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ARMED HELICOPTERS: HOW THE ARMY FOUGHT ITS WAY INTO ATTACK AVIATION

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Aviation and the US Army have had a unique and turbulent relationship since aircraft sputtered into military service in the early 20th century. Leadership found it challenging to embrace the evolution of combined arms warfare while an over-zealous drive by aviation proponents within the Army created a rift, but the Army continued to struggle for over a half century to define the role of aviation within its ranks, particularly that of attack aviation. Inter-service rivalry with the Air Force in its infancy coupled with its overly strategic focus on the role of airpower in warfare failed to meet the needs of maneuver commanders on the ground. Fortunately for Army aviators and ground commanders alike, a few key leaders saw potential where the Air Force saw competition, and they were able to bend the rules between the services and the bureaucracy enough to give the concept of armed helicopter technology and doctrine room to develop and take hold.

The US Army adopted attack helicopter operations in response to an overwhelming requirement for integrated close air support (CAS) in a direct support relationship to the ground commander within the service. "The tangles over equipment and roles from World War II through the 1950s substantially influenced the armed forces as to what command and control systems were needed."[1] Those tangles were defined by the Army insisting on greater CAS capabilities, while the Air Force insisted upon its strategic and independent role on a grand scale that negated anything that might be construed as a subordinate relationship to the Army and its mission. The evolution of Army Aviation following the creation of the Air Force in 1947 was a mixture of political and military influences that resulted in years of indecision and turf wars in Washington that frequently overlooked the needs of the commander on the ground.

The 1950s were critical to the modern identity of attack aviation within the Army and US airpower capabilities as a whole. A clear understanding of why its role was so contested in

bureaucracy instead of reacting to the operational needs of the force is essential to appreciating the magnitude of these changes. The challenges facing the development of Army attack aviation can be understood from three distinct lenses: the Air Force's drive for institutional independence and legitimacy, the overemphasis of the services and the political leadership on strategic airpower, and the inability to accept newly defined roles to foster joint capabilities.

From an airpower perspective among the service leadership, it is important not to get entrenched in the technology aspect to define the political influence in the situation. "One must not collapse what airpower is with what it is about. Each element in the familiar statement of the strategic function is essential: ends, ways, and means."[2] The resistance to attack aviation development within the Army was not a turf war over who received which type of equipment; rather it was a contest of roles and responsibilities at a strategic level between the services. The problem was one of cultural rhetoric that drove the Air Force to continue to try and legitimize its independence and focus less on its requirements to support the Army mission. Shrinking budgets and service sizes forced a reexamination of roles where "matters of power, money, jobs, outlook, and identity—not technical ones, [are] crucial."[3]

The divide between Army and Air Force aviation actually began in 1942, when the War Department authorized the establishment of Organic Army Aviation for the primary assignment as artillery observer support, but this was only the formal establishment following years of debate on roles and responsibilities.[4] Observer aviation traces its lineage to WWI as a critical component of the Army and its ability to see and react to the enemy. The Air Corps Tactical School manual of 1926 stated, "Observation Aviation is an auxiliary arm. It is included as an integral part of armies, corps and divisions; and as such must operate in close liaison with all arms."[5] The observation role of aviation nested easily in the minds of the artillery branch, where

aviation would reside until 1955. Pilots and mechanics alike were trained by the Department of Air Training as part of the artillery school at Fort Sill, OK, aviation skills only secondary tasks to the primary artillery mission.[6] Initially, airplanes would carry an artilleryman observer to adjust fires in flight of ground artillery. Eventually as missions became more complex, it was determined that having two trained pilots was more advantageous, though both had to be trained artillerymen for the purposes of mission planning and effective employment.[7]

Even though the Army Air Forces remained a part of the Army, the ground commanders still needed to further subdivide the assets for assignment to support ground units directly. Already the Army Air Forces had begun their drive for independence and legitimacy, so the Army had no choice but to take ownership of its own requirements in order to accomplish its mission. This divide would continue to drive rivalries within aviation arguably indefinitely, well beyond the establishment of the independent Air Force. Numerous challenges plagued this division of Army aviation through WWII and beyond. Training was not centralized, units were not standardized, and the assets available were extremely vulnerable to pursuit aircraft, so much so that the use of observation aircraft in WWII was deemed tactically infeasible and most of their role was replaced by more advanced fighters reconfigured for reconnaissance, and not in direct support to the ground force.[8]

On 26 July, 1947, The National Security Act signed by President Truman created an independent Air Force, and combined with Executive Order 9877 removed nearly every aircraft from the Army's inventory not deemed "organic therein."[9] This further exaggerated the rift between the services. The brand new Air Force already spent several years vying for independence in pursuit of strategic aims. "To acquire legitimacy, any institution must make the argument for its existence in reason and in nature."[10] The rhetoric initiated by the likes of Billy

Mitchell and sown from the interwar period through the culmination of WWII was focused solely on the legitimacy of airpower's ability to achieve decisive victory independent of combined arms warfare with ground forces. This myopic view of airpower's role within the joint environment resulted in a culture that viewed the Army's mission as increasingly irrelevant, despite countless examples supporting the opposite. Contrarily, the Army saw itself as completely reliant on the new Air Force for aviation support, and was frequently left wanting.[11]

