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# The Role of the Airmechanized Raid in Operational Maneuver

A Monograph
by

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Infantry




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This monograph examines the potential contribution of an airmechanized raid to operational maneuver in a NATO environment. Defining airmechanization as "the integration into the land battle of a major rotary-wing element," the monograph uses the current U.S. Army force structure to organize the raiding force. The effect of the raid is examined within the functional areas enumerated in the U.S. Army Training and Doctrine Command's (TRADOC) draft Blueprint of the Battlefield at the Operational Level of War: command and control, intelligence, movement and maneuver, protection, fires, and support.

The monograph begins with an introduction that defines the relevant terms. Then, it presents a brief historical perspective on the raid in operational maneuver. A theory chapter explores the relationship between depth, density, and maneuver in order to understand the evolution of the airmechanization concept as expressed in both the Simpkin and the Soviet models. Finally, the monograph uses a NATO scenario to evaluate the contribution of an airmechanized raid in an operational maneuver. An appendix provides the calculations used in determining the raid's effect.

The monograph concludes that the airmechanized raid can facilitate operational maneuver by using the airmechanized force's mobility to secure a position of advantage and to attack enemy operational reserves more effectively than airpower. The airmechanized raid, however, remains a theoretical and doctrinal mission as yet unproven by practical experience.

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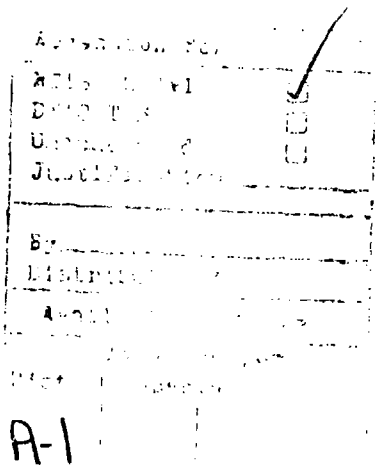

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## I. Introduction

> Perhaps the resulting and still expanding new systems of armaments, embracing aviation, tank forces, radio communicatior, and chemical warfare can be given a generic name--airmechanization. This term comprehends everything that is strange and new, everything that stands existing force structures and tactical-technical attitudes on their heads.... With its enormous potential for neutralization and its exceptional mobility, airmechanization completely tips the balance between neutralization and defense in favor or neutralization. What is difficult to achieve with artillery in a mass army becomes considerably easier to accomplish by airmechanization. (1)
>
> Marshal Tukhachevskii
> New Questions of War (1932)

When Marshal Tukhachevskii first coined the term of airmechanization, the armies of Europe were struggling to devise a doctrine for the employment of such diverse weapons as the dive bomber, the cruiser tank, and the paratrooper. Yet these "new systems of armaments" were competing with the traditions of the trench and the horse cavalry. Witnin the decade, the nations that had managed to integrate the new weapons of war into a new way of waging war stunned the world with a series of successful campaigns. Nazi Germany proved especially adept at exploiting the opportunities of mechanized warfare in the early years of the Second World War. The Allies ultimately were victorious when they in their turn had mastered the intricacies of mechanized warfare. The doctrines,

organizations, and tactics of World War II became the standards of modern armies for the next forty-five years.

Tukhachevskii's idea of airmechanization, however, predated the introduction of the helicopter as a weapon of war. His notion of airmechanization called for the close cooperation of ground and air elements throughout the depth of the battlefield and the theater of operations. We mean much the same with our current AirLand Battle doctrine. Yet some contemporary military theorists have suggested that even AirLand Battle doctrine is outdated. These theorists have concluded that the helicopter will revolutionize the warfighting doctrines of modern armies. The German general and former Allied Forces Central Europe (AFCENT) commander F.M. von Senger und Etterlin believed we are on the threshold of a new era.

> Warfare stands at a watershed: on the one side mechanized forces are slowing down against the mounting power of attrition by modern firepower, while on the other current helicopters (and forthcoming advanced rotary wing vehicles) have the ability to restore the power of manoeuvre to armies. (2)

The helicopter's exceptional mobility, coupled with its increasing firepower potential, offered modern armies a significant tactical advantage. The revolutionary potential of the helicopter is expressed in the pithy analogy of Brigadier Richard Simpkin: "Rotor is to

track as track is to boot." (3)

Yet the tactical advantage of the helicopter's superior mobility may have applications at the operational level of war.

> Military history records many examples in which the possession by one side of either superior mobility, or superior firepower, has been the cause of its successful operations, if not victory, in war. However, cases when both these two factors have been combined are indeed relatively rare and when it has happened and overwhelming victory has usually been the result. (4)

According to von Senger und Etterlin, now that all modern armies are mechanized (tanks, tracks, and trucks), there is no relative mobility advantage for either side. The helicopter is the vehicle for restoring a mobility advantage on the battlefield and in the theater of operations. Armies, advocated von Senger und Etterlin, must make the "step from the intermediate stage of 'airmobility' to what I call 'airmechanization.' The means of transport must become a means of combat." (5)

This monograph will explore the potential effect of the helicopter on the operational art by examining the role of the airmechanized raid in operational maneuver. For the purposes of this study, airmechanization is defined simply as: "The integration into the land battle of a major rotary-wing element." (6) Other authors have shown the utility of airmechanized forces

organized on the lines of Simpkin's broader concept of airmechanization. Such a force includes both light tanks and tracked rocket launcher artillery transported by helicopters. (7) I intend, however, to use the U.S. Army's current force structure in answering the question: can an airmechanized force, comprising both ground and air units, execute a raid to contribute to the success of operational maneuver in a mid-to-high intensity conflict environment? I will begin by defining my terms. Then I will survey some historical examples of raiding forces participating in operational maneuver. I will discuss the theoretical relationship between depth, density, and maneuver and its expression in the Simpkin and the Soviet models of airmechanized forces. Finally, I will suggest a scenario and evaluate the contribution of an airmechanized raid in an operational maneuver by using the framework enumerated in the U.S. Army Training and Doctrine Command's draft "Blueprint of the Battlefield" at the operational level of war: command and control, movement and maneuver, protection, fires, intelligence, and support.

The raid is:

> ... a special form of spoiling attack designed to destroy installations or facilities critical to the enemy's operations. Raids may also be mounted prior to or in conjunction with other offensive operations to confuse the enemy or divert his attention. (8)

Unlike a more conventional offensive operation, "the raiding force always withdraws from the objective area after completing its mission and, unless it is a stay behind unit, will normally recover to friendly lines." (9) For the purposes of this monograph, the airmechanized raid is a special operation distinct from the employment of attack helicopters in the tactical deep battle. The airmechanized raid, depending on the considerations of METT-T (mission, enemy, troops, terrain, and time), may be required to operate beyond the enemy's tactical depth for hours or days.

The Army's Field Manual 100-5: Operations defines maneuver as:

> ...The movement of forces in relation to the enemy to secure or retain positional advantage. It is the dynamic element of combat -- the means of concentrating forces at the critical point to achieve the surprise, psychological shock, physical momentum, and moral dominance which enable smaller forces to defeat larger ones. (10)

"Operational maneuver seeks a decisive impact on the conduct of a campaign. It attempts to gain advantage of position before battle and to exploit tactical successes to achieve operational results." (11) Significantly, operational maneuver is defined by effect and not size of forces.

## II. Historical Precedents

As warfare evolved and the battlefield expanded,

the notion of using forces to strike deep into the enemy's rear area also matured. Perhaps the experience of the American Civil War began the process of devising raiding forces to cooperate with main forces in operational maneuver. (12) As the lethality of the battlefield deprived the cavalry of its tactical role as a shock formation, it also drove the cavalry into a new operational role as a raiding force. B. H. Liddell Hart's "Analysis of Cavalry Operations in the American Civil War with Special Reference to Raids on Communications," written in 1935, noted that:

> When acting in close cooperation with the army, the mobile arm proved ineffective in its offensive action... when used independently, for strikes against the enemy's communications, the mobile arm was occasionally of great effect.... The effect seems to have been greatest when executed in conjunction with action by the main force, and when the enemy's force was on the move. (13)

The exploits of American Civil War cavalry leaders Stuart, Forrest, Van Dorn, Grierson, and Wilson excited the imagination of nineteenth-century European cavalry leaders seeking a role in the age of the breechloader.

