

**Army Aviation in 6 decades' hindsight**  
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In 2003 Army Aviation is celebrating the 20th year as a Branch, coinciding with the 100th anniversary of powered flight as marked by the Wright Brothers. The year also happens to be the second into the sixth decade since Organic Army Aviation was formed, distinct from the organizational development that became the U.S. Air Force (USAF) after World War II. It is worth taking some time to look at what has happened over those decades, to look at what the key driving forces have been, and to try to see where those lines of development seem likely to lead.

Organic Army Aviation arose out of the needs of ground troops – notably, artillerymen – to support ground commanders. With the advent of the airplane, a strain arose over the best way to use of the new technology to influence the battlefield. The dilemma was between focusing aviation on direct support to infantry or on actions, usually far beyond the front lines, to disrupt the enemy and deprive him of a fighting capability at the front lines. The first use of armed aircraft by U.S. forces was in scouting and reconnaissance for cavalry against Pancho Villa's border raiders – a completely integrated air-ground operation directed by a ground commander. By the end of World War I, though, the prevailing sentiment among aviators and their supporters focused on an independent role for aerial forces focused on deep operations. Any direct support to the ground troops was at best a secondary mission. Disagreements over this issue, coupled with the increasingly sophisticated training and logistical requirements of aircraft designed to realize this concept of deep aerial operations, led to increasing strains between aviation advocates and ground commanders. The results were the development of heavier, more complex aircraft suitable for independent, long-range missions and bureaucratic efforts aimed at creating an autonomous air force. By 1942 these pressures resulted in a three-way split within the Army into the Army Air Forces (AAF), Army Ground Forces (AGF), and Army Service Forces (ASF). Almost simultaneously the neglected needs of artillerymen for effective aerial observation to adjust fire prompted the new chief of Army Ground Forces to create a tiny aviation force within the ground forces, with artillerymen trained to fly and maintain small, simple, slow aircraft suitable to operate out of rough field conditions. These Ground Forces aviators incidentally performed other tasks for ground commanders – notably, acting as tactical transportation for the commander, providing courier service, and performing very limited medical evacuation. Interestingly the first combat mission of these Ground Forces aviators was a Joint one. On 9 November 1942 Captains Ford Allcorn and Brenton A. Devol, Lieutenant William H. Butler, and Lieutenant John R. Shell launched their aircraft from an aircraft carrier about 60 miles at sea and flew to the beach to support the North African invasion. Through the rest of World War II organic Army aviation performed admirably in its limited but vital roles.

By the beginning of the Korean War, the former AAF had split off as the autonomous U.S. Air Force (USAF). Meantime, development of rotary-wing (RW) technology, which the AAF had used successfully before the end of World War II but which held no real interest in the minds of Airpower advocates, caught the attention of some key Army leaders. The Transportation Corps embraced helicopters as a means to greatly expand the ability of ground forces to maneuver. This led to a push for more, larger and more powerful helicopters to support the concept of flying truck companies. The pilot requirement such a force structure imposed led the Transportation Corps to embrace warrant officers (WO) as a way of getting sufficient numbers of talented, highly-skilled technicians with enough personal incentives to remain in the field over a long period of time. In both numbers of helicopters and their practical application, the Army greatly lagged the U.S. Marine Corps (USMC) through Korea. The most spectacular application of Army helicopters in Korea as in a non-doctrinal use – aerial medical evacuation (MEDEVAC). Despite the limitations of systems that could only lift one or two patients at a time, that were often down for lack of spares and maintenance, and that could not fly in bad weather – Army aerial MEDEVAC cut the death rate of those who made it to a medical facility alive in half compared to World War II. This spectacular lifesaving effect led to the Army acquiring the aerial MEDEVAC mission, as well as to a Congressional mandate and funding to acquire a true air ambulance. The result was the UH-1 Iroquois (Huey), which further revolutionized Army Aviation by the advantages that came with a turbine engine – greatly reducing maintenance requirements, bringing a simplicity of operation for pilots that reduced attrition rates in training and fatigue on the operator on missions, as well as producing significant gains in lift capabilities.

Incidentally, Major General (MG) Spurgeon H. Neel, one of the key figures in the development of MEDEVAC and the Huey, as well as being the first Commanding General (CG) of what is today U.S. Army Medical Command (MEDCOM), just died in June 2003.