Despite being directed to maintain a Tactical Air Command responsible for CAS, the Air Force staffed the command with less than 150 officers and enlisted personnel by the time the Korean War began in 1950.[12] This complete disregard for the Army's need to employ tactical airpower resulted in the Army more forcefully acquiring its own forms of internal air support. The result of these challenges led to continuous rivalry through the war in which the Army looked to the Marine Corps' command and control concept in which their integrated air assets were dedicated directly to the ground force.[13] When compared with their own experience with the Air Force, the Army began to more aggressively seek solutions to tactical airpower problems. General Matthew Ridgeway reinforced this idea in his autobiography stating that if the Air Force did not adequately provide the Army with CAS capabilities, the Army "eventually will have to develop them ourselves."[14]

The solution to this dilemma would ultimately come in the form of the helicopter, though such technology did not yet exist in a competitive form. Early proponents of observation and reconnaissance aviation suggested the use of autogiros for their short field take off and maneuverability characteristics. The autogiro flew at slow speeds for detailed observation and could be easily forward deployed to unimproved landing sites. Unfortunately, they did not develop an effective model, and through WWII they were too vulnerable for tactical application

so the idea was lost.[15] The first combat application of a helicopter came in the form of the YR-4B helicopter in a rescue mission of a downed British pilot in Burma on 21 April 1944.[16] The demonstration of flexibility and response by the "flying egg-beater" was nearly as inspirational to forward thinking military theorists as the Wright flyer's first take-off. In 1954, then Major General James Gavin became one of the early proponents of adapting helicopters into the Army doctrine, specifically the cavalry to address Army shortfalls in Korea. He had seen the utility of aircraft and gliders as an airborne commander during WWII to deliver soldiers behind enemy lines, and with the birth of rotary wing capabilities he sought to redefine the way that the Army looked at aviation combined arms. "Where was the cavalry? And I don't mean horses. I mean helicopters and light aircraft."[17] He took this point further to highlight the maneuver capabilities of helicopters in the true cavalry spirit that could provide early warning, flexible firepower, and a rapid capability to reinforce flanks of the ground force.[18] Gavin met pervasive opposition to his ideas, however, and ended up retiring after his time as the Army G-3, but his ideas were not lost on then Brigadier General Hamilton Howze, whom Gavin nominated to be the first director of Army aviation in the G-3.[19] Howze's role in the development of attack aviation would come much later.

Further up the chain of command, General Matthew Ridgeway and his successor General Maxwell Taylor developed the concept of "flexible response" in light of nuclear warfare.[20] A nuclear battlefield would require the Army to deploy and maneuver rapidly over great distances, and Taylor spearheaded a "sky cavalry" concept that would maneuver infantry units rapidly across the battlefield to conduct reconnaissance and quick-reaction operations until reinforcements could arrive, notwithstanding the potential requirement to make a retrograde movement out of fallout zones more quickly. It was at this time that murmurings began to

surface about the importance of organic firepower to such units, as well as the ability to develop light aircraft that could destroy tanks.[21] This conceptualization met immediate resistance due to a memorandum of understanding from October of 1951 that restricted the Army from duplicating the Air Force's role in providing "by fixed wing and rotary type aircraft, close combat support, assault transport and other troop carrier airlift, aerial photography, tactical reconnaissance and interdiction of enemy land power and communications."[22] Despite explicit legal language to the contrary, the Army began taking steps to bend the rules in a manner that would ask retroactive forgiveness rather than permission. The flexible response concept fostered an important change to previous agreements between the Army and the Air Force. The nuclear threat expanded the defined battle zone to 150-200 miles, thereby demonstrating a need for greater range and flexibility of Army airpower assets.[23]

Simultaneously in 1955, US Army Aviation moved its flight training school to Fort Rucker, Alabama, symbolically removing it from the clutches of field artillery and foreshadowing its own independence yet again as a separate branch in the Army.[24] Brigadier General Carl I. Hutton, the new commander of the Army aviation center requested permission from his superiors to begin experimentation with helicopters organized into tactical formations to test their fighting abilities.[25] In July of 1955, Hutton published a column in *Aviation Digest* entitled "An Air Fighting Army" in which he took MG Gavin's concepts several steps further to envision "using aircraft as fighting vehicles…An airplane as a fighting vehicle would logically belong to the tactical unit of which it is a part…The commander would coordinate the employment of the various fighting elements in the same way as an infantry or armored division commander."[26] Despite the caveat that the opinions expressed were solely of the author and not

representative of the Department of the Army, this was the first written example of Army aviation leadership desiring armed aircraft within its formation.

Following the cautious approval from the Commander of Continental Army Command (CONARC) General W.G. Wyman, Hutton selectively interpreted his experimentation as being within the limits of organic Army aviation legislature and ordered the initiation of a program to test the attachment of weapons to helicopters and an air cavalry company.[27] The Army's attack helicopter was born, but its destiny and utility would still take decades to be realized by the force. Even then, defining roles and responsibilities between the services have presented continuous challenges in providing effective and seamless support of the maneuver commander.

In 1957, the Sky Cav concept made its debut to the Association of the US Army (AUSA) but only focused on the air transport capabilities of Army aviation. Brigadier General Bogardus Cairns had a different idea. Unscheduled and unannounced he interrupted the demonstration with a separate demonstration of armed helicopters executing fire and maneuver, and just so happened to get it covered by the press.[28] This demonstration was made possible by the work of Colonel Jay D. Vanderpool, the commander of the Combat Developments Office at Fort Rucker. Despite the legislative restrictions imposed against Army aviation capabilities, Vanderpool with the support of Hutton and Cairns assumed the guidance in developing flexible response tactics and quipped, "GEN Wyman did not tell us to use armed helicopters, but neither did he tell us not to."[29] This cavalier attitude toward authority would characterize the Army's approach to attack aviation into and beyond the Vietnam War, and would ultimately define the culture of Army attack aviation indefinitely. Vanderpool's team set about arming OH-13 aircraft with everything from .50 caliber machine guns to Swiss-made Oerlikon anti-tank rockets.[30] At first glance the idea of arming an observation helicopter with a simple machine gun or two might seem

defensive in nature, but the introduction of anti-tank rockets and maneuver doctrine specifically tailored toward "air fighting" helicopters was a significant transition in turning a mobility and observation platform in to an offensive weapons system.