When Russia went to war with the Ottoman Empire in 1877, the operations of General Gourko's detachment offered cavalry leaders a model for an aggressive raid deep in the enemy's rear. With a mixed force of cavalry and infantry, Gourko's 12,000 soldiers advanced

nearly 100 miles into the Turkish Balkans and,

> ...in less than a month gained possession of one of the principal passes of the Balkans...carried a panic throughout the whole of Turkey between the Balkans and Constantinople...had destroyed the railroad and telegraph on the two principal lines; finally it had gathered accurate information concerning the the strength and positions of the large Turkish force advancing toward the Balkans. (14)

The Turks eventually mustered a force of 50,000 that drove Gourko into assuming a defense at the Shipka Pass, but Gourko's activities effectively protected the Russian Army's southern flank. Had the Russians not become involved in the siege at Plevna, Gourko's force would have been the Russian Army's advanced guard into Constantinople.

In the period between the American Civil War and the First World War, cavalry sought a "strategic" (what we would now call operational) mission as a raiding force that would facilitate the maneuver of less mobile corps and armies on the next European battlefield. A German general, Frederick von Bernhardi, wrote that:

> Since the cavalry is not only able to cover great distances with overwhelming rapidity, but... as a standing branch of the Army, is always ready to march and operate, whilst the other portions of the Army are still occupied with their mobilization, the opinion has been freely expressed that it would be advantageous to utilize this period... for cavalry raids... into the zone of concentration, or against the communications of the enemy. (15)

The great threat to German mobilization, and therefore German war plans, was the Russian cavalry. "On the outbreak of war," believed Bernhardi, "these masses are ready at shortest notice to ride over our frontiers, to break up our railways, to seize our horses and depots, to destroy our magazines, and to carry terror and consternation into our zone or assembly." (16)

Yet the cavalry raid was understood to be a difficult mission.

> The success of such undertakings will depend...on the rapidity with which the opportunities secured by such surprise are utilized, and, ...on the available fighting power which must suffice to break down all opposition with certainty and speed.... We must never leave out of sight the cardinal point that only the concentration of sufficient force at the right time and place can guarantee the final result. (17)

Thus, the raiding force required three things: superior mobility to penetrate or evade quickly, sufficient firepower to destroy effectively, and a significant objective to achieve an operational effect from a tactical engagement.

Not every writer was as confident in the capability of the cavalry to execute deep raids as part of an operational maneuver. The German Prince Kraft zu Hohenlohe-Ingelfingen, a veteran of the German Wars of Unification, compared the American and European theaters of operation and concluded, "that in civilized

countries, inhabited by a large and hostile population and crossed by numerous railways, such raids must be more limited in extent than in the vast plains of America." (18) The cumulative effect of population size, transportation and communication systems, and lethality of weapons precluded cavalry raids.

> ...take any frontier of any state in Europe, and move troops on the map in any direction which offers some object for the movement.... They will come upon either some fort, or a large fortress, or a river, which last they will not be able to cross, since there will generally be a town on it, and in that town a garrison.... (19)

The mobility and limited firepower of the cavalry would be dissipated and destroyed in a vain attempt to penetrate into the depths of the enemy's rear area. Railways and telegraphs would allow the defender to react quickly and decisively to any cavalry penetration. The density of the European battlefield and theater of operations, the mass of forces within the limited area for military operations, denied the cavalry its raison d'etre: mobility. The experience of the cavalry on the Western Front in World War I seemed to validate Hohenlohe's doubt regarding the usefulness of the cavalry raid.

There were, however, two theaters in World War I where cavalry mobility was used to great effect. In Palestine, General Allenby's cavalry repeatedly raided

into the depths of the Turkish forces.

> At Magdhaba a mounted division made a night march of twenty miles, surprised and overwhelmed a strongly posted enemy detachment, and then returned over twenty miles to its base all in less than thirty hours. At Rafa very similar operations as regards both distance and time was carried out with equal success. At the first battle of Gaza and again at Beersheba the mounted troops by their mobility were able to reach the rear of the enemy's position and attack it from a quite unexpected direction.... Their crowning exploit in the battle of Megiddo is probably the most striking example of the power of the cavalry arm in the whole history of war. (20)

At Megiddo, Allenby's cavalry formations moved as far as 70 miles in 34 hours, isolating the main battlefield and seizing key chokepoints in the rear of the Turkish defenses. The battle quickly developed into a pursuit to Damascus with the Commonwealth forces advancing 350 miles in 38 days and capturing 75,000 prisoners against 5,000 of their own casualties. (21)

On the steppes of Russia, the cavalry was also able to exploit its mobility. Where there was space to maneuver, there was opportunity for cavalry operations. In the years of the Russian Civil War, "the width of the fronts and the extremely low density of weapons and technical combat resources per kilometre of front established the prerequisites for developing wide sweeps by cavalry and for giving that arm the key role in a whole series of operations and campaigns." (22)

Marshal Tukhachevskii's observation suggested a relationship between depth, density, and maneuver. The examples of Palestine and Russia seemed to suggest that cavalry, or more accurately cavalry mobility, could only be used effectively in an open, less dense, environment. How then could a cavalry force, both mobile and vulnerable, maneuver in modern war to reach into the depth of the battlefield and the theater of operations?

Tukhachevskii believed the answer was airmechanization. Fuller and Liddell Hart believed that the mechanization of armies and air forces was the answer as well.

> ...there is no good reason why these mobile raids [as executed in the American Civil War] could not be duplicated on a larger scale against armies whose communications were vulnerable to attack by aircraft, airborne engineers, or tanks. (23)

In large measure Tukhachevskii, Fuller, and Liddell Hart were correct. The tank and the airplane did return mobility to the battlefield in World War II. And the bomber and the paratrooper did offer the theater commander the means to strike deep into the enemy's rear. But the air force could not control the ground, and the airborne force was vulnerable on the ground. There were no raids that achieved operational effect (exclusive of the Allied bombing effort) on the

Western Front in World War II. In the contemporary NATO environment, however, the helicopter and the concept of airmechanization may offer the theater commander a force with superior mobility and sufficient firepower to conduct raids as part of operational maneuver. Airmechanized forces may be able to dominate ground and destroy targets deep in the enemy's rear in a way that airpower simply cannot.

## III. Depth, Density, and Maneuver

> At the present moment he who grasps the full meaning of this change, namely that the earth has now become as easily traversable as the sea, multiplies his chances of victory to an almost unlimited degree. (24)
>
> J. F. C. Fuller

Major-General Fuller was a visionary when he wrote these words in 1928. Unfortunately, the promise of mechanized mobility far exceeded its reality. Mechanized forces could not traverse the land as easily as ships moved across the sea. The cruiser tank, churning through the mud, was tied to its road and rail supply network. Terrain was often impassable. Antitank forces often possessed equal mobility and adequate firepower. Furthermore, as both sides possessed comparable mechanized forces and technologies, it was the side that possessed superior mechanized doctrine and tactics that had the advantage on the battlefield. And this advantage would be

temporary as mechanized doctrine evolved in the light of battlefield experience.

The German attack through the Ardennes in 1940 was successful. The Germans won their campaign against France and the British Expeditionary Force. The German attack through the Ardennes in 1944 was a failure. The Germans suffered a disastrous defeat in the Battle of the Bulge. What conditions or factors had changed? Why were the Germans unable to repeat their earlier victory? Why were they unable to maneuver into the depth necessary to win the battle and the campaign? I suggest that an understanding of the relationship between depth, density, and maneuver can answer these questions.

Depth is an expression of resources, space, and time. Resources include both quantitative and qualitative assets: the number and types of forces available and the doctrine and professionalism of the forces. Space involves the physical factors of geography and weather. Space also involves political restraints on the employment of forces (e.g. rules of engagement). Time is a constant factor, but the efficient use of time may provide a relative advantage to one side or the other. Time may also be a restraint if it is an expression of changing resources and space available to one side or the other.

