th, 8th and 9th were ordered converted to motorized configuration in 1942, and five more were planned for 1943. Only the 4th Division ever became fully equipped with organic vehicles.(24) The goal was not met for several reasons.

First, General McNair, Commanding General of Army Ground Forces (AGF), and the AGF Reduction Board strongly recommended the abolition of motorized units.(25) These opponents argued that the motorized division required almost as much ship tonnage as an armored division for overseas shipment "without having the same hitting power."(26) Furthermore, opponents of the motorized division argued that such forces were not included in any European Theater plans.(27)

In addition to these arguments, opponents contended that a standard division could move all personnel and equipment simultaneously if reinforced by six quartermaster truck companies, each operating forty-eight, two and one-half ton trucks.(28) For example, the 18th Infantry Division hitched a ride across Northern France using quartermaster trucks, and "simply by piling infantrymen."(29)

Despite the cancellation of motorized units, the need for a mobile infantry existed on the battlefield. During the VII Corps' breakout from the Remagen Bridgehead in March 1945, General Allen motorized his 104th Infantry Division by using light tanks, trucks and wheeled vehicles. Following close behind the fast moving 3rd Armored Division, the motorized infantry consolidated gains and attacked bypassed enemy pockets of resistance.(30) This force capitalized on mobility. The mobility was used to enhance tactical operations throughout the battle.

For example, the agility of the 104th Motorized Division, during the Ruhr encirclement in March 1945, took the Germans by surprise. The Germans attempted to counterattack, toward Winterberg, between the 3rd Armored Division's rear units and the 104th Infantry Division's lead units. Combined arms task forces, consisting of motorized infantry and tanks, quickly moved to blocking positions to stop the surprised Germans.(31) General Allen used the vehicles for more than just transportation to the battle. He shaped the battle and maintained the initiative by capitalizing on the infantry's mobility.

The idea of motorized infantry forces was again addressed

during the Reorganization Objective Army Divisions (ROAD) in March 1961. The study called for an infantry battalion to be completely mobile in organic wheeled vehicles. Each platoon would be mounted in five wheeled squad carriers.(32) This concept met opposition. Opponents argued that the infantry could be augmented with vehicles when required.(33) Hence, the decision was made to keep the infantry division as austere as possible to retain its strategic mobility. In the aftermath of WWII and later, motorized infantry forces were seen as a convenience rather than as a necessity. Critics of motorized infantry forces conceptualized these forces as being transported to the battlefield, rather than using the mobility assets on the battlefield.

More recently, the Chadians experimented with motorized forces. In 1987, the Chadians defeated an enemy with Soviet equipment. Chadian forces in Toyota pickup trucks equipped with MILAN antitank systems and MK-19 40mm grenade machineguns easily destroyed a Libyan force equipped with T-55s and BMPs.(34) At Fada, Libyans lost 700 personnel and 100 armored vehicles. The Chadians lost three trucks.(35) In another battle sixty miles inside Libya, Chadians destroyed 70 tanks and BMPs.(36)

The Chadian use of motorized forces proved successful. The Chadian's mobility surprised and overwhelmed their opponents. The Chadians moved dispersed, concentrated to attack their opponent's vulnerable flanks and quickly dispersed again. These swarm tactics proved highly effective against enemy tanks and armored personnel carriers.

In summary, these historical examples provide precedent for motorized forces. First, the German blitzkrieg proved that a mobile infantry could be concentrated at the decisive breakthrough point. This mobility allowed the commander to maintain the initiative, meet uncertainty and keep up the tempo. Second, the tank destroyer when used as an assault gun, proved to be versatile and provided much needed firepower. Next, WWII and ROAD attempts to equip infantry forces with vehicles intended only for transport to the scene of the battlefield met with disfavor and termination.

History also provides lessons. It appears we look for ways to motorize the infantry in combat, but during peacetime we reject the concept. Commanders in combat motorized their infantry forces, formed combined arms task forces and integrated this mobility into the tactical plan. VII Corps' success during the Remagen breakout and the subsequent encirclement of the German forces can be partly attributed to the mobile infantry. Additionally, the Chadians' innovative use of Toyota pickup trucks proved that mobility and speed can become combat multipliers against a more heavily armed opponent.

