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CHANGING ROLES: ATTACK HELICOPTERS AS THE DOMINANT MANEUVER FORCE

by

James M. Redman
Lieutenant Colonel, USMC

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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15.Abstract: Joint Vision 2010 established the warfighting concepts which the military services will use to organize, train, and equip their forces to fight in the future joint environment. As well as exploiting new technologies to develop enhanced systems, the services will need to evaluate current equipment and doctrine for relevance in support of Joint Vision 2010. One concept of the vision is dominant maneuver. This paper examines the capability of attack helicopter forces to assume the role of the tank in supporting dominant maneuver. With the introduction of the Longbow Apache and development of the Comanche, the U.S. Army has leveraged technology to produce attack helicopters that meet the demands of dominant maneuver. With sophisticated sensors, heavy firepower, and digitized electronics, the modern attack helicopter has both the combat power and survivability needed to strike at an enemy's center of gravity and decisive points. Future joint force commanders may rely on attack helicopters as their premier maneuver element. The Army should pursue these capabilities and evaluate reorganization around these units.

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CHANGING ROLES: ATTACK HELICOPTERS AS THE DOMINANT MANEUVER FORCE

The Chairman of the Joint Chiefs of Staff has published his vision for the future joint employment of U.S. military forces. Entitled Joint Vision 2010, this document establishes the warfighting concepts which will guide service acquisition programs and affect the way services organize and train to fight. A key component of this future vision is the concept of dominant maneuver. Relying on information superiority, dominant maneuver envisions higher tempo operations focused on enemy decisive points and centers of gravity to achieve rapid success in disrupting his warfighting cohesion. The evolved concept of dominant maneuver calls for platforms that can rapidly concentrate from dispersed locations, conduct precision engagements, and create a tempo that will place the enemy at a disadvantage.

In an era of limited resources U.S. military forces must prioritize and choose the best equipment to fulfill their warfighting needs. For years the main battle tank has been the key maneuver force for the U.S. Army. Now, through technology and design, the attack helicopter has emerged as a heavily armed, highly mobile, and survivable platform that has proven its capability, in combat, as an effective maneuver force. This paper analyzes the capabilities of modern attack helicopters and tanks to meet the tenets of dominant maneuver as described in the Chairman's vision.

The U.S. Army's efforts to digitize its forces has rendered the attack helicopter a potent, flexible weapon system with the possibility of being the dominant maneuver force in 2010. This will not make tanks obsolete because the cost of a sufficient number of helicopters to fight two major theater wars against heavily armored forces would be prohibitive in today's budget battles. The Army should continue to conduct warfare experiments to determine the true potential of sophisticated attack helicopter forces and explore reorganization around this capability to achieve a rapidly deployable fighting force.

INTRODUCTION

In 1996 the Chairman of the Joint Chiefs of Staff issued his vision for the employment of joint military forces in the future. Titled Joint Vision 2010, this document provides the military services a common direction for building future warfighting capabilities. In the implementation of this vision, the military services will need to assess technological advances and develop the equipment, organizations, and doctrine needed to fight jointly against future adversaries and win. Implicit in this implementation will be the need to appraise current military hardware and doctrine, and determine which will be more effective in meeting future battlefield requirements.

Similar to the controversy following World War I between battleship and aircraft carrier enthusiasts, a new controversy may be brewing in which the tank is pitted against the sophisticated attack helicopter. Like the battleship in naval warfare in its heyday, the tank has been the dominant maneuver force on the battlefield since World War II. It has also been used as a measure of a nation's military power. Prior to the Persian Gulf War, estimates of Iraqi military power revolved around its formidable tank forces. Now, like the aircraft carrier to the battleship six decades ago, the attack helicopter has risen as a formidable maneuver force to challenge the dominance of the tank.

As a component of Joint Vision 2010, the concept of dominant maneuver may affect the role of the tank in future warfare. The traditional concept of maneuver takes on new meaning in this vision. In application of the future concepts of Joint Vision 2010, the joint force commander will find employment of sophisticated attack helicopters, not tanks, will better meet the need for decisive speed and tempo to achieve dominant maneuver. While this paper does not suggest that tanks be relegated to the graveyard, it does indicate that operational planners may need to change traditional thoughts on force employment.