Lessons of Korea led key visionaries like the G-3/Deputy Chief of Staff for Operations (DCSOPS) of the Army, then Major General (MG) James Gavin of World War II airborne fame, later-Lieutenants General (LTG) Hamilton H. Howze and Robert R. Williams, Major General (MG) Herbert Powell at Fort Benning and Brigadier General (BG) Carl Hutton at Fort Rucker to push for greatly expanded maneuver capabilities based largely on helicopters. In violation of interservice agreements that accompanied creating the autonomous USAF, Howze, Hutton, and others began conducting experiments in heliborne combat operations with armed Army aircraft providing mobile fire support. On 19 April 1962, as part of an exchange asking the Army to justify its aircraft inventory as a potential target for budget reductions in Fiscal Year 1963 (FY63), Secretary of Defense (SECDEF) Robert McNamara ordered the Army to undertake a broad-based analysis, including a series of field tests and calling for a fresh conceptual approach that seemed to invite a major effort to acquire new weapons and technology. The task fell to Lieutenant General (LTG) Hamilton H. Howze. On 20 August 1962 the final report of the Army Tactical Mobility Requirements Board [Howze Board] reflected Lieutenant General (LTG) Hamilton H. Howze's personal belief that mobility--dependent on helicopters--was vital to high-intensity nuclear operations. The ability of airmobile forces to react more rapidly than ground-bound formations made airmobile forces 'less lucrative targets to enemy area weapons.' Similarly airmobile forces could exploit effects of U.S. nuclear warheads by negotiating multiple, artificial obstacles, such as radioactive areas and blown-down trees. Helicopter-borne Infantry operating from 25 miles to the rear would also allow surprise. As a result, in February 1963, at McNamara's direction, the Army formed a new test unit, tentatively called the 11th Air Assault Division at the US Army Infantry School (USAIS), Fort Benning. The division was actually a brigade size. Many senior Army officials adamantly opposed the idea. They feared the organization, with so many helicopters, would eat the whole Army budget, doubted the helicopter's ability to survive on the battlefield, and thought the US Air Force (USAF) was scheming in it. McNamara handpicked a true believer, MG Harry W. O. Kinnard, to head the project. By mid-1965, the demonstrated capabilities of the test division led to declaring that the division was permanent and reflagged as the 1st Cavalry Division (1CD) (Airmobile). At the same time, events in Asia, rather than Europe, called for immediate application of the new capabilities. Almost simultaneous with the announcement that the unit was permanent, President Johnson announced that he was deploying the new airmobile division to Vietnam. Thus, Army Aviation was central to beginning of what became the massive buildup of US forces there.

Through the Vietnam years, Army Aviation underwent a transformation in numbers, kinds, and roles. The total fleet doubled in numbers from 1962, when Army aircraft first arrived in Vietnam, to 1970. The ratio of rotary-wing (RW) to fixed-wing (FW) more than reversed, going from about 50:50 in 1962 to about 80% RW in 1970. Vietnam moved Army Aviation from making do with improvised weapon systems to a force with specially-designed gunship – the AH-1 Cobra. Aerial rocket artillery (ARA) provided unprecedented, precise, persistent, on-call and deadly direct-fire support to ground troops. Development of comparatively heavy-lift aircraft, like the CH-54 Tarhe (Flying Crane), and fielding of the CH-47 Chinook gave unprecedented mobility and firepower – often emplacing heavy artillery atop mountains that were practically unreachable by road. Sophisticated Special Electronics Mission Aircraft (SEMA) and other special-purpose aircraft evolved. Army Aviation was actively involved in a wide range of special operations. The massive expansion of Army Aviation forced a radical change in the way it was supported. A key personage in that arena was Joseph P. Cribbins, who took off his Army uniform in 1966 and came right back to work in Deputy Chief of Staff for Logistics (DCSLOG) as a Lieutenant General (LTG) equivalent. The complexity of command and control (C2) and logistical support led to creating the 1st Aviation Brigade (1AB) – a nominal brigade whose actual scope was theater-wide, whose number of people was larger than most divisions, and whose commander was usually a MG dual-hatted as the U.S. Army Vietnam (USARV) Aviation Officer. The close relationship with the ground commanders and soldiers was reflected partly in numbers of awards for valor to individual crewmembers initiated not by their own unit but by commanders of the units Army Aviation soldiers supported. The close relationship was also reflected in the disproportionately high casualty rates among Army Aviation soldiers. Over 4000 of the 58,000 names on the Vietnam Memorial – more than one of every fifteen names for all branches

and all services – belonged to an Army aviator or aviation soldier. Vietnam showed that Army Aviation was not a gentleman's sport but was an essential part of the total, Joint/combined-arms fabric.

