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Commanding General, USAACE
MG Michael D. Lundy

Director, DOTD
COL James E. Baker
james.e.baker90.mil@mail.mil
(334) 255-3320

Doctrine Division Chief
LTC Fernando J. Guadalupe
fernando.j.guadalupe.mil@mail.mil
(334) 255-3584

The Doctrine Division, Directorate of Training and Doctrine (DOTD), U.S. Army Aviation Center of Excellence (USAACE), Fort Rucker, AL 36362 produces the *Aviation Digest* quarterly for the professional exchange of information related to all issues pertaining to Army Aviation. The articles presented here contain the opinion and experiences of the authors and should not be construed as approved Army policy or doctrine.

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ABOUT THE COVER

Joint operations in the Persian Gulf with the U.S. Navy.

Editor's Note

"Separate ground, sea, and air warfare is gone forever. If ever again we should be involved in war, we will fight it in all elements, with all services, as one single, concentrated effort."
- President Dwight D. Eisenhower

In over a decade of continuous operations in Iraq and Afghanistan, the Armed Forces have made enormous strides in the direction of true jointness. In Afghanistan today, air and ground operations, intelligence collection, and logistics and communications operations bring together the talents of more than one service. Special operations are completely joint and routinely integrate our general purpose forces. Visit any regional command, forward operating base, or Afghan Army training center and you will find Soldiers and Sailors working together with Airmen and Marines, as well as with Afghans and other international allies.

The 21st century operating environment brings new challenges requiring new thinking from adaptive and agile leaders. Globalization has brought about great advances that have made the world safer and more prosperous on one hand while more dangerous and uncertain on the other. The dispersion of power in an era of hyper-connectivity allows for destructive technologies to proliferate more quickly giving more nations, groups, and individuals capabilities once restricted to just a few powerful states. Responding aptly to this security paradox requires the United States Army and Army Aviation to understand the threats clearly and to place them in their proper context no matter where they might be in the world.

Army Aviation currently conducts joint operations in the Pacific Rim, the Middle East, Africa, South America, and Europe. Army Aviation affords the Joint Force Commander distinct operational advantages in meeting his requirements, particularly: dominant maneuver, precision engagement, and full-dimension security. As a maneuver force, attack and lift assets can move heavy-hitting munitions and assault-capable warriors around the battlefield unlike any other asset. Additionally they can place firepower quickly on distributed targets and project fires at ranges that afford protection for supported ground forces. Lift helicopters can move ground forces to distant objectives quickly while attack helicopters can put tremendous firepower precisely on distant targets or dominate a forward battle position. They can also protect an advancing maneuver force, escort and protect an air assault force, or perform sentinel duties over a brigade. Combine these capabilities with those of other services and one creates a formidable joint fighting force that can overwhelm an enemy force at the tactical and operational levels in any operational environment.

This edition of Aviation Digest clearly demonstrates Army Aviation's decisive place in joint operations. It provides the Joint Force Commander with a vast array of assets and capabilities that can operate sequentially and simultaneously across all domains. Though the challenges existing in the present operational environment are more complex, Army Aviation has a greater quantity, quality, and variety of tools with which to solve them because of its ability to achieve cross-domain synergy as a member of the joint force. The challenge now is to ensure that defense budget reductions and the end of combat operations in Iraq and Afghanistan do not undermine the tremendous gains achieved by Army Aviation and the rest of the Armed Forces in joint operations.

ABOVE THE BEST!

LTC Fernando Guadalupe Jr.
Chief, Doctrine and Tactics Division
USAACE DOTD
Fort Rucker, AL 36362

LTC Fernando Guadalupe Jr. is the Directorate of Training and Doctrine, Doctrine and Tactics Chief at the United States Army Aviation Center of Excellence. LTC Guadalupe has served with the 25th Infantry Division (Light), 10th Mountain Division (Light), 1st Infantry Division, V Corps, 12th Combat Aviation Brigade, and at the National Training Center (NTC) at Fort Irwin, CA. He has three deployments to Iraq where he served as a commander, operations officer, division planner, and deputy commanding officer. Most recently, LTC Guadalupe commanded the 2916th Aviation Battalion at the NTC. He has 20 years of service and is qualified in the UH-60A/L/M, UH-72A, UH-1H, and OH-58A/C.