A discussion of the emerging concept of dominant maneuver is important to establish the traits necessary to reach this warfighting goal. The intent of this paper is not to debate the merits of Joint Vision 2010 but to compare the capabilities of the attack helicopter and tank to fulfill this concept. Also, while advanced technology will continue to improve operational

capability and survivability of weapon systems, assessing where these capabilities will be in the next quarter century is beyond the scope of this paper. Due to the acknowledged length of time required to research and develop new systems, it is safe to claim that in 2010 the military services will possess only those major weapon systems either currently in the inventory or in the development process. On that basis, this paper considers the capabilities inherent in the M1A2 Abrams, AH-64 Apache, and the RAH-66 Comanche as well as any funded upgrades planned.

JOINT VISION 2010 AND DOMINANT MANEUVER

Maneuver has been in the lexicon of the military and practiced by U.S. forces for many years. The tank has been the premier element in this doctrinal concept and long considered the decisive force in land warfare. Therefore, it is important to understand how the new concept of dominant maneuver differs from the traditional view of maneuver. This comparison will lead to a determination of some characteristics which can be used to analyze which system is better suited to meet future requirements.

Joint Vision 2010 is based on the United States' possession of technological superiority which will manifest itself in information superiority and greater accuracy and lethality of weapon systems that will magnify the combat power of smaller forces. Joint Vision 2010 recognizes that adversaries will also benefit from newer technologies and that require US forces to rely on increased stealth, mobility, dispersion, and tempo. Dispersion of forces and greater tempo will require an enhanced command and control capability. The Chairman's "vision" predicts that technological advances in information superiority will provide such improved capabilities in command and control, and intelligence functions, that, along with other enabling technologies, the traditional concept of maneuver will be transformed into the new concept of dominant maneuver.[1]

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[1]Joint Chiefs of Staff, Joint Vision 2010 (Washington, D.C.: n.d.), 19.

The traditional concept of maneuver is characterized by the movement of forces in conjunction with fires to gain a positional advantage on the enemy. Dominant maneuver will apply decisive force against enemy centers of gravity using greater speed and tempo to concentrate forces from widely dispersed positions, strike a blow that places the enemy in a position of disadvantage, and then disperse the forces again. Traditional maneuver involves the positioning of combat forces in order to mass fire power against the enemy. Dominant maneuver, with information superiority, will mass the "effects" of a broader array of assets to attack centers of gravity, and decisive points, to achieve greater effect in a more rapid time frame. While dominant maneuver does not assert that technology will preclude the need for ground combat forces, it does indicate a shift in thinking of the meaning of concentration of combat power at the decisive place and time. The concept of information-based control, vice physical control, indicates that terrain will not necessarily be controlled by forces on the ground, but could be controlled through surveillance backed by the ability to conduct rapid strikes to prevent control by enemy forces.[2]

Dominant maneuver will require forces that can conduct sustained and synchronized operations from dispersed locations; are flexible in the application of firepower, both symmetrically and asymmetrically; can outmaneuver the enemy; provide lethal direct and indirect fires, with longer ranges and more accuracy; are strategically and operationally mobile; and are ready to operate soon after arrival in theater.[3] Consequently, this translates into smaller, high speed forces that can rapidly concentrate, attack, then disperse out of the range of enemy fires. They must have the range to attack deep at the enemy's decisive points. They must possess lethal weapons that are long range, accurate, and can mass effectively with fires from other forces. This further indicates the need to capitalize on information superiority to allow for effective command, control, and coordination. As Frank Colucci, a freelance aerospace writer,

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[2]Joint Chiefs of Staff, Concept for Future Joint Operations (Washington, D.C.: May 1997), 49,50.
[3]Joint Chiefs of Staff, Joint Vision 2010, 20-21.

has suggested, "Integrated processors, modems, and displays will be as important as engine and airframe upgrades."[4]

COMPARISON OF CAPABILITIES

From examining dominant maneuver, numerous traits can be extracted that are important to evaluating a true capability to support this idea. Significant among these traits are: speed, range, mobility, firepower, survivability, sustainment, strategic deployment, and information systems. Although not necessarily implied in the doctrine, terrain effects are also critical to capability. This includes the ability to operate in the urban environment.