As the U.S. withdrew its forces from Southeast Asia (SEA), focus again shifted to Central Europe and the longstanding Cold War confrontation there. Lessons that had come particularly out of experiences from the beginning of 1971 onward strongly shaped thinking for any future war. Issues of aircraft and aircrew member survivability in a mid-/high-intensity combat environment led to nap-of-the-earth (NOE) flying, greater emphasis on Aviation Life Support Equipment (ALSE) and heavier aircraft, able to take more punishment, complete the mission, and allow the occupants to survive. Most notable of these new acquisitions were the UH-60 Black Hawk and AH-64 Apache. Improvements in technology – especially engines – along with desires to shorten the logistical tail of Aviation led to efforts to reduce the numbers of types of aircraft. Most notable was efforts to divest the CH-54 Tarhe (Flying Crane), when reengining the CH-47 Chinook into the D-model gave the Chinook as great a lift capability as the Flying Crane.

Recognizing its core place in the nation's warfighting capabilities, the Army made Aviation one of the basic combat arms on 12 April 1983. This was an important milestone for both Aviation and the entire Army. Creating the Branch recognized needs for focused effort and specialized, professional knowledge to achieve Aviation's potentials. Over the past 20 years, the Army and Aviation within it have achieved a number of milestones in several key areas. Taken on balance, creation of a separate branch, which many at the time greeted with misgivings, has been highly successful.

One key stream of efforts arising from creating the Branch was a series of modernization plans. Each of these has sought to balance several demands – notably, modernization to increase Aviation's contribution to overall capabilities, preservation of immediate operational readiness, and affordability. The 1983 Army Aviation Modernization Plan (AAMP) was the first of these planning efforts and became a model for other branches. The AAMP was among the first joint planning efforts that tied together the developer and the user, represented respectively by Aviation Systems Command (AVSCOM) and U.S. Army Aviation Center (USAAVNC) AAMP promulgated aircraft and training requirements to implement decisions flowing from the 1982 Army Aviation Systems Program Review (AASPR). Changes included creating Aviation brigades organic to each Army division, with Aviation groups/brigades at Corps and Theater levels. AAMP also realigned requirements and solidified the organizational fighting front of Army Aviation from large companies commanded by majors to smaller, leaner units with captains as company commanders and lieutenant colonels as battalion commanders. These changes created higher leader-to-led ratios. They also aligned Aviation commands and rank structure with the other Army branches. This was a key consideration in the decision to form a branch. A vital need underlying the decision to create the Branch was the chaotic state of personnel management as it affected Army aviators. In 1988 the Army Aviation Personnel Plan (A2P2) established a methodology to standardize accessions, eliminate needs for large reductions in force, and prevent improper utilization of aviation officers. In 1995 the Aviation Restructure Initiative (ARI) moved toward a 'capable and affordable force' – an effort to realign force structure to meet both operational requirements and available resources. ARI had huge collateral effects, particularly on manning, that became key factors in subsequent Aviation Modernization and Aviation Transformation. In 2001 the Chief of Staff of the Army (CSA) and Commanding General (CG) of the U.S. Army Training and Doctrine Command (TRADOC) initiated an Aviation Transformation after looking at affordability issues in the latest Aviation Modernization Plan.

A major force driving creation of the Branch was the chaotic state of Aviation doctrine. One of the first steps in giving meaning to the Branch involved reorganizing the Directorate of Training Developments (DTD), U.S. Army Aviation Center (USAAVNC) as the Directorate of Training and Doctrine (DOTD). This started the consolidation, rationalization, and centralization of responsibility for Aviation-related doctrine that was a key need leading to the Branch.