THE OPERATIONAL REQUIREMENTS

> ...The force must arrive in time [in the Persian Gulf] to cope with the situation and must retain the initiative by being able to move and maneuver at will. Finally it is our view that a military force asked to perform these tasks, should use the high mobility and fight deep tactics embodied by the Army's Air-land 2000 concept.(37)
>
> Department of Defense Science Board

In 1979, events in Iran and Afghanistan forced us to look more closely at the threat. For example, in January the Shah of Iran, a friend of the United States, fell from power and then turned over the government to Shahpur Bakhitiar. In less than a month, Bakhitiar relinquished the government to the Ayatollah Khomeini.(38) Several months later the American Embassy in Tehran fell to anti-American fanatics. Additionally, in December 1979 the Soviets moved military forces into Afghanistan, followed by the execution of Prime Minister Hofizullah Amin.(39)

These world events dictated that the United States examine its commitment to protect national interests. Accordingly, the Carter Doctrine was issued during the January 1980 State of the Union Message as follows:

> ...Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America. And such an assault will be repelled by any means necessary, including military force. (40)

The overriding mission of United States' military is to deter war.(41) Conventional force deterrence requires a credible power projection capability and a flexible force structure. We must be capable of projecting force and sustaining operations in the forward

deployed areas of Europe, Korea, and in contingency areas. Contingencies will occur in "a variety of demanding environments, from desert to mountainous regions to tropical rain forests...the requirement for flexibility is apparent."(42) This requirement demands that tactical combat units be designed to fight and win across the entire spectrum of conflict.

The spectrum of conflict arrayed types of conflict and war from terrorism and insurgency through conventional and nuclear war.(43) The spectrum of conflict was used to predict the probability of each type of conflict and war, and the associated risk for each. The spectrum predicted that low to mid-intensity conflict has a much higher probability of occurring than mid to high intensity war. In other words, insurgency and small conventional wars were more probable than conventional and nuclear war. These wars could have occurred in the periphery in areas such as Southwest Asia, Central America or the Middle East against sophisticated Soviet surrogates.

In addition to addressing probability and risk, the spectrum of conflict identified the type of army force best capable of fighting in each category of conflict and war.(44) In effect, this matched force capabilities with the enemy situation. For example, our unconventional forces could best counter terrorism and insurgency. Similarly, light forces were designed to fight in the low-intensity end of the spectrum, while our mechanized and armor forces were designed to fight in the mid to high intensity end of the spectrum. This does not imply that light forces would only fight in the periphery. These forces could also fight in a conventional European scenario.

Furthermore, the spectrum of conflict presented a dilemma. Our military needed to be able to transport the right type of force to meet the threat. A disparity existed between the capabilities of heavy and light forces. Heavy forces with firepower and tactical mobility lacked strategic deployability. Lighter forces with strategic deployability lacked antiarmor firepower and mobility. These limitations created a gap in our capability to contend with conflict and war in the middle of the spectrum.

To illustrate this, John L. Romjue made the case in the Division 86 study that light assault forces acting as spearheads into an area might be inadequate.(45) The growing armor threat in the Third World dictated that a strategically deployable light division had to arrive on site with sufficient combat power, especially with an antiarmor capability.(46)

As a result of the events in Iran and Afghanistan discussed earlier, the need to project a major force into Southwest Asia against a Soviet style opponent became a priority.(47) However, Army forces needed to deploy and fight in such wars did not exist. Consequently, a new type of force was needed. As discussed in Section One, TRADOC's Light Infantry Division Study was underway. This study was the basis for the conceptual development of the High Technology Light Division.(48) In the 1980 White Paper, General Meyer stated,

> ...The forces committed should be designed to facilitate rapid deployment, exploit technological advantages and meet the requirement for lean, hard-hitting combat forces. They must be capable of the full range of combined arms operations to carry the fight to the enemy, quickly dominating the battlefield, and

decisively defeating the opponent in a highly mobile environment against sophisticated enemy forces.(49)

Accordingly, General Meyer established the operational requirements of rapid deployability, tactical mobility and antiarmor firepower. In addition, he directed the 9th Infantry Division Commander to develop a revolutionary approach to tactics and equipment that would evolve into a new type of division.(50) This force initially was called the High Technology Light Division. In September 1985, General Wickham directed that the 9th Infantry Division be reorganized as a fully operational motorized force.