Speed. The speed differential between the attack helicopter and the tank is in the neighborhood of a four to one ratio. The maximum speed of the Apache is 260 km/hr versus 66 km/hr for the Abrams. The RAH-66 will be even faster than the Apache. Despite less combat power than a tank battalion, an Apache battalion gains momentum from the tempo it generates with its speed. For a deep attack of 200 km an attack helicopter force could attack within an hour, while, at best, it would take a tank unit at least four hours to reach its target. As Richard Simpkin, a retired British tank expert, indicates, the tank unit will travel in a linear formation with a specific "pass time" (the time a column takes to pass a point). In addition to the time it takes to travel to its objective, the tank unit must add the time for the rear of the column to reach the engagement or attack with less than full force. For the attack helicopter unit pass time can be zero, and they can attack with their entire force, return for rearming and refueling, and attack again. This, in effect, increases the combat power of the smaller helicopter force in relation to the attacking tank unit.[5]

Range. While at face value the AH-64 and M1A2 possess fairly comparable combat ranges of 570 km and 500 km respectively, in reality the attack helicopter has a much greater

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[4]Frank Colucci, "Army Helicopter Modernization," Army, Jan 98, 19.
[5]Richard E. Simpkin, Race to the Swift (London: Brassey's Defence Publishers, 1985), 120.

range in most cases. Using mobile fueling and rearming points (FARP) the attack helicopter force can extend its effective range, although this does create additional risk. For tank forces a 500 km range would result in an actual straight line range somewhat less than that figure. The effect of winding roads or channelized terrain would decrease the actual range in comparison with helicopters which can fly a straight line unhindered by terrain. This does not mean that helicopter units won't have to evade threat positions which might decrease their effective range, but the effect will normally be less than experienced by ground units.

Range capabilities for attack helicopters should be expanded in the future. Once operational, the Comanche will have a much greater range than the Apache. In addition, the U.S. Army Aviation Research, Development and Engineering Center is working with new engine technologies to increase the range and payload of the Apache. Desired goals are in the neighborhood of a 300 km increase in combat radius.[6]

Mobility. By their nature, attack helicopters are unencumbered by terrain and are highly mobile forces. This mobility can be restricted by weather conditions and threat locations which force helicopters to fly at terrain flight levels to evade detection; however, they potentially retain the freedom of 360 degrees of movement and can circumnavigate threats relatively easily. Tanks possess good mobility but are significantly affected by both terrain and manmade obstacles. In open or desert terrain their mobility is excellent; but, mountainous terrain can cause movement routes to be restricted, channeling movement, and raising the potential for the route to be cut by enemy forces In this case, armor forces have to fight their way through to reach their objective. This slows their movement rate and can affect future operations.

Firepower. The Apache, the Army's heavy attack helicopter, can carry up to 16 Hellfire II antitank missiles, four Stinger air-to-air missiles, and 1200 rounds for its 30 mm cannon. It can carry other configurations, depending on its mission, such as eight Hellfires and two pods of 19 shot 70 mm Hydra rockets, or four pods of Hydra rockets and no Hellfire missiles. The new

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[6]Scott R. Gourley, "Aviation Technology Update," Army, January 1999, 21-22.

model AH-64D Longbow Apache has been upgraded with a mast-mounted, millimeter wave radar which complements the original forward-looking infrared system (FLIR). The radar can detect, classify, and prioritize multiple enemy targets out to a range of 12+ km. The new fire control radar will allow the Longbow Apache to fire new radar-guided Hellfire II missiles (8000 meter range) as well as the current laser-guided ones.[7] This gives the pilots precision attack capability with a fire-and-forget missile. A new missile can be fired every two seconds.

Although considered a light-attack and reconnaissance helicopter, the Comanche will carry nearly as much ordnance the Longbow Apache. The Comanche will use a smaller version of the Longbow radar. In the reconnaissance role it will carry four Hellfire and two Stinger missiles internally to reduce its radar signature. In the light attack role it can carry an additional eight Hellfire or Stinger missiles, or Hydra 70 rocket pods, on external wings. It will also possess a 20 mm cannon with the precision of a point weapon.[8]

For firepower the M1A2 carries considerable more ordnance than the attack helicopter. With 40 rounds of 120 mm main gun ammo per vehicle, a platoon of four Abrams can carry the equivalent antitank rounds of ten Apaches. However, in the 200 km strike scenario the Apache has the advantage of striking deep and returning to rearm a couple of times before the tank unit arrives at the objective.

