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JOINT VISION 2010 AND THE ATTACK HELICOPTER: AN EFFECTIVE DOMINANT MANEUVER FORCE FOR THE OPERATIONAL COMMANDER

by

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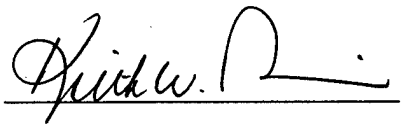
A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

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.

Signature: 

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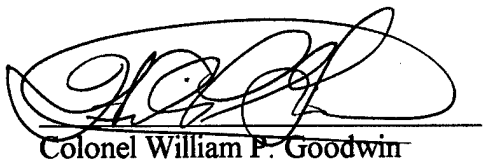

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Through organizational restructuring, cooperation with allies, advanced warfighting experiments, and the introduction of new aircraft designed to exploit the digitized battlefield, Army Aviation is committed to providing the operational commander of the future with the capability to dominate any military situation, from an urban fight to high-intensity combat.

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Introduction

> "Joint Vision 2010 is the conceptual template for how we will channel the vitality of our people and leverage technological opportunities to achieve new levels of effectiveness in joint warfighting."-- Joint Vision 2010

From the hollow force of Korea, to the height of the Reagan administration's arms build up, to current post Cold War reductions in force, America's armed forces have been continually reshaped by advances in technology. But, while the military has capitalized on technology in the form of force modernization, the foundations of doctrine have remained the same. For example, the Army asserts that understanding its doctrinal foundation -- the principles of war and the tenets of Army operations -- is "fundamental to operating successfully across the full range of military operations."[1] Even so, in a time of increased emphasis on Joint Operations and Military Operations Other Than War, it became evident that doctrine had to evolve as well, leveraging advances in technology to offset the military's increasingly smaller size. The result was the emergence of Joint Vision 2010 (JV2010) which called for a change -- by the year 2010 -- in how the services operate jointly throughout the full range of military operations. Then the Vice-Chairman of the Joint Chiefs of Staff, Admiral William Owens envisioned a warfighting doctrine based on a "system of systems" in which revolutionary advances in information technologies would be synergistically linked across the services to "gain dominant battlespace awareness, an interactive "picture" which will yield much more accurate assessments of friendly and enemy operations within the area of interest."[2] Traditional ideas about maneuver, strike, protection,

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[1] Headquarters, Department of the Army, Operations (FM 100-5)(Washington, D.C.: June 14, 1993), 2-4.
[2] Joint Chiefs of Staff, Joint Vision 2010 (Washington, D.C.: July 1996), 13.

and logistics would be transformed into four powerful new operational concepts -- dominant maneuver, precision engagement, full-dimensional protection, and focused logistics -- which, combined, would achieve what JV2010 calls "Full Spectrum Dominance".

Once JV2010 is implemented, the conventional battlefield will be one of greatly increased lethality and greatly expanded battlespace, necessitating a greater depth and simultaneity in operations against enemy forces.[3] With its ability to maneuver in the aerial dimension, the helicopter provides the operational commander with a degree of flexibility in meeting JV2010's requirements for dominant maneuver that ground maneuver forces do not. Because the operational commander -- through information superiority -- will have a previously unattainable command and control capability, he will be able to rapidly mass effects *and forces* when necessary, anywhere in the battlespace. While the positional advantages and staying power of ground maneuver forces are unique and cannot be replaced by other means, the attack helicopter is an extremely effective, responsive, and highly lethal dominant maneuver force.

From Maneuver Warfare to Dominant Maneuver

> "Dominant maneuver will be the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks. Dominant maneuver will allow our forces to gain a decisive advantage by controlling the breadth, depth and height of the battlespace." -- Concept for Future Joint Operations
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> "Information superiority is what makes dominant maneuver a new concept." -- Concept for Future Joint Operations

[3] Headquarters, Department of the Army, Force XXI Operations: A Concept for the Evolution of Full-Dimensional Operations for the Strategic Army in the Early Twenty-First Century (TRADOC Pamphlet 525-5)(Fort Monroe, VA: August 1994), 2-9, 3-10 to 3-12.