Closely related were steps in training and professional education. In 1983 US Army Aviation Logistics School (USAALS) was established at the US Army Transportation School, Fort Eustis, VA. USAALS became responsible for Army Aviation logistics doctrine, training, organization, and materiel for career logisticians, responding to the needs of the US Army Aviation Center (USAAVNC) and the US Army Logistics Center. In 1998 became a separate U.S. Army Training and Doctrine Command (TRADOC)

school under the command and control of Commanding General (CG), U.S. Army Aviation Center (USAAVNC). This completed consolidation of all aviation training under the Aviation Branch. Army Aviation's global influence coincidentally increased during 1983 with creation of an Aviation detachment of the School of the Americas. This detachment formed to help El Salvador, Which had bought UH-1 Iroquois ["Huey"] aircraft, to train pilots for their civil war. This established a requirement for the US Army to provide Spanish-language instruction of helicopter pilots. In 1984 Aviation Branch established the Aviation Officer Basic Course for lieutenants and the Aviation Officer Advanced Course (AOAC) for captains. This marked the beginning of formal training of Aviation professionals to exploit the vastly increased battlefield potential of newer Aviation technologies. In 1998 a formal division commanders' orientation course on Army Aviation began. This reflected a concern on the part of senior Army leadership that ground commanders needed more knowledge to employ their Aviation assets to their full potential. Training in specialized capabilities arose, partly provided through Reserve Components (RC) Aviation. In 1985 the Colorado National Guard (NG) established the High Altitude Army Aviation Training Site (HAATS). Initially to teach Colorado Guardsmen how to fly in the mountainous terrain, the HAATS quickly expanded its training to other aviators. The National Guard Bureau (NGB) also provided training at the Eastern Army National Guard (ARNG) Training Site (EATS) in Pennsylvania, Fixed Wing Army Aviation Training Site (FWAATS) in West Virginia, and Western Army Aviation Training School (WAATS) in Arizona. An important expansion of training at Fort Rucker was a series of Aviation Training Exercises (ATX), begun in 1997, designed to prepare Aviation units going to the Balkans. In 2000 the first test classes for Flight School XXI (FS XXI) were successfully completed. FS XXI was designed to meet several critical needs of the current and future Aviation force. It would give graduates more time in their go-to-war aircraft, shorten the time required after reaching first units to be fully combat ready, and increase worldwide operational readiness.

Increasing capabilities in materiel and systems accompanied and were vital to achieving the increased capabilities the Branch foretold. In 1984 the first AH-64 Apaches were delivered to Army. The Apache provided a quantum leap over previous systems in survivability and killing power on the land battlefield. In 1985 Army Aviation received initial deliveries of 3d-generation AN/AVS- night vision goggles (NVG). This acquisition greatly improved Army Aviation's night-operating capability -- a capability that repeatedly proved to be a decisive operational advantage in ensuing years. Some of these gains were evident in the expanding role of Special Operations Aviation (SOA) within the Joint/Combined arena. In 1998 the AH-64D Apache Longbow was rolled out at Fort Hood, TX, making 1st Battalion, 227th Aviation Regiment as first unit to receive the Longbow. Longbow fire control radar system increased killing capability of the Apache by an equivalent to the difference between the first Apaches and the Vietnam-era AH-1 Cobras. In 2001 US Army Aviation Center (USAAVNC) started a 3-year series of flight tests to establish a concept of operations for teaming unmanned aerial vehicles (UAV) with helicopters. In 2002 Commanding General (CG), U.S. Army Training and Doctrine Command (TRADOC), assigned RAH-66 Comanche to the Future Combat System (FCS) and Unit of Action (UA). This represented a TRADOC commitment to Aviation as a division-level asset and to including Aviation as a key element in the future warfighting force. It also put Aviation on the line to prove itself supportable at the brigade level. Over the period since Vietnam, technology has radically expanded potential capabilities for training. In World War II pilots trained for navigation using a simulator where a seat moved over a glass plate that had an image of the ground they would traverse. There was no significant collective training capability for aircrews outside the actual aircraft. The 1970s brought enhancements in procedural trainers but did little to increase the abilities to train more than one pilot-copilot pair. In the fall of 1994, during Advanced Warfighting Experiment (AWE) Atlantic Resolve, the Army linked 3500 separate simulators in the Continental United States (CONUS) and Europe via a satellite network. The network created a synthetic theater of war in Europe (STOW-E) to conduct joint operations with the US Air Force (USAF) and US Navy (USN). AH-64 Apache crews in simulators at Fort Rucker saw the same German-based operations as tank crews, and Air Force and Navy pilots saw in their simulators in Germany--an attack on NATO forces in Germany. STOW-E gave realism without wear and tear on equipment or loss of life. Such an exercise, however, required a major, focused commitment of a large number of people and other resources to conduct a single series of events. Today, with the Aviation Combined Arms Tactical Trainer-Aviation (AVCATT-A) and other similar devices, Aviation is on the verge of being able to provide highly realistic training, both individual and collective, in an entirely virtual medium. The results will be lower costs in actual aircraft

operations and, more importantly, great enhancements in the skill levels of Aviation soldiers when they first go to a unit and, through sustainment training, through their careers.