Survivability. For the sophisticated Longbow Apaches and Comanches this is an area where modernization has made significant improvements. The pilot's situational awareness is enhanced by the targeting radar and a radio frequency inferometer (RFI) which detects, classifies, and pinpoints the source of enemy radars in a 360 degree circumference. Additionally, an improved data modem in the Longbow allows it to link information with other Apaches or with other intelligence systems, such as the joint surveillance target attack radar (J-STARS), which gives the crew a bigger picture of the battlefield for greater situational

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[7]Glenn W. Goodman, Jr., "Longbow Introduction," Armed Forces Journal International, June 1998, 18.
[8]Frank Colucci, "The Army's RAH-66 Comanche," Army, May 1996, 42.

awareness. To reduce susceptibility to detection the Apache pilot takes advantage of his enhanced battlefield awareness, uses the terrain to mask his position and stay below enemy radars, and uses night vision capabilities to operate in the dark and avoid visual detection. The Comanche's stealth characteristics will further reduce its susceptibility to detection. With low observable technology, it will have 1/600 the radar signal and 1/5 the infrared signature of the Apache making it difficult to detect and engage with either radar-guided or heat-seeking missiles.[9] Defensively, both aircraft can employ organic stand-off weapons against air and ground threats or pass targeting data to other fire support systems. In addition, the Army is developing the next generation of countermeasure systems for aircraft self-protection. The Suite of Integrated Radio Frequency Countermeasures will provide advanced radar warning and jamming functions and have the capability to correlate radar, infrared, and laser threat data and respond with the appropriate countermeasures.[10]

The Abrams tank is much less vulnerable to threat weapons although emerging antitank technology is probably closing the gap quickly. With the upgrade to the M1A2 system enhancement program (SEP), the Abrams will meet the digitized requirements to fit into the architecture of Force XXI. This will enhance the tank crew's battlefield orientation as they share information not only with other tanks in the unit but also with outside systems. The M1A2 crew reduces susceptibility and defends themselves by taking advantage of their advanced thermal sights and engaging the enemy before the enemy engages them. The inclusion of a second-generation FLIR system in the M1A2 SEP will increase its advantage.[11] The tank will have problems with susceptibility in tight terrain, such as mountains or urban areas, where dismounted infantry can hide undetected and attack before they are noticed. Though common

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[9]Glenn W. Goodman, Jr., "Second to None," Armed Forces Journal International, March 1996, 26.
[10]Glenn W. Goodman, Jr., "Cloaks and Shields," Armed Forces Journal International, June 1996, 32.
[11]Scott R. Gourley, "Army's Force XXI Armored Maneuver Team," Army, July 1996, 42.

thought since the Vietnam War has been that the helicopter is too vulnerable for the modern battlefield, in the future it may be the tank that is more vulnerable.

Sustainment. Both the Apache and Abrams require extensive logistical support to sustain operations. The weakness of the attack helicopter is the extensive maintenance requirements which limit its availability for action. Historically, the AH-64A has required 10 to 12 maintenance manhours for every flight hour. This has limited availability to roughly 3.75 hours a day. To conduct sustained 24 hour operations takes additional units to allow for aircraft maintenance. As witnessed in the Gulf War, tank crews operated without rest for 100 hours. Although this pace of operations could not have been maintained, it does reflect a differential in capabilities. To reduce the down time for the attack helicopter, the RAH-66 is designed for ease of troubleshooting and maintenance. Maintenance requirements for the Comanche call for just 2.8 maintenance manhours per flight hour with an operational availability of 11 to 12 hours per day.[12]

Strategic Deployment. Joint Vision 2010 will require the build up combat power in the theater of operations quickly with the ability to operate soon after arrival. As the Gulf War demonstrated, heavy forces take a long time to deploy strategically. Initiatives to preposition heavy equipment afloat in a forward position will reduce strategic lift problems to some degree; however, in cases where the national command authority delays in moving those ships forward, it will still take a while to get heavy forces in the theater of operations. This means strategic airlift must be used to transport initial forces. A comparison of the requirements to lift a tank battalion of 45 tanks, the proposed structure of the Army's Force XXI units, with the total number of attack helicopters that could be moved is dramatic.[13] For just the 45 tanks, it will require 23 sorties of C-5 airlift. That same number of sorties could lift 138 Longbow Apaches or 184 Comanches. Translating those numbers into combat power, the tank deployment would