At the operational level, maneuver is defined as "the means by which the commander determines where and when to fight by setting the terms of the battle, declining battle, or acting to take advantage of tactical actions."[4] Or more simply, friendly forces maneuver in space to gain a positional advantage over the enemy. Inherent in maneuver warfare is the need for speed -- or "maneuver in time" -- to seize the initiative, dictate the terms of combat, and keep the enemy off balance.[5] This increase in friendly operational tempo forces the enemy to react in kind, establishing a pace that he cannot maintain until he is eventually overcome by events. To this end, we concentrate friendly strengths against critical enemy vulnerabilities, striking quickly and boldly where, when, and how it will cause the greatest damage to his ability to fight.

From this definition, we see that the aim in maneuver warfare is to render the enemy incapable of resisting by shattering his ability to fight as an effective, coordinated whole. This necessitates conducting concurrent close operations -- traditionally the corps and division current battles -- and deep operations directed against the freedom of action of the opposing commander, the coherence and tempo of his actions, and the physical size of his force or selected parts of it.[6] Army airborne and air assault forces, attack helicopter units, and high-speed armor forces provide the operational commander the capability to thrust deep into the battlefield to destroy these key enemy functions. To be successful, however, deep

[4] Headquarters, Department of the Army, Operations, 2-5.
[5] Headquarters, United States Marine Corps, Warfighting (FMFM 1)(Washington, D.C.: March 6, 1989), 58-59.
[6] Headquarters, Department of the Army, Operations, 6-14.

operations require the synchronization of all supporting assets, to include systems organic to the Army as well as those of other services and/or allied forces.

So how, then, will dominant maneuver differ from maneuver warfare? Like maneuver warfare, dominant maneuver seeks to gain a positional advantage over the enemy. But where maneuver warfare seeks to position traditional maneuver forces to mass firepower, dominant maneuver seeks to position an array of air, land, sea, and space capabilities to mass a broader range of effects.[7] As a result, operational concepts about "mass" will be expanded to include not only the traditional physical massing of forces, but the massing of weapons effects as well.

In order for the concept of dominant maneuver to succeed, our forces must have the ability to outpace and outmaneuver the enemy. Thus, our warfighting systems must be enhanced with the technology necessary to capitalize on information superiority in order to provide a clear and accurate picture of enemy and friendly locations. This increased battlespace awareness will allow the operational commander to keep his dominant maneuver forces in widely dispersed locations until the time is right to concentrate their capabilities against enemy centers of gravity, and then rapidly redisperse those forces if necessary.

Altogether, the concept of dominant maneuver is a design for more agile, faster moving joint operations which will combine air, land, and maritime forces more effectively to deliver decisive combat power. Through a combination of asymmetric leverage -- gained through advanced technologies and information superiority -- dominant maneuver "will allow

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[7] Joint Chiefs of Staff, Concept for Future Joint Operations: Expanding Joint Vision 2010 (Washington, D.C.: May 1997), 49.

us to apply decisive force to attack enemy centers of gravity at all levels and cause him to react from a position of disadvantage or to simply quit."[8]

A Case for the Attack Helicopter

> "To meet the challenges of its new environment, the future Army will have to be more lethal, flexible, and versatile. To do this, the Army will have to develop improved warfighting concepts and organizations to exploit them. The helicopter provides one potential basis for developing these concepts and organizations." -- Major Rick Stockhausen, "Thor's Hammer"
>
> "I believe that (Army) aviation is the dominant combat arm of the future." -- General Glen Otis, Commanding General, United States Army Europe, 1983

With the rise of the Army's Airland Battle doctrine in the 1980s, American operational art began stressing that mobility could achieve results in its own right. But because the bulk of the world's armies were mechanized, the mobility differential -- critical to success in deep operations -- was disappearing. Without this mobility differential, military theorists argued, there could be no mobile force capable of effectively exploiting to operational depths. The answer to restoring the mobility differential, they suggested, was the helicopter. Thus, maneuver by air became a distinct role for helicopters, and the change saw the emergence of new doctrines for using helicopters in independent missions and behind enemy lines.[9]

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[8] Joint Chiefs of Staff, Joint Vision 2010, 20.

[9] The discussion about the mobility differential in this paragraph was based largely on the work of another writer. See Matthew Allen, Military Helicopter Doctrines of the Major Powers, 1945-1992: Making Decisions About Air-Land Warfare (Westport, CN: Greenwood Press 1993), 244.