The rag-tag group of mechanics and pilots proceeded through an exhaustive yet un-scientific barrage of testing all of the weapons in multiple configurations and flight profiles, stopping in between to check for damage to the aircraft. Having no historical data or simulation capabilities, they began with single aircraft and were surprised by the results and accuracy they were able to achieve with the new weapons platform.[31] They experimented with new tactical formation flying, utilizing low altitudes and terrain analysis to facilitate surprise and concealment just like any other form of tactical maneuver and ultimately striking targets. "It was all condoned and encouraged at lower levels of command and generally ignored at higher levels."[32] Eventually they would evolve the testing to include multiple variants of fin-stabilized rockets on H-25s, UH-19s, and CH-21s. From 1956-1959 they sought any and all forms of weapons systems the world over that they could hang from helicopters with the main objective of being able to strike hardened targets and vehicles. The Air Force even provided a B-29 gun turret to be mounted under the forward fuselage of a CH-21, though it is very likely that the upper levels of command were unaware of what was being done with that equipment.[33] Therein lies another example of the disconnect between senior leaders and those closest to the fight. The Army was soliciting parts and equipment from all of the services who happily assisted to develop its new weapons system. While dangerous to allow unchecked procurement and development initiatives without senior command oversight, the important lesson is to understand the requirement at the lowest level, and make the highest levels understand.

Despite all of this development at Fort Rucker and elsewhere, Washington level leadership was still openly against the idea. General Taylor visited Hutton to tell him to cease the arming of helicopters, yet Hutton continued the program.[34] Even more explicitly, Secretary of Defense Charles E. Wilson issued a memorandum for the Armed Forces Policy Council that prohibited Army aviation from conducting "Tactical reconnaissance, Interdiction of the battlefield, and close combat air support," and even directed that they "will not maintain unilateral aviation research facilities."[35] The Secretary of Defense expressly prohibited the exact activities that were being conducted at Fort Rucker, and yet they continued for years thereafter. Fortunately for the Army aircrews and ground maneuver units, the pioneers at Fort Rucker were willing to continue their trials as the advancements and lessons learned directly contributed to the success of the Airmobile Division concept soon to be unveiled.

1960 marked another small step forward into attack aviation legitimacy when Hamilton Howze attended the Army Aircraft Requirements Board and attempted to redefine the Army's ability to arm helicopters. The end result was not an explicit approval; however he was able to insert one authorization into the summary, "The Requirement for Air Fighting Units."[36] This small step in the direction to legitimizing the work already under way at Fort Rucker set the stage for the new administration that would revisit the issue again in 1962 with the directive to convene the Army Tactical Mobility Requirements Board, what would later become known as the Howze Board.[37] New Secretary of Defense Robert McNamara directed that the Army take a "bold new look" at mobility and directed that the process be conducted in a manner that would be protected from old policies and those resistant to change.[38] This provided the opportunity for Army leadership to push the air mobility concept further, one that was meant to revolutionize battlefield maneuver first and foremost, but retaining aviation assets under Army control for that

capability proved opportunistic as well. The Kennedy administration's well known distrust of the military would ultimately prove beneficial for the expansion of aviation in the Army. Secretary McNamara did wanted the board to get outside the box of the backward looking military thinkers, and come up with something new. The Howze board took less than four months to execute an exhaustive test and analysis of air mobility concepts.[39] Fortunately, Howze had already conceptualized his vision for air cavalry units in line with his former boss, Major General Gavin.

The ultimate recommendation was that the Army should create division-sized air-mobile units that contained a mix of rotary and fixed-wing aircraft that could maneuver itself unassisted through the battlefield.[40] Within this capability, the board recommended the inclusion of AO-1 Mohawk fixed-wing aircraft as a CAS platform as well as armed UH-1B gunships (until a dedicated attack aircraft could be developed) organic to the division.[41] The Navy developed the AO-1 aircraft originally as a reconnaissance platform for the Marine Corps, but when it was plagued with production complications and proved incapable of carrier landings, the Army procured the project. Hard-points on the wings allowed for the installation of rockets and other ordnance and the Howze board utilized it as a CAS platform during the field tests. While the total concept recommended was not put into place, the positive result of the board's work was the approval to field the 11th Air Assault Division (Test).[42]

The Air Force responded to the Howze Board with a panel of its own headed by General Gabriel Disosway to cross-examine the recommendations put forth by the Army. While largely critical of the Army's foray into organic CAS platforms, they did recognize the need to expand the capabilities of Tactical Air Command's role in providing fixed wing CAS to the Army.[43] This outcome was largely seen as a win for the Army, but ultimately the results of the Howze

board were not as positive as they had hoped at its outset. The members of the panel created over 600 pages of recommendations on how the Army should reorganize its mobility concepts, but despite Secretary McNamara's noble intentions, the majority of the recommendation was ultimately ignored for other competing requirements.[44]

In March of 1963 the Army reignited the Howze board recommendations and issued a requirement for a dedicated attack helicopter design, but continued political jockeying over roles and responsibilities for airpower by the Air Force delayed the contract bidding by another two years.[45] Still envisioning the air-fighting aircraft through the lens of artillery, the board recommended the procurement of the Advanced Aerial Fire Support System (AAFSS) and awarded it to Lockheed for the development of the AH-56A.[46] Due to the friction with the Air Force, however, the contract did not get awarded until 1966; a year after the 1st Air Cavalry Division entered combat. Furthermore, technical issues with the aircraft rendered it unfit for mass production and the Army cancelled the AH-56A program after the war.

