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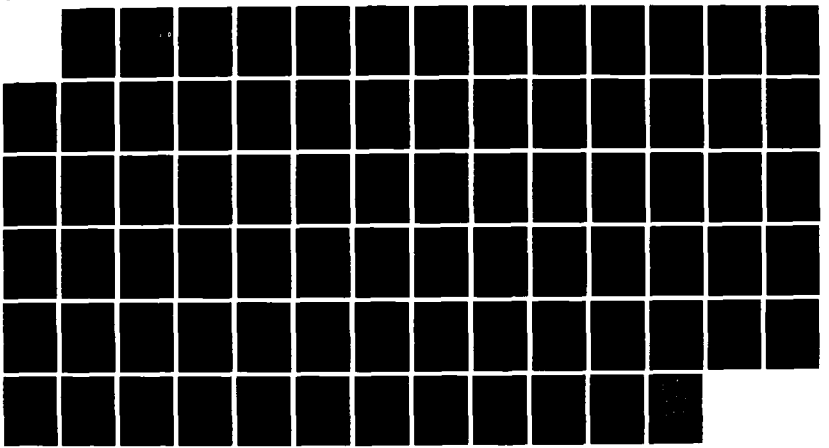

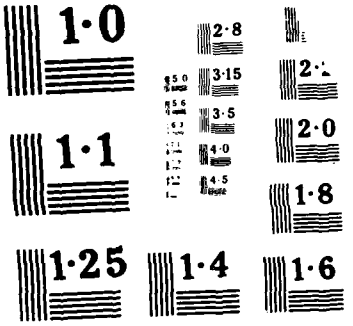
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The Air Dimension and the Heavy Division
The Utility of an Organic Light Infantry Air Assault Battalion in the Heavy Division

by
Major James E. Sikes
Infantry

School of Advanced Military Studies
US Army Command & General Staff College
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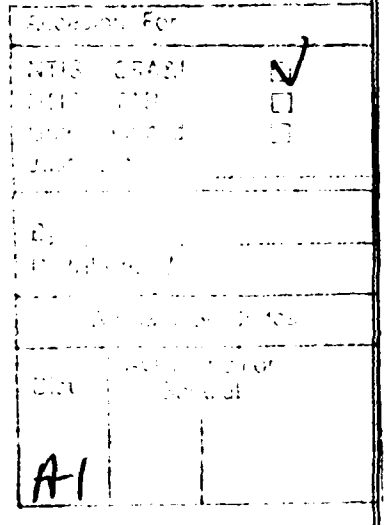

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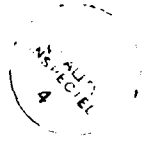

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ABSTRACT

THE AIR DIMENSION AND THE HEAVY DIVISION: THE UTILITY OF AN ORGANIC LIGHT INFANTRY AIR ASSAULT BATTALION IN THE HEAVY DIVISION
by Major James E. Sikes, USA, 73 pages.

This monograph discusses the question, does the heavy division require an organic light force battalion to capitalize on the vertical or air dimension of the battlefield? The conclusions are that the air dimension is the critical third tier of mobility, that the heavy division cannot adequately fight in this realm, and thus a dedicated, specialized force is required for air assault operations in the heavy division.

The operational environment of conflict in Europe will find an enemy force seeking a quick win that results from disrupting NATO command and control. Intense, high tempo combat will place a premium on decentralized execution of difficult missions capitalizing on speed, mobility, flexibility and agility. The nature of conflict, the restrictions of terrain and the increased range and lethality of weapons make traditional ground maneuver extremely difficult, thus forcing combat in the air dimension.

Air maneuver is the use of air assault infantry, attack and assault helicopters, intelligence, air defense assets, and artillery to gain relative mobility and firepower advantages over the enemy. Since air maneuver is free of the restrictions of terrain, it provides the agility, flexibility, and firepower needed to react to abrupt changes in the situation when time is critical. Air maneuver will require the utmost in planning and precise execution, demanding expert forces that are well organized, properly equipped, and well trained. Air assault forces have utility throughout the offensive and defensive framework of the AirLand battlefield. This analysis concludes that air assault forces complement heavy forces and the integration of air assault infantry significantly enhances the heavy division commander's air maneuver options.

Abandoning US doctrine that uses armored infantry as air assault forces, Soviet forces have now reinforced their formidable strategic and operational level airborne/air assault forces with air assault battalions organic to the motorized rifle division. An analysis of US force capability compares the current BFV mechanized infantry battalion, an air assault battalion, a light infantry battalion and a fast attack battalion focusing on antiarmor capability, maximum dismounted infantry strength, air mobility of the most potent weapons and secondary mobility. When doctrine, organization, training and equipment are also considered, the armored infantry of the heavy division cannot be expected to perform air assault and light force missions as well as is required. The air assault battalion most nearly meets the requirements of air maneuver.

A sample air assault battalion for the heavy division is developed and examined within the Combat Aviation Brigade organizational structure against the threats of the operational environment. The monograph concludes that the Combat Aviation Brigade and air assault infantry, trained and employed as a combined arms team, would become experts in air maneuver and light force operations providing the Commander of a heavy division with a powerful combat multiplier in the air dimension.

...the Lord shall renew their strength;
they shall mount up with wings as eagles
they shall run, and not be weary;
and they shall walk, and not faint.

Isaiah, 41:31
The Old Testament
KJV

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THE OPERATIONAL ENVIRONMENT

The modern battlefield is more a soccer match than an American football game. In American football each play is a separate action with all of the resources facing each other in linear fashion. However soccer, is characterized by a fluid, decentralized flow where each opportunity is seized upon in mid play in order to score and gain victory. Just as the vertical dimension is important in each game, the battlefield today is also three dimensional. Modern conflict is characterized by fluid, decentralized operations requiring subordinates to aggressively pursue the commander's intent and take action in the absence of orders. The increased range and lethality of modern weapons offers enhanced maneuverability to concentrate heavy firepower. The skillful commander must take advantage of today's technology and use the unique capabilities of organizations that fight using the vertical dimension. To visualize the utility of forces that use air maneuver, one must understand the operational environment of today's battlefield.

A Warsaw Pact attack on NATO's central region would seek to destroy the coalition's command and control and prevent consolidation on the defensible terrain of the General Defensive Plan. Short, intense conflict, characterized by surprise and disruption, would deny NATO the opportunity to reach a coalition decision for the timely use of nuclear weapons. Time would be a precious commodity in such a conflict. A short, violent war would require development of plans and orders on the fly. Forces must be well trained to meet rigid time schedules and maintain speed and momentum. Agility, initiative, synchronization and operations in depth are necessary to defeat the enemy plan.

Modern western armies have reached a state of near full mechanization. Technological improvements have markedly increased the lethality and range of modern weapons. The rate of movement has improved markedly from about 4km per hour in WW II to about 20 km per hour today. However, these theoretical possibilities are mitigated by the effects of the operational environment.

The nature of conflict in Europe has been shaped by the changing character of the terrain, the impact of urbanization and the reduction in the open areas needed for heavy force maneuver. During the Great War, forces lost the ability to maneuver and were stalemated by the increased range and lethality of firepower. Even though maneuver returned as an important dimension in World War II, defensive firepower was enhanced by the impact of increased urbanization in slowing and fixing a force. Urbanization was a major impediment to maneuver.

Today, the terrain of western Europe is dominated by urban sprawl. The oldest cities are a dense concentration of closely compacted medieval structures, commercial and urban residential areas, industrial zones, and spatial suburban layouts. The tendency is for suburban areas to converge creating greater expanse of built up areas. Over 70% of the West German population lives in urban areas. City areas have grown at a rate 2 to 3 times the rate of population growth and cities have become the dominant terrain feature.[1]

Additionally, increased reforestation (at a rate of 1% per year) and road development (again, at a rate of 1% per year) will force units to become roadbound to maintain the momentum of the attack.[2] A typical NATO armor brigade sector on the East German border will have a defensive frontage of about 25 km containing 85 villages.[3] On average, 60% of the

area of a forward defending brigade will be dotted with villages, forests and road embankments that interdict heavy force maneuver and slow momentum.[4] Forces attempting to maneuver will be unable to bypass one village before encountering another.[5] Also, "urban hugging" tactics will seek to reduce the vulnerability of moving units to lethal fires. NATO commanders will be reluctant to use nuclear weapons against urban centers.

As units try to avoid the impact of increased ranges and lethality of direct fire weapons and the targeting of over-the-horizon precision guided munitions, they will spread themselves over larger areas. This dispersion creates command and control problems and makes rapid concentration of firepower difficult. A premium is placed on agility.

The restrictions of European terrain pose problems for a Soviet Army that develops its doctrine based on the open land spaces of the Soviet Union and the Great Patriotic War of maneuver. Restrictive terrain coupled with the devastating nature of conventional and nuclear firepower combine to create great friction for massed heavy ground maneuver forces. Just as in World War I, ground bound forces facing each other almost reach a point of stalemate.

To win, a force must be able to concentrate firepower at the decisive moment at the decisive point. Only air vehicles and well thought out plans for air/ground maneuver offer the possibility of breaking the restrictions terrain places on ground maneuver. The air/ground maneuver dimension increases the width and depth of operations enabling the attacker to disrupt the continuity of the defense and allowing defenders to interdict the attacker's echelonment.

THE VERTICAL DIMENSION

> *"The step into the future must be aimed at integrating air mobility with the modern technology available for applying superior firepower, so as to create a new arm from this combination."*[6]

Operations in the vertical or air dimension share many of the same restrictions as ground maneuver. Air maneuver forces must operate throughout the spectrum of threat intensity, in all terrain and on the NBC battlefield. Air maneuver forces would disperse to gain standoff from the main enemy ground force. However, the force is highly vulnerable to air attack while in dispersed assembly areas and when moving. While problems in trafficability and mobility are overcome by the air maneuver force, the influence of weather limits employment agility just as terrain restrictions and trafficability does the ground force. Therefore, aircraft must be highly survivable and must use terrain for cover and concealment. Aircraft must have greater capability to operate in the complete aeronautical envelope, to include higher climb rates, better dive rates, enhanced turning ability, and faster dash speeds to survive battlefield threats.[7]

Air maneuver formations will face an array of interlocking, sophisticated threat air defense systems which will pose the same problems for air maneuver as do antiarmor systems for ground maneuver. Enemy capabilities for counter air operations make cross FLOT operations a matter of significant concern for the air maneuver force. Enemy attack helicopters, other helicopters designed to fight air-to-air and high performance close air support aircraft are also threats in the air. Successful operations require close cooperation with air defense weapons and USAF tactical air assets in a well managed air space control system.

Modern combat demands flexibility and air maneuver provides the means to react to abrupt changes in the situation. Attack helicopters, assault

helicopters, air assault units, artillery and tactical air forces combine to maintain the momentum of the offense and insure the continuity of the defense. Air maneuver forces that train together under a single command and control headquarters would become well versed in the tactics, techniques and procedures necessary to fight on the future battlefield.

When compared to the mobility and killing power of a modern tank, air maneuver offers an opportunity for a ten fold increase in the mobility of a lethal firepower platform.[8] This increase in agility and speed provides better capability to disperse through the depth and width of the operational area. Air maneuver forces can move dispersed and still retain the ability for rapid concentration. Greater mobility coupled with a multi-role firepower capability, demands that doctrine for tactical and operational employment of these new forces be distinct from that of ground maneuver.[9]

The combination and use of aviation assets and other forces in a combined arms team has been called *"air mechanization"* by Brigadier General Richard Simpkin, British Army. He states that air mechanization *"signifies the intimate cooperation of air and ground maneuver..."*[10] Air maneuver needs ground forces if it is to increase its combat efficiency. The ability to move troops quickly by air transport provides increased agility. As an integral part of the air maneuver team, infantry elements will overcome the limitations of air platforms. The need to seize and hold selected terrain for certain lengths of time is best accomplished by infantry.[11] Infantry elements conduct area denial missions when augmented by fires. Attack helicopter mobility causes trade-offs in firepower and staying power. *"A combined arms battle cannot be brought to a new tactical dimension by this admittedly speedy, but (in some aspects) limited mobility."*[12].

Infantry elements used in air maneuver gain great mobility, but lose firepower and secondary mobility. Once on the ground, the infantry has more limited assets to fight an armor threat and little more than "boot" mobility. Infantry elements will need an abundance of long and short range, precision guided anti-armor systems. To offset the lack of armor protection and mobility, they will need organic airlift and in some cases air transported secondary mobility vehicles.

Air maneuver, when combined with a dedicated ground maneuver force capable of holding ground, provides agile combat power through a range of combat operations. This force allows for better use of reserves, innovative anti-armor defenses, and unprecedented ability to maneuver without the restrictions of terrain. The potential for air maneuver in a fast paced, lethal, fluid battlefield has not been lost on the Soviet Army. Soviet forces have added to their formidable strategic airborne assets by fielding highly capable air maneuver forces throughout the tactical and operational levels.