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By Order of the Secretary of the Army:

Official:

GERALD B. OKEEFE
Administrative Assistant to the Secretary of the Army
1504101

RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Managing Editor
Bruce Miller
harold.b.miller.ctr@mail.mil
(334) 255-9222

Art Director
Henry Williford
henry.g.williford2.ctr@mail.mil
(334) 255-2642

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The Command Corner

Aviation Leaders: Maintaining Training Overmatch

This edition of the Aviation Digest contains professional articles that discuss a broad range of topics, from doctrine and training for joint combined arms operations, to manned-unmanned teaming, operationalizing aviation maintenance, and a number of leader development initiatives. It is important that we maintain a continuous professional dialog of learning, and these kinds of articles related to warfighting, training, leader development, maintenance, and lessons learned from ongoing operations and training help do that. I encourage all of our leaders to join the discussion—and I'd like to see some more input from our younger leaders. Aviation Digest is a way for us all to share thoughts and ideas to drive critical thinking across our force. Continuing to be a learning organization is one of our greatest strengths as we face the challenges of winning in a complex world as outlined in the recently released Army Operating Concept (AOC).

Army Aviation remains committed around the world in support of our ground force commanders while executing the largest organizational change in the Aviation Branch's history. Although the Army is getting smaller, we are focused on maximizing Army Aviation's ability to conduct combined arms operations through better organizational design, continued modernization of our most critical weapons systems, and improved training and leader development to more effectively meet the combatant commander's demands. The foundation that enables us to do this is our doctrine.

Field Manual (FM) 3-04, Army Aviation, the branch's CAPSTONE doctrine is now out for final staffing; we will finish staffing and release for implementation this summer. When published, FM 3-04, and the accompanying Army training publications, will serve as the basis to develop agile leaders and units that are masters of combined arms operations and drive future doctrine, organization, training, materiel, leadership and education, personnel and facilities requirements; combat training center (CTC) rotational design; and the reinvigoration of home station training.

As described in the AOC, our Army provides the foundation for joint combined arms maneuver (JCAM) and FM 3-04 articulates how Army Aviation is an integral part of how we conduct JCAM as an Army and as a joint force. Therefore, to continue to be an effective member of the air-ground team, we must re-blue ourselves on understanding Army and joint doctrine to ensure we maintain shared understanding with the Soldiers and commanders we support on the ground.

However, our doctrine is just the first step and means little if we don't "train the way we fight" – at home station and at the CTCs. We must continue to drive rigor into our training by creating the realistic conditions necessary to replicate the complexity of the operational environment. Our practice must be as hard as the war-fight and reinforced through multiple repetitions with constantly changing variables to build versatility, experience, and agility. This can only be done by focusing our training and leader development on the most important, high-payoff training, and inducing rapid condition changes in our training to build knowledge and experience that enable disciplined initiative and critical thinking skills. Leaders at all levels must use innovative approaches to maximize every live flight hour while maximizing the use of virtual and constructive simulation and gaming technologies to enable the required repetitions and rigor necessary to maintain the requisite readiness to meet rising demands. To do this requires trained and certified leaders, highly effective commander-driven training management, and sound doctrinal fundamentals.