For three years in and around Fort Benning, Major General Harry O. Kinnard worked to build the 11th Air Assault Division (test) through countless trials, drills, combat exercises, and VIP demonstrations. The Army selected the 11th Airborne to become the 11th Air Assault Division because senior leaders were still smitten with the elite persona of airborne units. The flagship unit of the new flexible response Army, the division was deliberately tailored to operate on a nuclear battlefield in Eastern Europe, certainly not a counterinsurgency in Southeast Asia. Even still, in 1965 Secretary McNamara announced the formal creation of an airmobile division while telling the world that they would deploy to Vietnam in only eight weeks. Army Chief of Staff General Harold Johnson was a veteran of the 1st Cavalry Division in Korea and believed strongly that the new concept should advance the cavalry tradition with the introduction of

helicopters. "Cavalry units were known for lightning attacks, quick pursuit of a fleeing enemy and the ability to cover large portions of the battlefield."[47] It was only fitting that the cavalry be reborn with the helicopter, and as a result the division re-flagged to become 1st Air Cavalry Division.[48] In preparation for the deployment, Fort Rucker established its UH-1 transition program to graduate 120 pilots from the aerial weapons firing course.[49] The Army's first attack pilots were heading to combat.

As with all wars, tactics, techniques, and procedures had to be developed to reinforce or improve upon the training that laid the foundation for readiness. New technology never before used in combat in roles designed by theorists on staff somewhere requires rapid innovation and trial and error when faced with the intangible threats of a new enemy and style of combat. The pioneers at Fort Rucker took a simplistic approach to training the new technology. Colonel Vanderpool studied the organization of the Duke of Wellington's cavalry to create his own organizational concept, and just re-wrote the most recent horse cavalry manual written in 1936 to include helicopters instead. His original vision still relied heavily on combined arms maneuver including mutually supporting infantry, artillery, and cavalry, with the primary mission of the helicopters being the delivery of troops for rapid maneuver. That said, he also envisioned aerial artillery capability that allowed helicopters to deliver ordnance from the air that could be even more rapidly displaced firepower than towed artillery pieces or even those slung from helicopters.[50] Within the context of developing attack aviation strategy on a grander scheme, the translation of these tactics, techniques, and procedures back into the political realm is critical. "[M]ilitary threat and behavior (latent or explicit) serve the politics that make policy."[51] If the behavior is not observed or understood by the senior leadership, the policy will not serve those entrusted with its ultimate execution.

During initial combat operations, attack aviation followed the doctrine and training that existed at the time. Armed helicopters were a mobile extension of artillery, best suited for preparatory fires. 1st CAV combined 105mm howitzer barrages followed by aerial rocket artillery from UH-1s and then strafing runs by gunships to prepare landing zones in the air assault process.[52] Drawing on the doctrine initiated at Fort Rucker, the armed helicopter still occupied a role more as mobile artillery or a tank-like platform that could maneuver beyond the limits of the ground forces.

2nd Battalion, 20th Artillery (Aerial Rocket Artillery) was the first exclusively armed helicopter unit to be employed in combat under the designs inspired by the Howze board.[53] One of only two ARA battalions ever created, (the other being 4/77th ARA assigned to the 101st Airborne division)[54] 2/20 ARA was arguably the starting point of the future attack battalion, though a dedicated attack platform had yet to be fielded. Leadership in Washington was still struggling to coordinate the acquisition process of a dedicated attack aircraft for the Army. Multiple variations on armed helicopters already existed within the inventory, but they were all primarily troop carrying aircraft that were modified; none of them had been designed solely as a weapons platform. The artillery mind set and mission of the ARA still kept the battalion assigned to the fires brigade in a support role, rather than in an offensive manner.

2/20th had many noteworthy combat successes throughout its tour in Vietnam that would later contribute to the attack aviation concept as a whole. First, they demonstrated the rapid response time to troops-in-contact that would be the primary selling point for furthering the Army aviation cause. Whether airborne or forward-staged, the crews could respond to calls for fire within minutes, and they were easily integrated into the order of battle for preparatory fires and artillery adjustment. Second, they demonstrated the ability to perform armed reconnaissance

independently, identifying enemy forces, attacking with organic weapons, and then reinforcing with the insertion of infantry. They were most effective when launched immediately following attacks on forward bases and identifying small teams retrograding into the jungle, but this was the early form of armed reconnaissance and close-combat attack that would take flight in tactics throughout the war and into the future.[55] Finally they demonstrated the adaptability of attack aviation to rise to the operational needs of the maneuver commander in a rapid manner both in tactics and in firepower. 2/20th was the first unit to fire wire-guided SS-11 anti-tank weapons at point targets in combat, and they were also the first to combine the precision missiles with the area suppression capability of 2.75 inch rockets on the same platform.[56] These important firsts were critical to the future of attack aviation and its development as a maneuver fighting force of organic firepower within the Army.