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[12]Frank Colucci, "The Army's RAH-66 Comanche," 40.
[13]Dennis Steele, "The Army XXI Heavy Division-First Blueprint of the Future Army," Army, July 1998, 34.

provide 1800 antitank rounds in theater, the Apaches or Comanches would provide 2208 or 2576 Hellfire missiles respectively. Once in theater the tank should be able to fight soon after it is married up with its crew. The Apache will take longer as it requires some reassembly. The Comanche, on the other hand, would be ready to fight 20 minutes after landing in the theater. To provide more strategic agility, the Comanche will also be able to carry two 460 gallon ferry tanks which will give it the ability to self-deploy across the Atlantic via the Azores.[14]

Terrain. Combat capabilities are significantly affected by the type of terrain in the area of operations. Attack helicopters operate best over open, rolling terrain that provides good fields of fire. They are effective in desert terrain; however, chances increase for long-range acquisition by the enemy, and desert heat conditions can reduce load carrying capability. Mountainous terrain provides helicopters good terrain masking from enemy radars, while it also permits a maneuver advantage over mechanized forces which can become channelized. The threat from enemy air defenses located on high ridges brings some added risk in these areas. In heavily wooded or jungle terrain attack helicopters are limited in the use of their precision weapons, but they can still provide heavy fires with 70 mm rockets and 30 mm cannons.[15]

Like the helicopter, tank forces also operate best in open, rolling terrain. This provides them the greatest maneuverability and opportunity to acquire threats at longer ranges. Desert terrain offers the same advantages, but dust signature will increase their susceptibility to detection. Heavily wooded or jungle terrain severely limits both maneuver and fields of fire and increases susceptibility and vulnerability to light forces.

Urban Environment. Common thinking in the military establishment concludes that the potential for conflict in urban areas will increase dramatically. Urban terrain provides significant problems for all forces. Impressions from events such as the downing of two UH-60's in Mogadishu, Somalia in 1993 have led to conclusions that attack helicopters can not

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[14]Colucci, "The Army's RAH-66 Comanche," 39.
[15]U.S. Army, Attack Helicopter Battalion (FM 1-112) Washington, D.C.: February 21, 1991), 3-21.

survive in the urban environment. This conclusion ignores successful attacks conducted by Army Cobras during the Somalia operations, the success Russian attack helicopters had in operations in Chechnya, and the results the Israelis have achieved employing attack helicopters in southern Lebanon. According to Major Harry Hewson, a Marine Cobra pilot who recently participated in the Marine Corps' URBAN WARRIOR exercise, "tactics can quickly evolve to make the armed helicopters a very effective and survivable weapon in urban terrain."[16] While the urban environment reduces the attack helicopter's fields of fire and increases the threat from enemy forces located in urban structures, helicopter pilots retain their advantage of maneuverability and can use buildings to mask from the threat.

Tanks operating in the urban environment experience similarities to operations in mountainous or wooded terrain where movement corridors become restricted, maneuver is limited, and enemy infantry can conduct ambushes from anywhere. The Russian experience in Chechnya indicates what can happen to armor in urban terrain. Yet, some conclude that the Somalia debacle was due to lack of armor. What was required was not tanks but mechanized vehicles to transport the troops to safety. The tank merely provides protection for the maneuver of infantry forces. This protection can be provided by attack helicopters that retain the advantages of maneuver, masking, and speed to reduce susceptibility in this environment.

Information Systems. The Army's Force XXI concept with its digitized units will increase combat power with a smaller force and has the Army on the road to fulfilling Joint Vision 2010 and the concept of dominant maneuver. Both attack helicopters and tanks will be "smart" assets with the ability to communicate with other Army forces or joint systems. The difference will be in the sensors employed on the attack helicopter. With its fire control radar, radar warning receiver, FLIR, and electro-optic sensors, the attack helicopter ranging deep in the theater of operations will gather near real-time intelligence and targeting information for the

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[16]Harry J. Hewson, "Light/Attack Helicopter Operations in the Three Block War," Marine Corps Gazette, April 1999, 26.

joint force commander. Additionally, with intelligence information from joint systems, Army Apache and Comanche helicopters will have the ability to concentrate and attack as determined through mission orders.