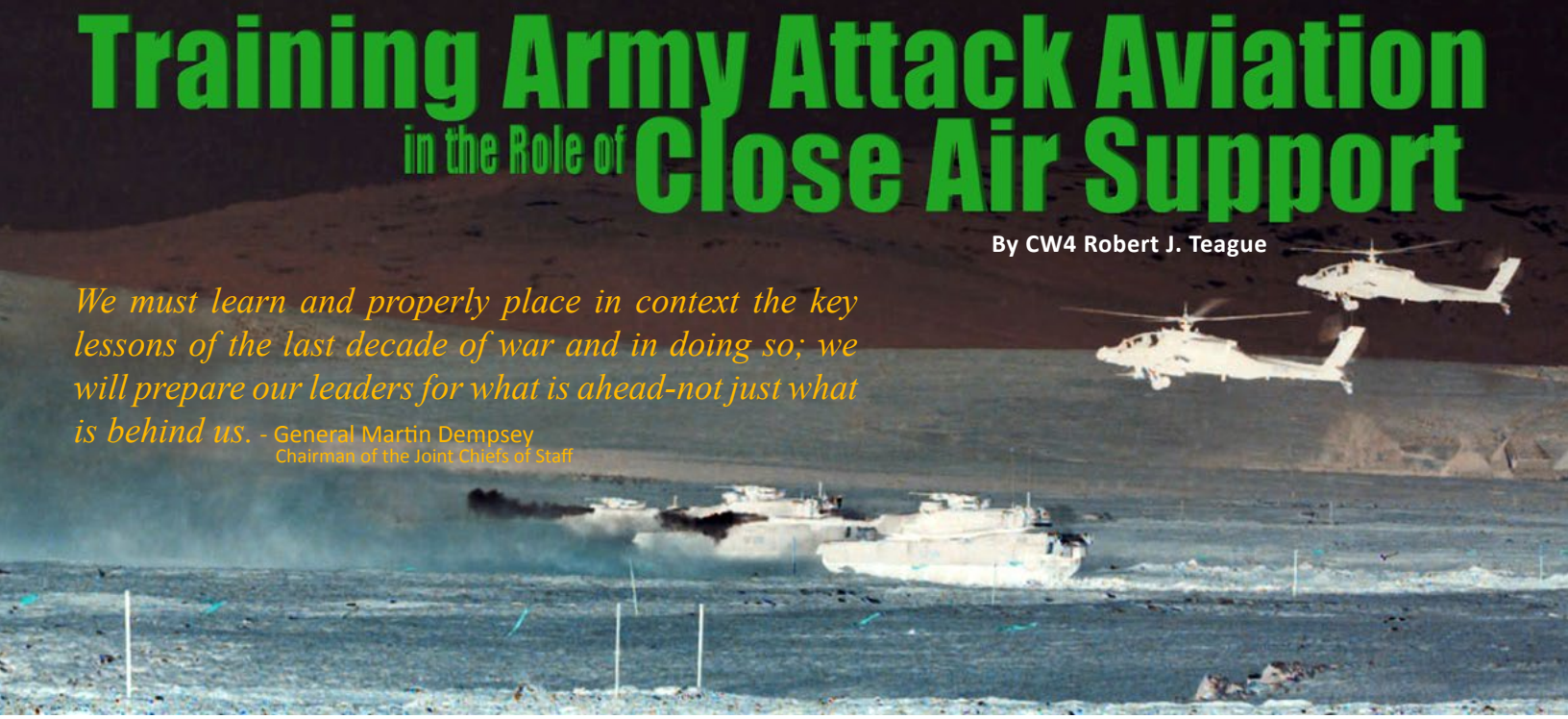
What makes Army Aviation a true asymmetric advantage for our Nation, unique in scale and capabilities, is not our equipment—it's our Soldiers and leaders. Their training and development is always the first priority and maintaining a culture and climate that is focused on developing leaders and ready units through tough, realistic, and rigorous training will allow us to "Win in a Complex World."

Above the Best!