Today, we face a situation similar to the dilemma that faced General Meyer. The spectrum of conflict still predicts that the probability of low to mid-intensity war remains higher than the probability of mid to high intensity war. Additionally, the armor capability in the Third World continues to increase. For example, since 1981-1986 the countries in the Near East, South Asia, Sub-Sahara Africa, Latin America and East Asia have been the recipients of 5,465 Soviet tanks and 8,885 Soviet light armor vehicles.(51) Also, North Korea has 2,800 tanks, Cuba 540, and Vietnam 2,500. Nicaragua's army is one-third mechanized.(52)

As identified, the growing armor capability in the Third World is significant. These areas are breeding grounds for conflict which can happen at any time, and on short notice. Today, even more than in 1979, the "...increased capability of supplying Third World nations with top flight weaponry, and the increasing capital available in those nations with which to buy modern tanks, all contribute to a formidable problem for the U.S.(53)

In The Future of Land Warfare, Chris Bellamy predicts that a serious challenge facing the U.S. Army is the potential for armored and mechanized confrontations in the Middle East or South Asia.(54) Likewise, during a recent visit to the School of Advanced Military Studies, Mr. Chris Donnelly, a Soviet Affairs expert, reaffirmed the Soviet's capability to wage war through Third World surrogates in the periphery.(55) The threat scenario, matched with the spectrum of conflict predict where and what type of war our forces will face. This war will occur against a Third World Soviet surrogate force.

Therefore, the operational requirements established by General Meyer still apply today. It must be determined whether mechanized, light or motorized forces meet these operational requirements of rapid deployability, tactical mobility and antiarmor firepower. If mechanized or light forces meet these requirements, the need for a motorized force does not exist.

DEPLOYMENT CONSIDERATIONS

> ...The critical phase of the conflict is likely to take place within the first few weeks as enemy forces attempt a quick, decisive victory.(56)
>
> General Meyer, White Paper 1980

Rapid deployability is the first operational criterion analyzed. As a superpower, our nation must have the capability for power projection and force sustainment worldwide. The U.S. has numerous responsibilities and contingencies which focus on protecting our national interests. The quantity and diversity of these contingencies preclude forward defense employments throughout the globe. One such contingency area where we have no military bases or permanent forces is Southwest Asia.(57) An alternative to forward employment is deployment.

Rapid strategic deployability can be defined as the capability for quick power projection. Our nation must be able to move forces rapidly to trouble spots. A rapid deployment capability can possibly deter escalation or prevent a major war from occurring in a contingency area. An "insufficient force projection early, within 25 days, would require a later quadrupling of forces to defeat the enemy."(58) As such, the Army possesses no strategic mobility assets. The Military Airlift Command and Navy Sealift Command provide the aircraft and ships to move our forces, equipment and supplies.

In April 1981, the Congressionally Mandated Mobility Study (CMMS) identified shortfalls in airlift capabilities. We did not have sufficient transport assets to move adequate ground forces. The

study provided mobility objectives for the Air Force to attain.(59)

The Air Force, the cornerstone of rapid force projection, has a thirty-three percent shortfall in transport capability. This shortfall worsens as the current fleet of aircraft ages. Despite these limitations, USAF aircraft will carry all the ground forces and sustainment packages to conduct combat operations during the early days of force deployment, until sealift assets close.

The CMMS study established an airlift goal of 66 million-ton-miles-per day (MTM/D). This projected lift capability could move sufficient tactical fighter squadrons, and ground forces to the Middle East within ten days.(60) Air Force enhancements in Civil Reserve Airline Fleet (CRAF) and C-17 purchases should remedy the situation by the late 1990s.(61)

Airlift requirements vary for each type force. Ground force lift requirements will be analyzed in terms of C-141 equivalent aircraft. The light division without augmentation requires about 500 C-141 sorties. Unofficial figures estimate that with some required augmentation the light division may require 600 sorties. The mechanized division requires 2,911 sorties.(62) The motorized division objective design called for 1200 sorties.(63) Limitations in aircraft availability suggest that aircraft are not available to move a mechanized force.

Let's examine what these airlift assets can move in a week. The closure time for a light division, without augmentation, would take seven days using the entire C-141 fleet. This time would be reduced to 3.3 days using 301 C-17s.(64) A brigade sized motorized force with combat support and service support assets requires about

300-400 C-141 aircraft.(65) Closure time for this initial motorized force would be less than a week.

The Army's outsized cargo is another deployment limitation consideration. Not all Army equipment can fit on C-141 aircraft. Outsized cargo and equipment can only be airlifted by C-5A aircraft. The light division has no outsized cargo. Approximately 44% of an armored division's equipment and 41% of a mechanized division's equipment are outsized cargo.(66) The motorized division, like the light force, has no outsized equipment. Outsized cargo presents a problem. The C-5A cannot land on all runways used by the C-141. This limits the landing options if mechanized forces are deployed by C-5A aircraft into some Third World regions.