SOVIET DEVELOPMENTS IN THE VERTICAL DIMENSION

In contrast to US forces, the Soviet Army is decidedly rigid at the tactical level. However, operationally Soviet forces have always displayed initiative and are currently undergoing an innovative period of transition in air maneuver. The Soviet military has historically placed great emphasis on the use of desant forces since their pioneering efforts in airborne operations prior to and during World War II. The Soviet Army has closely followed the doctrinal development and combat employment of US Army Aviation. The success of air mobility and attack helicopters in Vietnam were instrumental in the fielding of the 101st Air Assault Division and the

combat aviation brigades of the US Army. For many years the US Army was the leader in the intellectual, doctrinal, and organizational development of air maneuver. Western helicopter technology was unsurpassed. Today, Soviet forces are concentrating on the air dimension and have made great strides in the fielding of mature, capable forces structured to capitalize on air maneuver.

The preference for a short, intense war has driven Soviet forces to field air assault formations at all major organizational levels. Steady helicopter development and air fire support has generated increased interest in the utility of heliborne operations for a greater variety of difficult combat missions. The Soviets see helicopters as essential elements for maintaining momentum to achieve rapid rates of advance. The increased combat tempo, they believe, creates a disruptive effect that contributes to destroying the continuity of opposing force operations. Thus, the Soviets have introduced dedicated air assault organizations to support Front, Army and Division operations.

The Soviets believe that competent use of the vertical dimension can affect battle throughout the tactical and operational depth of the battlefield. Air assault units are designed to support the commander's maneuver plan at distances favorable for early linkup with heavy ground forces. Soviet air assault units are able to conduct reconnaissance, identify weak points and deny the enemy the opportunity to consolidate on favorable lines of defense. The ability to seize and defend key terrain coupled with timely raid operations will greatly enhance a forward detachment operation in support of an Operational Maneuver Group (OMG).

The renewed emphasis on OMG formations has been coupled with the emerging capabilities of air maneuver. There is a logical linkage between

a desant force, forward detachments and the OMG. The OMG is tailored and reinforced to disrupt a broad front defense, attacking to operational depth. Operating 20 to 40 km ahead of the forward detachments for the OMG, air assault formations will pave the way for a forward detachment of the OMG. [13] Maintaining a high rate of advance will require a force that can leap over terrain and enemy forces to seize key crossing sites, passes, and rail junctions. These operations require speed and precision of execution.

A recent product of the Soviet Army Studies Office clearly points to a radical departure in Soviet organizational forces. [14] The study concludes that the Soviet Army may well have placed dedicated, specially trained air assault units in tactical units (division and below). For some time, Soviet doctrine paralleled US Army thinking, expecting soldiers of the heavy division to conduct air assault operations at the tactical and operational level. A force of motorized rifle battalion soldiers, in the US Army scheme, was deemed unsuitable for this demanding, complex mission demanding quick execution. Although the Soviets have not abandoned the use of motorized rifle battalion soldiers in this role, it is clear they have concluded air assault missions require specially trained personnel.[15]

The division commander also required a vertical envelopment force in order to leap over the tactical depth of the battlefield. Between the Front use of desant forces at operational depth (80-150 km) and the use of air assault battalions at Army level, there was a void in the first 20 km of the battlefield (i.e. tactical depth). Dedicated air assault assets at division level can fill this gap.[16]

Operating closely with the forward support elements and advance guard of the motorized rifle or tank regiment, these forces can increase the

tempo of a Soviet attack. The availability of air assault assets down to the division allows each commander to more effectively use the air dimension without assistance from higher headquarters.[17] Air maneuver will essentially have the same mission as the OMG in exploiting the effects of both a conventional and nuclear battlefield.

Soviet military leaders have analyzed the air dimension and its potential to speed operational and tactical agility. Having recognized the difficulty of executing air assault operations, the heavy division in the Soviet Army may indeed have dedicated, specially trained air assault battalions. The Soviet Army is confident that air assault infantry offers new capabilities to reinforce ground maneuver forces and can also create new mission capabilities to insure rapid advances and to concentrate combat power quickly.

BATTLEFIELD REQUIREMENTS OF THE HEAVY DIVISION

AirLand battle seeks to wrest the initiative from the enemy quickly in order to force him to be reactive. Battle imperatives require unity of effort and concentration of combat power to attack from unexpected directions with unexpected means against enemy vulnerabilities. The tempo and timing of the enemy attack is upset, the speed of the enemy attack is lost, and momentum shifts. Well developed plans and proper command and control relationships are important to move fast, strike hard, and finish rapidly. However, terrain restrictions on mobility, increased intelligence and target acquisition means, and greater weapons lethality make heavy force ground maneuver more difficult than ever before.

Due to the extended frontages that divisions must defend, speed in moving forces about the width and depth of the battlefield becomes critical

to concentrating firepower. Air maneuver and air assault infantry forces provide speed, agility, firepower, and staying power to offset the erosion of heavy division ground mobility capabilities. Initiative and aggressive pursuit of fleeting opportunities are essential, but the time available to respond to these opportunities is short. Given the enemy's historical emphasis on deception and surprise, the sifting out of the main effort among the many feints, demonstrations, supporting attacks and false insertions will be crucial. Thus, intelligence acquisition and analysis must be followed quickly by action.

Consequently, the division commander needs a responsive infantry force capable of effective air assault operations. The tempo of combat makes the vertical dimension important not only for the delivery of firepower, but also for the timely and judicious use of air assault infantry forces. The synergistic effects of combined arms and the rapid delivery of firepower by air maneuver allows the division to seize the initiative from the enemy throughout the extended battlefield. This application of combined arms provides the capability to attack enemy formations deep, counter enemy penetrations in the close battle and to contend with enemy vertical insertions in the rear battle. The formation of the Combat Aviation Brigade as a fourth maneuver brigade acknowledges the manner in which helicopters, ground maneuver and artillery are complementary in every phase of the battle.[18]

The heavy division's ability to meet the demands of air/ground maneuver are central to tactical success. Heavy division ground organizations were developed to meet mobility needs for the concentration of massive ground combat power while providing protection for soldiers and weapons systems. The force produced has improved speed, agility, and

firepower, but battlefield conditions prevent maximizing the ground mobility capabilities of the force. Hence, combat demands flexibility in the third tier of mobility. The heavy division requires infantry that is trained in mounted combat, thus, critical light infantry skills are eroded. The pace of operations will not allow units to gain tactical expertise in critical skills through on-the-job training without a tremendous price. Finally, the heavy division does not have enough infantry to conduct mounted and dismounted combat in deep, close, and rear operations.

Heavy division infantry is more appropriately termed "armored infantry". The German Army Panzergrenadiers of World War II are a classic example of the spirit, agility and aggressiveness of armored infantry. Today, the armored infantry of a US Army Mechanized Infantry battalion, equipped with the Bradley Infantry Fighting Vehicle (BIFV), is a much more capable force. The pace of modern operations requires the infantry to conduct a mobile fight and to complement antiarmor fires. Armored infantry provides the antiarmor firepower to the division and security for the tank, infantry fighting vehicle and the improved TOW vehicle. However, the advent of sophisticated, highly capable fighting vehicles places great demands on armored infantry training.

Training requirements for precision gunnery, maintenance, communications, and mounted/dismounted tactics in concert with the fighting vehicle have taken precedence over traditional light infantry skills. Though light infantry skills are required, dismounted operations, especially air assault tactics, receive less emphasis. The most important pure infantry skills remain those close to the terrain. The ability to move through any terrain under any combat condition and then to hold terrain remain essential to success, and can only be achieved by agile

infantry soldiers. Patrolling, dismounted security and night fighting skills are important for battlefield survival. The capability to fight day and night to "root out" the enemy in restrictive terrain is as true today as it was in the Huertgen Forest and in the city of Aachen during World War II. Focusing on the demands of mounted combat produces an understandable loss of terrain orientation and expertise in light infantry skills, especially in the demanding air assault mission. However, US infantry forces that must fight a modern, heavy enemy force must remain predominately heavy to meet the armor threat.

The tempo of operations in today's combat environment places a premium on planning and agility while demanding the utmost in execution. Tactical expertise, initiative and aggressiveness are essential for decentralized operations. Training on likely combat missions and in the required skills must be intense if the plan is to be successful and the unit is to survive.

Current heavy divisions have too little infantry to press the fight effectively. Patrolling, sentry duty, and the requirements to prepare defensive works places more demands on the mechanized infantry force than there are soldiers to fulfill them. In the offense, reduction of enemy fortifications and air assault operations are hampered by the small number of infantryman.[19] With only six soldiers per squad to dismount, a BIFV battalion can potentially field 216 soldiers.[20] When the battalion is task organized with tank companies this already small number is reduced.

Typically, the heavy division must fight deep, close and in the rear over extended frontages and depths. Complementary air and ground maneuver increases the range of responsiveness in width and depth. These battles require superiority in the rapid concentration of firepower and in the ability to block enemy forces. Agility requires capability in all three

dimensions of maneuver. The division's ability to deal with rear area threats is minimal. In defensive operations over extended frontages, mobile, agile, responsive forces to slow the tide of a penetration could be the key element in maintaining the continuity of the defense. This ability to control the penetration may stabilize the close battle long enough to move heavy forces to destroy the penetration.

The air maneuver/ground force interface shares similarities with the tank/infantry interface. Infantry holds key terrain, while mobile firepower (M1s and M2s) maneuver to strike the enemy from unexpected directions in unexpected ways. In the same manner, heavy forces hold the enemy attack while air maneuver strikes a telling blow. Air maneuver needs infantry soldiers skilled in the use of the air dimension in much the same manner as the tank needs infantry schooled in the art of mounted maneuver.

The heavy division commander must have increased capability to conduct combat operations in the air dimension. In the early stages of a Central European conflict, light infantry and airlift assets will not be available. Armored infantry is simply not trained, organized or equipped to properly perform light infantry missions. There is not enough infantry to fight throughtout the battlefield framework. Both these situations would be helped by dedicated air assault forces. The synergy gained by standardization and close, cooperative training between aviation and a dedicated light infantry air assault force will yield greater combat power than the numbers of soldiers in the battalion would indicate. But, the costs of providing air assault forces to the heavy division require an analysis of their utility on the modern battlefield.

MISSIONS AND LIGHT FORCE UTILITY

> *"Air assault is not airmobile. Air assault operations involve the deliberate and habitual integration of aviation assets into ground combat operations. They are more responsive because the chain of command, both aviation and ground work together 24 hours a day. All of this results in a combined arms team that possesses the ability to organize for battle more rapidly than any other."*[21]

The tempo of modern combat does not allow the luxury of time consuming planning and lengthy mission preparation of ad hoc forces. Due to the differences in organization, missions and equipment, style of operations, mobility differentials and communications compatibility, heavy and light forces have difficulty operating together. For the same reasons, heavy infantry and aviation have problems working together. Peacetime preparation and the development of close relationships are key. At any level, training experience helps each side learn how the other operates. Units should never do something in combat that they have not practiced extensively in peacetime; practice can simplify the complex.

Even with some training, armored infantry mission requirements will not allow the development of true air assault expertise. An air assault force, through its inherent speed, agility, and relative mobility, could concentrate rapidly, strike strongly and disengage quickly to disrupt the nemy's rigid tactical plan. Therefore, the theoretical contribution of air assault forces must be examined through an analysis of their potential utility in the defensive and offensive battle.

The Defense

In defensive deep operations, an air assault force can be useful for raids and operations with forces that stay behind. Raids striking at enemy's command and control nodes, information clusters and logistical

facilities contribute to the disruption of the enemy attack. As a spoiling attack, it interdicts enemy combat, combat support and combat service support units before they are committed to the FEBA.[22] Attacking these formations in restrictive terrain or from long range antiarmor firing positions, forces the enemy commander to look in two directions, thus hampering his ability to press the fight at the FEBA. The deep raid force can use a corridor that has been developed through the FLOT (the densest part of the Soviet defense umbrella) and go deep where the enemy air defenses are not so strong. The deep raid may not destroy enemy formations, but it has the potential for creating havoc in the enemy rear and may slow his advance to the FEBA, thereby gaining valuable time for defensive maneuver options.[23]

Raids should be conducted at night, in poor weather, and with effective SEAD. The three key phases of insertion, ground or air mission and extraction must be executed to perfection. Briefings, reloading, helicopter preparation and thorough understanding of the plan between aviation and ground elements takes time, a commodity in short supply when responsiveness is the key to victory. The air assault force must be aggressive and extremely mobile, executing operations the utmost precision. Only long term planning and training with dedicated light infantry forces can achieve these results.

Operating independently as stay behind forces, air assault elements may act as "Super FOs", calling for FASCAM, covering obstacles and slowing enemy forces through the use of non-attributable, precision guided munitions. Forces that stay behind or those that are clandestinely inserted, could destroy enemy air defense systems and allow Army aviation assets or JAAT missions to be more successful. Additionally, using

secure, multi-band, burst transmission radios, these forces would provide timely intelligence about enemy forces.

In defensive close battle operations, a light force air assault battalion provides a significant increase in the commander's flexibility. Airmobility makes it useful as a delay force in the covering force battle and in the MBA. Second, light forces *"allow...commanders to cover tank approaches with heavy forces and to use light forces in forests, built up areas and abrupt terrain."*[24] The air assault battalion assists the counterattack force by providing security. Lastly, its use as a rear battle force frees heavy forces to focus on the forward area battle.