Mike Lundy
Major General, USA Commanding

Training Army Attack Aviation in the Role of Close Air Support

By CW4 Robert J. Teague



We must learn and properly place in context the key lessons of the last decade of war and in doing so; we will prepare our leaders for what is ahead-not just what is behind us. - General Martin Dempsey
Chairman of the Joint Chiefs of Staff

The conflicts in Iraq and Afghanistan have demonstrated the effectiveness and lethality of Army attack aircraft while supporting missions such as troops in contact and deliberate targeting of insurgent forces to meet the ground force commander's (GFC) intent. Due to the lack of available joint terminal attack controllers (JTAC), the Army has relied on fire support officers and leaders on the ground for employment of Army attack aircraft.

As the United States begins to reduce the number of Soldiers in Afghanistan, Army aircrews are finding themselves supporting the GFC attack missions while controlled by a JTAC using close air support (CAS) procedures. Army AH-64 crews are finding themselves at a disadvantage with the doctrinal execution and language used in CAS operations.

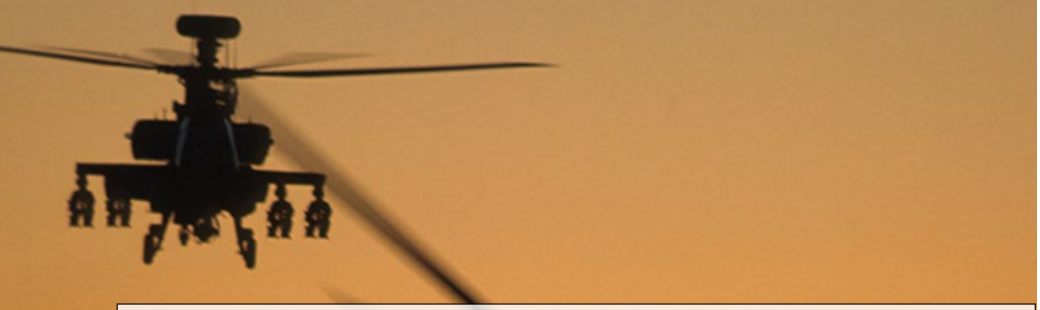
As the United States' strategic interests refocus to other areas, where joint operations become standing operating procedure, it will become vital to mission accomplishment for Army attack crews to become intimately familiar with CAS procedures and operations. Army Aviation should view these events as opportunities and consider expanding the training provided to attack aircrews in CAS tactics, techniques and procedures (TTP). This would enhance the versatility of Army attack aviation and provide the Joint Force Commander with additional fire power options to accomplish a wider variety of missions.

DOCTRINE

In September of 2012, the Chairman of the Joint Chiefs of Staff, General Dempsey published the white paper Capstone Concept for Joint Operations: Joint Force 2020. Although the paper does not give specific guidance, it does suggest that "within Joint Forces, interoperability should be widespread and should exist at all echelons." This idea is further reflected in Army Doctrine Publication 1 and the Army Vision stating "as part of the Joint Force and as America's Army, in all that we offer, we guarantee the agility, versatility and depth to Prevent, Shape and Win." The necessity for the Army to be an innovative and flexible member of the joint force is clear throughout this and other references. Although operations in Iraq and Afghanistan have provided Army attack aviation valuable experience in support of other services, there remains a gap in training with regard to CAS.

The primary doctrinal reference for Army attack and reconnaissance operations is Field Manual (FM) 3-04.126 which states that the primary missions of Army attack and reconnaissance helicopter units are: reconnaissance, security, attack, and movement to contact. It is important to note that the Army applies its aviation assets in direct support of organic units. Yet very few specifics exist on the utilization of Army attack helicopters in a joint environment. When mentioned in joint publications, attack aviation is often noted more for what we do not know rather than what we can provide. An example of this expectation may be seen in the following reference:

Photo by Master Sgt. Ben Bloker



a. Execution Template: The following template is a guide to organize the flow of events during a CAS aircraft time on station. Deviations may be necessary based on the tactical situation.

Format 13. Execution Template	
1	Routing / Safety of Flight
2	CAS Aircraft Check-In
3	Situation Update
4	Game Plan
5	CAS Brief
6	Remarks / Restrictions
7	Readbacks
8	Correlation
9	Attack
10	Assess Effects
11	BDA
12	Routing / Safety of Flight

Figure 1.