Next, fast sealift assets will bring follow on forces to a theater. Fast sealift capabilities consist of Fast Logistic Ships (SL-7). The eight roll-on, roll-off SL-7 ships are the only vessels available for surge sealift.(67) These ships, docked on the east coast, can carry a heavy division with some support and move to the Persian Gulf via the Cape of Good Hope in fourteen to sixteen days.(68) With four days to activate the ships, two days to load and one day to off-load, Army forces shipped would lag three weeks behind the first airlift arrival.

In addition, lack of prepositioned material exacerbates the Army's deployment problems. The Army has no prepositioned material near the Persian Gulf or SWA, although six divisions' prepositioned material configured to unit sets (POMCUS) exist in Europe. The maritime prepositioning ship (MPS) squadrons are located in the

Atlantic, Pacific and Indian Oceans. These vessels store the equipment, vehicles and supplies to sustain a Marine Expeditionary Brigade for thirty days.(69) The most the Army can hope for from Diego Garcia, which is 2,100 miles from the Persian Gulf, is fuel, some ammunition and water.(70)

Our strategic deployment capabilities have significant limitations. Despite these limitations, a light infantry division can be strategically deployed in the available aircraft in about a week. Likewise, a motorized brigade force combat team can be deployed in the available aircraft in less than a week. Furthermore, an entire motorized division could be deployed in about two weeks. In contrast, the mechanized infantry cannot be realistically deployed in aircraft. This force requires fast sealift. A mechanized force traveling by sea would arrive three weeks after the first forces traveling by air.

Nevertheless, one must look beyond deployment when analyzing the deployment capability. The projected force may need to do more than just get there. Planners must identify what the ground force is capable of accomplishing on arrival in theater.

TACTICAL MOBILITY

> ...The forces...must be capable of the full range of combined arms operations to carry the fight to the enemy, quickly dominating the battlefield, and decisively defeating the opponent in a highly mobile environment...(71)
>
> Army White Paper

Tactical mobility is the next operational criterion to be analyzed in this paper. Maneuver, a dynamic of combat power, requires ground mobility.(72) Tactical mobility is the ability to move and shift forces and dispositions in response to changing conditions and situations.(73) Mobility enhances the commander's flexibility in dealing with uncertainty by increasing his capability to influence tactical options in terms of time and space. Infantry forces must be able to effectively fight and win against a mobile threat.

In his article "Three Types of Infantry," COL Huba Wass de Czege identifies the necessity for an armored infantry equipped with Bradley Infantry Fighting Vehicles (BIFV), a regular infantry equipped with M113s or wheeled vehicles and light infantry.(74) A motorized infantry fits somewhere between an armored infantry or mechanized infantry, and a light infantry on this continuum. Since each type of infantry requires some degree of mobility depending on the mission and situation, an analysis of the characteristics of each force is warranted.

The first force looked at is mechanized infantry. Mechanized forces provide significant tactical mobility to the force structure. Combined arms task forces include armor and infantry assets. The armored infantry or mechanized force orients on the advance and protection of the tank.(75) The infantry in BIFVs has the same

degree of tactical mobility as the armor force it complements. As such, the infantry keeps up with the rapid advance of the tanks. Mobility is a requirement to accomplish the mission.

The mechanized force is equipped with fifty-four BIFVs, six scout combat fighting vehicles and six heavy mortar carriers.(76) This force can fight a highly mobile, fast tempo battle in Europe or in contingency areas. Unfortunately, this tactically mobile force lacks strategic deployability.

The next force addressed is light infantry. Light infantry possesses inherent foot mobility. Light infantry can fight mobile tactical engagements, but only in difficult terrain.(77) Unquestionably, foot mobility is an asset in rugged or impassable terrain, during adverse weather conditions, or when operations require stealth or infiltration. However, in other situations, foot mobility is a limitation. For example, foot mobility was no match for a mechanized mobile enemy as evidenced by Task Force Smith.

In fast tempo operations or when conflicts escalate from low to mid-intensity, foot mobility becomes a limitation. For example, during Celtic Cross IV, the light infantry certification exercise, the light infantry force was easily penetrated by a mobile armor force. The OPFOR massed against small light forces arrayed in depth. The light infantry defenses could only be reinforced by foot mobile reinforcements.(78) This reinforcement proved too slow. Once positioned, these forces were virtually static. Liddell Hart argues that one could not expect mobility on the battlefield unless the man who fights on foot is given the chance to be mobile.(79) This

applies not only to lightening the load, but to providing the infantry the means to move. The light infantry force lacks employment flexibility when facing a mobile enemy.