Density is a term from the physical sciences defined as the ratio of mass to volume. In military terms, density is the ratio of forces within the area of operations. In other words, density is an expression of the opposing forces' resources in space and time -- a correlation of opposing forces' depth. Forces with comparable resources will not possess significant relative advantage on the battlefield; nations with comparable resources will not possess significant relative advantage in a war. The considerations of geography, weather, and political restraints will affect the number, type, and method of employment of forces in a theater of operations. Finally, the constraint of time demands that the operational objective is achieved before a relative military or political advantage is lost.

Maneuver is the dynamic application of combat power to accomplish an objective. Operational maneuver seeks to achieve an operational effect: to win a major battle or campaign in order to achieve a strategic aim. Operational maneuver will be successful when forces are able to move through the enemy's tactical depth with sufficient combat power remaining to achieve a deeper, operational, effect. Of course, the target of the forces conducting the operational maneuver must be an objective with operational significance.

The German attack through the Ardennes in 1944 failed because the density of the battlefield and the theater of operations had changed dramatically since 1940. The Germans no longer possessed an advantage in depth -- an advantage in resources, space, and time. Operational maneuver proved more difficult in a dense environment. The Germans had neither the mass nor the mobility to penetrate beyond the tactical depth of the Anglo-American armies.

Now, the concept of airmechanization offers the use of the mobility of the helicopter as a substitute for mass. First, the airmechanized force has a special ability to fly over and through the tactical depth regardless of terrain. Second, the airmechanized force has a mobility that can be translated to an ability to avoid enemy forces at will. Third, the airmechanized force can use its mobility to mass its firepower to greater effect by attacking targets that are not postured for defense and are more vulnerable to attack. Finally, the airmechanized force can operate at a faster tempo than ground maneuver forces.

> The emergence of the Blitzkrieg concept and the matching development of the JU-87 dive bomber, the fighter-bomber class of aircraft, and medium bombers conferred the ability to apply airpower coordinated with ground action at any required depth. Now the development of the helicopter has brought a form of aircraft right into the heart of the land battle, where its roles are

> starting to overlap with those of the armoured vehicle. This ability to place mobile firepower (protected by an appropriate combination of armour, speed and agility, and countermeasures) rapidly at any desired position of advantage has...opened up the scope of operational manoeuvre, or rather reopened it in an era when the entire area of operations is likely to be covered by troops, or fire, or both. (25)

The airmechanized force, enjoying a mobility advantage several times greater than a mechanized force, may be able to translate its mobility into tactical advantage for operational maneuver. The theoretical notion that tactical mobility can be expanded into operational maneuver can be traced to the lessons of World War I.

J. F. C. Fuller, reflecting on his experience in World War I, concluded that modern armies must master the tactics and techniques of penetration. The density of forces in the European theater, coupled with their comparable mobility, prevented maneuver to envelop the enemy. Fuller reduced the tactics of penetration to geometric formula: width of sector, desired depth of penetration, required fires and forces. (26) His formula reminds contemporary readers of Soviet norms. Yet fire and forces were not in themselves sufficient to effect a penetration, "penetration by gunfire had virtually become impossible, the spade in fact had beaten the cannon." (27)

New tactics or new weapons were the keys to a successful penetration. Fuller cited the examples of

von Hutier infiltration tactics, poison gas, and tanks. But new tactics and new weapons were merely the causes -- the effect that produced success was surprise. "Penetration requires surprise," Fuller wrote, "exploitation or pursuit requires continuity of movement." (28) In Fuller's combat experience this "continuity of movement" was frustrated on the Western Front. Attrition warfare was the result.

Mobility would return the opportunity for maneuver warfare. Mobility would facilitate surprise and envelopment. Mass and economy of force were themselves products of mobility. Indeed, "every principle of war becomes easy to apply if movement can be accelerated and accelerated at the expense of the opposing side." (29) Thus, Fuller concluded that mobility was the key to maneuver and tactical success. A modern army required a force capable of moving faster than the enemy, capable of fixing and flanking the enemy.

> Like a boxer, he wants two fists, so that with one he can punch his antagonist to a standstill, and then knock him out with the other. He hits at him frontally to fix him, and, when once fixed, he manoeuvres round his other fist to knock him out.... His ability to manoeuvre -- to move -- enables his two fists to cooperate, and if he can surprise the enemy by a blow on the nape of the neck, he has got him 'cold.' (30)

Fuller's "two fists" were demonstrated by the Germans in 1940 when their infantry force fixed the

Allies while their tank force went for the knockout blow. This cooperation between what Sun Tzu called "ordinary" and "extraordinary" forces turned the German's tactical success into an operational victory. Now the helicopter may offer similar opportunities. The airmechanized force may become, "the 'Panzer-truppen' of the future -- the small part of an army that enjoys mobility greater by an order of magnitude than the rest." (31) The airmechanized force may have the same effect as the 'Panzertruppen' did in 1940.

Soviet writers have also examined the link between depth, density, and maneuver. Like Fuller, they concluded that surprise was a key ingredient in tactical success during World War I. At the Battle of Cambrai in 1917:

> ...the British succeeded in secretly concentrating in the planned area a strong attack grouping...taking advantage of the action of the principles of concentration of effort and surprise, the British troops broke through all three positions of the German defense.... However, at that time there still was no success in finding the means and methods of developing the tactical breakthrough into an operational one.... In itself, the principle of concentration of efforts even in combination with the principle of surprise did not lead to operational success. (32)

According to an authoritative (Soviet) source, the Soviets were the first to find the solution to the problem of developing tactical success into operational

success. The experience of the Russian Civil War and the Russo-Polish War taught the Soviets that two forces were needed: a shock force to rupture the enemy's defense and a mobile force to penetrate the enemy's depth. (33) The Soviet solution sought both mass and mobility.

These two forces, or echelons, were the fundamental components of Triandafillov's concept of maneuver warfare. A combined arms army, relying on firepower, would break into the tactical depth of the enemy. A tank army, relying on mobility, would exploit into the operational depth. (34) The combination of firepower and mobility, the shock group and the mobile group, allowed the Soviets to smash through the dense battlefield. The mobile group in the second echelon, supported by aviation and airborne forces, possessed "great penetrating force and an ability to affect the enemy to a great depth." (35) The Soviet Army had learned to execute this concept by 1944. In Operation BAGRATION, four Soviet fronts attacked three German armies in Belorussia. The Soviets used a combination of penetration and shallow envelopment to encircle the forward German armies. A tank army, followed by cavalry-mechanized groups, executed a deep envelopment of Minsk, then exploited to the East Prussian frontier. Within one month, the Soviets had destroyed the German

Army Group Center and advanced 500 kilometers. (36) The Soviets had effectively combined mass and mobility to achieve operational effect through the employment of echeloned shock and mobile forces.

Although the Soviet's airborne experience in World War II was disappointing, the theoretical notion was still considered valid. Technical inadequacies, rather than theoretical deficiencies, were blamed for poor results at Vyaz'ma in 1942 and the Dnepr in 1943. (37) Tukhachevskii's requirement for mechanized airborne forces to participate in deep battle endured despite the debacles in World War II.

> The deep operation evidently called for aviation and airborne...organized to cooperate with one another, but to operate independently of the main force, penetrating to the enemy's "operational depth." This meant a penetration 50-60 kilometres deep to reach the line of the enemy's operational reserves, tactical airfields, and army headquarters. (38)

The advent of the helicopter gives new meaning to Tukhachevskii's concept of "airmechanization." The latest edition of Soviet Taktika noted that:

> ...helicopters are significantly increasing the firepower and the mobility of the troops.... They provide a possibility for employing different methods of destroying the enemy by fire, and new methods of combat employing a third dimension... Three-dimensionality is a new characteristic of combined arms combat which is becoming... a combination of ground and aerial combat dispersed along a front and in depth. (39)

Airmechanization is even changing the Soviet idea of echelonment. The 1987 Taktika suggests that tactical battle formations are evolving into a ground and an air echelon. The ground echelon will "penetrate enemy defenses and develop success in depth," and the air echelon will "envelop the battle formations of defending troops from the air and deliver strikes on him from the rear." (40) The airmechanized force may complement the mobile group as the formation that will achieve operational effect.