In the delay the commander devises a scheme of maneuver to seize the initiative, even if only temporarily and locally. Successful delays demand refined command and control and greater relative mobility than the enemy. A major risk is taken if one becomes decisively engaged. Through air maneuver, the commander maintains contact, causes the enemy to deploy, and slows his advance while keeping him at arms length. Hence, the delaying force retains its freedom of maneuver. Additionally, air assault forces can be moved rapidly to deliver anti-armor fires to supplement attack helicopter fires, especially if restrictive terrain is available for withdrawal of the delaying force. Care must be take to insure the air assault delaying force is moved prior to decisive engagement. Attack helicopters and air assault infantry antiarmor platforms with secondary mobility disrupt the enemy and deceive him as to the true location of the FEBA. [25]

As the delay folds into the MBA defense, the enemy encounters engagement areas consisting of obstacles, preplanned artillery fires, and antiarmor kill zones. The enemy has been forced to deploy and the

defensive environment further degrades his theoretical mobility. Simultaneous ground counterattacks and surprise air assault operations in the enemy rear stun and confuse the enemy. The enemy that arrives at the MBA has been slowed and his momentum disrupted.

If proper planning and coordination procedures have been practiced, the air assault force will continue antiarmor strikes within the MBA avoiding decisive engagement while fighting in sector. The air assault force is not strong enough to hold terrain when using assault helicopter mobility. The force is most useful disengaging, moving by air and striking again. Therefore, every fight must be of short duration, resulting in quick enemy attrition thereby disrupting the enemy plan. Heavy-light coordination is critical so that mutual support is gained in attacks and withdrawals through the sector. The terrain must offer good positions for maximum range antiarmor fires for the light force. Since retaining terrain is not the mission, covered withdrawal routes must be available for quick movement to covered PZs for extraction to successive positions. Thus, to be effective, the interface of heavy forces, aviation assets and air assault infantry requires frequent practice and workable SOPs. [26]

Air maneuver is an ideal way to react quickly to threatened areas and to act as a "covering force" within the MBA. Air maneuver using attack helicopters and air assault infantry temporarily blocks enemy penetrations and covers the repositioning of heavy forces. Success requires rapid response. Early warning, SEAD and well developed command and control relationships yield flexibility and survivability.

In defensive operations in which restrictive terrain is a factor or in holding critical terrain in strongpoints, the air assault battalion has

utility as a strong infantry force. Enemy efforts to disrupt the defense may be thwarted by using air assault light forces. Spetsnaz units, air assault battalions/brigades, and heavy forward detachments, conducting infiltration missions, pose great problems for the defender responsible for substantial restrictive terrain. It will be difficult to cover the close terrain without light forces. The light force would be effective in screening or defending restrictive terrain throughout the division area of operations. However more mobile antiarmor firepower and engineers assets may be required.

Positioning strongpoints to halt enemy advances provides the heavy maneuver forces the opportunity to pivot on the strongpoint to hit the enemy formation in the flank. Dug in infantry, supported by aviation and artillery fires, could assist in the canalization of the enemy. Thus, light forces assist in "shaping the battlefield" by providing a block to allow attacks on assailable flanks.

The use of light forces in restrictive terrain frees up heavy forces. A light force air assault battalion provides twice the dismounted strength of a heavy force battalion. Therefore, there is an economy of scale that could free up to two heavy battalions. This force could be tailored as two battalion size task forces, significantly improving the close battle combat potential of the division.

Defensive operations in broken or urban terrain is an excellent use for combined heavy-light air assault forces. The heavy force positions forward, uses long range fires to disrupt the enemy while surviving through their armored protection and mobility. The enemy is slowed, his formations attrited and his effort dispersed. The heavy force falls back into alternate and supplementary positions to support the light force.

The light force receives the canalized enemy and fights from prepared positions in depth. The light force will either be bypassed or "rooted out" by follow on infantry, thus further slowing the enemy advance. As stay behind forces, these light forces can have tremendous effect but require large amounts of barrier materials. Medical evacuation will be difficult, so treatment facilities will have to be placed in the strongpoints. Supplies will have to be stockpiled. [27] The opportunity to use heavy and light forces together in defensible terrain, adjacent to high speed avenues of approach creates greater combined arms synergy.

The combination of an air assault infantry battalion and a heavy combined arms battalion under a single headquarters provides a formation able to disrupt, disorganize and create vulnerabilities that set the stage for the enemy's defeat. Air assault raids and antiarmor strikes disorganize the enemy. Rapid heavy force attacks strike the confused enemy. The air assault force then displaces to support the defense by timely attacks on the enemy lines of communications and rear services. Attacks against engineer resources, artillery and air defense weapons isolate the enemy from his combat multipliers.

A staple of AirLand battle is the counterattack aimed at the enemy follow-on forces. The counterattack force must be concerned with accomplishing the mission, securing itself, supporting itself, and, perhaps, finding a way back. Initially, the counterattack resembles a movement to contact. Although, the enemy location is based on the best available intelligence, the actual enemy location in the objective may be inaccurate. Equations involving time, space, mass, momentum are difficult to solve and are based on timing in order to reach an objective or intercept the enemy under conditions favorable to the counterattacking

force. Therefore, timely and accurate intelligence, perhaps provided by clandestinely emplaced air assault infantry elements along likely enemy avenues of approach, will be important to providing answers for planning. The counterattack objective may be to seize terrain or it may focus on destroying the enemy. Counterattacking forces must be able to shift assets rapidly to take advantage of the opportunities offered. As the attacking force nears likely enemy locations, maintenance of all around security bleeds off forces that would be better focused on the mass of the enemy force. Air assault forces and attack helicopters would assist by securing flanks and protecting key forces such as artillery. Air assault forces could be placed in blocking positions to separate enemy echelons. With air assault infantry holding off the following forces, heavy forces could then take out the preceding echelon from the rear or flank.

The enemy habitually emplaces flank obstacles for security. Counterattacking forces will have to reduce these obstacles quickly to maintain the critical timing of the attack. Engineers leapfrogging forward with air assault infantry providing security would clear obstacles and thereby, maintain the momentum of the attack.

Successful close operations depend on rear area stability. Air assault forces would protect against threats while also guarding key installations. The ability of air assault infantry to displace rapidly and bring firepower to bear, prevents the enemy desant force from digging in to hold terrain for a linkup. If the enemy's mission is disruption, the speed of an air assault response could reduce the amount of confusion.[28] Additional missions would be the augmentation of military police units in rear area traffic control, moving counterattack forces or guiding units transiting the division area of operations. Throughout the

division area, civil defense operations, refugee control or civil unrest would easily be handled by the air assault battalion. The air assault force would be useful in securing key division command and control nodes.

An air assault battalion, acting as the tactical combat force could be widely dispersed providing additional base cluster protection while reducing its own signature. Augmented with artillery fires and attack helicopters, tied into the intelligence network, watching the battle, and ready to move, the air assault force would interdict enemy penetrations until heavy forces arrived to stabilize the situation. Thus, the air assault force provides a rear battle force that is agile and responsive and frees heavy maneuver forces for the close battle.[29]

The Offense

Soviet forces hope to use desant forces to strike deep to disrupt defensive operations. An air assault battalion would provide the US heavy division commander a similar capability. The raid is a powerful offensive tool, moving rapidly, executing the mission and withdrawing quickly. The ability to conduct these high speed, complicated missions requires close coordination of aviation and infantry assets, thorough reconnaissance, detailed planning and violent execution. Essential to this combined arms effort is near perfect timing, stealth and speed.[30]

Surprise is an important combat multiplier and airmobility helps gain this leverage through broad area deception plans. For demonstrations, helicopter noise and electromagnetic signatures deceive the enemy as to the landing location and strength of emplaced forces. Empty helicopters would make several touchdowns behind the FEBA deceiving the enemy as to the location of the main effort. Feints by heavy forces would be supported

by air assault forces. Air maneuver forces impede, destroy or delay enemy reinforcements thereby assisting ground maneuver forces in gaining limited objectives. Feints are usually characterized by economy of force measures, thus air assault force mobility could enhance the feint and contribute to the surprise gained by the main effort.[31]

Movement to contact missions require all around security and formations that facilitate subsequent operations. Air assault forces screen the flanks and the front as attack helicopters contain bypassed forces until the advance guard arrives. Air assault infantry forces seize key bridges and passes or secure restrictive mobility corridors to allow an attack from an unexpected direction. Air assault forces can also leapfrog forward to maintain the momentum of the advance by covering the flanks from likely enemy avenues of ground attack.[32]

Hasty attacks are characterized by pinning the enemy force and quickly bringing firepower to bear while attacking the enemy flank. The enemy situation may be vague and air maneuver forces are able to provide timely, accurate intelligence. Air assault forces seize key terrain to block enemy reinforcements. If the enemy appears to be delaying, air assault forces, using superior air maneuver mobility, move to the rear of the enemy. The enemy withdrawal is thus blocked and the delay is disrupted. This requires a well trained, agile, aggressive force.[33]

Deliberate attacks are based on adequate intelligence and detailed plans. Light and heavy forces complement each other when used in missions and in terrain for which each is best suited. Restrictive terrain may offer significant cover, concealment and deception advantages. Penetration of restrictive terrain and guiding heavy forces forward is a mission suited for light forces. Advantages in speed can be attained when

light forces clear the way by seizing choke points through lightly defended or undefended close terrain. Infiltrating during periods of limited visibility, the light force gains surprise, overwhelms the enemy defense and presses out the shoulders of the penetration to guide heavy forces through. Planning is critical and timing is difficult as heavy forces must move through rapidly.[34]

Once a penetration is made the air assault force is used to hold the shoulder. Also, the force may be sent deeper to secure key terrain to facilitate the attack or to disrupt the enemy defense. Disruption of movement of enemy reserves, delay of enemy repositioning efforts, and creation of overall confusion, will contribute to overloading the enemy command and control system. Air assault forces may be used to contain bypassed forces using artillery, aviation assets, and some armor support. Air assault forces may conduct cross FLOT operations as an integral part of the deliberate attack to destroy enemy artillery, logistics, command posts and communications nodes.[35] Air assault forces would be useful in a follow and support role guarding likely enemy counterattack routes. TOW teams with secondary mobility would be required. Artillery and CAS must be synchronized with the different maneuver speeds and styles of heavy forces air assault forces and attack helicopters. The action of air assault forces in conjunction with heavy forces will dilute the effectiveness of successive enemy defensive belts.[36]

While heavy forces refit, air maneuver forces continue the exploitation and maintain the pressure on the enemy. Because of *"...its inherent speed, mobility and firepower, the combat aviation brigade (CAB) is ideally suited to the fast tempo of exploitations."*[37] As the enemy attempts to withdraw, air assault forces, in conjunction with attack

helicopters, move to the depths of the enemy defense. Air assault forces seize obstacles to block the retreating enemy or may be used to conduct an envelopment when the enemy force is so weak and in such disarray that heavy forces are not required. The enemy's moral collapse will follow quickly as escape is blocked and heavy forces close in.[38]

This examination of defensive and offensive missions indicates critical differences in armored infantry and air assault light infantry employment utility. These differences make METT-T considerations critical. *"The differences between light and heavy (forces) is not primarily in antiarmor firepower but rather in tactical mobility and armored protection."*[39] Armored infantry retains an advantage in tactical mobility and armor protection over light infantry. This is true if they are compared against the same mission on the same piece of terrain against the same threat. In many scenarios, the lighter force can have an advantage in mobility and protection and therefore should only be used in missions in which the light force is able to counteract the protection and mobility of enemy armor forces. *"It is relative mobility that counts..."*[40] Intelligence acquisition, analysis and early decisions to act, allow light forces to gain protection through terrain reinforcement. Consequently, preparation reduces the differences in mobility and protection between heavy and light forces forcing the enemy to face light forces on terms set by the light force.

Hence, light, air assault forces complement heavy forces in most offensive and defensive missions. However, some forms of the delay, defense of restrictive terrain or strongpoints, elements of the rear battle mission, and penetration of restrictive terrain in a deliberate attack do not require airmobility. An air assault battalion needs

dedicated vehicles for its most potent and heaviest weapons in any method of employment, but full truck mobility for the remainder of the soldiers will be essential in some missions. Additionally, adverse weather conditions will limit aircraft operations, thus the division must be ready to provide some type of ground transportation to the battalion depending on the mission selected for the battalion.

Selection of the air assault battalion mission is a key element in the Division's plan. The battalion may be used to maximize operation in the air dimension, as light infantry forces in appropriate terrain, or in missions that are intended to free heavy maneuver forces for other missions. The factors of METT-T and the concept of the operation must weigh the essential uses of the battalion. Careful planning to integrate air assault infantry into the battlefield significantly enhances the heavy division commander's air maneuver options.

> *"The central point is that events, not preferences are driving us to the third tier of mobility. The emerging threats to ground maneuver are technological and demographic. They are unlikely to be reversed solely by doing better what we do now. Unless we begin to reexamine the way in which we combine the instruments of combat power which modern technology is making available, the next war may resemble 1916 rather than 1939, but with the West at an insuperable numerical disadvantage."*[41]

TYPE BATTALION COMPARISON

Infantry battalions in Europe require significant antiarmor capability and strong dismounted strength. This comparison focuses on the battalion's antiar capability, dismounted infantry strength, air mobility of the ost potent weapons systems and secondary mobility. Additionally, or ization, training, and doctrinal employment are considered.

The infantry force in Europe is based on the mechanized infantry battalion equipped with the M2, Bradley Fighting Vehicle System *(TOE:07453410)*. While the M2 is a lethal antiarmor system and is able to fight independently, for air assault operations the BFV battalion is without some critical systems and capabilities.