"FM 3-04.126 Attack Reconnaissance Helicopter Operations presents the close air support (CAS) check-in brief and 9-line, but there is no mention of the remaining CAS information to include the distinction on types of control, definition of troops in contact, risk, estimates, and etc."
- Joint Publication 3-09.3 Close Air Support

FM 3-04.126 provides an excellent overview of planning considerations and execution but lacks adequate detail on the process for controlling aircraft from other services. It is unlikely that an operation that involves multiple aircraft and indirect fire support will occur without the use of a JTAC or a forward air controller (airborne) (FAC(A). It is the process and language used by these specially trained controllers that Army attack aviation must become proficient with if we are to effectively contribute to joint operations.

IDENTIFYING the PROBLEM

Task Force (TF) Tigershark, composed of elements of the 1-229th Attack Reconnaissance Battalion (ARB) and the 1-230th Attack Reconnaissance Squadron deployed to Afghanistan in the spring of 2014 as part of the 16th Combat Aviation Brigade to provide security and reconnaissance in support of the International Security Assistance Force. After several weeks of conducting combat missions where aircrews were communicating with a dedicated JTAC, the leadership of the 1-229th identified several trends. Primarily, there was a lack of understanding of the TTP and briefing formats that JTACs utilized. This included the 9-line CAS briefing and the entire process used by JTACs when controlling aircraft. Aircrews also had a tendency to consistently misuse joint brevity terms that on several occasions caused confusion between the aircraft and the controller. As an example, crew would use the term "visual" when sighting a specified reference point when the correct response should have been "contact." The solution was to expand aircrews' academic knowledge of CAS and provide training scenarios where aviators could interact with JTACs and apply what they learned.

In May of 2014, TF Tigershark developed a working relationship with Marines of the Supporting Arms Liaison Team Echo, 1st Air Naval Gunfire Liaison Company (ANGLICO). The JTACs of 1st ANGLICO are specifically trained to plan, coordinate, employ, and conduct terminal control of surface-to-surface and air-to-surface fires in support of joint, allied, and coalition forces. It was apparent that TF Tigershark could learn a great deal from these skilled Marines and that training together would be mutually beneficial. The exchange of information began with a detailed capabilities brief that outlined what each organization could bring to the fight. The JTACs from 1st ANGLICO and members of TF Tigershark discussed aircrew trends and the expected maritime missions being planned following redeployment. Both units agreed to begin planning for a live fire exercise that would focus on the doctrinal execution of CAS in joint operations.

TRAINING and EXECUTION

In order to build a solid academic understanding of CAS, JTACs from 1st ANGLICO began their instruction with a detailed explanation of the 12 step CAS Execution Template shown in Figure 1. The JTACs use the template as a guide to organize the flow of events while participating CAS aircraft are on station. For the JTAC and the aircrews, the CAS Execution Template also acts as a script that enables each player to be prepared for the information that will follow.

In addition to understanding the flow of information, the aviators also gained a greater understanding of the reasoning and purpose behind the directives that would be passed by the JTAC. The initial response from many of the aviators was skepticism because of the additional information required in the exchange between the JTAC and aircrews and what was considered a non-aggressive method of operating. This is understandable due to the proven TTP and freedom of maneuver that have allowed Army attack aviation to be so successful in supporting the GFC in Iraq and Afghanistan. The process of being directed to move to a specified location, to perform an engagement within certain parameters, and then to be told how to egress from the engagement area was significantly different from the flexibility provided by previous procedures. What became evident was the realization that the next war may be fought against an enemy with enhanced capabilities and the ability to field greater threats to aircraft. The

control provided by the JTACs provides protection to the participating aircraft, while allowing the destruction of the enemy using multiple assets.