ATTACK HELICOPTERS FOR DOMINANT MANEUVER

The successful employment of AH-64A model Apaches in DESERT STORM indicates the capability of these forces to meet the demands of dominant maneuver. In the opening scene of the war, eight Apaches, in two teams of four each, conducted a 90 minute, low-altitude flight on night vision goggles into Western Iraq to conduct simultaneous attacks on two Iraqi radar sites. Firing a total of 27 Hellfire missiles, they destroyed a decisive point in the Iraqi air defense system and created a gap for Allied fixed wing airpower to exploit in the start of the strategic bombing operations.[17] In addition to this event, attack helicopter forces demonstrated their combat power as they maneuvered as units deep against Iraqi armored units. These operations were highly successful in reducing the combat potential of Iraqi forces as they met the oncoming ground assault.

The Apaches used in DESERT STORM lacked many of the capabilities now becoming reality with introduction of the Longbow Apache; but, they demonstrated the ability to conduct operational level missions. The Longbow Apache and the future Comanche will be far more capable and effective at missions against enemy decisive points and centers of gravity. According to Lt. Col. Michael Riley, commander of the first unit to train with the Longbow Apache, "An A-model-equipped battalion can kill an armored regiment. A D-model battalion can kill a division." With target handover capability between aircraft, a flight of aircraft will be able to stay dispersed while one flies over an area looking for targets. Once located, a digital signal is sent to the other aircraft which converge on the target.[18] As a testament to the power of

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[17]Adam W. Lange, "Hellfire," Armor, January-February 1998, 25.
[18]Dennis Steele, "The Longbow Apache Reports for Duty," Army, August 1998, 28.

information superiority, Army operational testing conducted in 1995 showed that the AH-64D Longbow Apache is four times more lethal and seven times more survivable than the original AH-64A model.[19]

By the year 2010, the Comanche should be an operational asset with the ability to extend the operational reach of the joint force commander past the range of the Apache. While this reach will not necessarily extend past fixed-wing capabilities, the Comanche will be able to do things that fixed-wing aircraft can not because of their high speeds. The ability to operate at long ranges as maneuver units adds an advantage over fast moving jets.

The modern, sophisticated attack helicopter has advantages over the tank as the force of choice for achieving dominant maneuver. Speed, mobility, and range advantages provide the ability to operate at a higher tempo, both simultaneously and in depth, thereby outmaneuvering the enemy. Relative freedom from the effects of terrain when compared to tank units provides the joint force commander with a more flexible force that can be employed over a greater range of operations. While the firepower of the attack helicopter is not as hefty as a tank due to the limited rounds carried, the versatility of those weapons and the momentum achieved via speed of operations increases the firepower of helicopter forces. The variety of weapons carried permits attacks against enemy forces or critical functions and can be employed against enemy air forces, or asymmetrically against enemy ground forces or even naval forces.

The information now at the fingertips of the crews through organic radar, FLIR, electro-optics, and digital links to external sources makes the attack helicopter battalion a formidable force and a key node in the information superiority network. Digital links with other unit aircraft will allow dispersed operations with the ability to concentrate rapidly on selected targets. The precision gained from state-of- the-art navigation systems and targeting systems will improve the accuracy of organic weapons and, combined with the information link to other force agencies, will provide more accurate targeting data to other fire support agencies. This flow of

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[19]Goodman, Jr., "Unbeatable Combination," Armed Forces Journal International, May 1999, 60.

information and the stand-off range of the aircraft's organic weapons will make it easier to integrate the fires of the helicopter unit with other joint force assets.

The recent deployment of an Apache battalion to the Kosovo theater of operations illustrates a good example of the operational use of these assets. The operational center of gravity for the Serbian forces in Kosovo is their armor. Because the terrain in the theater is mountainous, attack helicopters are the force of choice to attack and destroy this center of gravity. Although not equipped with Longbow model Apaches, this battalion still possesses the ability to attack with laser-guided Hellfires and owns a creditable night fighting capability.

SHOULD TANKS REMAIN THE DOMINANT MANEUVER FORCE?

The most impassioned argument made for tanks is that armor is required to hold ground while aircraft can not. In a fashion this is true. As Army doctrine states, "Attack helicopter battalions can not seize terrain or an objective, but it can dominate terrain and deny an objective."[20] In the Chairman's vision of dominant maneuver, seizing terrain is not the goal. Massing the effects of fire on decisive points or enemy centers of gravity to disrupt his tempo and cohesion is the objective. When it is necessary to hold terrain, it will be the infantry that actually perform this function. According to one Army officer, the mission of the tank is "to deliver local killing power and allow protected maneuver."[21] One could speculate that this could be done equally as well by attack helicopters in conjunction with mechanized infantry.