In addition to foot mobility, some options do exist to make the light infantry more mobile if required. Pooling vehicles in the division is an option. However, the light infantry division only has enough high mobility, multi-purpose wheeled vehicles (HMMWV) to move one infantry battalion in the division.(80) The thirty-five HMMWVs and approximately five-hundred sixty personnel in an infantry battalion are distributed as follows: (81)

Unit	# Personnel	# HMMWVs
Headquarters	45	2
Mortars	27	8
TOWs	20	6
Scouts	18	0
Communication Platoon	15	1
Medical Platoon	27	6
Support Platoon	17	12
Company (x3)	390	0

Motorizing the line companies and scouts would require over forty-one uncommitted vehicles from across the division. This figure is based on an optimistic ten personnel per vehicle. Pooling vehicles to support one battalion would severely hinder sustainment operations in the division. Each vehicle performs a critical mission essential function such as command and control, combat support, or combat service support. Extra transport vehicles do not exist. The old cliche "Robbing Peter to pay Paul" applies to pooling. Pooling vehicles is not a viable option.

Another option available to the light infantry is augmentation from outside the division. However, augmentation vehicles will require space on the available aircraft. Augmentation would require

not only the vehicles themselves, but the maintenance equipment, vehicles and personnel for support. In a Light Division Study, Edward Luttwak argues that adding extra-divisional reinforcements would have no logical stopping point.(82) Augmentation is a possibility, but not the ideal solution.

Last, the motorized infantry will be analyzed. Motorized infantry was organized in combined arms battalions (heavy), combined arms battalions (light) and light attack battalions. The combined arms battalion (heavy) had eighteen squad carriers and thirty armored gun systems. The combined arms battalion (light) had thirty-six squad carriers and fourteen armored gun systems. The light attack battalion had fifty-four fast attack vehicles (FAV). In addition, all organic combat support assets in the battalions were mobile.(83)

To illustrate the mobility capability in the motorized force, the light attack battalion will be addressed. The light attack battalion, equipped with over fifty fast attack vehicles, was capable of conducting highly mobile combat operations throughout the AirLand battlefield.(84) The fast attack vehicle, or dune buggy, could infiltrate enemy positions, rely on speed to disrupt an enemy force and disengage quickly, traveling at speeds over seventy miles per hour. During a test at Fort Lewis, a FAV completed an eight mile course in seven minutes while an APC took thirty-five minutes to traverse the same course.(85)

Further, mobility allowed this force to move quickly, hit the opponent and rapidly disengage. As such, this force equipped with

FAVs has parallels to the Chadians' experience with fast Toyota trucks. In the Chadian war against Libya, wheeled commercial vehicles were more mobile than the Soviet made T-55s and BMPs.(86) The fast attack vehicle is the epitome of mobility. Such an unorthodox vehicle increases tempo and provides flexible options.

The analysis has shown that our mechanized and motorized forces each have significant tactical mobility. The light infantry has only foot mobility. The mobility capabilities of the mechanized force would be needed in contingency areas. However, this force's mobility assets would arrive by fast sealift, well after hostilities began. Light forces, like airborne forces, could be used to secure an airhead or when a force is needed on the ground immediately.(87) In these situations, foot mobility may be all that is needed.

Nevertheless, General Meyer directed the requirement for a mobile capability early on to enhance tactical flexibility, to preclude unopposed threat victory and to permit U.S. forces to gain the initiative.(88) The motorized infantry mobility capabilities increase flexibility and employment options. Mobility allows the initiative to be gained by taking the battle to the enemy. Inherent mobility allows for rapid expansion of an airhead. Mobile forces can contain the enemy, disrupt his lines of communication and aggressively attack high value targets.(89) The force can conduct high tempo combat operations.

Motorized infantry was much like the motorized infantry in the German blitzkrieg and General Allen's 104th Division. The mobility capabilities were integrated into the tactical plan. These assets were used for more than transportation to the scene of battle. They

moved the infantry around the fluid battlefield while conserving energy for the dismounted fight. Infantry in squad carriers complemented the armored gun systems. Together they formed a mobile combined arms team.

ANTIARMOR FIREPOWER

> ...Try reminding them [Congress] of the last time U.S. troops went into battle against tanks with antiarmor weapons that would not penetrate. Remember Task Force Smith at the beginning of the Korean War, bazooka rounds bouncing off T-34s? Defenses overrun on defensible terrain for no other reason than that American kids didn't have a decent antitank system.(90)

Firepower is the third operational criterion to be analyzed. Firepower, another dynamic of combat power, provides the destructive force essential to defeat the enemy.(91) Antiarmor systems provide one type of lethal firepower. Our mechanized, light and motorized forces are equipped with antiarmor systems.