Fuller, Liddell Hart, Tukhachevskii, and Triandafillov all arrived at the same conclusion: mobility offers the opportunity for maneuver. Superior mobility allows for operational maneuver -- "to exploit tactical successes to achieve operational results." One force holds the enemy while a second, mobile, force maneuvers "to gain a position of advantage." Operational depth has been defined as "the area...in which both defender and attacker can achieve freedom of maneuver, and if gained by the attacker provides the opportunity to destroy the defender without engaging the majority of his defenses." (41) The helicopter, by moving through the air rather than on the ground, uses its mobility and agility to penetrate the density of the tactical battlefield and maneuver into the operational depth. Airmechanization

has become a reality and has evolved into two forms: one defensive and one offensive. Let us briefly examine the specifics of these two models before projecting the theory into the practical application of an airmechanized raid.

## IV. The Simpkin Model

Brigadier Richard Simpkin proposed a radical reorganization of modern armies in 1982 with the publication of his Antitank: An Airmechanized Response to Armored Threats in the 90s. The tank-based armies of today would transition to the helicopter-based armies of tomorrow.

> The nature of the threat, future equipment capabilities and limitations ...call for a shift of the weight of combat manpower away from the mechanized maneuver force as such towards the helicopter and the artillery. The resulting division will be extremely powerful.... The extension of the helicopter element in size and role... increases the dimensions of this division's battlefield, the tempo of its operations, and above all its ability to concentrate fighting power in time and space. (42)

Simpkin's airmechanized division, comprising four hundred and seventy helicopters and complemented by combined arms and artillery battalions, "would be entirely capable of acting at the operational level with its brigades as the main tactical formations." (43)

This notion of an airmechanized force was further refined by General von Senger und Etterlin, then

Commander of AFCENT, in a lecture at the Royal United Services Institute on 2 February 1983. The general suggested organizing an airmechanized division of three brigades: an airmobile infantry brigade of four battalions, an air transport brigade of sixty medium and heavy lift helicopters, and an airmechanized brigade of one hundred and forty four observation, utility, and attack helicopters. (44) He believed that such a formation, capable of moving several hundred kilometers a day, was especially suited to serve as an operational reserve for AFCENT. The airmechanized division's mobility and firepower provided the capability to block any Soviet penetration of the NATO defenses. As the Soviets could seize the initiative in the first days of their offensive, and as the Soviets could mass their forces to achieve a penetration at the point of their choosing, von Senger und Etterlin concluded that only an airmechanized force offered NATO the chance to avoid a repetition of the debacle suffered by the West in May of 1940. (45)

The concept proposed by von Senger und Etterlin relied upon force structures and technologies then available in NATO. For example, by combining the Bundeswehr's corps aviation assets and airborne brigades, an airmechanized force would be created. Simpkin's concept, on the other hand, stipulated a

significant effort towards developing new force structures and technologies.

Both these theorists, however, agreed on three essential points. First, the new airmechanized force required a new doctrine for its employment.

> The ten-fold increase in mobility, coupled with the multi-role firepower capability, demands that the new doctrine for the tactical and operational employment of these new forces should be separated from the tactics and operations prescribed for the old conventional land mechanized army. (46)

Second, the airmechanized force must be employed independently of ground maneuver formations (not, as in U. S. Army doctrine, as an integral part of our ground maneuver scheme).

> If the potential of airmechanized forces is not brought to bear independently, but instead, is coupled to the forces of the conventional [mechanized] armies with their limited mobility and firepower, the same mistake will be made as... when they tied the battle tank to the infantry on foot. (47)

Finally, the airmechanized force was as fragile as it was potent.

> The question mark hangs over the rotary-wing brigade's ability to hold ground, and to carry out sustained actions against the enemy's main manoeuvre force.... Should a helicopter force be deprived of both operational and tactical mobility... as it might be by running out of fuel, its combat worth would drop from that of a tank division to that of an infantry battalion. (48)

Simpkin's notion of airmechanization began as a concept designed to defeat a Soviet offensive in Central Europe. The airmechanized force, enjoying superior mobility to the tank forces of its enemy, could mass sufficient firepower quickly on the battlefield and in the theater of operations to blunt any mechanized attack. Simpkin's model, however, is defensive in nature. Both in concept and employment, it is a reaction to a mechanized threat. Considering the problems of employing an airmechanized force, namely its doubtful survivability and sustainability on a mid-to-high intensity battlefield, an orientation towards a defensive mission may make sense. In fact, General von Senger und Etterlin believed, "there does not appear to be any necessity to commit them [the airmechanized force] over enemy-held territory." (49) The current German and French schemes for employing their airmechanized formations are essentially defensive. They will operate in front of and on the flanks of a Soviet breakthrough. (50)

While an operational maneuver may be defensive,

> The essence of manoeuvre is placing a threat in a position of advantage, the threat taking the form of mobile, protected firepower.... The only way to pose a sustained threat is to put a force of combat troops, with eyes to acquire targets and projectors to destroy them, with sustained firepower and mobility in the position of advantage. (51)

And that "position of advantage" may be beyond the friendly forward line of own troops (FLOT). The Soviet model of airmechanization has a distinctly offensive orientation. Soviet airmechanized forces will conduct offensive operations (beyond their FLOT) as part of operational maneuver.

## V. The Soviet Model

Forty years after Marshal Tukhachevskii first described airmechanization, a professor at the Soviet Frunze Military Academy wrote that, "the armed helicopter may turn out to be a means of fundamental change in the nature of ground combat." (52) Several years later the Soviets introduced their first air assault brigade into their Army's organization. Now there are ten of these brigades in the Soviet force structure, and four are assigned to the Western TVD (theater of operations) opposite NATO. Additionally, some Soviet armies have assigned independent air assault battalions. (53) Soviet air assault brigades, as front-level assets, are considered operational, rather than tactical formations. (54)

Curiously, these air assault brigades do not have organic helicopters. Because these brigades are front-level assets, frontal and army-level helicopter regiments would be allocated to the air assault brigade making the front's main effort. Thus, the front's air

assault brigade may control for a specific mission as many as three attack helicopter squadrons, two medium lift helicopter squadrons, and two heavy lift helicopter squadrons -- forty MI-24s, fifty two MI-8s, and twenty four MI-26s. The MI-26 HALO can carry either eighty five soldiers or two BMDs. (55) Assuming that the Soviet front commander decides to assign all his helicopters in support of an air assault operation, the air asssault brigade can be moved to a range of one hundred and fifty kilometers in a single lift. (56)

The Soviet air assault brigade consists of four parachute-qualified infantry battalions. The most recent sources believe that only one of these battalions is equipped with the BMD airborne amphibious infantry combat vehicle. (57) A BMD variant, the 2S9, appeared in the 1985 May Day Parade. Armed with a 120mm breechloading "combination gun" capable of providing either direct or indirect fire support, the 2S9 is a significant improvement to the air assault brigade's firepower. (58) The air assault brigade also includes an artillery battalion, a materiel support battalion, reconnaissance and engineer companies, and antitank and antiaircraft artillery batteries. (59) Thus, the Soviet air assault brigade is a combined arms formation capable of mechanized mobility for at least one BMD battalion after insertion by rotory or fixed wing aircraft.

The air assault brigade's missions include seizing command and control centers, airfields and logistics nodes, river crossings and mountain passes -- "the keys that unlock the stability of the enemy defense." (60) The appearance of these brigades in the Soviet force structure coincided with the re-emergence of the Operational Maneuver Group (OMG) in Soviet doctrine. It seems likely that the air assault brigade, providing the front commander with a vertical envelopment force capable of striking beyond the tactical depth of the battlefield, will cooperate with and complement the OMG in carrying the offensive, "into the enemy's operational defensive depth... with decisive goals, at high tempos, and at great depth." (61) In Exercise ZAPAD-81 the Soviets also used air assault forces as a diversion designed to draw enemy reserves away from the main effort. (62)

The airmechanized raid is considered a viable mission for the Soviet air assault brigade task force. An article in a Polish military journal, entitled "Aviation in the Raid Maneuver Operations of Ground Forces," has explained how an airmechanized force, having established an airhead deep in the enemy's rear, can cooperate with a mechanized force.