The final academic instruction centered on the definition and proper use of joint brevity terms. The simple yet important lesson gained from the discussion was, as a Marine JTAC expressed, "words have meaning." Equally as important as the meaning was the explanation of when specific terms should be used and how they fit into the CAS Execution Template. This was beneficial to new and seasoned aviators alike. The comparison was made that joint brevity was similar to learning a new language. In many ways it was true because no official training on the subject exists in basic Army Aviation flight training. The current attack helicopter training manual does, however, make a huge leap forward with regard to the use of joint brevity terms. The tasks for fuel management, firing techniques, and operate laser pointing devices, incorporate brevity terms in the description or mandate their use in the standards. Therefore, if the academic training in CAS techniques was to be effective, the aviators and JTACs would need an exercise that would allow for the incorporation of the CAS Execution Template and require aviators use their new "language."

On the 24th and 27th of June, JTACs of 1st ANGLICO and teams of OH-58D and AH-64E aircraft conducted a day live-fire training exercise at an approved test fire range near Kandahar, Afghanistan. The overall training objectives were to perform CAS integration and execute attacks using procedures described in joint and Army training publications. The exercise began with the insertion of Marines and infantry security forces from the Georgian Army 10th Special Mountain Battalion at the range. Then Scout Weapons Teams (SWT) and Attack Weapons teams (AWT) transmitted their CAS check-in and were incorporated into the scenario by the use of specific routing to holding areas (HA) developed by the JTACs. Once in the HA, the SWT and AWT were given target handovers from the JTACs following the steps detailed in the CAS Execution Template.

Over a four hour period, aircrews were exposed to several different game plan and 9-Line combinations that exercised the information learned during the JTAC academics and provided an opportunity to perform weapons training. The JTACs used both verbal talk-on and laser handovers for correlation before proceeding with the engagements. The attack combinations included both Type 1 and Type 2 bomb on target attacks using .50 Caliber, 30mm, rockets, and Hellfire missiles. On the 12th and 13th of July, aircrews were again challenged to display what they had learned under night conditions. This presented an opportunity for OH-58D and AH-64E aircrews to use both cockpit and gun-mounted infra-red laser pointer devices in the correlation of targets before conducting attacks. The training continued in August to allow aircrews on different shifts to gain experience. Despite a rigorous mission schedule, the majority of the aviators in TF Tigershark had completed multiple training iterations without impacting ongoing combat operations.

THE RESULTS

During the academic sessions, a total of forty-three aviators were trained. The three live-fire exercises enabled twelve separate SWTs and AWTs to train with the JTACs and enhance weapon system proficiency. AH-64E and OH-58D aircraft expended 400 rounds of 30mm, 650 rounds of .50 Caliber ammunition, 44 rockets and 18 Hellfire missiles. The after action review conducted following the two events identified both positive results and areas where aircrews and Marines could improve. On the ground, the JTACs were able to identify communications equipment problems that initially required many of the radio calls to be repeated to confirm the aircraft had the correct information. Despite equipment problems, the JTACs were still able to expose Marine Joint Fires Observers and communications specialists to the training and allow them the unique experience of providing live-fire target handovers to Army attack helicopters. The aircrews initially had difficulty providing the correct read backs and complying with restrictions. Many of these errors were corrected immediately after the aircrews were debriefed over the radio by the JTACs. In addition to the CAS training itself, the aircrews were able to train using different flight techniques to operate in confined airspace, maintain targets with sensors, and execute attacks with weapon combinations not normally employed.

The training conducted by TF Tigershark and the JTACs from 1st ANGLICO has enhanced the proficiency of both organizations. The Marines, who up until this point, had very little interaction with Army attack aviation, have become more familiar with our capabilities. Through these live-fire training events they have not only been able to train to enhance their own proficiency, but they have proven that consistent and integrated training develops effective, multi-service teams where it counts the most - on the battlefield. It is a lesson that must be remembered and continued.