The BFV battalion has only 12 TOW systems for dismounted employment. The Anti-tank company provides dismounted ITV TOW systems, but this creates problems of crewing the ITV since the driver and TC would have to remain with the vehicle. An accommodation is possible if the vehicles are moved by detailed infantrymen, but this further reduces dismounted infantry strength. Infantrymen might be detailed to fill out the ground mounted TOW crews, however this breaks crew training cohesion. The TOW system, once inserted on an air assault operation, needs HMMWV support to gain secondary mobility or forfeits agility against enemy armor.

The BFV battalion dismounts 216 infantrymen for an air assault operation, assuming the battalion has no cross attached elements. Along with these dismounts, the battalion employs 36 Dragon systems for antiarmor protection. This low number of infantry soldiers hampers intelligence and security operations and makes a seize and hold air assault operation difficult.

The air inserted battalion has little scout capability since the scouts must man their M3s, thus requiring infantry soldiers to conduct scouting in air assault operations. This not only exacerbates training problems for the infantrymen, but also reduces dismounted fighting strength as infantrymen must perform other missions. Additionally, the scout platoon will be critical to providing security screens and observation posts for the BFV battalion vehicles left behind.

Beyond about 15 km, indirect fire support must be provided by organic mortar elements and as the infantry company has no organic mortars, independent company operations will be difficult. For larger operations, the battalion's six heavy, 107mm mortars provide fire support, but have no secondary mobility. Thus, HMMWV augmentation from the battalion's limited light, air transportable, wheeled assets is required. Lack of secondary mobility severely constrains the battalion's tactical mobility.

The deficiencies of the BFV battalion in the air assault role may be offset by tailoring. The mortar platoon and dismounted TOW elements require personnel augmentation and dedicated HMMWVs. The communications packages for the battalion will have to be mounted on wheeled vehicles.

The Air Assault battalion *(TOE:07055L000)* has the best capability to conduct operations in the air dimension. With 20 TOW systems and dedicated HMMWVs and crews, the battalion has good secondary mobility. Coupled with the 18 Dragon systems, the force has 38 long to medium range anti-armor systems. Dismounted strength in the battalion is twice that of the BFV battalion. The 81mm battalion mortars are light weight and have organic, air transportable vehicles giving the platoon secondary mobility. Additionally, each company has organic light mortar support. The battalion scouts lack vehicles, but they have no need to secure stay behind vehicles. The air assault battalion has a significant command and control advantage since air assault operations are the primary missions. However, the air assault battalion needs greater secondary mobility to gain agility against armor threats on the fluid battlefield.

The Light infantry battalion *(TOE:07015L000)* lacks significant capabilities for the European air assault mission. The battalion has

scarce long range anti-armor asset having only 4 TOW vehicles and 18 Dragon systems for a total of 22 long to medium range systems. The dismounted strength is twice that of the BFV battalion and compares favorably with the air assault battalion. The 81mm battalion mortar platoon has air transportable vehicles. Each company has 2 light mortars providing organic fire support. The light infantry battalion has few organic vehicles, so the battalion would have little secondary mobility for rapid repositioning of assets in some air assault missions.

The light attack infantry battalion *(TOE:07066D600)* has some unique capabilities absent in the other types of infantry battalions. The battalion's 31 TOW systems on dedicated, air transportable vehicles provide significant antiarmor punch. The battalion is also equipped with six 107mm (to be upgraded to 120mm) mortars and 56 MK 19, 40mm grenade launchers, both systems on vehicle mounts. The battalion's strong secondary mobility assets (114 HMMWVs) and organizational design make it a fast moving, agile, air transportable unit that has novel capability for certain delay and disruption missions. However, the battalion's structure has very little dismounted infantry strength. Even so, its dismounted strength compares favorably with the BFV battalion.

This analysis indicates the BFV battalions and the light infantry battalions do not meet the criteria for successful air assault operations in Europe. The air assault battalion has excellent capability to take advantage of the air dimension and meet an armored threat. The light attack battalion's vehicle type and density provides excellent secondary mobility and antiarmor firepower, but the battalion lacks infantry strength. The foregoing mission analysis indicates that a dedicated light infantry force, trained in air assault operations, would most

efficiently provide the heavy division with enhanced ability for air maneuver.

PLACING LIGHT FORCES IN THE HEAVY DIVISION

Options

Any plan providing the heavy division with air assault forces involves costs and trade-offs, but the utility of light forces must be the foremost criterion.

BIFV Mechanized infantry battalions are complex and costly. Training is expensive requiring large land areas, sophisticated ranges and costly training support. The battalion consumes great amounts of fuel, ammunition and spare parts requiring many more logistics support personnel than light forces. However, this armored infantry battalion is the finest, most capable force of its type in the world and is worth the cost. But if light forces perform certain missions better then it makes sense to use light forces. As previously argued, a mix of heavy/light forces improves the divisions's warfighting ability.

There are three methods for providing the heavy division a light infantry force.

1. *Add a light infantry air assault battalion.*
2. *Add a light infantry air assault brigade to the Corps and when METT-T dictates, attach a battalion to the division.*
3. *Delete a mechanized infantry battalion and substitute a light infantry air assault battalion.*

Adding a light infantry air assault force provides more infantry, special mission expertise and greater capability throughout the offensive and defensive framework. Additionally, this battalion would provide a rotational base for light infantry, airborne, and air assault trained infantrymen. They would gain valuable experience in heavy force

operations, especially in the European environment. Of course, any commander would welcome additional forces, so this option would meet little doctrinal opposition although cost and manning constraints might make it less attractive.

Adding an air assault brigade to each Corps deployed for operations against a heavy enemy force is one plausible solution. Brigadier General Simpkin and General von Senger und Etterlin have proposed just such a force in describing their concept of *"Air Mechanization"*.[42] These air assault brigades would provide a significant increase in the combat power of the Corps.

However, the idea of piecemealing the force out to the heavy divisions in battalion size packets demands unique support relationships, requires different support demands, creates command and control problems, and degrades the synergy of the unit. The divisions would receive organizations that could be withdrawn at any time. In all probability, the air assault battalion would be assigned for a single mission, such as seizing the far shore in a deliberate river crossing, or for a single attack. Thus, the teamwork that comes from habitual association would be lacking as constant training as a combined force would be difficult. Of course, when the force is withdrawn the division commander is again without this unique capability.

Deleting an armored infantry battalion is an unacceptable option. Most division commanders would not want to lose the mobility, firepower and armor protection of a mechanized battalion. Light forces are useful as augmentation, not substitution. The gains in flexibility and tactical mobility for certain missions is not enough to dilute the antiarmor firepower of the division.

Therefore, the option that best meets the battlefield requirements examined is the addition of a light force. To participate as a full partner in air maneuver the light force must be organized, trained and used as an air assault force. The light force must have antiarmor firepower, some secondary ground mobility and dedicated heliborne tactical mobility. Thus, the light infantry force becomes an air assault infantry force and in this form is best able to contribute to the modern battlefield. Because the air assault battalion must be expert in air maneuver, placing a light force in the organizational structure of the heavy division must be based on improving the division's air maneuver capability.

Organizational Structure for the Air Assault Battalion, Heavy Division

The purpose of the air assault battalion is to provide the heavy division an infantry force that is able to take advantage of the the opportunities offered by airmobility and air maneuver. Many of the missions described, such as the raid, rear battle and covering force actions, will require the battalion to work independently under Division direction. Other missions, such as the strongpoint, defense of restrictive terrain and deliberate attack will require ground maneuver brigade control. Still other missions, such as divisional movement to contact, screening and exploitation, will require control by the Combat Aviation Brigade. The key consideration in placment of this battalion in the heavy division organization must be the enhancement of operations in the air dimension.

Assigning the air assault battalion to a ground maneuver brigade would not improve the air maneuver synergy of the heavy division. The

inclusion of an air assault battalion in the Combat Aviation Brigade (CAB) of a heavy division would *"enable the (air assault battalion) to integrate fully with the aviation assets and produce a synchronized, responsive and powerful (air) maneuver element capable of decisive action and firepower."*[43] The CAB, with an air assault battalion, would be uniquely capable of countering immediate, unforeseen threats problems in the role of a "fire brigade". Unfortunately, the CAB would then have another difficult mission, that of close combat, to add to the missions of reconnaissance, air maneuver, command and control and combat service support. Though the air assault battalion could conduct a variety of independent missions, the teamwork offered by habitual association with the CAB is more important than the air assault battalion being organized independently.

> *"The aviation brigade is designed primarily to fight, command, and resource aviation forces, but it may be task organized with other combat and (combat support) units placed under its operational control and attached to it. In this situation, the brigade conducts operations just as any other brigade in the division...The aviation brigade commander will normally operate at depths and lateral distances far greater than his ground brigade commander counterparts."*[44]

The CAB is singularly appropriate as the parent unit for a variety of reasons. The operational mindset of the CAB commander, the understanding of aircraft capabilities, the ability to plan and execute air maneuver missions, the specialty functions of the CAB and the logistical support base for air assault operations make it ideal.

For many operations, the air assault battalion will require highly mobile logistical support that is only available, by expertise and equipment, in the CAB. Air assault units work best at night, moving at 100 miles per hour and using night vision goggles. These operations place

great demands on logistics, requiring mobile, responsive support.[45] Logistical considerations such as maintenance of aircraft, recovery and evacuation of aircraft, fueling and transportation of supplies must be supplied by aviation elements in the CAB.

Fuel and ammunition services must be more survivable, especially for cross FLOT operations.[46] Class III and class V resupply operations must have the same mobility and protection as the rest of the air assault formation. Logistical and medical support for longer duration missions must be able to penetrate the FLOT with the air assault formation since, even at night, repeated cross FLOT penetrations will be impossible.

When used as an economy of force measure, in strongpoints or in the defense of restricted terrain, support will be more extensive especially in class II and class IV barrier materials and class V countermobility mines. Logistical operations in these types of missions will be safer to conduct than cross FLOT operations. As the air assault battalion transitions from highly mobile air maneuver operations to static strongpoint defenses, the battalion must be able to tap every resource the division controls rapidly.

"Light units must be specially trained and prepared to achieve a high degree of interoperability in order to pick up additional mobility and logistical support."[47] Many missions given to the air assault force requires "plugs" from divisional assets in such areas as intelligence support, engineers for terrain reinforcement, artillery support and assault helicopter assets. The air assault battalion must be adept at task organization to accept and release these combat multipliers rapidly. Due to organizational and employment differences, it is more difficult for heavy infantry forces to execute task organization changes between

aviation and combat support assets quickly.

The CAB best meets the conditions for the integration of the air assault battalion into the heavy division. The command and control system must be agile and aggressive. The CAB understands the unique capabilities and limitations of aircraft, air assault infantry forces and air maneuver. The CAB is capable of providing a Combat Aviation Control Party to the battalion to control the aviation operations.[48] The tactical mix of attack helicopters, air assault infantry and artillery has unique firepower and mobility advantages. A partnership between the air assault force and the CAB will help build a common operational base, with the habitual relationships needed to maximize air maneuver.

Organization

The air assault battalion would be a part of the Combat Aviation Brigade of the heavy division. Table 1 is an organizational chart of the CAB.[49] The air assault battalion would be made up of 3 line infantry companies; each company having 4 HMMWV TOWs for antiarmor firepower, valuable capability in high risk delay operations.[50] The company mortar section would consist of 2 light 60mm mortars with dedicated HMMWV transport, but the mortars would also be manportable. The company is divided into 3 line platoons and a weapons platoon that contains the HMMWV TOWS and the mortars. Each platoon has a HMMWV to act as a weapons carrier and to haul equipment such as pioneer tools for entrenchment. Additionally, the platoon vehicle provides secondary mobility for security elements during delays operations. The company engineer squad handles pioneer and sapper tasks and provide expertise for engineer/demolition work.

The air assault battalion would contain an anti-tank company. With three platoons of 4 HMMWV TOWs and one platoon of 6 HMMWV MK 19 Grenade Launcher carriers, this company has excellent antiarmor firepower, personnel target suppression capability and secondary mobility. It would be capable of independent operations and provides the battalion with highly mobile antiarmor firepower for delay operations, screens and rear area convoy security.

The battalion headquarters company contains a scout platoon with 2 HMMWV TOWs and motorcycles for team operations. The headquarters company contains 4 heavy mortars, currently 107mm with upgrade to the 120mm as these become available. The battalion has an engineer platoon to provide expertise in terrain reinforcement, pioneer tasks and demolition work. Additionally, the division Long Range Surveillance Unit is assigned to the air assault battalion. The battalion is rounded out by additional medical, maintenance and logistical assets. The CAB provides logistical interface to the air assault battalion in the same manner as the forward support battalion does to ground maneuver brigades.

Tables 2 to 6 propose an air assault battalion organization.

CONCLUSIONS

Urbanization, increased road networks, reforestation, and population density have reduced the speed and mobility capability of heavy ground maneuver forces. This reduced agility compares with the maneuver stalemate of World War I. Air maneuver is free of the restrictions of terrain and provides the flexibility to react to abrupt changes in the situation. Greater division frontages require speed of concentration. Air maneuver can get firepower where it is needed quickly. Air maneuver is crucial to gaining time for heavy forces. Air maneuver forces can hold for certain periods of time slowing enemy attacks or canalize the enemy into engagement areas thus giving heavy forces the time to overcome the mobility restrictions of the battlefield.