In the heavy mechanized division, the infantry antiarmor systems complement the tank's firepower. The Bradley Infantry Fighting Vehicle equipped with the TOW II has a range of 3750 meters. The BIFV can provide overwatch with considerable standoff for the tank. A division with a 5/5 mix of armor and mechanized battalions has 290 tanks, 270 BIFVs and 60 combat fighting vehicles (CVF) in the maneuver battalions. The division cavalry has an additional 40 CFV equipped with the TOW system.(92) This force provides an impressive antiarmor firepower package.

The light infantry lacks sufficient antiarmor firepower systems. With only 36 TOWs and 108 Dragons in the division, this force is ill-equipped to meet an armored threat. Realistic employment of light infantry force against a mechanized threat would require a significant augmentation with additional antiarmor systems. One means for increasing the number of antitank systems is to augment the force with the Tow Light Anti-Tank (TLAT) units located in the reserve components.(93) However on a short notice

contingency mission, the TLAT battalion may not be available. Even with augmentation, the light infantry's antitank weapons may be no match for the armored vehicles proliferating in Third World countries.

The motorized infantry force was designed to have a significant antiarmor firepower capability, comparable to the heavier forces. The principal antitank system of the motorized force was the armored gun system (AGS) or assault gun. Antiarmor firepower in the motorized force consisted of 178 AGS, 66 TOW IIs, 36 ground launched hellfire systems, and 105 Dragons.(94)

The AGS design called for several characteristics. The concept called for a kinetic energy gun capable of defeating reactive armor, a fire and forget system, and an effective capability at medium to short ranges.(95) This weapon system would be able to fire rapidly on the move and use a variety of munitions.

The motorized force was never equipped with the AGS although doctrinal writers saw the need for a light tank or assault gun as early as 1976.(96) As an interim system, the force was equipped with 342 ground TOW systems. This force with the HMMWV TOW as the primary antiarmor weapon system had obvious shortcomings.(97)

Although not an antiarmor weapon, the MK-19 which complemented the antiarmor systems in the motorized force is worth mentioning. Over 1000 vehicles were equipped with the MK-19.(98) Although not a tank killer, the 40mm grenade launcher machinegun was effective against the BMP. In the war with Libya, the Chadians were impressed with the MK-19's ability to destroy BMPs.(99) More recently, at the

National Training Center, the MK-19 proved effective in area fires and assisting units disengaging from the enemy.(100)

The TOW II, our infantry's main antiarmor system, has numerous shortcomings. For over a decade, the TOW II system has assisted in winning battles on game boards by capitalizing on an extended range of 3750 meters and thermal imagery. However, the disadvantages of this system may outweigh many of its advantages. The TOW II's major disadvantages include: the low rate of fire (reload takes 40 seconds), the slow time of flight, the large size of the missile, the capability to only fire when stationary, and the ineffectiveness in ranges under 300 meters.(101) Furthermore, the lack of ammunition flexibility and the high cost of each missile limit firing opportunities during training. Also, due to the wire guided tracking system, this weapon has difficulties firing in wooded areas, urban areas, and over water. Finally, the TOW, like other chemical energy weapons, cannot penetrate reactive armor. Presently, solutions to this problem are being found.

The analysis has shown that the mechanized and the motorized force each have a significant antiarmor capability. The light infantry lacks a credible antiarmor capability even when the force is augmented with the TLAT. Despite the mechanized force's lethal antiarmor capability, this force would arrive in a contingency theater such as SWA, three weeks after alert notification.

A motorized force with an armored gun system meets the firepower criterion. Such a system could be used against a variety of targets. The AGS, like the WWII tank destroyer, was an offensive weapon which offered needed flexibility. Experience in WWII showed

that "on battlefields ranging from Tunsia to Luzon, tank destroyers were a highly valued asset whether employed on direct fire, indirect fire or antitank missions."(102) In a fluid, fast tempo battle, careful selection of targets may not be possible.

The need exists for an armored gun system. Such a system would complement the chemical energy systems in use today. Total reliance on the TOW II is too risky. Without an armored gun system, a credible capability in our antiarmor systems is lacking.

MOTORIZED TACTICS

While mechanized and light infantry tactics and techniques are well documented, tested and understood throughout the army, less is known about the motorized force. Therefore, this section will address how the motorized force fights, and the types of missions the force can be assigned as part of a larger conventional force. In addition, areas of operation and engagement, both fundamental considerations to motorized force employment, will be presented. Finally, ground deep strike operations will be examined to determine if the motorized forces techniques are in line with AirLand Battle Doctrine.