Another strong argument for tank enthusiasts is that helicopters are limited by weather while tanks are not. This is a valid point that has obviously been addressed by the Army. Laser-guided Hellfire missiles are affected by fog, low clouds, and other obscurants. Additionally, there are conditions in which the aircraft itself is limited. The upgrades to the Longbow Apache and the capabilities of the Comanche make them almost all-weather capable.

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[20]U.S. Army, 2-8.
[21]Ralph Peters, "The Future of Armored Warfare," Parameters, Autumn 1997, 50.

The radar-guided Hellfire will be all-weather capable while enhanced electronics will increase navigation and terrain-following qualities of the aircraft in bad weather. Weather and battlefield obscurants can also affect the FLIR capabilities of tank units and in some cases may affect trafficability in off-road areas.

Like battleship enthusiasts, tank proponents view the tank as a symbol of power and an instrument capable of supporting coercive diplomacy in incidents short of war. No doubt anyone who has felt the ground tremble as a tank rolls by will agree that it is an intimidating feeling. There may be times when this power is important; however, there may be cases in military operations other than war (MOOTW) that a tank may be too threatening to a population that U.S. forces are trying to calm. An attack helicopter may be a better choice in this case. An armed helicopter skimming overhead at high speed can be intimidating. It can also stay located in rear areas out of sight until needed.

Finally, the limited availability of attack helicopters is a another case tank advocates make for the need for armor. As previously mentioned, maintenance requirements can limit aircraft availability and rest requirements for pilots limits their sustained operations. Compared to the sustained operations of ground forces as evidenced in the Gulf War, attack helicopter battalions are limited. One could speculate, though, that many of the tank crews had reached their culmination point and could not have continued much longer without rest. The engineering design of the Comanche is a step in the right direction toward reducing the maintenance requirements which limit aircraft availability. Pilots are humans though and need their rest to be able to safely operate at high speeds and low levels while fighting in adverse weather. Tank crews are also human and need rest. In any extended operation, tank crews will not be able to maintain the tempo they did in that war. Human factors engineering is reducing the pilot's workload and making it easier for him to perform his mission. Peacetime crew limitations are important but can be stretched in combat operations when required. While there will always be some limits to human operations, future warfare will likely see aviation units producing higher operational tempos.

CONCLUSION

The sophisticated attack helicopter, laden with modern technology and capable of linking information systems throughout the joint force, will provide the joint force commander with a flexible weapon system that is faster than any ground system, has the ability to increase operational reach, possesses impressive firepower, and has the ability to survive on the future battlefield. In military operations other than war attack helicopters can be used for a variety of missions such as reconnaissance and intelligence, tracking drug transportation, demonstrating military power in coercive diplomacy, conducting raids against insurgent bases of operations, or providing protection of mechanized vehicles in urban areas as food is distributed in disaster areas. In a major theater war attack helicopters can disrupt critical functions, destroy supply depots, raid enemy airfields, or attack and destroy forces that are the enemy's center of gravity. These versatile and powerful assets will be able to swarm over an enemy like a hive of bees, strike over major areas of the theater of operations, and cause the enemy to reel from the rapid pace of operations.

The attack helicopter will bring significant capabilities to the battlefield and may be the most versatile asset available to the commander; however, modern attack helicopters are not cheap. Although the Army is planning on buying almost 1300 Comanches to go with the almost 700 Apaches, in a major theater war they may not be enough to defeat a large armor threat alone. In the case of near-simultaneous major theater wars, this will definitely be the case. The tank is a less versatile platform, but it is a lower cost means of fighting a major armored threat. With the battle for budget dollars that prevails in the U.S., building the Army maneuver forces around just attack helicopters is not a fiscal reality. Tanks should be maintained, possible in the reserves, to be deployed to a conflict to round out the combat forces and provide the extra killing power needed.

The Army is in the process of planning a new structure to support its Force XXI. In light of Joint Vision 2010 and the capabilities of its future attack helicopters, it would be a worthy effort to pursue options that build organizations around the attack helicopter as the premier

maneuver element of the next Army. This will require a greater understanding of what the attack helicopter can really do which should be determined in continued warfighting experiments. Nonparochial, honest evaluations will be needed to make the right choices for future warfighting success.

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