> ...At decisive moments of the operation the helicopters, after carrying out specific missions, land in the grouping of the raiding [air assault] or

> maneuvering [OMG] troops. There they are serviced and replenished and they return to battle operating jointly with the raiding and maneuvering forces. (63)

The airmechanized force, comprising helitroops and helicopters, facilitates the deep maneuver of the more powerful mechanized force. Indeed, the airmechanized force has become an indispensible component -- a new echelon -- of Soviet maneuver warfare doctrine. The airmechanized force is the most mobile part of, "a three-echelon concept within the manoeuvre force." (64)

The Soviet Army has embraced the concept of airmechanization and has incorporated its unique capabilities in their offensive doctrine. The Soviet model closely approximates the Simpkin model's requirement for specially trained and equipped airmechanized formations capable of exploiting their superior mobility to tactical and operational advantage. In the words of Soviet Colonel Savkin, the airmechanized force,

> Possessing an advantage in swiftness in massing forces, ...can take the initiative and gain the opportunity to crush the enemy piecemeal, counteract in a timely manner his measures to disrupt or slow down the attack, and quickly commit to the battle...additional forces with the aim of developing tactical success into operational success.... The greatest potential capabilities with regard to increasing mobility were uncovered...in the achievement of full air transportability by combined arms formations. (65)

The Soviets believe that the capabilities offered by the helicopter and the airmechanized force provide the means both to overcome the density of the modern battlefield and to seize that "position of advantage" which will "exploit tactical successes to achieve operational results." The Soviet's airmechanized force will be their key to operational maneuver in the next war.

## VI. Scenario

The purpose of this chapter is to pose a hypothetical scenario in order to evaluate the contribution of an airmechanized raid in an operational maneuver. The setting for the scenario is the North German plain in the near future. I have chosen a NATO-Soviet conflict, not because of its probability, but because it is the most dangerous environment for the employment of airmechanized forces. The density of the battlefield, especially in air defense weapons, coupled with the density of forces throughout the depth of the theater of operations, challenges the chances for the success and survival of an airmechanized raid -- much as the cavalry raid in Western Europe one hundred years ago was considered a difficult and doubtful operation.

On 7 March 1990, Soviet President Mikhail Gorbachev and East German Prime Minister Hans Modrow jointly announced that, "NATO membership for a unified

Germany was unacceptable." (66) Despite repeated warnings, however, NATO and West German political leaders continued planning for the integration of a unified Germany in the NATO alliance. In the early spring of 1991, the Soviet leader, frustrated by worsening ethnic and economic problems in the Soviet Union, and obsessed with the potential security threat posed by a unified Germany, decided to execute a Soviet plan for a surprise attack against NATO. In the spirit of Russian Marshal Suvorov's notion that, "one day [decides] the fate of empires," the Soviet campaign plan substituted surprise and speed for mass. (67)

Only the Soviet's Western Group of Forces in East Germany would participate in this "standing start" offensive. A successful coup by East German security forces would clear the streets of popular protests and would confine to barracks any politically unreliable East German Army troops. (68) The Soviet Central Group of Forces in Czechoslovakia, with several divisions withdrawn over the past few years, was incapable of offensive operations. Consequently, the Soviets would attack with the twenty divisions (all at 100% strength) and eight hundred aircraft immediately available in East Germany. (69) The objective of the offensive was to seize the northern third of Germany quickly, then to demand a demilitarized and neutral Germany. The

subsequent withdrawal of the Soviet Army would depend on significant economic concessions by the West. The Soviets were confident that their correlation of forces satisfied the limited duration and objective of their campaign plan.

The Soviet's main effort hit NORTHAG (Northern Army Group of NATO). The 2 Guards Tank Army and the 3 Shock Army overran the Dutch and Belgian forward defenses respectively. The 20 Guards Army, however, stalled before a stubborn and skillful delaying action by the I German and I British Corps. The Soviet attempt at encircling and destroying NORTHAG failed. The Soviet attack culminated on the line of the Weser River with a bridgehead seized by air assault forces at Bremen. The Soviet's supporting effort committed the 8 Guards Army and the 1 Guards Tank Army to fix CENTAG (Central Army Group of NATO). The Soviet's second operational echelon consisting of the 5 Guards Tank Army (5GTA), including three divisions moving from Belorussia on a fleet of Soviet heavy equipment transporters (HETs), was due to arrive within seventy-two hours. (70) The Soviets expected this operational reserve would recover the momentum of their offensive, rupture the NORTHAG defense, and exploit to the Rhine.

The AFCENT commander realized that the defeat of the Soviet offensive required attacking the 5GTA. The

NATO air forces, involved in the air superiority contest, could neither resource nor target for air interdiction truck convoys moving mostly at night, on multiple routes, and at speeds averaging thirty kilometers/hour. The task of destroying the 5GTA, thus, fell to the ground component. The AFCENT commander made the NORTHAG commander responsible for this mission.

The NORTHAG commander, beginning the war committed to forward defense, knew how critical retaining his own reserve was. (71) His available forces included the German 7 Panzer Division and an American airmechanized force (AFCENT reserve) under his operational control. He determined to launch a counterstroke:

> ...an operation designed to destroy an enemy who is either on the move, or temporarily halted, but who has not coordinated his defense...[an operational level offensive operation] designed to seize the initiative and to win. (72)

He decided to use his armored division (and I German Corps) to penetrate the tactical defenses and his airmechanized force to attack beyond the tactical depth. NORTHAG's task was to locate, then destroy, the 5GTA before it was ready for battle.

The airmechanized force was ordered to conduct a raid to establish an airhead approximately 150 kilometers beyond the FLOT in the vicinity of the Luneburg heath, and from this "position of advantage,"

to attack the transporter convoys moving towards the battlefield. The raid was force-oriented, but was expected to operate beyond the FLOT for up to forty-eight hours, depending on the speed of the enemy's reaction. The airmechanized force -- an air assault task force (AATF) in our doctrine -- was organized with two attack helicopter battalions, one air cavalry squadron, one air assault infantry battalion, and one air assault air defense battery. (73) Additional lift helicopters were available to support the raid, but would not remain beyond the FLOT after the initial insertion into the airhead. The criterion for the raid's success was the disruption of the enemy's deploying operational reserve as a prelude to its destruction by I German Corps (see the appendix for the calculations estimating the raid's effect).

The AATF successfully penetrated the FLOT and established its airhead within striking distance of the east-west routes used by the Soviet convoys. In the period of forty-eight hours, the attack helicopter battalions sortied five times, attacking the convoys on three occasions -- damaging the 5GTA forces and severely disrupting its deployment into battle. The AATF withdrew (with the exception of its infantry battalion which became a stay-behind unit) to an amphibious beachhead in the Elbe estuary on the completion of its mission.

In order to examine the contribution of this raid to operational maneuver I will use the draft TRADOC framework for the operational level of war: command and control, intelligence, movement and maneuver, protection, fires, and support. (74)

Command and control at the operational level involves the command relationships, missions, resources, and control measures assigned for planning and executing a campaign plan. (75) The airmechanized force is an operational, rather than tactical, force because of its mobility and the employment of that mobility in the theater of operations:

> to create a decisive impact on the conduct of... a major operation [counterstroke] by either securing the operational advantages of position... or exploiting tactical success to achieve operational... results. (76)

The AATF was targeted against an objective (5GTA -- the Soviet operational reserve) critical to the success of NORTHAG and AFCENT.

As Simpkin has pointed out (see p. 15), the attack helicopter is a hybrid between the aircraft and the tank. When committed to a raid beyond the tactical depth of the defense the AATF becomes, in effect, a means of sustained interdiction: "to prevent the enemy from massing forces...and to create opportunities for friendly air, land, and sea forces." (77) The target area for the raid, one hundred and fifty kilometers

beyond the FLOT, lies beyond the NATO reconnaissance and interdiction phase line (RIPL) -- in the air interdiction zone. The AATF is operating beyond even the Army Group Commander's area of responsibility, where, "...the air force doctrinally becomes independent of the land war." (78) The AATF is more responsive to the opportunities of the modern battlefield than either air interdiction or battlefield air interdiction -- consider the planning and execution cycles for attack helicopter operations and air force operations. (79) Thus, the employment of the AATF in a raid beyond the tactical depth is, in effect, a form of air interdiction that requires the theater commander's command and control to exploit its full potential.