With the year following the creation of the Branch the peak year of Defense budgets in the post-Vietnam era, almost the entire history of the Branch has been a struggle to increase capabilities against great concerns for affordability. In 1991 the contract for the armed OH-58D Kiowa Warrior was signed. Arming the Kiowa reflected a recurrent pattern -- trying to hold down overall costs by extending life of existing aircraft rather than replacing them with more modernized aircraft. In 1998 Boeing won a contract for the Improved Cargo Helicopter (ICH), upgrading Chinooks, which first saw service in Vietnam, to retain heavy-lift capabilities well into the 21st century. The Model Design Series (MDS) CH-47F was applied. The competing demands of modernization and force readiness became excruciating by the late 1990s. The cost and effort of maintaining systems that had outlived their service lives were eating up the resources needed either to modernize the fleet or to keep current, advanced systems operationally ready. In 1999 a key step occurred when the last AH-1 Cobra attack helicopters in the active Army retired from service that began during Vietnam. Not until 2001 did the Army announce it would retire all Cobras by the end of 2001 and UH-1 Hueys by 2003. These retirements would reduce total helicopters from 4500 to 3500, which created concerns on many fronts. Money saved, however, would improve maintenance on the remaining fleet, increasing availability rate from 75 percent to a target of 90 percent. Reflecting an effort to squeeze the most out of existing systems and dollars but modernizing at the same time, in 2001 the Defense Acquisition Board (DAB) approved upgrading aging UH-60 Black Hawk helicopters under a contract to produce four prototypes. The method was to mix system upgrade and new acquisition. Sikorsky would convert one of each existing type -- UH-60A, a UH-60L, and a UH-60A (medical evacuation) -- into an M model. At the same time, Sikorsky would build one new production M model from scratch.

Operations repeatedly proved Aviation's value and the overall strength and durability of its people and systems. Barely six months after the Branch formed, members of the new Branch saw combat during Operation Urgent Fury in Grenada. Urgent Fury successfully evacuated U.S. citizens but not without cost. For Aviation Urgent Fury meant relearning some basic lessons from Vietnam about employing helicopters under fire -- notably, that air assaults should never operate without gunship escort and cover. In 1987-1988, during Operation Earnest Will -- the so-called Tanker War -- the 160th Special Operations Aviation Group decisively proved Army Aviation's versatility and value in Joint operations. Events during Earnest Will also showed the extremely high quality of Army aviators -- especially, senior warrant officer aviators, independently able to make critical judgments and act decisively in ambiguous tactical situations. In 1989 Operation Just Cause in Panama use of night vision systems led the Chief of Staff of the Army to declare, 'We own the night.' This statement foreshadowed the decisive part Army Aviation would play during Operation Desert Storm (ODS) in 1991. AH-64 Apaches from the 101st Airborne Division (101AB), working cooperatively with U.S. Air Force (USAF) Pave Low helicopters, fired the opening shots in ODS. Using HELLFIRE missiles, 8 Apaches completely surprised and destroyed two key Iraqi air defense radar sites. This action was decisive in opening corridors for the Joint air campaign. ODS spectacularly proved the Apaches' lethality and ability to dominate the land battlefield. Success also dispelled doubts about Apache reliability and ability to operate in extreme conditions. This conspicuous success rested heavily on constant, inconspicuous efforts of Aviation maintainers and contractors. The Battle of Mogadishu in 1993 showed Army Aviation's continuing commitment to support ground soldiers under the most extreme conditions. In what hindsight showed to be the opening battle of the War on Terrorism, UH-60 Black Hawks proved vulnerable to RPG-7s in anti-aircraft role. During the Mogadishu operation AH-6 Little Birds provided highly accurate close air support and resupply in the dark. In both Somalia and Haiti, Army Air Traffic Control (ATC) soldiers' prowess came to the fore. When traffic density overwhelmed controllers from other services, Army controllers stepped in and handled the load. In 1995 during movement into Bosnia CH-47 Chinooks were vital to the total force. Heavy-life helicopters overcame destroyed roads and other infrastructure by placing bridge sections and moving supplies. Also in 1995 a CH-47 Chinook landed twice at 19,600' on Mount McKinley to rescue 2 climbers. This was the highest-altitude rescue performed to that time. This event clearly showed Army Aviation's ability to respond to unusual needs and operate under the most extreme conditions. In 1999 the slow deployment of AH-64 Apaches in Task Force (TF) Hawk for Kosovo operations brought severe criticism of the Army's strategic value and increased attention to Army Aviation. The lessons of TF Hawk became key drivers toward Army