From historical analysis, three characteristics emerge to define an effective shock arm, a homogeneous force that can cause a temporary physical and/or psychological paralysis in the enemy. These characteristics are superior mobility (ideally orders of magnitude greater than that of any opponent), equal or superior weaponry, and a degree of protection sufficient to permit the other two characteristics to be brought to bear against the enemy.[10] The attack helicopter, though not fully mature in its development, currently possesses these characteristics "in a consonance that has not been seen since Genghis Khan's Mongols invaded the West."[11] The only major innovation after 1945 to bring with it an entirely new form of mobility, the helicopter currently provides a degree a mobility several orders of magnitude higher than any armored fighting vehicle, tracked or wheeled (see Table 1).[12]

	SPEED	RANGE	DURATION
	mph/kmph	miles/km	hrs+min
AH-64A	161/259	354/570	2+10
M1A1	41.5/66	289/465	7+00
M2/M3	41/66	300/483	7+10

Table 1 -- Maneuver Capability Comparison[13]

Richard Simpkin, a noted military theorist, expressed the relationship as "rotor is to track as track is to boot."[14] The helicopter's advantage is not just speed, however, but its ability to use ground tactically without being tied to it for mobility. Even Germany's Heinz Guderian -- one of the leading thinkers on deep maneuver in the post World War I era -- believed that

[10] Vincent K. Brooks, "Back to the Future: Using Attack Helicopters to Restore Shock to the Battlefield," (Unpublished Research Paper, U.S. Army Command and General Staff College School of Advanced Military Studies, Fort Leavenworth, KS: 1991), i.
[11] Ibid.
[12] Allen, xix.
[13] Headquarters, Department of the Army, Battle Book (CGSC Student Text 100-3)(Fort Leavenworth, KS: June 1, 1996), 2-15, 2-53.
[14] Richard Simpkin, quoted in Rick Stockhausen, "Thor's Hammer: An Aviation Strike Force in Deep Operational Maneuver," (Unpublished Research Paper, U.S. Army Command and General Staff College School of Advanced Military Studies, Fort Leavenworth, KS: 1995), 17.

aviation forces could be used for attacks against a common deep objective, handing it over to the ground forces as they came into range. Conceding the possibility of aviation taking the decisive role, with the panzers in support, he wrote that "it can also work the other way around, with the operations of tank forces supporting the ends of aerial warfare."[15]

In recent years, Army aviation doctrine -- for both conventional and special operations forces -- has evolved to include operational level warfare.[16] The attack helicopter's mobility, range, standoff firepower, and night capabilities offer the operational commander opportunities to attack and destroy enemy strategic systems, control operationally significant terrain or littoral regions, or attack enemy operational forces. According to one regional CINC, "these are key capabilities in meeting operational and strategic objectives."[17]

Because of its unique ability to move quickly over a wide area and to respond quickly during both day and night, the attack helicopter provides the operational commander with a highly flexible maneuver force capable of performing a variety missions across the entire range of military operations. Attack helicopters can rapidly maneuver to provide the decisive component of combat power throughout the depth of the battlefield during day, night, or adverse weather conditions. Successes in Panama, the Persian Gulf, and a recent U.S. Army Training and Doctrine Command Theater Missile Defense Advanced Warfighting Experiment (TMD AWE) have shown these assertions to be true. During Operation JUST

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[15] Heinz Guderian, quoted in Stockhausen, 14.
[16] Jeffrey N. Williams, "Employment of Armed Reconnaissance Helicopters in Support of Operational Functions in an Immature Theater -- Does Comanche Have a Role?," (Unpublished Research Paper, U.S. Naval War College, RI: 1996), 11.
[17] Binford Peay, quoted in Williams, 11.

CAUSE, Panamanian soldiers "cut off by lighting quick, night vision goggle equipped air assaults, surrendered instead of fighting," demonstrating the effect on enemy morale that Airland Battle doctrine had suggested.[18] In Operation DESERT SHIELD, attack helicopter units of the 82d Airborne Division were the first heavy anti-tank forces in Saudi Arabia and were the backbone of the initial response.[19] The vast distances that they patrolled, checking for Iraqi incursions beyond the Kuwait-Saudi Arabia border could not have been covered as effectively by ground-based forces. And finally, in a TMD AWE conducted in New Mexico in 1995, Army AH-64 Apache attack helicopter units, in concert with a Joint Forces Missile Defense Coordinator using joint intelligence assets, were consistently able to locate and destroy unconfirmed theater ballistic missile sites.[20]