Because the raiding AATF is operating beyond the Soviet's tactical depth, the AATF is the enemy front commander's command and control problem, requiring the commitment of his own resources. The attack of the AATF on his operational reserves disrupts his operational plans. The effects of the airmechanized raid, "represent much more to the enemy commander than mere bombardment. They require his attention and counteraction... to relocate command posts... tie up his reserves... ruin his march schedules." (80) The airmechanized raid contributes to the cybernetic, as well as the physical and the moral, disruption of the enemy.

Intelligence at the operational level of war is both more difficult to acquire and to act upon in a timely manner. (81) An airmechanized raid to a depth of more than one hundred kilometers exceeds the intelligence capability at corps-level to "see" beyond the tactical depth of the battlefield and the theater of operations. (82) Until the fielding of such "deep seeing" systems as the U. S. Joint Surveillance and Target Acquisition Radar System (JSTARS) and the West German CL-289 reconnaissance drone, a raid into the operational depth must rely on current national and theater level assets that may prove unable to provide immediate information. (83) Tactical intelligence will allow a successful suppression of the enemy air defenses (JSEAD) for the penetration of the raiding force, and the AATF will generate its own intelligence (with tactical and operational relevance) during the raid, but until technology provides the tools to acquire timely and accurate operational intelligence, the airmechanized raid must remain a risky proposition.

Movement and Maneuver at the operational level "seeks a decisive impact on the conduct of a campaign." If, as the results of the raid in this scenario suggest, the effect was less than decisive, the impact of the AATF was still significant: the destruction of a division-equivalent and the disruption of a front-

level operation. The success of AFCENT's and NORTHAG's operational maneuver, the counterstroke, will depend on both "fists" -- the mechanized maneuver force's attack and the airmechanized force's raid. The effects must be complementary. The mobility of the airmechanized force provided the theater commander with a tactical advantage that, "changed the operational conditions, forestalled the enemy attack, while continuing preparations for his own offensive." (84) The synchronization of these complementary operations (to include the use of air and amphibious forces) to achieve the operational result is the task of the theater commander.

The airmechanized raid is a mission consistent with our doctrine. (85) General Crosbie Saint has acknowledged that, "...if the mission requires...refueling and rearming assets can accompany the mission [attack helicopter force] to extend range, time on station, and ammunition available to allow for multiple attacks." (86) The capability of an airmechanized force to raid into the operational depth cannot be matched by mechanized forces or airpower. (87) But this is a fragile force to move through the tactical depth to a "position of advantage." The objective of the airmechanized raid must be chosen carefully for its contribution to operational maneuver and success.

Protection means preserving the force, and the airmechanized force uses surprise and mobility to protect itself. The AATF begins its raid 100 kilometers behind friendly lines and is operating 100 or more kilometers behind enemy lines within hours. The AATF takes advantage of the "slow-go" terrain of the Luneburg heath to limit enemy approaches towards the airhead. The AATF is most vulnerable while penetrating the Soviet air defenses along the FLOT. Effective JSEAD, night, and air routes that avoid enemy defenses (infiltration or envelopment) allow most of the force to penetrate successfully. Soviet air defenses (anti-helicopter) will be less effective the deeper the AATF operates. (88) The airhead will be attacked by enemy EW, air (rotary and fixed winged), and reserves. The AATF will defend itself by dispersion, displacement, and aerial or rocket-delivered submunitions. (89)

The effect of the raid helps protect the success of the counterstroke by its direct contribution to the defeat of the Soviet operational reserve. An airmechanized raid may also be used as part of an operational deception, as a feint or a diversion.

Fires, like maneuver, are considered operational when they have a decisive impact on a campaign or major operation. (90) The AATF's raid, as a form of sustained interdiction, disrupted the deployment of the

Soviet's operational reserve. In the situation postulated by this scenario, air force interdiction was unable to affect the 5GTA's movement significantly. Likewise, the Army Tactical Missle System (ATACMS) was either unavailable or unable to target the 5GTA to the depth required. Consequently, the airmechanized raid was the only means to achieve the "sustained firepower" in a "position of advantage" required by the operational mission.

Support is the generation and sustainment of combat power. The AATF's mobility allows it to generate combat power at decisive points rapidly. The AATF's vulnerability and supply requirements pose a tremendous sustainment challenge, especially in the execution of a raid (see appendix). As both Simpkin and von Senger und Etterlin concluded, the airmechanized force is a potent tool for the theater commander, but the considerations of its survivability and sustainment may compel him to use it defensively -- to protect his own support structure from the enemy's raiding forces during a war.

## VII. Conclusion

> As weapons move quicker, staff officers must think quicker, and unless they have thought out all kinds of possibilities beforehand, there will be no time to do so after an engagement has begun. (91)
>
> J. F. C. Fuller

Military theorists have criticized the U. S. Army's aviation doctrine as being too timid. Simpkin, for example, has chastised our concept for using our airmechanized forces in support of our mechanized forces at the tactical level, rather than independently at the operational level. (92) The airmechanized raid is a possible mission that uses the mobility of the helicopter "to exploit tactical successes to achieve operational results."

The airmechanized raid offers a form of sustained interdiction in the enemy's operational depth. The objective and the timing of the raid complement the maneuver of mechanized forces. I believe, however, that our airmechanized forces must work in concert with our more powerful mechanized forces. "In order to strike at the enemy's rear," Fuller believed, "it was vital to fix the enemy's front and pin him in his position." (93)

> Only when an enemy is held is liberty of movement gained, and liberty of manoeuvre carries with it freedom of action which is the aim of all generalship. (94)

The mobility of the airmechanized force, complementing the firepower of the mechanized force, can provide the commander the "two fists" needed to maneuver and win on the battlefield and in the theater of operations.

Raids, however, require thorough rehearsals. An

airmechanized raid to contribute to operational maneuver as suggested in this monograph requires both technology (JSTARS, ATACMS) and training to be successful. Exercises should test the feasibility of what is now only a theoretical and doctrinal concept. REFORGERs, for example, might incorporate the employment of airmechanized raiding forces against the Soviet reinforcements envisioned in a post-CFE Europe.

Perhaps the potential of airmechanization is as great as military theorists and Soviet doctrine have suggested. However, until this potential is evaluated in practice, the concept of the airmechanized raid remains unproven.

## APPENDIX

1. The purpose of this appendix is to explain both the anticipated effect of the airmechanized raid and the the magnitude of the survivability and sustainment issues involved in executing the raid as postulated in this monograph. I used the data found in the FM 101-10-1/2: Staff Officer's Field Manual (OCT 1987) and the USAC&GSC Student Text 101-6: G4 Battle Book (1 JUN 1988) for my calculations. I note other references as appropriate. Whenever applicable, I state my own assumptions or conclusions regarding the calculations.

2. The concept of the airmechanized raid exists in Simpkin's theory and both Soviet and American doctrine. An airmechanized raid beyond the tactical depth of the battlefield and beyond the NATO reconnaissance and interdiction phase line (RIPL) replaces airpower in the conventional interdiction mission. Indeed, as my scenario suggests, the airmechanized raid may be the only effective means now available to the theater commander to interdict certain mobile and valuable targets in the enemy's operational depth. (95) The concept, however, has not been proven in exercises or conflict. This appendix, therefore, serves only as a point of departure for discussion and experimentation.

3. Doctrine, Force Structure, and Training. I assume that the U.S. Army will not create an airmechanized force on the Simpkin or Soviet models in the foreseeable future. Consequently, I have used our current force structure in this monograph. I assume that an American airmechanized force exists (similar to the force proposed by von Senger und Etterlin, see p. 23), and that peacetime exercises validated the doctrine and practiced the force.

4. My scenario assumes that the Soviets achieve surprise and maintain security by attacking without their Warsaw Pact allies. The density of enemy forces in the theater of operations, therefore, is much less. This condition provides the airmechanized force an opportunity to exploit its mobility for operational effect (see Tukhachevskii's comment on p. 10).

5. In a European environment, the Soviets must rely on rapid reinforcement into the theater of operations. In my scenario, the second operational echelon must arrive quickly to maintain the momentum of the offensive. The Soviets use HETS to move three divisions of this echelon because road movement is safer than rail movement into the theater (e.g. NATO air attacks on railyards and switching sites).