Transformation and Aviation modernization. In 2002 Operation Anaconda in Afghanistan showed Army Aviation's unique capabilities as an organic, highly mobile, integrated member of the combined-arms team. Aviation provided vital mobility and firepower. Terrain and enemy tactics drove a return to running and diving fire. AH-64 Apaches engaged in close fights, reflecting the basic bond between Army Aviation and the ground soldier. One result was relooking Aviation training to assure that graduate pilots had the basic skills needed to perform these types of maneuvers, which had been commonplace to Vietnam-era aviators but almost completely lost because of the great differences in operational environments in subsequent years.

Recent operations in Iraq have again showed Army Aviation's vital role. There was adverse publicity about a single attack, in which about 30 Apaches flying at low level in advance of ground forces received intense ground fire, suffered damage that led to one aircraft being brought to ground and resulting in capture of the crew. What did not receive widespread coverage was the extent of success Apaches and other Army aircraft had throughout the campaign and the vital roles Army Aviation has played in the stabilization phase. Teams are in Iraq now gathering data for a comprehensive analysis of events, performance, and lessons. It is already quite clear that Army Aviation was highly successful and a key member of the combined arms team that produced an extraordinarily quick military victory despite much stouter opposition than many expected before combat started. As just an example, Lieutenant General (LTG) Dick Cody, the G-3/Deputy Chief of Staff for Operations (DCSOPS), told about the effects of Apaches from the 101st Airborne Division (101AB) in which his son is serving. Just the 101AB Apaches took out 866 targets -- 82 tanks, 174 artillery pieces, 183 air defense weapons, 142 infantry fighting vehicles (IFVs) and eight surface-to-surface missiles. Cody also praised Black Hawks in the troop assaults involved in a wide range of battles. Possibly as or more important than the destruction they wreaked was the Apaches' deterrent value. Not one assault aircraft was attacked when it had an attack helicopter escort. There was a huge collateral value in the sense of security the troops in the lift ships felt under these conditions. Incidentally, Captain (CPT) Joel Magsig and Chief Warrant Officer (CWO) 4 Greg Inman of 2nd Squadron, 6th Cavalry Regiment (2-6 Cav), in their AH-64A Apache, flew the first coalition aircraft to land at Baghdad International Airport. They had been escorting a medical evacuation (MEDEVAC) UH-60 Black Hawk carrying two badly injured 3rd Infantry Division soldiers to a combat surgical hospital in the rear. They were part of the 11th Regiment, the same unit that got so much adverse publicity early in OIF. One reason for what many described as lackluster performance was the very success of the Apaches' capabilities in forcing the Iraqis to change their preferred way of doing business. Apache pilots providing cover for ground troops headed toward Baghdad saw few signs of massed armor. The Iraqis dispersed and hid their armor and artillery because they knew what Apaches could do to them. This dispersal made easy work for U.S. tanks, Air Force jets, and ground artillery. On occasions when the Apaches did find tanks, few Iraqis would stand and fight. Greg Inman, flying AH-64A with 2nd Squadron of the 6th Cavalry of the 11th Regiment, and one other helicopter destroyed seven tanks they discovered in a week south of Baghdad. In each case, the tanks had been abandoned. Inman observed that the crews had run away from the vehicles and the weapons. As the Apaches were leaving, they came under scattered fire from the hiding crews. This kind of situation largely negated the value of Iraqi armor, heavy artillery, and air defense. The Apache presence eroded even the supposedly fanatic Fedayeen. A Baghdad taxi driver told a Canadian reporter a telling story during the fighting in Baghdad. A young, Fedayeen soldier flagged the taxi and asked for a ride to the bus station. The soldier said, 'Look at my hands -- they are shaking.' As they rode to the bus station, the soldier told the driver, 'So many! We will fight their soldiers; we will fight their tanks. But we are defenseless against their Apaches. It is lost. I'm going home.' As a result of their decisive deterrence, Apaches often assumed an increased role in gathering intelligence for the ground commanders. The OH-58D Kiowa Warrior performed extremely well, especially in military operations in urban terrain (MOUT), where the Kiowa's small size, agility, and combination of weapons were special assets. At night the crews could pick up anything that gives off heat, such as a person or recently fired weapon. As with the Apaches, the Kiowas' value as intimidation was often decisive for ground soldiers, preventing a need for lethal force. A typical mission was to watch over a raid by U.S. forces, telling ground commanders when suspects are trying to escape and warning them about what weaponry may await. The crews also monitored crowds or buzz around the sky, letting locals know the Americans are in charge. An example was with the Outlaws, covering units of the 3d Armored Cavalry Regiment (3ACR), patrolling Baath Party strongholds. On one occasion, four Bradley Fighting Vehicles took a wrong turn into a dead-end alley. A crowd of Iraqis trapped them. The Bradleys