Critics of attack helicopters, however, focus on the issue of vulnerability. That a helicopter is vulnerable to enemy fires is true. That a helicopter is more vulnerable than any other combat system is debatable. The Army's newest generation of helicopters provides dramatic increases in mobility, lethality and survivability. Advanced navigation and pilotage systems, auxiliary fuel systems, and improved performance give these new helicopters unprecedented speed, range, endurance and day/night/adverse weather capabilities. Advanced sensors and designators, new precision guided weapons and improved fire control systems have resulted in a quantum leap in lethality. And, improved low-observable designs, composite materials, and infrared/radar/laser countermeasures greatly enhance the battlefield survivability of these new helicopters over that of the last generation.

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[18] Allen, 43.
[19] Ibid, 38.
[20] E. J. Sinclair and Alan P. Mooneyham, "AH-64s in the Theater Missile Defense Role," Army Aviation, January 1998, 26.

Attack helicopters, by their very nature as flying machines, are not without their shortcomings. They are vulnerable to severe weather and are not well suited for engaging targets in heavily wooded or jungle-like terrain. Additionally, the employment of the attack helicopter as a dominant maneuver force requires continuous dialogue to synchronize joint and multinational warfighting capabilities. In all cases, planning for these operations must be thorough and comprehensive. The operational commander must provide helicopters with air defense protection. As such, he must insure that his attack helicopters have responsive links to fire support assets -- in the form of artillery, long-range missile fires, and possibly tactical air support -- that can range its targets. And finally, to take full advantage of their capabilities, responsive sensor-shooter links must be developed between both theater and/or national-level collection assets and attack helicopter forces.

Current initiatives within the Army -- as well as with our allies -- are aimed at minimizing these drawbacks while maximizing the helicopter's operational utility. For example, the 18th Aviation Brigade of the Army's XVIII Airborne (Contingency) Corps at Fort Bragg has been reorganized into a self-sustaining structure capable of providing attack, reconnaissance, air assault, heavy-lift, and command and control helicopter capabilities -- as well as Air Traffic Control services and limited fixed-wing support -- to the operational commander. The "Warfighter" Brigade's unique organization and early deployment posture allow the Corps Commander to employ the brigade -- via strategic airlift, sealift or self-deployment -- as an aviation task force to quickly respond to any contingency operation. Through the selective allocation of key aviation assets within the brigade, the Corps Commander has the ability to respond with a broad range of flexible deterrence options and,

if needed, decisive combat operations. This highly mobile, flexible, yet robust force is ideally suited for deployment into immature theaters where rapid force projection and/or early force protection is required.[21]

Similarly, the Combined Aviation Force (CAF) -- commanded by a Republic of Korea (ROK) Major General with a United States (U.S.) Army Colonel as his deputy -- joins the ROK's Army Aviation Command and the U.S. Army's 17th Aviation Brigade to form a combined organization. Designed to provide the Commander-in-Chief Combined Forces Korea (CINCCFK) with theater-level attack and lift capabilities during crisis periods or hostilities, the CAF's missions include supporting the quick reaction force, counter-penetration operations, reconnaissance, air assault, aerial resupply, mass casualty evacuation, combat search and rescue, and combined unconventional warfare operations. Given the time critical nature of the ROK and U.S. forces mission in the event of a North Korean incursion, the CAF provides the CINCCFK with a broad range of immediate and lethal responses, based on the nature of the situation. And because of the its superior mobility, the helicopter provides the CINCCFK with the flexibility to employ the CAF as his primary dominant maneuver force -- in concert with other theater assets -- to quickly regain the initiative.[22]

Designed to be the "quarterback of the digitized battlefield" when fielding begins in 2006, the U.S. Army's Comanche reconnaissance/attack helicopter will have an overwhelming positive impact on the operational commander. Because it is designed to be

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[21] The discussion about the "Warfighter" Brigade in this paragraph is based solely on the work of another writer. See Patrick Terhune, "The Warfighter Brigade -- A Status Report," Army Aviation, December 1997, 21.