Air maneuver may, as Brigadier Simpkin's analysis suggests, provide a ten fold increase in mobility. Greater mobility coupled with a multirole firepower capability, demands new doctrine, organizations, equipment and training for the tactical and operational employment of air maneuver. Air maneuver forces that train together, under a single command and control headquarters will become well versed in tactics, techniques, methods and procedures necessary to fight using the air dimension. This organization is the Combat Aviation Brigade.

An enemy attack will attempt to overload the defender's command and control through a short, intense, high tempo war. Soviet doctrine seeks to attack the defender's rear to create disruption and collapse of the forward units. To achieve this disruption, desant forces at strategic and operational level have now been reinforced by air assault battalions organic to the motorized rifle division. Thus, time will be at a premium in a high tempo war. Air maneuver offers the commander the agility,

flexibility and firepower needed to react to this disruptive effort when response time is so critical.

Air maneuver operations will require thoughtful contingency planning and precise execution. Success in combat depends on intense training on warfighting missions. Air maneuver depends on responsiveness and speed to offset its limitations in armored protection and ground mobility. Air maneuver demands precision and timing. Therefore, the complexity of battle in the air dimension specifically requires well organized, properly equipped and specially trained forces.

The US Army's Armor and Mechanized Infantry Divisions and Brigade Operations manual describes air assault operations in the heavy division:

- non-mechanized infantry is better suited for air assault operations
- heavy divisions have limited air assault capability
- mechanized infantry battalions have less opportunity for air assault training due to primary mission requirements
- participating units must develop simple procedures and must regularly exercise the air assault capability regularly to reduce planning and coordination problems[32]

A comparison of four types of infantry battalions for anti-armor capability, dismounted infantry strength, air mobility of potent weapons and secondary mobility indicates the best organization to meet the requirements of air maneuver is the air assault battalion. Air assault operations require timely intelligence, tactical mobility, antiarmor firepower and secondary ground mobility for certain systems. The heavy division lacks sufficient infantry strength, equipment, and training opportunities to accomplish the air assault missions and therefore are incapable of taking advantage of air maneuver opportunities in battle. Additionally, when doctrine, organization, training and equipment are considered, the armored infantry of the heavy division cannot be expected

to perform air assault and light force missions well.

Air maneuver is no different than a deliberate ground attack by a heavy maneuver force in its requirement for synchronization. A force inherently focused on mounted ground maneuver cannot be an expert in other significantly different techniques. So, fighting in the air dimension, requires expertise in that realm of employment and calls for infantry that understands the special mission requirements of combined arms air assault.

The tempo of combat requires rapid response and armored infantry will not have the time to solve coordination problems. When light forces work with heavy forces, the need for standardization and mutual understanding is important. When infantry is required to conduct precise operations in the air dimension as a part of air maneuver, the problems are critical. When a heavy battalion is called upon to conduct an air assault, the coordination problems become acute. Consequently, when armored infantry attempts an air assault operation in combat, all the problems associated with armored infantry conducting operations where light infantry skills are required in concert with assault aviation and attack helicopters are magnified. In normal training the need for coordination and air assault skills cause many delays and miscues. In combat, this could be catastrophic. Responsiveness and efficiency will be reduced and success will be difficult to obtain in even the simplest efforts. Air assault success demands a trained force at the ready.

Mobility is a function of organization, equipment, training, internal logistical support, communications and command structure. To be effective with these elements, the unit must have the confidence gained from practice. Confidence and cohesion are essential to expertise. When armored infantry is placed "on a string" to conduct air assault operations

against a rear area threat or is called upon to organize an air assault to take advantage of a battlefield opportunity, the unit is expected to react quickly. The unit must make up for its lack of training by "thinking on its feet". The air dimension is too important and air assault operations are too complicated to conduct without training, planning and measured action for precise execution.

In order for armored infantry to gain a margin of success in the air assault role, time and resources must be dedicated to preparing one unit for the air assault mission. Maximum training experience in solving coordination problems will make the battalion as ready as possible. Force tailoring for TOWs, mortars and secondary mobility must be considered. A habitual relationship between the battalion and the Combat Aviation Brigade must be developed and solid SOPs devised. The issues of command and control between the Air Mission Task Force Commander, the Ground Forces Commander and the Air Mission Commander must be resolved. Communications, logistical sustainment and the synchronization of the entire combined arms effort must become second nature. The dynamics of combat will not allow success unless the force is well trained and can accomplish these tasks quickly and precisely.

Every commander uses the factors of METT-T to decide how to fight his forces and this may lead him to use armored infantry in the air assault role. Even though the analysis may call for light forces, the commander may not get them. Thus, as the mission will not go away, the commander must make do and rely on peacetime training and the battlefield expertise his units have gained. A better solution is an organic air assault battalion.

> *"...these new forces can be viewed either as weak, vulnerable, logistically complex assets of limited value and application or as means by which greater speed, maneuverability, shock, firepower and operational flexibility may be applied to the modern battlefield for...decisive results."*[52]

The German Army of World War II foresaw the potential of the tank through increased mobility, firepower and shock action. They saw in armored formations the ability to create high tempo maneuver to strike deep at the cybernetic domain of the enemy destroying his command and control. The Germans accentuated the potential of the machine and the organization rather than dwelling on the vulnerabilities. The potential of air maneuver can be similarly exploited. The mobility, firepower, and shock effect of the Combat Aviation Brigade, employing an air assault infantry battalion, attack helicopters and other fire support can create the same successes.

Throughout the framework of the offense and defense, air assault infantry and air maneuver provide the most mobile antiarmor force in the world. Air maneuver capabilities will improve as aircraft improvements are made, command and control relationships are refined and the tactics of combined arms air maneuver are explored.

The Combat Aviation Brigade and air assault infantry, trained and employed as a combined arms team would become experts in air maneuver and light force operations. The heavy division commander would then have a powerful combat multiplier in the air dimension.

Definitions

Air Assault

"Operations in which air assault forces (combat, combat support, and combat service support, using the firepower, mobility, and total integration of helicopter assets in the ground or air roles, maneuver on the battlefield under the control of the ground or air maneuver commander to engage and destroy enemy forces." FM 101-5, p. 1.1.

"The deliberate and habitual integration of aviation assets into ground combat operations." Colonel Bruce Moore and Major Glenn M. Harned, "Air Assault Operations in the Desert: How to Fight", Military Review, January 1985.

Air Maneuver

The use of air assault infantry, attack helicopters, assault helicopters, intelligence, air defense assets and artillery assets to gain relative mobility and firepower advantages over the enemy.

"The objective is the rapid envelopment and destruction of committed enemy close combat forces and their immediate support. (It is a) combined arms activity (that)...synchronizes ground combat both to open the way for air exploitation and to seize and hold the ground across which the air attack passes. (Air maneuver) deprives the enemy of control of the ground over which the attack passes, thus confronting him with a constantly expanding sector of threat and the ultimate danger of encirclement and annihilation." School for Advanced Military Studies White Paper, "Employment of Combat Aviation", US Army Command and General Staff College, (Ft. Leavenworth, Kansas, AY 87-88), p. 16.

Air Dimension

Vertical dimension is same term. The realm of combat involving the use of aircraft. Operations in this realm constitute the third tier of mobility. Operations in this environment do not have the restrictions of terrain, but are more adversely effected by weather than ground maneuver forces.

Armored Infantry

"...infantry whose primary mission is to support the advance of the tank. Armored infantry orients on the advance and protection of the main battle tank. It keeps up with the fastest tanks, gets through close terrain safely, overwatches and secures tanks during movement, clears mines and obstacles in the path of tanks, and in static positions provides close-in security and protection for the tanks from dismounted infantry, especially at night." Colonel Huba Wass de Czege, "Three Kinds of Infantry", Infantry, July-August, 1985, p.11.

Desant

The Soviet concept of desant "forces, specially prepared and landed or designated for landing on the enemy's territory for the purpose of conducting combat operations. It encompasses both the force and the landing of the force together in one term. James F. Holcomb, Jr., Major, US Army and Dr. Graham H. Turbiville, Jr., Exploiting the Vertical Dimension: Continuing Development of the Soviet Desant Force Structure, Soviet Army Studies Office, Ft. Leavenworth, Kansas, May 1987, p.1. These forces usually consist of the airborne division, air assault brigades, air assault battalions and the tactical aviation fast performance aircraft and helicopters used for desant.

Heavy Division

"...all such divisions consist of

-battalions of mechanized infantry that are usually intended to fight in conjunction with main battle tank (MBT) sub units, organic or attached.

-MBT battalions that are usually to fight in conjunction with subunits of mechanized infantry, organic or attached.

-battalions of tube and launcher artillery increasingly self-propelled and in some degree protected

-engineer and other combat support elements also increasingly mechanized

Edward N. Luttwak, An Historical Analysis and Projection for Army 2000, Part I consists of Papers 1-18, Part II-Analysis and Conclusions (TRADOC Contract Number DABT-60-84-C-0055, 15 March 1983), p.1.

Secondary Mobility

The ability of an air assault force or desant forces to move once inserted into the landing zone. Traditionally, these forces have had little more than foot mobility unless the situation allowed helicopters to lager and move the soldiers and assets on call. The advent of more powerful helicopters, such as the UH-60, allows the lift of wheeled vehicles into the landing zone. The CH-47D is also very capable of moving secondary mobility. The acquisition of the MV 22A will greatly enhance this capability.

TABLE 1

BATTALION COMPARISON

Measured Item	Type Battalion			
	BFV	*AASLT*	*Light*	*Fast Atk*
Total Number of Personnel	832	698	560	451
Number of Infantry Companies	4	3	3	3
Dragons	36	18	18	0
TOWs	12w/out v	20 w/v	4 w/v	31 w/v
Antiarmor element	1 AT Co	1 AT Co	1 AT Plt	1 AT Plt
Battalion Mortars (number/type)	6/107mm	4/81mm	4/81mm	6/107mm
Company Mortars (number/type)	0	2/60mm	2/60mm	0
.50 cal Machinegun	39	0	0	4
M60 Machinegun	33	18	18	0
M249 SAW	72	58	0	75
MK 19, 40mm Grenade Launcher	0	0	0	56
HMMWV	26	24	24	114
Motorcycles	3	15	0	0

Authorization Documents Used for Comparison

Unit	TOE	Dated
Infantry Battalion, Mech, BFV	07245J410	1 April 83, current-1 Oct 86
Infantry Battalion, AASLT	07055L000	1 April 85, current-1 Oct 86
Infantry Battalion, Light	07015L000	1 April 84, current-1 Oct 86
Infantry Battalion, Light Atk	07066D600	15 Sep 87, current-15 Sep 87

*w/out v= without dedicated, air transportable vehicle support
**w/v= with dedicated, air transportable vehicle support