6. Preparation and Execution. The operational commander must anticipate his missions and the forces needed to execute those missions. (96) In this scenario, the AFCENT and NORTHAG commanders integrated the efforts of air, airmechanized, and ground forces to conduct the counterstroke against an operationally critical target: the Soviet operational reserve. The airmechanized force requires at least 24 hours planning and preparation time before the raid. (97) The objective area for the raid was thoroughly reconnoitered before hostilities, and intelligence resources (e.g. HUMINT) monitored the objective area after war began. The raiding force moved on multiple air routes from assembly areas, across the FLOT, and to the airhead in the objective area successfully.

7. Considering the factors of METT-T, I decided on the following task organization for the airmechanized raiding force:

2 Attack Helicopter Battalions
1 Air Cavalry Squadron
1 Assault Helicopter Company
1 Air Assault Infantry Battalion
1 Air Assault Air Defense Battery (Vulcan-Stinger)

I assume that in the raid the AHBs will perform attack duties only, the cavalry squadron will perform reconnaissance and security duties only, the lift company will be used for air transport duties within the airhead and on withdrawal, and the infantry battalion and the air defense battery will defend the airhead. (98) Additional lift helicopters (UH-60, CH-47D, or CH-53) will transport personnel, equipment, and supplies to the airhead, but will not remain in the airhead. Assuming a number of helicopters either non-operational or lost enroute to the airhead, the number and type of aircraft (a/c) available in the airhead are:

| type unit | # a/c in unit | # type units | assumed loss rate | total # a/c |
|---|---|---|---|---|
| AHB | 18 AH64 | 2 | 17% | 30 |
| | 12 OH58 | | 17% | 20 |
| CAV | 16 AH1S | 1 | 25% | 12 |
| | 24 OH58 | | 17% | 20 |
| ASLT Co | 15 UH60 | 1 | 20% | 12 |

Thus, the TO&E strength of the raiding force is 115 helicopters; the assumed scenario strength of the force in the airhead at the start of day 1 is 94 helicopters.

8. I used the Materiel Loss Data percentages given in the G4 Battle Book for helicopters participating in "offense" operations.

| | Day 1 | Subsequent Days |
|---|---|---|
| AHs and OHs | 30% | 25% |
| UHs | 20% | 20% |

I assume that all helicopter losses are non-repairable. Therefore, over the 48 hour period of the raid, the force's helicopter strengths were:

| | Start Day 1 | End Day 1 | End Day 2 |
|---|---|---|---|
| AH-64s | 30 | 21 | 15 |
| OH-58s | 40 | 28 | 21 |
| AH-1s | 12 | 8 | 6 |
| UH-60s | 12 | 8 | 6 |

The airmechanized force returned to friendly lines with 48 helicopters -- a loss of almost 50%.

9. I assume that the duration of the raid is 48 hours. The aircraft will fly 6 sorties from the airhead in that period against the targets listed. I assume that the force attacked the 5GTA only 3 times. (99)

Day 1: sortie 1 -- attack 5 GTA
sortie 2 -- defend airhead
sortie 3 -- attack 5 GTA
Day 2: sortie 4 -- attack 5 GTA
sortie 5 -- fail to attack 5 GTA
sortie 6 -- withdraw to friendly lines

10. I assume that the number of aircraft available each day for sortie is the end of day number, and I assume that each attack helicopter destroys 5 targets during each sortie (100) The effect of the raid's attack of 5 GTA is as follows:

| | Start Day 1 | End Day 1 | End Day 2 |
|---|---|---|---|
| # AH64 | 30 | 21 | 15 |

# Targets Destroyed (# a/c x # sorties x 5) is

Day 1: (21 x 2 x 5) 315 targets destroyed
Day 2: (15 x 1 x 5) 75 targets destroyed
390 targets destroyed

The raid destroyed the equivalent of a division in the Soviet operational reserve. I cannot calculate the raid's effect on the Soviet Front's timetables for the movement of 2000+ HETs. I believe the effect would be a significant disruption to the Front's plans. (101)

11. I calculated fuel requirements for the helicopters in the raiding force by assuming the need to fuel the total number of aircraft at the start of days 1 and 2. I assume that all aircraft fly all 6 sorties and that each sortie lasts 2 hours. I assume an effective FARP (forward rearming and refueling point) operation in the airhead. (102) I assume no wastage in fuel distribution.

Day 1:
30 AH64s flying 6 hours at 810 lbs of fuel/hr=145800lbs
40 OH58s flying 6 hours at 175 lbs of fuel/hr= 42000lbs
12 AH1Ss flying 6 hours at 640 lbs of fuel/hr= 46080lbs
12 UH60s flying 6 hours at 960 lbs of fuel/hr= 69120lbs
TOTAL=303000lbs

Day 2:
21 AH64s flying 6 hours at 810 lbs of fuel/hr=102060lbs
28 OH58s flying 6 hours at 175 lbs of fuel/hr= 29400lbs
8 AH1Ss flying 6 hours at 640 lbs of fuel/hr= 30720lbs
8 UH60s flying 6 hours at 960 lbs of fuel/hr= 46080lbs
TOTAL=208260lbs

The total fuel requirement is 511260 lbs of fuel.

12. I calculated the ammunition requirements for the force's helicopters as two days of an "attack of position" at a "heavy level of operation."

| | Day 1 | Day 2 | Total |
|---|---|---|---|
| HELLFIRE ATGM (12 rds/day/wpn) (1.66 STON/helo) | 30 a/c | 21 a/c | 84.7 STON |
| 30mm Gun (628 rds/day/wpn) (.430 STON/helo) | 30 a/c | 21 a/c | 21.9 STON |
| 2.75" RKT (35 rds/day/wpn) (.578 STON/helo) | 42 a/c | 29 a/c | 41.0 STON |
| TOW ATGM (9 rds/day/wpn) (.445 STON/helo) | 12 a/c | 8 a/c | 8.9 STON |

The total ammunition requirement is 156.5 STON.

13. The gross fuel and ammunition requirements for this raid require approximately 42 CH-47D or 26 C-130 sorties! (103)

## ENDNOTES

1. Quoted in Richard Simpkin's Deep Battle: The Brainchild of Marshal Tukhachevskii, pp. 136-137.

2. F.M. von Senger und Etterlin, "The Air-Mobile Divisions," p. 28.

3. Simpkin, Antitank, p. 234.

4. von Senger und Etterlin, "New Operational Dimensions," p. 11.

5. Ibid., p. 12.

6. Simpkin, Red Armour, p. 63.

7. See Darrell Crawford's Airmechanization: Determining Its Viability on the AirLand Battlefield and George Webb's The Airmechanized Division at the Operational Level of War.

8. FM 100-5: Operations, p. 95.

9. Ibid., p. 128.

10. Ibid., p. 12.

11. Ibid., p. 12.

12. James Snodgrass, Operational Maneuver: From the American Civil War to the OMG, pp. 20-28.

13. Quoted in Jay Luvaas' The Military Legacy of the Civil War, p.243.

14. F.V. Greene, Report on the Russian Army, p. 183.

15. Frederick von Bernhardi, Cavalry in Future Wars, pp. 19-20.

16. Ibid., pp. 19-20.

17. Ibid., pp. 34-35.

18. Kraft zu Hohenlohe-Ingelfingen, Letters on Cavalry, p. 51.

19. Ibid., p. 108.

20. A. Wavell, The Palestine Campaigns, p.235.

21. Liddell Hart, The Real War, p. 448.

22. Simpkin, Deep Battle, p. 114.

23. Jay Luvaas, The Military Legacy of the Civil War, p. 223.

24. J.F.C. Fuller, On Future Warfare, p. 91.

25. Simpkin, Deep Battle, pp. 251-252.

26. Fuller, pp. 38-52.

27. Ibid., p. 60.

28. Ibid., p. 71.

29. Quoted in B.H. Reid's J.F.C. Fuller: Military Thinker, p. 57.

30. Fuller, p. 321.

31. Simpkin, Antitank, p. 220.

32. V. Savkin, The Basic Principles of Operational Art and Tactics, p. 212.

33. Ibid., p. 212.

34. Simpkin, Red Armour, p. 150.

35. Savkin, p. 216.

36. David Glantz, Deep Attack, pp. 43-45.

37. Glantz, Soviet Airborne Experience, pp. 110-111.

38. Simpkin, Deep Battle, p. 40.

39. V. Reznichenko, Tactics [1987], p. 13.

40. Graham Turbiville, Soviet Airborne Troops, p. 11.

41. Charles Crow, Tactical and Operational Depth, p. 3.

42. Simpkin, Antitank, pp. 272-273.

43. Ibid., p. 273.

44. von Senger und Etterlin, "New Operational Dimensions," p. 14.