In addition to its ability to attack, defend, and delay, the motorized force is able to conduct covering force operations, rear area operations, and deep operations.(103) Motorized infantry can be used in an economy of force role or as a covering force for a larger unit. Inherent mobility and firepower allow the force to cover extended distances. This could free up heavier forces for the main effort. In a corps' attack, the motorized force could be used to screen vulnerable extended flanks, as the heavier forces concentrated against the enemy.

In rear operations, the threat to a corps will be significant. The Soviet's tactical airborne and air assault assets constitute a serious threat to rear areas. Reacting to a sudden Level III threat by pulling the reserve or committed forces, may not be timely or possible. The motorized force has the agility to rapidly respond to the threat anywhere in the rear, allowing heavier forces to fight

the battle along the forward edge of the battle area (FEBA).

The larger the area of operations the better for the motorized force. Freedom of movement to allow wide enveloping sweeps is ideal. Dispersion in formations provides flexibility in meeting vague and changing situations. Mobility allows the force to move dispersed and converge quickly when necessary. In quick violent engagements, the motorized force fixes the enemy with a small force and concentrates its firepower against the enemy's flank and rear. The motorized force focuses on destruction of the enemy, not terrain.(104) Speed on the battlefield enhances survivability. When operating on restrictive terrain or when employed in static positions, the force's lack of protection becomes a vulnerability. The motorized force does not hold terrain. The motorized force fights best on a nonlinear battlefield, at night.

The engagement area (EA) is fundamental to how the motorized force fights.(105) In both the offense and defense, the commander maintains the initiative by selecting the EAs and taking the fight to the enemy. EAs are selected in depth. EAs may be deliberate, requiring extensive preparation, or hasty. The EA fight requires the synchronization of combined arms assets including precision artillery munitions, attack helicopters, close air support, engineer obstacles and electronic warfare to enhance success.

The light attack battalion was specifically designed to conduct deep operations.(106) This force could strike deep for limited periods of time. For example, this force could infiltrate at night, at slow speeds, using night vision goggles, and navigate with the onboard positional locating radar system. Additionally, this unit

could also be lifted and inserted by Blackhawk assets, with two vehicles suspended beneath each aircraft. This force employed swarm tactics much like those tactics used by the Chadians. The force relied on its inherent speed to disengage, before the enemy could react.

A small mobile force can operate in the enemy's rear area for limited periods of time. During this time, the initiative can be temporarily seized by attacking high value targets such as command and control or logistic targets. The intent is to create a particular vulnerability, limited in scope against specific targets. For example, "Soviet divisions draw their resupply from convoys of trucks ...1,800 trucks for each tank division, and 2,000 for each motorized rifle division."(107)

A ground mobile force, earmarked for tactical targets in the enemy's rear area, provides depth to the battlefield. Our outnumbered heavy forces will have their hands full fighting along the FEBA. Current deep operations delay forces. Often these are mere inconveniences to the enemy, short in duration. The enemy's reaction is to continue with the attack. A ground mobile force operating deep and synchronized with other deep operation efforts, may force the enemy to be more concerned. Edward N. Luttwak makes the point that,

> Instead of being faced with an entirely predictable frontal resistance, Soviet commanders would be confronted by confused entanglements and sudden emergencies in their own vulnerable rear as the elusive strike forces attack...(108).

Ground forces operating in the enemy's rear area may create the right conditions to offset our numerical disadvantages along the

FEBA for a brief period of time. For example, the enemy may shift forces to address the problem. This could allow our heavier forces to launch counterattacks in an area. The motorized force has this capability, although critics dismiss deep attacks by ground forces as too risky.

CONCLUSION

> ...Opinions expressed by combat leaders and division boards appointed for the study of the infantry division indicated a desire for the mobile striking force of a medium tank armed with a 90mm gun... Many of our combat leaders were of the opinion that a light self-propelled weapon with a low silhouette and capable of stopping a tank should be developed.(109)
>
> General Board, 1945.