Combat Aviation Brigade

Heavy Division

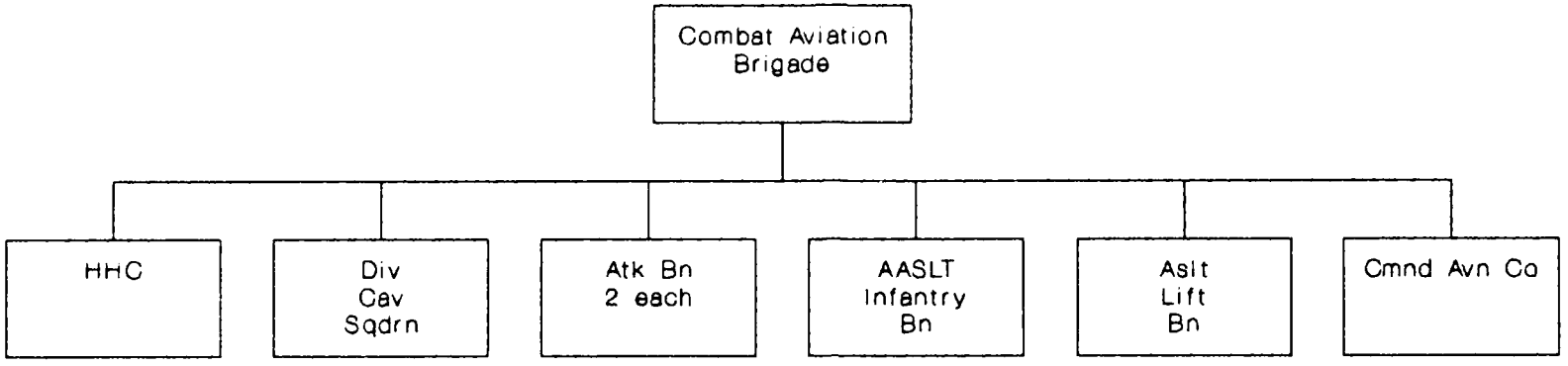
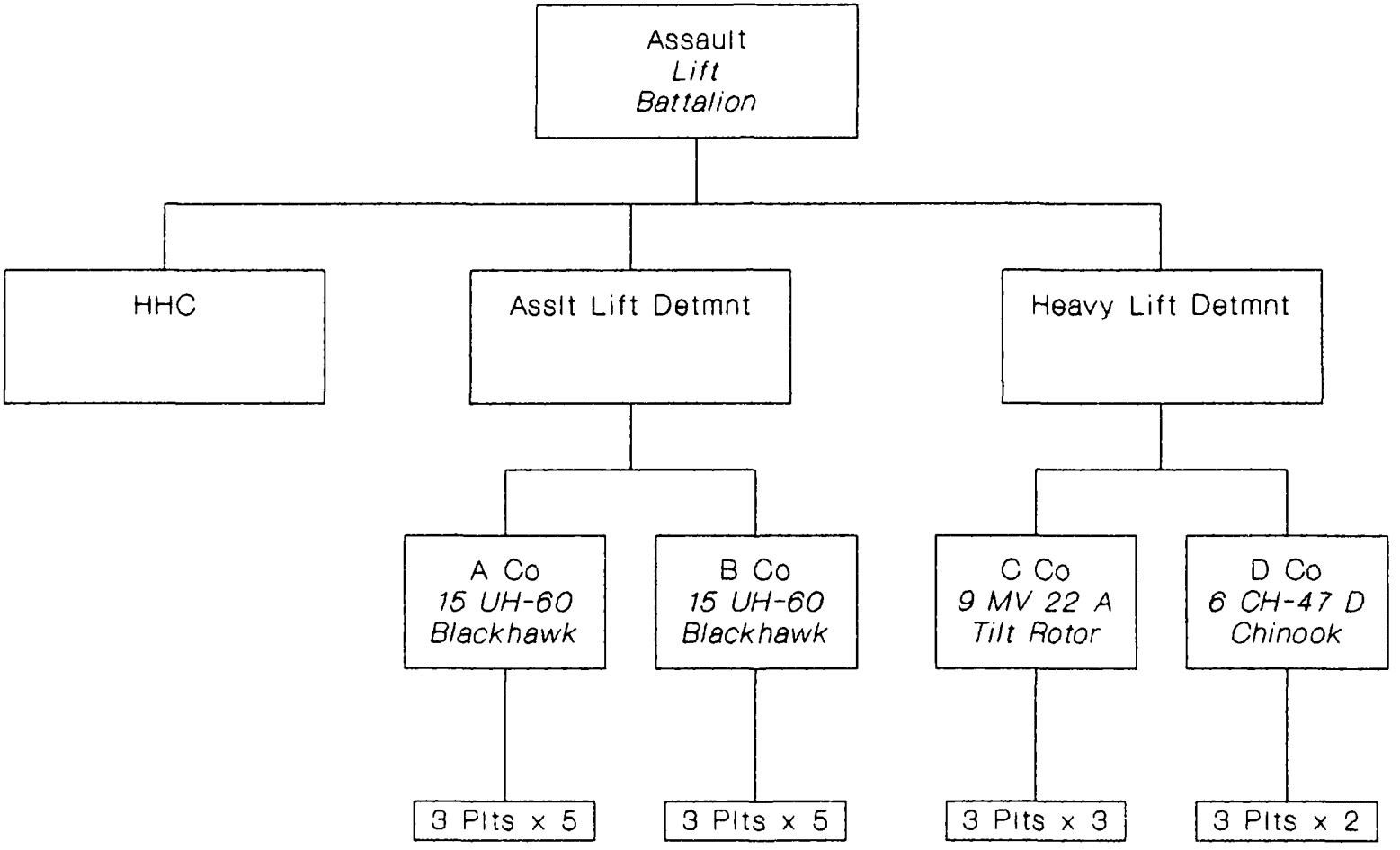


Table 2

Combat Aviation Brigade

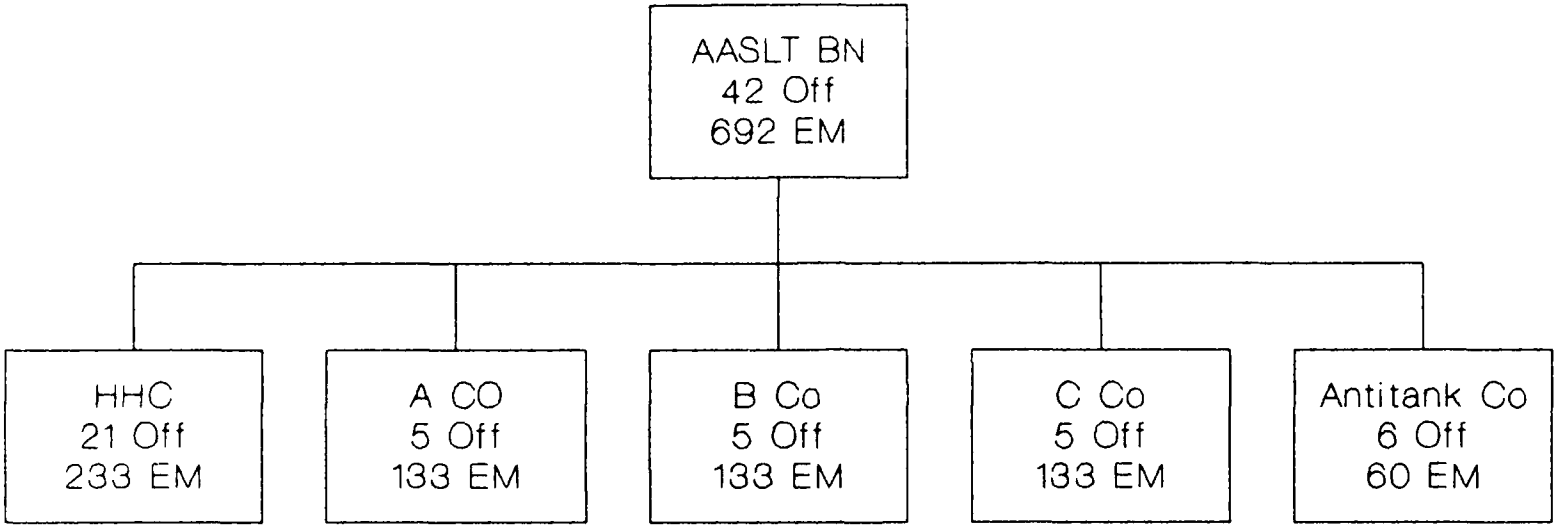
Assault Lift Battalion



30 UH-60/9 MV 22A/6 CH-47D

Table 3

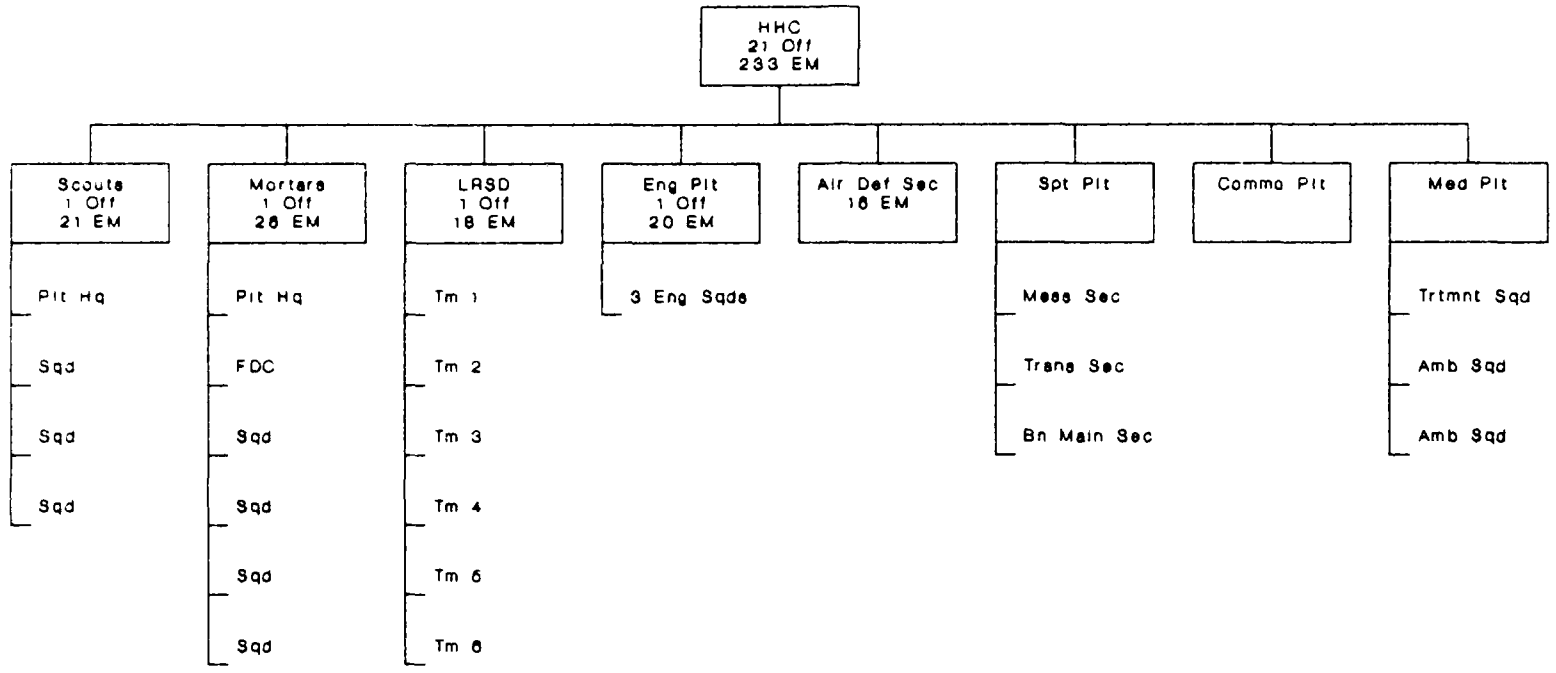
Air Assault Battalion
Heavy Division



26 TOWs/27 MAWs/4 120mm/6 Mk 19-.50/95 v

Table 4

Headquarters and Headquarters Company
Air Assault Bn, Hvy Div



2 TOWs/4-81mm/15 Mtrcycle/40 HMMWVs

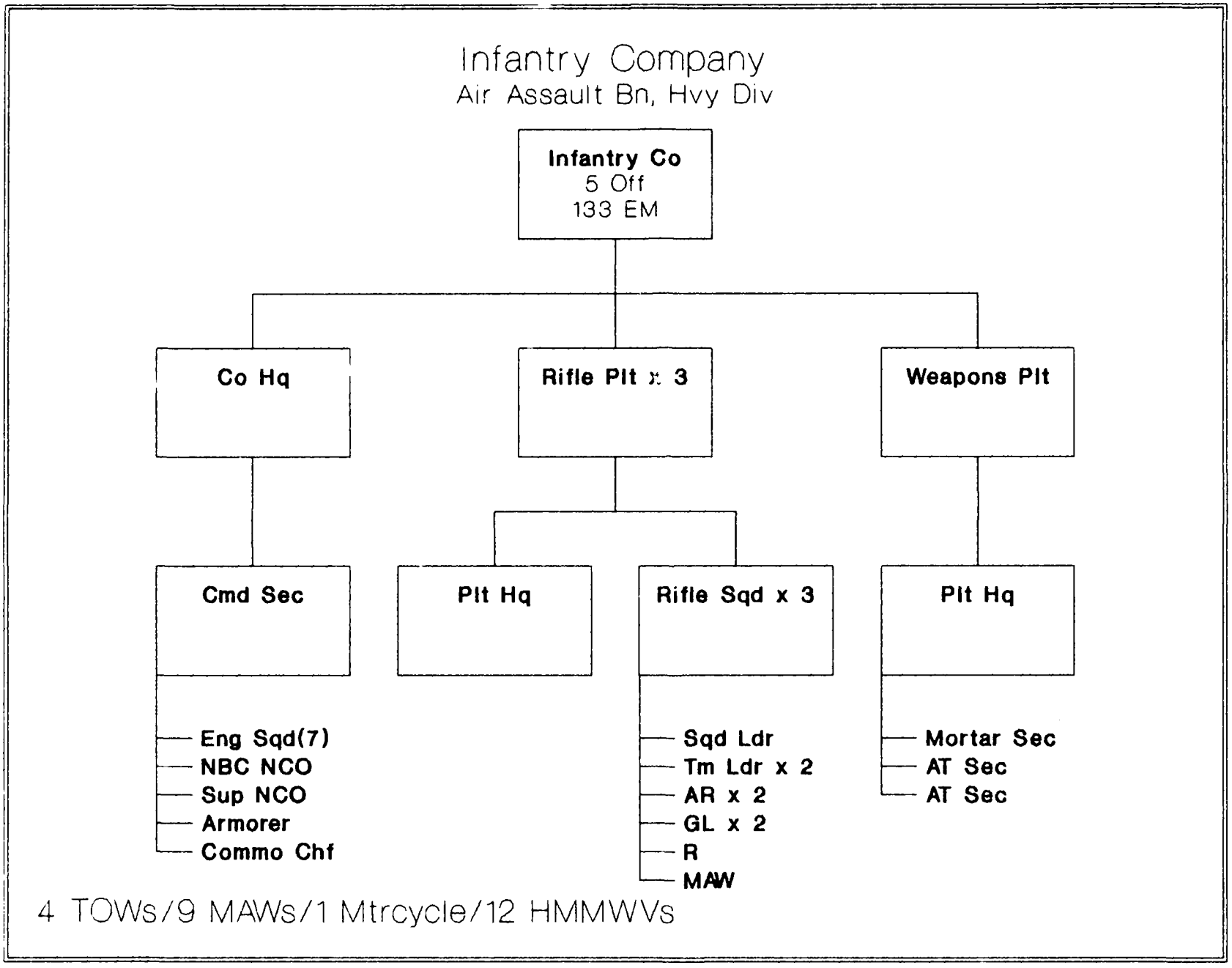

Infantry Company
Air Assault Bn, Hvy Div
Infantry Co
5 Off
133 EM
Co Hq
Rifle Plt x 3
Weapons Plt
Cmd Sec
Plt Hq
Rifle Sqd x 3
Plt Hq
Eng Sqd(7)
NBC NCO
Sup NCO
Armorer
Commo Chf
Sqd Ldr
Tm Ldr x 2
AR x 2
GL x 2
R
MAW
Mortar Sec
AT Sec
AT Sec
4 TOWs/9 MAWs/1 Mtrcycle/12 HMMWVs