45. von Senger und Etterlin, "The Air-Mobile Divisions," p. 30.

46. von Senger und Etterlin, "New Operational Dimensions," p. 13.

47. Ibid., p. 15.

48. Simpkin, Race to the Swift, pp. 129-130.

49. von Senger und Etterlin, "New Operational Dimensions," p. 13.

50. David Isby, Armies of NATO's Central Front, pp. 112-113. See also Chris Bellamy's "Trends in Land Warfare."

51. Simpkin, Deep Battle, p. 269.

52. Savkin, p. 184.

53. International Institute for Strategic Studies, The Military Balance: 1989-1990, pp. 33 and 38.

54. Simpkin, Deep Battle, p. 76.

55. Roger Bort, "Air Assault Brigades," p. 34. See also Turbiville's Soviet Desant Forces, p. 6.

56. Turbiville, Soviet Desant Forces, p. 11.

57. The Military Balance: 1989-1990, p. 33.

58. Nick Nichols, "Soviet Airborne Mechanized Strike Force," pp. 61-63.

59. Turbiville, Soviet Desant Forces, p. 9.

60. David Isby, Weapons and Tactics of the Soviet Army, pp. 390-391.

61. Bort, "Air Assault Brigades," p. 26.

62. Ibid., p. 30.

63. Wojciech Michalak, "Aviation in the Raid Maneuver Operations of Ground Forces," Polish Air Force and Air Defense Review, (FEB 1982), p. 2. See also Bort, p. 31.

64. Simpkin, Deep Battle, p. 74.

65. Savkin, p. 180.

66. New York Times, March 7, 1990, p. A-12.

67. Bruce Menning, "Train Hard, Fight Easy," pp. 82-83.

68. Military Balance: 1989-1990, p. 48. East German State Security and Interior troops amount to 28 battalions and some 19,000 men. The London Times reported on 1 March 1990 (as its page 1 headline) that the "East German Army Halved By Desertion."

69. Military Balance: 1989-1990, pp. 39-40.

70. Kenneth Keltner, "Soviet Reinforcement of Europe," p. 41. The author argues that the fleet of 2000+ heavy equipment trailers is a "strategic lift asset" for the Soviets. These HETs are capable of transporting the equivalent of 2 or 3 heavy divisions 1000km in less than 72 hours!

71. William Janes, Operational Art in NATO, p. 26.

72. Farndale, "Counterstroke," p. 6.

73. See FM 90-4: Air Assault Operations, p. 1-2. The air assault task force (AATF) "is a group of integrated forces tailored to the specific mission and under the command of a single headquarters." The major weapons systems of the task force I have postulated includes (by TO&E): 52 attack helicopters, 48 scout helicopters, 20 vehicle TOWs, 9 Vulcans, and 20 Stinger teams.

74. U.S. Army Training and Doctrine Command PAM 11-9: Blueprint of the Battlefield at the Operational Level of War, [DRAFT] 1989, p. 4-1.

75. FM 100-6: Large Unit Operations, p. 4-10.

76. TRADOC PAM 11-9 [DRAFT], p. 4-2.

77. Michael Dugan, "Airpower: Concentration, Responsiveness, and the Operational Art," p. 18.

78. James Kahan, "Air Support in CENTAG Deep Operations," p. 68. See also Konrad Alder's "Air Interdiction in Support of FOFA," p. 10 and Crosbie Saint's "Attack Helicopter Operations in AirLand Battle: Deep Operations," p. 8.

79. Crosbie Saint, "Attack Helicopter Operations in AirLand Battle: Deep Operations," pp. 5-6. See also Charles Barry's "Planning Aviation Cross-FLOT Operations," p. 36.

80. L.D. Holder, "Maneuver in the Deep Battle," p. 56.

81. FM 100-6: Large Unit Operations, pp. 3-8 and 3-9.

82. Leonard Nowak, "Synchronizing Deep Attack Support," p. 21. See also Clyde Sincere's "Target Acquisition for the Deep Battle," pp. 26-28.

83. Konrad Alder, "Air Interdiction in Support of FOFA," pp. 11-12. See also Joachim Heyden's "Reconnaissance, Surveillance, and Target Acquisition Systems for FOFA," p. 40.

84. Michael Dugan, "Airpower: Concentration, Responsiveness, and the Operational Art," p. 21.

85. FM 90-4: Air Assault Operations, p. 1-3. See also NATO ATP-41: Airmobile Operations, p. 2-3.

86. Crosbie Saint, "Attack Helicopter Operations in AirLand Battle: Deep Operations," p. 9.

87. William Brinkley, "The Cost Across the FLOT," pp. 37-39. The author argues that a U.S. heavy division cannot conduct an OMG-type mission. The division would run out of fuel within 150km and suffer 5[illegible] casualties within 1 day. See also John Walker's "Airpower: Present and Future" for a discussion of the limitations of air interdiction in a NATO environment.

88. Charles Barry, "Planning Aviation Cross-FLOT Operations," p. 39.

89. The AATF must assume the enemy's jammers will cut off communications with higher headquarters for the duration of the raid. Consequently, the AATF must expect to fight relying only on its own resources (e.g. AH-64s with HELLFIRE and VOLCANO helicopter-dispersed minefields). Preparatory fires for the raid should include using deep fires to isolate (and protect) the airhead (e.g. TORNADO MW-1 cluster-bomb munitions) as the AATF goes deep. The theater commander should arrange for local air superiority over the airhead.

90. FM 100-6: Large Unit Operations, p. 3-13.

91. J.F.C. Fuller, On Future Warfare, p. 315.

92. Simpkin, Antitank, pp. 187-188.

93. Quoted in B.H. Reid's J.F.C. Fuller: Military Thinker, p. 155.

94. Quoted in B.H. Reid's J.F.C. Fuller: Military Thinker, p. 155.

95. Alder, "Air Interdiction in Support of FOFA," p. 10. The writer discusses the difficulties in executing air interdiction as part of FOFA. In NATO exercise COLD FIRE 81, the Bundeswehr's 4th Panzergrenadier Division moved by road and rail over 400km, while NATO air forces attempted to interdict that movement at a depth of 200km beyond the FLOT.

96. Farndale, "Counterstroke," p. 9.

97. Saint, "Deep Operations," p. 6.

98. See Stuart Watkins' "Air Maneuver on the Modern Battlefield" for a similiar organization. The author reports that the Aviation Brigade of the 9th Infantry Division (Motorized) has a motorized infantry battalion assigned to it.

99. I am assuming that the attack helicopter battalions can participate in one sortie every 8 hours on average. More likely, they will fly two missions during the hours of darkness. I believe the crews will be physically and emotionally spent after this raid.

100. The Soviets believe that attack helicopters will enjoy a "12-1 or even 19-1" kill ratio against tanks moving in tactical formations with accompanying ADA (see Everett-Heath's "The MI-24"). The German "Ansbach" trials demonstrated an 18-1 ratio; Israeli helicopter pilots in Lebanon in 1982 experienced a 72% hit rate with their TOW missles (see Alder's "Airborne Threat to Mechanized Units"). Perhaps my assessment of 5 targets destroyed each sortie is low, especially if the AH-64s are attacking truck convoys rather than tactical formations. However, the Israeli helicopter pilots flew 134 sorties in Lebanon, and only destroyed 92 targets (Alder, "Airborne Threat," p. 119)!

101. Walker, "Airpower: Present and Future," p. 51. The author, an Air Vice-Marshal, explains that the effectiveness of interdiction is difficult to quantify.

102. James Harding, "Air Assault Combat Support," pp. 28-30. The CH-47D can carry 10 tons of supplies. The 101st ABN DIV (AASLT) was evolving the expertise for sustaining air assault operations in the 1980s.

103. Adrian Hill, "Whither Pegasus," p. 27. The C-130, using the Container Delivery System (CDS), can airdrop 16 tons of supplies.

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