The Huey gunships were capable of carrying a vast array of weapons systems that included more than a dozen variations on rockets, missiles, grenade launchers machine guns and mini-guns.[57] There still seemed to be little if any systematic approach to the armed helicopter concept. The leadership in Washington wrestled with the Air Force over roles and definitions while the Lockheed concept met with massive failure. Meanwhile the troops in combat were testing and evaluating new weapons systems on the fly and proving wildly successful. The first Tube-launched Optically-guided Wire-tracked (TOW) missile fired in combat from a helicopter was yet another Huey gunship and proved effective at destroying a T-54 tank.[58] This critical milestone signaled another evolution in armed helicopter operations originally sought by COL Vanderpool at Fort Rucker in the 50s. The armed helicopter could provide revolutionary firepower and maneuver to the modern battlefield much like the tank in WWI.

Another such example of the unique innovation without the assistance of Washington was the "Guns a Go-Go" concept of an armed Chinook. Boeing independently built four prototypes in response to the AAFSS requirement and they delivered them to theater by the end of 1965.[59] Despite their massive payload and speed, they proved overly vulnerable due to their size and the concept never stuck. Hueys were continuing to provide vital and flexible support, but the need for a dedicated attack platform became more pressing as the reliance on gunships increased. Industry was independently responding to the needs of the force, yet the senior leadership was unable to come to a consensus to unify the efforts further and develop a coherent vision and direction for the armed helicopter concept.

Bell Helicopter also conducted independent development of an attack helicopter of its own that drew on the already proven reliabilities of the UH-1 series also in response to the AAFSS initiative. The HueyCobra (later shortened to just Cobra) resulted, and flew for the first time in 1965.[60] The Cobra provided an interim solution, but that temporary solution continued to provide effective service for over 30 years in the Army, and even longer in the Marine Corps.[61] "On a typical mission the AH-1G could reach the target area in about half the time taken by the UH-1 gunships, and could deploy twice their firepower while remaining on station for almost three times as long."[62] It also had a much smaller frontal cross-section and was more maneuverable, making it slightly more survivable. From 1967 through the end of the war, the AH-1G replaced the UH-1B/Cs as the primary gunship, though some Huey gunships remained in service through the end of the war for specific armament missions and were often teamed with Cobras for more effective support and firepower.[63]

Gunship tactics were the next innovation that turned the corner for Army attack aviation. Armed helicopters served in virtually every aviation unit in Vietnam, each with a blend of AH,

UH, CH, and OH aircraft varieties. Attack aircraft resided between ARA-type designations and simple gunship units.[64] The four missions gunships executed were escort, troop support, armed reconnaissance, and direct fire support. Initially the armed aircraft served as an escort for the air mobility concept and the gunships would routinely provide preparatory fires on landing zones prior to transport arrival, and then transition to a ground support role as troops deployed and more transports came in.[65]

Armed aerial reconnaissance became a key tactical development in Vietnam that would permeate Army aviation indefinitely. Air Cavalry troops initiated this tactic utilizing light observation helicopters or Loaches (LOH) conducting visual reconnaissance with gunship support.[66] The LOH would conduct visual reconnaissance at low and slow airspeeds in order to detect enemy positions, and then mark those positions with hand-tossed smoke grenades for the gunships to engage. The overwhelming success of these tactical developments would ultimately lead to greater emphasis on the utility of organic Army attack aviation. This led to the gun-run or hunter-killer concept that can still be seen in attack aviation tactics today. OH-58D Kiowa Warriors were routinely teamed with AH-64D Apaches in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) during counter-insurgency operations directly resulting from lessons learned in Vietnam. Kiowas used visual reconnaissance coupled with their thermal and night vision sensors at low altitudes to detect and identify targets to handover to gunships in exactly the same manner.

Combat imperatives within the Vietnam War allowed nearly unchecked expansions within Army aviation to swell massively, so much so that by 1970 the Army had more than 12,000 aircraft and 24,000 aviators, both statistics far outmatching the number of machines and pilots in the Air Force.[67] At the conclusion of the war, however, the two services struggled to

define the place where attack helicopters should reside on the modern battlefield. What the Army was certain of, was that aviation played a critical role in nearly every aspect of ground maneuver warfare: command and control, logistics, reconnaissance, maneuver, and firepower.[68] Colonel Trevor Dupuy accurately described the critical nature of capturing these developments during the Vietnam war when he said "there have been no historical instances in which new and more lethal weapons have, of themselves, altered the conduct of war or the balance of power until they have been incorporated into a new tactical system exploiting their lethality and permitting their coordination with other weapons."[69] Simply put, war is an adaptive contest and the forces ability to internalize innovation for future use is critical to both winning the war and preparing for future conflicts.

The massive successes of Army aviation during Vietnam thrust the branch into the spotlight as the war began winding down. Inter-service rivalries began to creep back up as the rigors of combat gave way to shrinking budgets and services looking out for themselves. The Air Force once again began to pick apart the reasons why attack aviation in the Army was a bad idea, regardless of the combat successes observed.[70] Specifically, the Air Force pointed to the staggering losses and vulnerability of helicopters in mid to high-intensity conflict, claiming that the risks were too great to continue such a tactic especially with the potential of a conventional conflict in Eastern Europe. [71]