Table 9

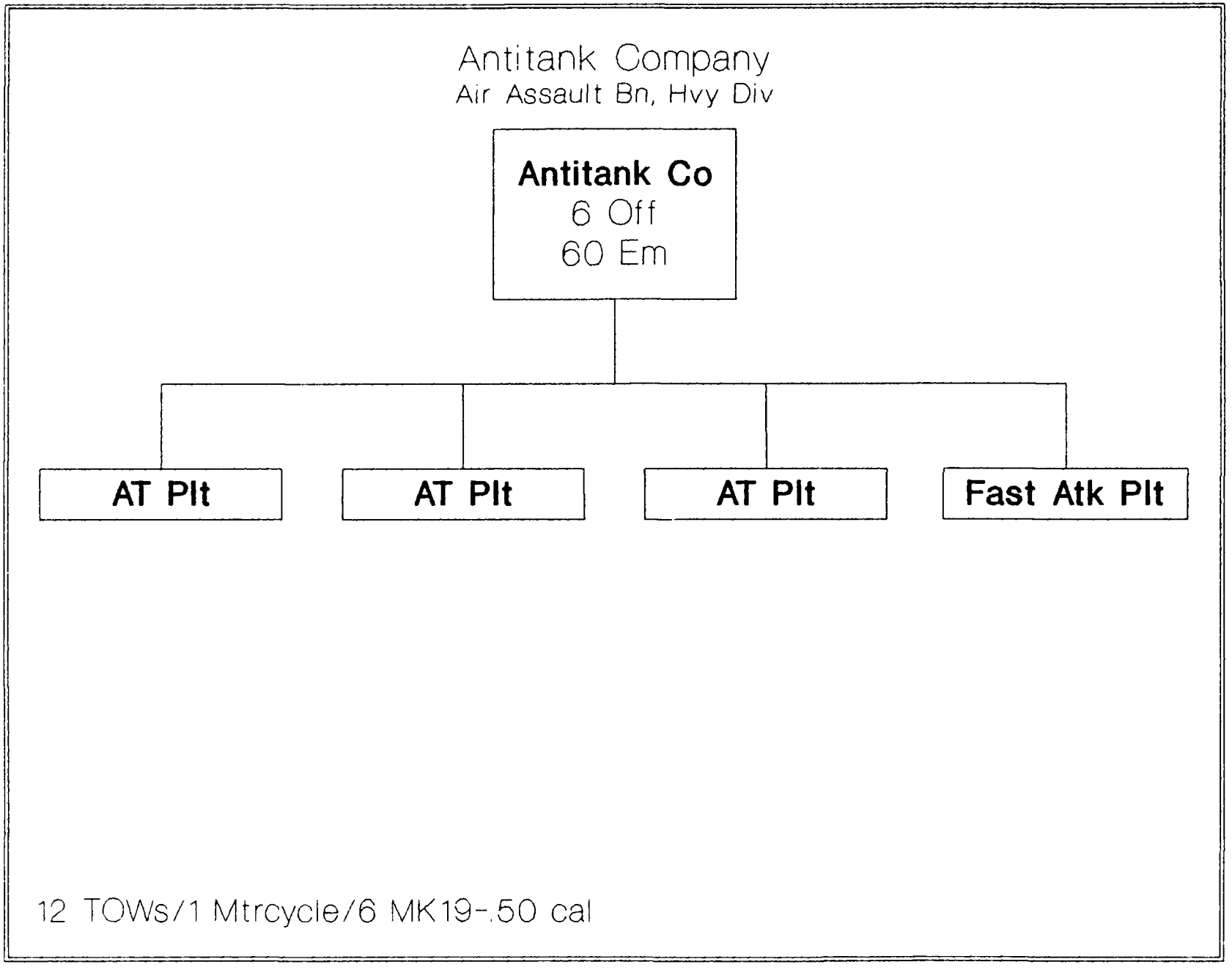

Antitank Company
Air Assault Bn, Hvy Div
Antitank Co
6 Off
60 Em
AT Plt
AT Plt
AT Plt
Fast Atk Plt
12 TOWs/1 Mtrcycle/6 MK19-.50 cal

Table 7

Air Assault Battalion, Hvy Div

Recapitulation

Item	HHC	A	B	C	AT	Ttl
Officers	21	5	5	5	6	46
Enlisted	233	133	133	133	60	692
TOWs	2	4	4	4	12	26
MAWs		9	9	9		27
120mm Mtr	4					4
60mm Mtr		2	2	2		6
Mk 19/.50					6	4
HMMWVs	40	12	12	12	19	95
Stingers	8					

[50]

Table 8

Air Assault
Capabilities

*Attack from any direction
*Overfly or bypass barriers
*Conduct raids
*Strike objectives in inaccessible areas
*Rapidly concentrate, disperse, and redeploy to extend their area of influence
*Provide flexibility: allows the cdr to retain a smaller reserve and commit larger portion of the force
*React rapidly to tactical situations
*Rapidly place forces at points that are tactically decisive
*Provide surveillance over a wide area

Air Assault
Limitations

- *Weather: hamper or halt aircraft opns*
- *Helicopter lift capacity may restrict the type and quantity of supporting weapons and equipment that can be airlifted to the objective*
- *Depends on air lines of communication*
- *Enemy aircraft, air defense, and electronic warfare systems*
- *Shortage of ground vehicles for secondary mobility of major weapons and troop movements*
- *Vulnerable to enemy action during loading and landing phases*

Air Assault Operations
Employment Principles

- *See the Battlefield*
  Aquire, Analyze and Act on Intelligence
- *Fight as a Combined Arms Team to maximize Air Maneuver Dimension*
- *Concentrate Combat Power at critical time and place*
- *Use terrain, effects of weather, and light conditions to survive*
- *Maintain control*
- *Maintain flexibility and agility*

Air Assault
Types of Operations

- *Raid*
- *Attack*
- *Secure/Defend/Strongpoint*
- *Delay*
- *Reconnaissance in Force*
- *Exploitation*
- *Pursuit*
- *Reinforcement of Committed Units with Antiarmor Air Assault Teams*
- *Screening*
- *Rear Area Security/Rear Battle Force*
- *Convoy Security*
- *Traffic Control*
- *Guard Sensitive Facilities*

Planning

- *Staging the force for air aslt operations*
- *Loading*
- *Air Movement*
- *Landing*
- *Ground Operations*
- *Sustainment*

Key Planning Considerations

- *Intelligence*
- *Command and Control*
- *Logistics*
- *Artillery/Mortar Support*
- *Aviation Support*
- *Air Defense*
- *Enemy Air Defense Suppression*
- *Engineer Support*
- *Medical Treatment and Evac*

Loading Phase Considerations

- ✓ *Coordination with Air Mission Cdr*
- ✓ *Insure plan is coordinated with ground tactical plan*
- ✓ *Insure plan is in concert with logistical requirements*
- ✓ *PZ/LZ identification and selection*
- ✓ *PZ Control Plan*
- ✓ *Air Movement Tables*
  Bump Plan
  Tactical Integrity
  Self Sufficiency
  Tactical Cross Loading
  Straggler Control
  Lifts/Serials/Loads
- ✓ *Sequence Departure*

Air Movement Phase
Considerations

- ✓ *Planning*
- ✓ *Development of Flight Routes*
- ✓ *Designation of SP and RP*
- ✓ *Flight Corridors/Flight Axis*
- ✓ *Flight Route Control Measures*
  - *air control points*
  - *communications control points*
- ✓ *Designation of Routes*
  - *support landing plan*
  - *consider enemy ground and air sitrep*
  - *use avialable fire spt and air cover*
  - *weather*
  - *terrain*
  - *time and distance evaluation*
- ✓ *Enroute formations/terrain flight methods*
- ✓ *Supporting Fires*
- ✓ *Air movement timing/Refueling Plan*

Landing Phase Considerations

- ✓ *LZ Selection is critical*
  - *location-depends on METT-T*
  - *capacity of LZ*
  - *enemy disposition and capabilities*
  - *cover and concealment*
  - *obstacles*
  - *identifiable from the air*
  - *weather*
  - *approaches and exits*
- ✓ *LZ Selection*
  - *combat power: how much, how fast*
  - *enemy*
  - *surprise*
  - *time available to get forces in*
  - *single or multiple LZs*
- ✓ *LZ Formation*
- ✓ *Fires in the LZ*
  - *intense, high volume, short duration*
  - *deception plan*
  - *availability of fire spt*
  - *significant targets*
  - *schedueled fires*
  - *positive control measures*

Landing Operations Considerations

- ✓ *Prepatory fires if possible*
- ✓ *Employment of Attack Helicopters*
  - *precede lift aircraft to recon LZ*
  - *provide suppressive fire*
  - *provide air cover and nuetralize enemy positions*
- ✓ *Support Fire*
  - *CAS station time limited by fuel and ADA*
  - *sequencing of aircraft*
- ✓ *Landing: simultaneous LZz to get max troops on the ground quickly*
- ✓ *Conduct Ground Operations*

Commencement of Operations
Considerations

- *AASLT TF is initially vulnerable*
- *Leaders and soldiers may easily become disoriented*
- *Speed and mobility of the AASLT TF offers the commander a wider range of maneuver options*
- *Helicopters should remain ready to move reserves/fire spt means around the position*
- *Mortars will be needed to support operations when the battalion is out of artillery range*
- *Resupply, evacuation, transportation are mostly by air*

Key Points
Air Assault Opns using Armored Infantry

- ✓ *Thorough training:*
  -leaders
  -soldiers
  -staffs
  -total organization approach
- ✓ *Joint Training with Air Elements*
- ✓ *Augmentation from Corps assets for:*
  -lift aircraft
  -attack aircraft
  -logistics
  -towed artillery (if available)
- ✓ *Tailor command, control and communications for air assault forces and stay behind vehicles*
- ✓ *Use of the Scout Platoon*
- ✓ *Missions for the stay behind force*
- ✓ *Missions for artillery in range*
- ✓ *Heavy Mortar Platoon Tailoring*
- ✓ *Antiarmor Team Tailoring of TOWS*
- ✓ *Logistics Tailoring*
- ✓ *Combined Arms Training*
- ✓ *Staffs that understand*
  -cross reinforcement
  -light force missions/heavy force structure, controlling the mix

Endnotes

1. Paul Braken, "Urban Sprawl and NATO Defense", Survival, November-December 1976, p. 255.

2. Ibid., p. 257.

3. Ibid., p. 255.

4. Ibid.

5. G. Brugmann, Brigadier General, Army of the Federal Republic of Germany, "Employment of Non-Mechanised Infantry: Setting the Scene-The European Battlefield", Journal of the Royal United Services Institute for Defence Studies, Volume 125, (December 1980):58. General Brugmann states that 20% of the population of the FRG and 16% of the industry is located in a 50 km wide band west of the eastern border. Within 100 km of the border one third of the population and 25% of the total industry is found. He also points out that 30% of the FRG is wooded and 50% is agricultural fields. Visual target reconnaissance does not exceed 600 meters in 70% of the cases. Visual contact to 2000 meters exists in only 35% of the cases. James M. Dubick and James J. Montano, "FM 100-5: Conceptual Models and Force Design", Military Review, May 1984, p. 18. In the Soviet view, only about 50% of the terrain of Western Europe is passable to armored formations.

6. F.M. von Senger und Etterlin, General, Army of the Federal Republic of Germany, "New Operational Dimensions", Journal of the Royal United Services Institute for Defence Studies, Volume 128, (June 1983):15.

7. To survive on the modern battlefield and to provide the means to more effectively execute the demands of AirLand battle, the US Army needs a much more sophisticated aircraft. Since any aircraft will have to meet the demands of utility across all services and will have to be a multirole aircraft, the requirements will be stringent and the aircraft costly. To survive the aircraft must be less observable, better protected against NBC weapons and more maneuverable against ground fires and air to air attack. The aircraft must carry more payload, have longer range and reduced maintenance. The MV 22A Tilt Rotor is just such an aircraft. This vertical take off and landing aircraft is all weather, day/night capable, and has state of the art navigational aids. It flies in all aircraft regimes from nap of the earth to 30,000 feet. It has helicopter take off and landing capability and cruises like a turbo prop, and has a dash speed of 275 knots. It has twice the payload of the UH-60, rear ramp loading and exiting and can move 59,000 lbs with only a 500 foot unimproved runway takeoff. It is a highly survivable aircraft with reduced radar, infra-red, electromagnetic and acoustical signatures. It has tremendously increased speed to avoid detection and targeting. It has reinforced fuselage and rotor system protection against 23mm weapons. The MV 22A can fight and survive in all spectrums of conflict and is versatile and cost effective. Its increased speed, range, payload, and versatility would give air maneuver unprecedented capabilities to execute AirLand battle operations.