faced the possibility of an attack from the growing crowd and from the surrounding buildings. The ground commander radioed for any Army helicopter in the area to help. A Kiowa piloted by Chief Warrant Officer (CWO) Tracy Forehand and female Lieutenant (LT) Adrineh Shahjianian came in fast and low, just above the buildings, buzzed by once, climbed a few hundred feet, paused, and turned for a second pass. By then, the crowd was fleeing. This stopped cold an incident that easily could've produced fatalities and media fodder for worldwide criticism of U.S. forces and policies. Helicopters and especially the Kiowas provided eyes and gun support for ground troops trying to capture arms dealers and former Baath Party members. During Operation Iraqi Freedom (OIF), Army Aviation piled up an impressive record of safety and survivability under extremely difficult conditions. Individual regiments flew almost 7000 hours with no accidents. Most of 101AB Apache operations were deep attack, mostly against strong, armed resistance. One Apache returned with a rocket-propelled grenade (RPG) in its tail. Ordnance specialists removed it, maintainers taped over the hole, and the crew flew it back into action. What may be emerging out of the experiences in Operation Enduring Freedom (OEF) in Afghanistan and now OIF is a return, with great enhancements, to truly integrated air-ground close operations that characterized Army Aviation during Vietnam. The Apache performed well in Afghanistan and was vitally important to special operations forces (SOF). SOF teams, which figured so prominently in both Afghanistan and Iraq and are a focus of Secretary of Defense (SECDEF) Rumsfeld's concept of a transformed force, often got into contact that demanded immediate close air support (CAS). If there was any sort of ceiling, the other services' fixed-wing (FW) aircraft could not get down to provide the support. Apaches could usually get in right over SOF's position, see where the fire was originating, and suppress the enemy to let SOF either escape or maneuver as their mission required. This was exactly the kind of precise, highly responsive and reliable, direct-fire support that made aerial rocket artillery (ARA) so popular with maneuver commanders and their troops during Vietnam – to the extent that ground commanders in Vietnam often called for ARA preferentially to conventional tube artillery, even when the latter was readily available. Thus, recent operations have clearly shown Army Aviation's value and potential as a key member of the Joint combined-arms team and exceptionally well suited to the kinds of operations Defense leadership envisions as the way of the future.

Closely related to the goal of giving coherence to doctrine were steps to give coherence to organization. In 1986 Army air traffic control (ATC) transferred to Aviation Branch. Pursuant to that, the U.S. Army Air Traffic Control Activity (ATCA) moved to Fort Rucker. This continued the consolidation of key Aviation-related functions recognized in the decision to form the Branch. In 1991 the detachment of the School of the Americas evolved into the Spanish Helicopter School Battalion (HSB), a part of the Aviation Training Brigade (ATB) within the U.S. Army Aviation Center (USAAVNC). It reflected and extended the worldwide influence of Army Aviation. In 1996 functions of the US Army Aviation Technical Test Center (ATTC), formerly split between Edwards Air Force Base (AFB), CA, and Fort Rucker, were consolidated. In 1997 Aviation missions of the U.S. Army Aviation and Troop Command (ATCOM) in Saint Louis and Army Missile Command (MICOM) at Redstone Arsenal merged, forming U.S. Army Aviation and Missile Command (AMCOM).