[22] The discussion about the Combined Aviation Force in this paragraph is based solely on the work of another writer. See Christopher W. Mead, "The Combined Aviation Force," Army Aviation, December 1997, 10.

shipboard compatible, Comanche will allow the operational commander significant flexibility in deploying the aircraft from all types of ships, in both maritime or littoral environments, if ground bases are unavailable. The Comanche's low-observable design, combined with its integrated mission equipment package, advanced sensor suite, and advanced information management systems, will allow it to avoid enemy weapons systems and remain virtually undetected while gathering intelligence data for the operational commander. And because the Comanche will be built around an open system architecture, allowing for interoperability with digitized battlefield information systems, its organic sensors will be capable of transmitting real-time data within theater -- or world-wide -- to supplement products received from theater and/or national-level intelligence assets.[23] This capability will also allow the operational commander to integrate the Comanche with theater and/or national-level communications and/or intelligence systems, providing for a robust sensor-shooter link. In sum, when the Comanche is fielded, it "will add awesome maneuverability and lethality" to the battlefield, achieving "leap-ahead technological advantages for the 2010 to 2025 time frame."[24]

The Tank Versus the Helicopter

> "You may fly over a land forever; you may bomb it, atomize, pulverize it, and wipe it clean of life -- but if you desire to defend it, protect it, and keep it for civilization, you must do this on the ground, the way the Roman legions did, by putting your young men into the mud."
> -- T. R. Fehrenbach, This Kind of War: A Study in Unpreparedness

[23] The technology to support this capability has already been demonstrated by sending video images from Apache helicopter sensors around the world in real-time. See Clarence A. Robinson, "Vivid Digital Imagery Offers Real Time Tactical Control," Signal, November 1993, 22.
[24] Daniel J. Petrosky, "Transition to the Future," Army Aviation, December 1997, 8.

With the end of the Cold War and the demise of the Soviet Union, many believe the era of the tank is over. In their view, the wars and conflicts this nation faces in the future will not require heavy armor. They contend that even if armor is needed, this nation does not have the ability to rapidly deploy that force, rendering it incapable of accomplishing its crisis response mission. On the other hand, there are those who believe the tank still has great utility. The world is a dangerous place, they say, with many potential adversaries owning large tank arsenals. And, they believe that heavy armor forces are essential for conventional force deterrence to be viable. While it is not within the scope of this work to join the debate over whether or not the tank is dead, it is important to recognize that the tank, like the helicopter, has its limitations. And based on these limitations, there are -- and will continue to be -- scenarios for which the tank may not be the appropriate response.

It is difficult to contest the fact that the main battle tank -- in the form of Army and Marine Corps ground maneuver units -- still provides the means to accomplish strategic objectives. However, deployment of the heavy force usually becomes the centerpiece issue of any serious debate concerning the viability of tank forces. Because it is the fastest way to respond to a crisis and because it is limited in quantity, strategic airlift is critical in any operation. The force package requirements for strategic airlift are further exacerbated -- especially when they are time critical -- when the receiving airfields are not capable of handling a large volume of aircraft. Such was the case for Mogadishu Airport which, during Operation PROVIDE RELIEF/RESTORE HOPE, was capable of handling only two aircraft at a time.[25] Because of the uncertain nature of regional conflicts and their propensity to flare

[25] Kenneth Allard, Somalia Operations: Lessons Learned (Washington: National Defense University Press 1995), 45.

up when least expected, defining the proper size and composition of deploying heavy force packages is a significant challenge.

For example, an operational commander might face a potential armored threat after his light forces conduct a forced entry in theater. He could opt to allocate six C-5 airframes -- strategic lift assets -- to deploy a tank/mechanized team of four M1A1s, four M2A2s, and two Armored Personnel Carriers to counter the enemy armored threat.[26] Or, he may choose to allocate just two C-5s to deploy two attack helicopter teams consisting of a total of 10 AH-64 Apaches for the same mission. Comparing the anti-tank capabilities of each force package, it is clear that for only one-third of the required strategic airlift, the attack helicopter option is capable of providing fully four-fifths of the anti-armor capability of the tank/mechanized team (see Table 2).