The Army did have the future conventional fight in mind, but its vision sharpened and expanded with the impressive results that attack aviation produced in Vietnam. The Army continued its quest to secure the ultimate attack helicopter, even after cancelling the AH-56 program in 1972. Despite the cancellation, Lockheed continued to work on the development of the "200 knot" attack helicopter despite numerous fatal flaws in the design. [72] The idea of an

advanced attack aircraft armed with speed, performance, and advanced technology resounded with the Army and they continued the drive toward that aim. Regardless of the combat teamwork displayed by the services in Vietnam, the post-war debates sounded remarkably similar to the fighting before over roles and responsibilities and duplicated efforts. The Army maintained its position that it was not performing CAS; simply that it was elevating certain ground maneuver tactics to the immediate airspace over the battlefield, no different than producing better weapons or improving tanks.[73]

The Air Force during this time began the development of a new concept of its own to answer some of these challenges with the A-X CAS aircraft. This concept, which ultimately developed into the A-10, caught the eye of the House Armed Services Committee as yet another duplication of responsibility with the Army's pursuit of an advanced attack helicopter.[74] This forced the two service chiefs to finally come to an understanding. In April of 1976 Generals Fred Weyand, USA and David C. Jones, USAF issued a memorandum to the House Armed Services committee to define the role of attack aviation once and for all.

> "[T]he attack helicopter is a mobile weapons system capable of providing organic fire support to local Army units. Because of the limited range, speed and firepower of the attack helicopter as compared to Air Force fixed wing close air support capabilities, we do not consider the attack helicopter as duplicating Air Force close air support."[75]

Finally reaching middle ground, the two chiefs paved the way for the future of Army attack aviation. The memorandum further defined the Air Force CAS role as a "centrally controlled," and "theater-wide" asset designed to supplement the Army's organic firepower where required.[76] After thirty years of arguing over roles and responsibilities, the two services finally came to agreement on the critical role of attack aviation in the hands of the Army, and that such capabilities were in no way a duplication of the Air Force responsibilities. Instead,

they proved to be an enabling asset that would ultimately provide the Air Force greater flexibility to accomplish its strategic role. Fortunately the combat trials of Vietnam were a salient example of the utility of armed helicopters and the leadership finally identified their successes for the future of Army aviation.

The Army overplayed its hand in the first attempt at an attack helicopter. They had proven successes with simple, stable, and relatively inexpensive vehicles jerry rigged with any form of armament that could be mounted to them. The AH-56A Cheyenne concept morphed into a Star Wars-esque advancement of technology well before its time. It was meant to be bullet resistant, laser capable, faster than any other helicopter ever built, all weather, and electronic warfare equipped.[77] After killing one of its test pilots due to instabilities, the AH-56A program ended, but "bureaucratically entrenched Army aviation was here to stay, but not as an ersatz United States Air Force."[78]

In 1973 the Army initiated a new program after the demise of the AH-56A, the Advanced Attack Helicopter. Bell took an approach that improved upon the already proven AH-1 designs and the Army designated it as the YAH-63. [79] Hughes Tool Company designed the YAH-64. One of the competition requirements was for the aircraft to withstand a .50 caliber impact to the main rotor mast and still fly. This requirement ultimately resulted in massive helicopter size and redundant system complexity.[80] Many critics emerged against the future Apache due to its complexity and argued that it would not be sustainable in an austere environment on the front lines, but the Apache's massive payload and ability to strike numerous armored targets integrated nicely into the perceived threat in Eastern Europe and on the Korean peninsula. NATO focused specifically on targeting the Warsaw Pact's perceived numerical superiority with technological superiority. Air-Land Battle doctrine introduced the requirement for the fielded forces in Europe

to win immediately in the first fight in order to allow follow-on reinforcement through REFORGER operations to Western Europe from the United States. The Apache program benefitted immensely from this requirement as its advanced technological capabilities exactly matched the need to defeat Soviet mass with superior technology. The mobility and anti-tank firepower capabilities of the Apache were critical to the defense of the Soviet wave attack style and the lack of defense-in-depth geography in either battlefield.[81]

January of 1981 marked the doctrinal beginning of Air-Land Battle that dovetailed with a new force structure to be fielded by 1986 that included aviation as centrally critical to the survival of the assaulting force.[82] Army leadership feared that the mechanized forces would outrun their logistical trains and organic aviation would be the only viable means to provide timely security and reinforcing fires, so attack aviation was that essential security. If the armor and mechanized infantry outran their artillery support, attack aviation would be their firepower security.

A series of training exercises in III Corps resulted in the most significant development that would dominate attack doctrine until the Global War on Terrorism began. Lieutenant General Crosbie Saint, commander of III Corps was most concerned about the maneuver of enemy echelons well beyond the Forward Line of Troops (FLOT) during the cover of darkness. The Apache's Forward Looking Infrared and night flying capabilities were ideally suited to identify maneuvering armor and mechanized forces at night, the only limitation was the amount of fuel they could carry.[83] The Deep Attack mission was born and attack aviation had come into its own as a major player in combined arms doctrine as well as the joint arena.

The Army's turbulent battle with bureaucratic barriers, inter-service rivalry, and general lack of direction finally culminated with the Air-Land Battle doctrine and the introduction of

organic attack aviation. Through decades of debate, bargaining, and compromise the leaders in Washington finally agreed that the Army did in fact have a legitimate need for attack helicopters, and that fielding those aircraft would in no way duplicate the roles of the Air Force. This is a classic example of the friction that comes to exist in organizational culture. Inter-service rivalry with a fledgling Air Force battling for legitimacy believed that the Army owning any sort of aerial weapons system would somehow bleed over into its roles and responsibilities, yet the Air Force's strategic focus gave very little attention to the potent requirement for tactical airpower at the immediate disposal of maneuver commanders. While bureaucrats and generals bickered over policy, junior leaders quietly adapted the machines into practical employment with just enough overt success to force the leadership to respond.