A vital piece of expanding Aviation's capability against severe personnel constraints was getting the best possible use of the people who could become available. Expanding the opportunities open to women in Aviation was a key element in achieving this goal. The Branch was attractive to some women aviators. For example, now-Colonel Karen (Anderson) Lloyd, who was the first woman Medical Service Corps (MSC) medical evacuation pilot when she graduated from flight school in 1979, transferred to the Aviation Branch in 1986. She then commanded the Grafenwoehr Army Airfield and Flight Detachment before going on to various staff assignments. Women competed successfully for promotion. In 1995 Sally D. Murphy, who in 1974 was the first female graduate of Army flight school, became a colonel. Achieving the Branch's needs for women required breaking down some longstanding cultural and occasionally legal barriers. These changes took more than a decade. Effective 1 October 1994, based on Secretary of the Army recommendation and Secretary of Defense (SECDEF) approval, aviation in the air cavalry troops of the Armored Cavalry regiment and the divisional cavalry squadron opened to women. In 1997 Colonel Jessica Wright became the first female combat commander in the Army when she assumed command of the 28th Aviation Brigade, 28th Infantry Division (Mechanized) based at Fort Indiantown Gap. In 1999 Chief Warrant Officer (CWO) 4 Gwen Schallow deployed to Bosnia with the 8th Battalion, 229th Aviation Regiment, a U.S. Army Reserve (USAR) unit, provided supported the 10th Mountain Division (10 MTN).

This was a double first. CWO Schallow was the first Army woman to qualify as pilot in command (PIC) of an AH-64 Apache in either Active Component (AC) or Reserve Component (RC), while her unit's deployment was the first time a RC unit performed the combat aviation mission in Bosnia. Women in Army aviation also competed successfully for specialty assignments. An example was LTC Nancy Jane (Sherlock) Currie, the first female Army aviator selected to become an astronaut and who made her first space flight in 1993.

One major driver for a separate branch was the dilemma for retention and promotion that the carrier-branch system created for aviators. It was difficult for aviators, especially as systems and operations grew more complex and capable, to achieve both their ground-branch qualifications and perform effectively in aviation areas. The Branch was partly to create a pipeline that would allow progression through the rank of colonel without requiring that straddle. There were concerns, however, that Aviation, as a Johnny-Come-Lately, would not be able to compete well against the long-established combat arms of Infantry, Armor, and Field Artillery. These fears proved largely unfounded. In 1999 the first Aviation Branch-career general officer gained a division command when Major General (MG) Johnny M. Riggs took over the 7th Infantry Division. In 2001 Colonel Jessica L. Wright, an Army aviator serving as the Deputy Adjutant General - Army, Pennsylvania National, received federal recognition in the rank of brigadier general, becoming the first female general officer in the history of the Pennsylvania National Guard. In 2002 the first Aviation Branch-career officer was selected as one of the principals on the Army Staff. Lieutenant General (LTG) Richard Cody became the Army G-3/Deputy Chief of Staff for Operations (DCSOPS).

The decision to create the Aviation Branch in 1983 did not completely consolidate all elements of aviation within the Army. Military Intelligence (MI) and Medical Service Corps (MSC) maintained their own aviation. Enlisted soldiers and NCOs remained under different Career Management Fields (CMF) from commissioned officers. Warrant officers continued to wear their corps insignia, rather than the branch's. Questions about proponency for some aspects of maintenance remained. Gradual movement toward further consolidation appeared. In 2001 Department of the Army (DA) approved putting enlisted Aviation soldiers in Career Management Field (CMF) 67 Aviation Maintenance and CMF 93 Aviation Operations into CMF 15. This made enlisted soldiers/NCOs combat arms and aligned their CMF with officers and warrant officers. Besides symbolism, this change had important practical effects. It opened door to Level C survival, evasion, resistance, and escape (SERE) training. Soldiers in back of aircraft needed to have this training because they go into harm's way, same as officers in front. The change would become effective in 2004. Based on a separate decision, in 2004 Warrant officers (WO) in Aviation would begin wearing Aviation Branch insignia. An important milestone for WOs within Aviation came in 2002, when CW5 Stephen T. Knowles became the first Warrant Officer of the Aviation Branch, providing the Chief of the Aviation Branch an immediately-available, dedicated, expert adviser in these matters.

At the end of the first 20 years of the Branch, vital work remained to be done. Among key areas of lingering concern was airspace management, which the Howze Board Report in 1962 specifically identified as needing fixing. During its relatively short lifespan, Army Aviation had faced a unique challenge breadth of its missions. This condition fostered constant change. Even so, one other consistent characteristic constantly helped offset all difficulties and promised a bright future. That was the extraordinary quality and dedication of its people – ever giving meaning to the Branch motto, 'Above the Best.'