8. von Senger und Etterlin, p. 13. General Etterlin's analysis figures that the many advantages offered by organizations operating in the air dimension would provide a ten fold increase in the deployment speed compared to any given land weapons system or formation. Richard Simpkin, Brigadier General, British Army, Race to the Swift, Thoughts on Twenty-First Century Warfare (London: Brassey Defence Publishers, 1985), p.121. In this book, General Simpkin comes to a similar conclusion as General von Senger. From a distance of 200 km to an objective, the tank division would require 10 hours with running time and pass time to arrive. It would take another hour to deploy and engage. The heliborne force could move from dispersed locations, concentrate on the objective and immediately go into combat in just one hour. "So the helicopter force's having

zero pass time doubles its operational tempo..." p.121 After an analysis of movement, mobility, and tempo, General Simpkin concludes "the rotary wing formation's tempo is ten times that of the armour." p. 121.

9. von Senger und Etterlin, p. 13.

10. Richard Simpkin, Brigadier General, British Army, "Flying Tanks", Military Technology, Volume VIII,(1984):63.

11. von Senger und Etterlin, p. 12.

12. Ibid.

13. Roger E. Bort, Major, US Army, "Air Assault Brigades: New Element in the Soviet Desant Force Structure", Military Review, October 1983, p. 26.

14. James F. Holcomb, Jr., Major, US Army and Dr. Graham H. Turbiville, Jr., Exploiting the Vertical Dimension: Continuing Development of the Soviet 'Desant' Force Structure, Soviet Army Studies Office, (Ft. Leavenworth, Kansas: [May 1987]), p.25. The authors develop a concise history of the growth of Soviet forces for use in the air dimension. Although not validated threat doctrine, the Soviet Army Studies Office feels that air assault units at the tactical level, ie. division and below.

15. Brugmann, p. 69. It is important to note that the German Army has also recognized the need for light infantry expertise in certain missions and accordingly has restructured their basic division. "(I)n accordance with the new Army structure, the Germany Army divisions have two light battalions. *These two light infantry* battalions are under the direct control of the divisions and can be detached to the brigades, as required...According to German opinion, the basic form of modern infantry in Central Region is mechanised infantry-fighting either mounted from their mechanised infantry combat vehicles or dismounted...Light infantry...will be committed where it can replace mechanised infantry. Employment of (light) infantry is also required where mechanised infantry would be committed for air-landing operations with helicopters...In the forward areas we don not employ light infantry above battalion size...Within a mechanised or armoured brigade as within a division, light infantry-battalion size light infantry-is considered perfectly acceptable..."

16. Bort, pp. 27-28.

17. Ibid., p. 26.

18. F.M. von Senger und Etterlin, General, Army of the Federal Republic of Germany, "Airmobile Divisions", Journal of the Royal United Services Institute for Defence Studies, Volume 132, (March 1987):25.

19. The lack of infantry for dismounted operations was quite evident during discussions concerning battalion task force training at the National Training Center, Ft. Irwin, California. Due to the lack of dismounted infantry strength, many infantry operations are not attempted. Air assault operations with armored infantry soldiers had not been attempted in the memory of the Observer/Controllers queried. Night dismounted operations, infiltration efforts with scouts, and obstacle reduction were missions that were accomplished poorly due to the lack of infantry strength. (Visit to the National Training Center, Ft. Irwin, California, 28 Aug-1 Sept 1987)

20. Based on TOE07245J10, dated 1 April 1983, current as of October 1986. BIFV battalion is assumed to be at 100% ALO 1 level manning. In a typical battalion task force of 2 mech infantry and 2 tank companies, there will only be 108 infantry dismounts. This force is much too small for a battalion airmobile and is ill trained for air assault. While this force may be right for a company size mission, the forces will come from different companies with the attendant command and control problems. The mechanized infantry division can field approximately 1080 soldiers for dismounted operations in the entire division. If the division is tasked to provide a brigade to Corps that has at least one mechanized infantry battalion (for cross attachment to armor battalions), the infantry strength for light force operations is further reduced.

21. Bruce W. Moore, Colonel and Glenn M. Harned, Major, "Air Assault in the Desert: How to Fight", Military Review, January 1985, p. 60.

22. John R. Galvin, General, United States Army, "The Heavy-Light Concept", Armed Forces Journal International, July 1982, p.72.

23. Ralph Peters, Captain, United States Army, "The Deep Attack Helicopter Raid", Armor, March-April 1985, pp. 36-37. This article proposes a deep operation that slows the enemy advance by continued disruption. Therefore, the deep attack force carries fuel and ammunition deeper to clear the ADA belt to execute more than one attack without multiple cross FLOT operations. Infantry is therefore critical to security. The deep package may consist of : 8 attack helicopters in two platoons of four each, 4 ammo and fuel carriers, 4 air assault infantry helicopters to secure the fuel and ammo, and 2 scout helicopters for 18 aircraft in two flights of 9 each. "The raid force must be kept mobile, that is its salvation and its effectiveness." p. 37.

24. John R. Galvin, General, United States Army, "Heavy-Light Forces and the NATO Mission", Infantry, July-August 1984, (Course Readings-Dynamics of Battle, School for Advanced Military Studies, AY 87/88, p. 30).

25. Ron Klein, Captain, United States Army, "Aviation Employment in Defensive Operations", US Army Aviation Digest, November 1984, p. 11. US Department of Defense, Department of the Army, The Marne Division-Reforger 82: Initial Impressions, August 1983, p.6. The 3rd Infantry Divisions use of the Blackhawk helicopter, infantry TOW and Dragon antiarmor teams and attack helicopters proved successful against aggressor armor formations. This economy of force measure paid great dividends. The Blackhawk force was culled from division resources, trained and employed as an air assault force. This specially trained, mission dedicated force was used throughout the 3rd Infantry Division Reforger 82 operations.

26. Galvin, "The Heavy-Light Concept", p. 70.

27. Galvin, "The Heavy-Light Concept", pp. 71-72.

28. Ibid., p.70.

29. Galvin, "Heavy-Light Forces and the NATO Mission", p. 29.

30. Ron Klein, Captain, United States Army, "Aviation Employment in the Special Purpose Operations", US Army Aviation Digest, September 1984, p. 5.

31. Ibid., pp. 7-8.

32. Ron Klein, Captain, United States Army, "Aviation Employment in Offensive Operations", US Army Aviation Digest, October 1984, pp. 23-24.

33. Ibid., p. 25-26.

34. Galvin, "The Heavy-Light Concept", pp.70-74.

35. Klein, "Aviation Employment in Offensive Operations", pp. 27-28.

36. Galvin, "The Heavy-Light Concept", p.70-74.

37. Department of the Army, FM 17-47: Air Cavalry Combat Brigade, (Washington, D.C., 1982.), p.4-14.

38. Klein, "Aviation Employment in Offensive Operations", pp. 29-30.

39. Galvin, "Heavy-Light Forces and the NATO Mission", p. 28.

40. Ibid.

41. SAMS White Paper, "Employment of Combat Aviation", Course Readings, School for Advanced Military Studies, Ft.Leavenworth, Kansas, AY 87/88, p. 24.

42. Brigadier Simpkin's book, Race to the Swift, lays out his theory on air mechanization. This study is an excellent source for understanding the potential of air maneuver. One of Simpkin's kindred spirits in these ideas was General Dr von Senger und Etterlin who explained similar ideas in his articles and lectures appearing in the Journal of the Royal United Services Institute for Defence Studies. (see bibliography for full citations)

43. T.C. Hanifen, Captain, USMC, United States Marine Corps, "The Airmobile-Mechanized Task Force", Marine Corps Gazzette August 1986, p. 59.

44. Ellis D. Parker, Major General, United States Army, "The Challenge of Winning", US Army Aviation Digest, September 1985, p.6.

45. James R. Harding, Colonel, United States Army, "Air Assault Combat Support", Army Logistician, September-October 1984, pp. 28-30. Colonel Harding presents a scheme for the use of a Light Logistics Package consisting of 20 soldiers and 6 vehicles. Petroleum, oils and lubricants are provided along with ground refueling support, limited receipt, storage and issue of all supply classes and limited aircraft armament and communications.

46. Ibid.

47. Galvin, "Heavy-Light Forces and the NATO Mission", p. 28.

48. James E. Thompson, Major General, United States Army, "Heavy-Light Operations in the Desert", Military Review, May 1985, pp.53-62. MG Thompson discusses the Combat Aviation Management System in use in the 101st Air Assault Division. The system provides expertise and liaison down to the battalion level. The Combat Aviation Control Party provides much the same type of liaison as does a USAF air liaison officer. This type of control system proved effective on Gallant Eagle 84, a joint readiness exercise for the 101st Air Assault Division and the 24th Infantry Division (Mech). Barry J. Sottak, Lieutenant Colonel, United States Army and Charles B. Cook, Major, United States Army, "Putting the Air Assault in the Air Assault Division", US Army Aviation Digest, May 11982, p.13-14. "At infantry battalion level, an aviator (ideally a captain) from the supporting aviation battalion, an RTO/driver with vehicle radios, and pathfinders form the Combat Aviation Party (CAP). The CAP provides the capability of calling for and controlling combat aviation in the battalion sector and assists the battalion in planning aviation employment. In addition, this aviator with line pilot experience as a flight leader, will assist in pulling together the efforts of the S-3, S-3 air, fire support officer and US Air Force liaison officer to ensure as enhanced an air assault operation as possible...Close and continuous liaison continues between (the aviator) and (the) parent aviation unit. Missions can be anticipated, reaction time decreased, briefings conducted quicker, and missions accomplished with more efficiency." pp. 13-14.

49. The current Combat Aviation Brigade organization has 15 UH-60 assault helicopters to lift soldiers for air assault missions. This lift capability allows for the movement of approximately 210 soldiers with no external load (based on an allowable aircraft load of 14 men). Thus, the division would have to request augmentation from Corps to accomplish battalion size missions. The CAB will require additional aircraft. Table 3 delineates an expanded assault helicopter company. The company become the Assault Lift Battalion consisting of 2 UH-60 companies, a MV-22A vertical takeoff and landing aircraft company, and a CH-47D medium lift company. This organization allows for the aerial movement of the combat elements of the battalion to include the weapons that need secondary mobility.

50. Edwin W. Besch, "The Pros and Cons of the New Ultralights", Armor, March-April 1985. The vehicle used for air assault operations must be air transportable with the current family of assault helicopters. A TOW system mounted on the HMMWV (High Mobility Multi-purpose Wheeled Vehicle) can be lifted by the UH-60 and the CH-47D. The MV22A is also quite capable of lifting the HMMWV TOW. The HMMWV is the vehicle currently designated for the majority of light forces. It is relatively inexpensive to produce and maintain. It has become the staple light vehicle in the US Army inventory. It is powered by a Detroit Diesel 6.2 liter, 4 stroke cycle, V-8 engine that uses a 3 speed Hydramatic THM-400 transmission. The vehicle accelerates from 0 to 80 kmph in about 20 seconds giving it good dash speed. It has a range of 563 km, can climb a 60% slope and a .56 meter vertical step and fords 1.52 m with a fording kit. Any future vehicle should weigh about 1.8 metric tons with innovative design, the latest weapons and the use of lightweight unusual materials. It must have a low battlefield signature and the ability to carry 10 antiarmor missiles. It must mount 25-30mm automatic cannons that can defeat light armor. It should move quickly and quietly, be easily concealed and have superior dash speeds. It should be armored to protect against small arms fire, light artillery fragments and antipersonnel mines. pp. 24-30.

51. US Army Command and General Staff College, FC 71-100: Armored and Mechanized Division and Brigade Operations, (Ft. Leavenworth, Ks., 1984), pp.8-49 to 8-50.

52. Hanifen, "The Airmobile-Mechanized Task Force", p. 59.

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3. Hart, B.H. Liddell. Strategy. New York: Frederick A. Praeger, 1967.

4. Horne, Alistair. To Lose a Battle. New York: Penquin Books, 1979, pp. 255-259.

5. Simpkin, Richard, Brigadier General, British Army., Race to the Swift, Thoughts on Twenty-First Century Warfare. London: Brassey Defence Publishers, 1985.

6. Simpkin, Richard, Brigadier General, British Army., Antitank, An Air Mechanized Response to Armored Threats in the 90s. London: Brassey Defence Publishers, 1985.

7. Simpkin, Richard, Brigadier General, British Army., Human Factors in Mechanized Warfare. London: Brassey Defence Publishers, 1985.

8. Simpkin, Richard, Brigadier General, British Army., Mechanized Infantry. London: Brassey Defence Publishers, 1985.

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1. Berry, F. Clifton, Jr., "The US Army 9th Infantry Division". International Defense Review, Volume 17, Number 9, 1984, pp. 1224-1238.

2. Barger, Millard and Meyer, Gallagher, "An Exclusive Interview with V. Adm. Albert J. Baciocco, Jr. USN, Director, US Navy Research Development, and Acquisition." Armed Forces Journal International, April 1986, p.64.

3. Barret, Correlli. "Surprise and Initiative in War". Journal of the Royal United Services Institute for Defence Studies, Volume 129, (June 1984):20-26.

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