	System	Quantity	Max Anti-Tank Rounds Per Vehicle	Max Anti-Tank Rounds Per System	Total Anti-Tank Rounds Per Package	# of C5s Required
Force Package 1	M1A1	4	40	160	188	6
	M2A2	4	7	28		
Force Package 2	AH-64A	10	16	160	160	2

Table 2 -- Firepower and Airlift Requirement Comparison[27]

In deciding which force package to deploy, however, the operational commander must consider more than just firepower. He must also consider what option provides him with a dominant maneuver force in theater in the least amount of time. In a scenario given an immature theater, a time constraint, and limited strategic airlift, the operational commander may choose the attack helicopter option as it provides him with an extremely capable

[26] John Craddock, "The Tank is Dead -- Long Live the Tank," (Unpublished Research Paper, U.S. Army War College, Carlisle Barracks, PA: 1993), 33.
[27] Headquarters, Department of the Army, Battle Book, 2-15, 2-53.

maneuver force in a short period of time using minimal strategic transport assets. Even given a scenario like Operation DESERT SHIELD/DESERT STORM where it was possible to sustain a significant force build-up over an extended period of time, the attack helicopter can -- and did -- provide the operational commander with an immediate dominant maneuver force capable of covering a large theater while heavy ground forces were deployed by strategic sealift.

Although the helicopter enjoys mobility an order of magnitude greater than tracked vehicles, the mobility of ground systems like the M1 Abrams Main Battle Tank and the M2 Bradley Infantry Fighting Vehicle should not be discounted. Today, they possess an effective mobility differential over most other ground systems. Unfortunately, next generation main battle tank design studies have concluded that "armor protection must be improved substantially over that of the M1A1 to defeat projected CE and KE threats."[28] The primary goal, according to these studies, must be crew protection, followed by advances in the tank's mobility and weapon systems. As a result, projected design weights range from 55 to as much as 75 tons, significant when compared to the 63 to 66 ton weight of the M1A1.[29]

Some argue that the attack helicopter is now preeminent in land combat. A reasoned argument is possible for this assertion. If there has been a revolution in the role of the attack helicopter, however, it occurred not through competition with tanks but because attack helicopters and tanks complement one another. For example, while the attack helicopter can offer the operational commander greater mobility and flexibility than the tank as a dominant

[28] Randall Steeb and others, An Exploration of Integrated Ground Weapons Concepts for Armor/Anti-Armor Missions, R-3837-DARPA, (Santa Monica, CA: Rand, 1991), 148.
[29] Ibid, 106.

maneuver force, its temporary nature cannot always replace the permanence of heavy ground forces. Accordingly, some military theorists believe that "intellectual mastery" is obtained when the proper relationship between the two is established. Perhaps MG Donn A. Starry, then Commanding General of the U.S. Army Armor Center, qualified the relationship between the helicopter and the tank best when he wrote that "modern war is a contest of measures and countermeasures. For every modern weapon system, there is an effective countersystem. The goal in battle is to apply the tactic which best utilizes the capabilities of each system while minimizing its vulnerability to countermeasures."[30]

Conclusion

> "There are no technological panaceas -- only intelligent, studied and laborious adaptation of tactics and operational art to new means of warfare." -- Christopher Bellamy, Evolution of Modern Land Warfare

Attack helicopters have evolved from ad hoc weapons platforms used in Vietnam to fully integrated weapon systems capable of operating in day, night or adverse weather. They clearly possess excellent mobility, but more importantly, a significant mobility differential over any ground combat system. And, as a mobile firepower platform, the attack helicopter has no equal, carrying a broader variety of weapons to a target faster than any ground system. Because it is likely that future operations will be conducted in areas where time and space factors are greater and the ratio of force to space is smaller, helicopters will come into their own by offering the operational commander the capacity to effectively cover large areas with small forces in a way that armored units simply cannot.[31]

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[30] Donn Starry, quoted in Craddock, 7.
[31] Allen, 231.

Through organizational restructuring, cooperation with allies, advanced warfighting experiments, and the introduction of new aircraft designed to exploit the digitized battlefield, Army Aviation is committed to providing the operational commander of the future with the capability to dominate any military situation, from an urban fight to high-intensity combat.[32] It will be the operational breakthrough that allows attack helicopters to exploit terrain without being constrained by it; to conduct decisive joint, combined or coalition operations; to exploit situational awareness and achieve positions of decisive advantage; and to achieve dominant maneuver at speeds and distances well beyond that which the operational commander realizes today.