The critical lessons that should be observed as most salient were those of the brand new attack units that cut their teeth in Vietnam. Despite constant resistance from the Air Force and the senior leaders in Washington, charismatic and innovative leaders at the tactical level made their mission happen to support the maneuver commander. The strategy eventually became "having men at the lowest levels coordinate the presentation of their views to their superiors so that their ideas would converge impressively at appropriate places in the chain of command," because the senior leaders could not push the requirements to fruition.[84] While some services might be reluctant to embrace new technologies, their attachment to what worked in previous conflicts tends to preclude the application of new technology and tactics in a changing environment. Sometimes proponents of new technology have to fight an uphill battle through the acquisition and fielding process by itself, let alone operating in gray areas of aircraft roles and responsibilities that might cross the service lines. Thankfully the teamwork of Generals Weyand and Jones ended the debate over duplicate roles once and for all. Their single

memorandum paved the way for the Army's unopposed procurement of the advanced attack helicopter that would define organic attack aviation indefinitely.

[1] Donald J. Mrozek, *Air Power and the Ground War in Vietnam: Ideas and Actions*, (Maxwell AFB, AL: Air University Press, 1988), 32.
[2] Colin Gray, *Airpower for Strategic Effect*, (Maxwell AFB, AL: Air University Press, 2012), 30.
[3] Ibid., 124.
[4] James W. Williams, *A History of Army Aviation: From Its Beginnings to the War on Terror*, (Lincoln, NE: iUniverse, 2005), 36.
[5] Robert F. Futrell, "Command of Observation Aviation: A Study in Control of Tactical Airpower," (Maxwell AFB, AL, Air University Research Studies Institute: 1956), 1.
[6] US Army Aviation Center of Excellence, "Origins of Fort Rucker and Army Aviation," http://www.rucker.army.mil/history/.
[7] Williams, 38.
[8] Futrell, 4-6.
[9] Wolf, Richard I. *The United States Air Force: Basic Documents on Roles and Missions* (Washington DC: United States Air Force, 1987), 61, 87.
[10] Tammie Davis Biddle, *Rhetoric and Reality in Air Warfare*, (NJ: Princeton University Press, 2002), 6.
[11] James Williams, *A History of Army Aviation*, 49.
[12] Ibid.
[13] Peter Costello III, "A Matter of Trust: Close Air Apportionment and Allocation for Operational Level Effects," SAAS thesis, Air University, 1995), 19.
[14] Phillip B. Barks, "Anything But: Joint Air-Ground Training at the U.S. Army Ground Combat Training Centers," master's thesis, (Joint Forces Staff College, 2009), 23.
[15] Futrell, 5.
[16] Robert F. Dorr, *Chopper*, (New York: Penguin Books, 2005), 10.
[17] James M. Gavin, "Cavalry, and I Don't Mean Horses!" *Harpers Magazine* (April 1954): 54.
[18] Ibid., 55-56.
[19] James Williams, *A History of Army Aviation*, 69.
[20] Ibid., 70.
[21] Ibid.
[22] Pace Jr., Frank, Secretary of the Army, and Secretary of the Air Force Thomas K. Finletter. "Pace-Finletter Agreement, 2 October 1951" in *The United States Air Force: Basic Documents on Roles and Missions*, by Richard I. Wolf (Washington D.C.: United States Air Force, 1987), para. 2.
[23] Williams, 70.
[24] US Army Aviation Center of Excellence, "Origins of Fort Rucker and Army Aviation," http://www.rucker.army.mil/history/.
[25] Williams, 73-74.
[26] BG Carl I. Hutton, "An Air Fighting Army?" *Aviation Digest* 1, no. 6 (July 1955), 2.
[27] Williams, 74.
[28] Ibid., 77.
[29] COL J.D. Vanderpool, "We Armed the Helicopter." In *U.S. Army Aviation Digest* 17, no. 6 (June 1971), 4.
[30] Ibid.
[31] Ibid., 5.
[32] Ibid., 6.
[33] Ibid.
[34] Williams, 78.
[35] Charles E. Wilson, Secretary of Defense, "Clarification of Roles and Missions to Improve the Effectiveness of Operation of the Department of Defense, 26 November 1956 in *The United States Air Force: Basic Documents on Roles and Missions*, by Richard I. Wolf (Washington D.C.: United States Air Force, 1987), 296-7.
[36] Williams, 78.
[37] Frederic A. Bergerson, *The Army Gets an Air Force*, (Baltimore, MD: Johns Hopkins University Press, 1978), 111.