This paper began with reference to Task Force Smith. At that time, General MacArthur faced the problems of quickly moving the right forces to Korea. In 1980, General Meyer directed that a new force be formed to preclude similar problems. The operational requirements for this force were rapid deployability, tactical mobility and antiarmor firepower capability. This force, initially called the high technology light division was later named the motorized division. The intent behind the motorized force was to provide solutions to the problems presented by the Third World threat in SWA. Eight years following the identified need, the experiment with motorized forces was abandoned due to mandated personnel reductions and budget constraints.(110)

The purpose of this paper was to determine whether the need exists for a motorized infantry force. This was accomplished by first looking at historical examples of motorized forces. Next, the spectrum of conflict and threat were identified to determine where our forces will fight and what threat we face. From this we determined that the same operational requirements identified in 1980, exist today. These requirements were rapid deployability, mobility and antiarmor firepower. By examining mechanized, light and motorized infantry forces, a determination could be made as to

which forces met the operational criteria. If either mechanized or light forces met these requirements, the need for a motorized force does not exist. Finally, the motorized force tactics were examined to determine whether the force fought in accordance with AirLand Battle Doctrine.

History provides examples of innovative uses of motorized infantry. The German blitzkrieg and General Allen's 104th Division both successfully integrated mobile infantry into combined arms tactical plans. U.S. force planners experimented with motorized infantry; however, the concept was one of convenient transportation, not integration into the tactical plan. Historically, it appears we look for ways to motorize the infantry in combat, but during peacetime we reject the concept.

It is now understood, that the spectrum of conflict matches the type of warfare to the type of force best capable of fighting the enemy. The spectrum of conflict predicts that the probability of low to mid-intensity war is significantly greater than mid-intensity conventional war. Equally important, worldwide military equipment sales continue to escalate. Many Third World countries have the means to wage fast tempo warfare. Based on the spectrum of conflict and the threat situation, our forces will face a sophisticated Third World Soviet surrogate enemy in the future. From this analysis, it was apparent that the operational requirements of rapid deployability, mobility and antiarmor firepower still hold true.

Next, from the analysis of rapid deployment it was determined that light forces can certainly deploy rapidly to a contingency area. However, one must look beyond deployment when analyzing the

deployment capability. The projected force needs to do more than just get there. The implication is that the light infantry can only get to a location. Mechanized forces require too many aircraft, and outsized cargo limits landing options for this force. The C-17 will preclude some of these shortcomings. In the meantime, the only realistic transport means for these forces is fast sealift. These sealift capabilities warrant further study. The motorized force can rapidly deploy. This force provides flexible deployment options. A brigade combat team with more combat power can be deployed in less aircraft than the light division. Furthermore, the entire motorized division can be deployed in two weeks.

Then from the analysis of tactical mobility, it was determined that a mechanized force can fight in a fast mobile war. However, this force lacks a rapid deployability capability. The light infantry is limited to foot mobility. Augmentation from outside the division and pooling vehicles internally warrant further consideration. The motorized infantry is highly mobile. This force's mobility capabilities increase flexibility and employment options. The motorized force can conduct high tempo combat operations immediately on arrival in theater.

Finally, from the analysis of firepower it was determined that mechanized and motorized forces have significant antiarmor firepower capabilities. The light infantry lacks sufficient antiarmor firepower to defeat an armored enemy. It was determined that the TOW, our infantry forces' main antiarmor weapon, has numerous shortcomings. Overall, our forces need an offensive kinetic energy

gun system to complement existing chemical energy systems. Solutions may be the armored gun system or light tank. Not surprising, the General Board at the conclusion of WWII strongly recommended a similar weapon system. The motorized force, equipped with armored gun systems, ground launched Hellfire and TOWs, provides our force structure a credible antiarmor capability.

The examination of motorized force tactics provided an understanding of how the motorized force fights. General Meyer challenged the force to develop innovative tactics. The light attack battalion example illustrated how the CSA's intent was met. It is apparent that this force epitomizes AirLand Battle Doctrine.

In summary, the motorized force meets all the operational criteria. This force can rapidly deploy and fight a highly mobile warfare against an enemy armored force. The mechanized force with mobility and firepower, can only deploy by fast sealift. This may not be fast enough. The light infantry which can rapidly deploy, lacks mobility and firepower. Based on these criteria, the motorized force, although not a panacea, provides a needed capability to close the gap between mechanized and light forces.

The implications of these conclusions are significant. Our nation lacks a credible ground force projection capability. The threat and the spectrum of conflict tell us where, and what type of wars our nation is most likely to face. However, we do not have the capability to quickly get to a contingency theater with the right force to fight and win. In other words, our force structure does not fit our deterrence doctrine.

Task Force Smith lacked effective antiarmor firepower and

mobility. Without equipping the infantry force with the proper equipment to fight and win, the U.S. could be setting itself up for a similar defeat. The need for motorized infantry exists today.

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