Recalling that dominant maneuver forces are characterized by:[33]

- the ability to mass effects and forces rapidly from widely dispersed locations;
- strategically and operationally mobile forces that are "ready on arrival";
- accurate, effective, and sustainable delivery systems for direct and indirect fires and other effect, both lethal and nonlethal, from short and long ranges;
- highly lethal, mobile, agile, and versatile organizations -- adaptable maneuver units that can be tailored to task for any operation across the range of military options;
- precise, immediate combat and operational assessment capability,

one must conclude that the attack helicopter is -- and will remain -- an effective dominant maneuver force for the operational commander.

[32] Petrosky, 8.
[33] Joint Chiefs of Staff, Concept for Future Joint Operations: Expanding Joint Vision 2010, 51.

BIBLIOGRAPHY

Allard, Kenneth. Somalia Operations: Lessons Learned. Washington: National Defense University Press 1995.

Allen, Matthew. Military Helicopter Doctrines of the Major Powers, 1945-1992: Making Decisions About Air-Land Warfare. Westport, CN: Greenwood Press, 1993.

Brooks, Vincent K. "Back to the Future: Using Attack Helicopters to Restore Shock to the Battlefield." Unpublished Research Paper, U.S. Army Command and General Staff College School of Advanced Military Studies, Fort Leavenworth, KS: 1991.

Clinton, William J. A National Security Strategy for a New Century. Washington: The White House, May 1997.

Cohen, Eliot A. "A Revolution in Warfare." Foreign Affairs, March/April 1996, 37-54.

Craddock, John. "The Tank is Dead -- Long Live the Tank." Unpublished Research Paper, U.S. Army War College, Carlisle Barracks, PA: 1993.

Foldberg, J. D. "Maneuver Warfare in a Joint Environment." Unpublished Research Paper, U.S. Naval War College, RI: 1995.

Hilmes, Rolf. "The Tank Moves into the Next Millennium." Department of the Army Foreign Science and Technology Center, Charlottesville, VA: 16 October 1992. Translated from Soldat und Technik, May 1992.

Mead, Christopher W. "The Combined Aviation Force." Army Aviation, December 1997, 10-13, 20.

Nye, Joseph S. and Owens, Williams A. "America's Information Edge." Foreign Affairs, March/April 1996, 20-36.

Petrosky, Daniel J. "Transition to the Future." Army Aviation, December 1997, 6-8, 53.

Simmons, James. "A Case for the Movement to Contact." Army Aviation, December 1997, 14-16.

Sinclair, E. J. and Mooneyham, Alan P. "AH-64s in the Theater Missile Defense Role." Army Aviation, January 1998, 26-29.

Steeb, Randall and others. An Exploration of Integrated Ground Weapons Concepts for Armor/Anti-Armor Missions. R-3837-DARPA. Santa Monica, CA: Rand, 1991.

Stockhausen, Rick. "Thor's Hammer: An Aviation Strike Force in Deep Operational Maneuver." Unpublished Research Paper, U.S. Army Command and General Staff College School of Advanced Military Studies, Fort Leavenworth, KS: 1995.

Terhune, Patrick. "The Warfighter Brigade -- A Status Report." Army Aviation, December 1997, 21-23.

U.S. Army. Battle Book (CGSC Student Text 100-3) Fort Leavenworth, KS: June 1, 1996.

U.S. Army. Corps Operations (FM 100-15) Washington, D.C.: October 29, 1996.

U.S. Army. Force XXI Operations: A Concept for the Evolution of Full-Dimensional Operations for the Strategic Army in the Early Twenty-First Century (TRADOC Pamphlet 525-5) Fort Monroe, VA: August 1994.

U.S. Army. Operations (FM 100-5) Washington, D.C.: June 14, 1993.

U.S. Congressional Budget Office. An Analysis of U.S. Army Helicopter Programs. Washington: 1995.

U.S. Joint Chiefs of Staff. Concept for Future Joint Operations: Expanding Joint Vision 2010. Washington, D.C.: May 1997.

U.S. Joint Chiefs of Staff. Joint Vision 2010. Washington, D.C.: July 1996.

U.S. Marine Corps. Warfighting (FMFM 1) Washington, D.C.: March 6, 1989.

Williams, Jeffrey N. "Employment of Armed Reconnaissance Helicopters in Support of Operational Functions in an Immature Theater -- Does Comanche Have a Role?" Unpublished Research Paper, U.S. Naval War College, Newport, RI: 1996.