[38] Williams, 99.
[39] J.A. Stockfisch, *The 1962 Howze Board and Army Combat Developments*, (Santa Monica, CA: The Arroyo Center, 1994), 21.
[40] Ibid.
[41] Ibid., 21, 33.
[42] Ibid.
[43] Bergerson, 113.
[44] Ibid.
[45] Williams, 118.
[46] Simon Dunstan, *Vietnam Choppers*, (London: Osprey Publishing Ltd, 1988), 87.
[47] Bob Franks, "Welcome Home Bro: The First Cavalry Division in Vietnam," www.standard-journal.com 17 December, 2014.
[48] J.D. Coleman, *Air Cav: History of the 1st Cavalry Division in Vietnam 1965-1969*, (New York: Turner Publishing Company, 2011), 4-8.
[49] Ibid., 13.
[50] Vanderpool, 29.
[51] Gray, 33.
[52] LTG Harold G. Moore and Joseph L. Galloway, *We Were Soldiers Once…and Young*, (New York: Open Road Integrated Media, 1992), 56.
[53] Coleman, 216.
[54] "Aerial Rocket Artillery History," www.aerial-rocket-artillery.org, 2012.
[55] Moore, 49.
[56] Coleman, 217.
[57] Dustan, 88-89.
[58] Ibid., 105.
[59] Ibid., 107.
[60] Ibid., 87.
[61] Coleman, 217.
[62] Dustan, 112.
[63] Ibid., 113-114.
[64] Ibid.
[65] Ibid., 117.
[66] Ibid., 118.
[67] Bergerson, 121.
[68] Ibid.
[69] David Tyler, "The Leverage of Technology: The Evolution of Armed Helicopters in Vietnam," *Military Review* (July-August 2003), 37.
[70] Bergerson, 123.
[71] Ibid.
[72] Ibid., 122.
[73] Ibid., 124.
[74] Phillip B. Barks, "Anything But: Joint Air-Ground Training at the U.S. Army Ground Combat Training Centers," master's thesis, (Joint Forces Staff College, 2009), 29.
[75] Weyand, GEN Fred C., USA, and Gen David C. Jones, USAF. "Weyand-Jones Close Air Support Memorandum, 7 April 1976" in *The United States Air Force: Basic Documents on Roles and Missions*, by Richard I. Wolf (Washington D.C.: United States Air Force, 1987), 404.
[76] Ibid.
[77] Bergerson, 132.
[78] Ibid.
[79] Williams, 209.
[80] Ibid.
[81] Ibid., 210.

[82] Ibid., 211.
[83] Ibid., 213.
[84] Bergerson, 113.

Bibliography

"Aerial Rocket Artillery History." www.aerial-rocket-artillery.org, 2012.

Barks, Phillip B., "Anything But: Joint Air-Ground Training at the U.S. Army Ground Combat Training Centers." Master's thesis, Joint Forces Staff College, 2009.

Bergerson, Frederic A. *The Army Gets An Air Force: Tactics of Insurgent Bureaucratic Politics.* Baltimore, MD: Johns Hopkins University Press, 1978.

Biddle, Tammi Davis. *Rhetoric and Reality in Air Warfare.* NJ: Princeton University Press, 2002.

Coleman, J.D. *Air Cav: History of the 1st Cavalry Division in Vietnam 1965-1969*. New York: Turner Publishing Company, 2011.

Costello, Peter III. "A Matter of Trust: Close Air Apportionment and Allocation for Operational Level Effects." SAAS thesis, Air University, 1995.

Dunstan, Simon. *Vietnam Choppers: Helicopters in Battle 1950-1975*. London: Osprey Publishing Ltd, 1988.

Dorr, Robert F. *Chopper*. New York: Penguin Books, 2005.

Franks, Bob. "Welcome Home Bro: The First Cavalry Division in Vietnam." *Standard Journal.* www.standard-journal.com. 17 December, 2014.

Robert F. Futrell. "Command of Observation Aviation: A Study in Control of Tactical Airpower." Maxwell AFB, AL, Air University Research Studies Institute: 1956.

Gavin, Maj Gen James M. "Cavalry, and I Don't Mean Horses!" *Harpers Magazine* (April 1954): 54-60.

Gray, Colin. *Airpower for Strategic Effect.* Maxwell AFB, AL: Air University Press, 2012.

Hutton, Carl I. "An Air Fighting Army?" In *US Army Aviation Digest* 1, no. 6 (July 1955): 2-3.

Moore, Lieutenant General Harold G. USA (Ret), and Joseph L. Galloway. *We Were Soldiers Once…and Young, Ia Drang: The Battle that Changed the War in Vietnam.* New York: Open Road Integrated Media, 1992.

Mrozek, Donald J. *Air Power and the Ground War in Vietnam*. Maxwell AFB, AL: Air University Press, 1988.

Pace Jr., Frank, Secretary of the Army, and Secretary of the Air Force Thomas K. Finletter. "Pace-Finletter Agreement, 4 November 1952." In *The United States Air Force: Basic Documents on Roles and Missions*, by Richard I. Wolf, 237-240. Washington D.C.: United States Air Force, 1987.

Rein, Dr Christopher M., ACSC/DEL. To the author. E-mail, 26 November 2014.

Stockfisch, J.A. *The 1962 Howze Board and Army Combat Developments*. Santa Monica, CA: The Arroyo Center, 1994.

Tyler, David. "The Leverage of Technology: The Evolution of Armed Helicopters in Vietnam." *Military Review* (July-August 2003): 32-37.

US Army Aviation Center of Excellence. "Origins of Fort Rucker and Army Aviation." http://www.rucker.army.mil/history/.

Vanderpool, J.D., Colonel. "We Armed the Helicopter." In *U.S. Army Aviation Digest* 17, no. 6 (June 1971): 3-6, 24-29.

Williams, James W. *A History of Army Aviation: From Its Beginnings to the War on Terror.* Lincoln, NE, iUniverse, 2005.

Wilson, Charles E., Secretary of Defense. "Clarification of Roles and Missions to Improve the Effectiveness of Operation of the Department of Defense, 26 November 1956." In *The United States Air Force: Basic Documents on Roles and Missions*, by Richard I. Wolf, 293-301. Washington D.C.: United States Air Force, 1987.

Wolf, Richard I. *The United States Air Force: Basic Documents on Roles and Missions.* Washington D.C.: United States Air Force, 1987.