MOVING FORWARD

The aviators of TF Tigershark are now more proficient at the doctrinal execution of CAS and the language of joint operations. As combat operations continue, aviators are recognizing the

content of the CAS Execution Template during target handovers and using the appropriate and proper joint brevity terms when communicating with JTACs. There is now a shared confidence on the part of both the aircrews and JTACs that has led to several successful engagements of the enemy. The goal will be to maintain this skill by making it a continuous part of aviator progression and gunnery training. The 1-229th ARB has developed a technical task that will require aviators to maintain a working knowledge of the doctrinal execution of CAS; thereby, ensuring that the lessons learned training with the Marine JTACs will be maintained by members of the unit. Additionally, incorporating the CAS Execution Template and joint brevity terms into gunnery academics and qualification will help ensure aviators maintain a level of proficiency that will make them an asset to a joint force commander.

This training experience is a small but positive step towards the "interoperability" discussed by General Dempsey. Army attack aviation should consider expanding its role to ensure its aircrews are capable of executing CAS to the joint standard. This is not to say that we should abandon our role supporting integral units as part of a combined arms team. Assisting Soldiers or Marines on the ground with accomplishing their mission is a task we will always perform with the utmost dedication and professionalism. Expanding Army Aviation's attack capabilities and proficiency as a CAS capable platform is the next logical step in Army and joint doctrine to provide the joint force commander increased flexibility and JTACs with additional situational awareness and firepower. By demonstrating proficiency in the execution of CAS TTP and thorough understanding of joint operations, Army aviation can further display its agility and versatility.

CW4 Robert Teague is currently assigned as the 1-229th Attack Reconnaissance Battalion (ARB) Master Gunner. His previous assignments include B Company, 1-82nd ARB Armament Officer; A Company, 1-82nd ARB Battalion Instructor Pilot; and C Company, 1-229th ARB Standardization Instructor Pilot and Instrument Examiner. He has two deployments to Iraq and two deployments to Afghanistan. CW4 Teague has 21 years military service and is qualified in the OH-58A/C, AH-64A, AH-64D, and the AH-64E.

Acronym Reference

ANGLICO - air naval gunfire liaison company
ARB - attack reconnaissance battalion
ATP - Army techniques publication
AWT - Attack Weapons Team
CAS - close air support
FAC(A) - forward air controller (airborne)
FM - field manual
GFC - ground force commander
HA - holding area
JTAC - joint terminal attack controller
SWT - Scout Weapons Team
TF - task force
TTP - tactics, techniques, and procedures

COMBINED, JOINT TRAINING IN THE ARABIAN GULF

By MAJ Mary K. Miller

With the withdrawal of all troops from Iraq and the drawdown of combat operations in Afghanistan, the emphasis is shifting to strategic focal points in the Middle East and the Pacific. For units supporting Operation Spartan Shield (OSS), this is accomplished through partnership training with members of the Gulf Cooperation Council (GCC) comprised of Kuwait, Saudi Arabia, Jordan, the United Arab Emirates (UAE), Bahrain, Oman, and Qatar. In August 2013, the 4-227th Attack Reconnaissance Battalion (ARB), 1st Air Cavalry Brigade deployed to Camp Buehring in support of Operation Enduring Freedom-Kuwait and OSS. The 4-227th ARB completed two deployments in support of Operation Iraqi Freedom and one deployment in support of Operation Enduring Freedom-Afghanistan since it was fielded with AH-64D Longbow Apaches in 2006. A number of the 4-227th ARB Soldiers in key positions have been in the unit for all three of these deployments; however, OSS presented a new challenge - conduct combined and joint training with other AH-64D equipped units from the GCC to increase security within the Central Command (CENTCOM) Area of Responsibility (AOR).

The battalion commander's intent was to remain postured for all contingency operations, partner with coalition and allied forces, and build capacity for maritime operations. The unit leveraged training resources in Kuwait, UAE, Saudi Arabia, and Jordan. It also focused on interoperability of systems and weapons platforms, refined and shaped the maritime operations standing operating procedure (SOP), and established the means to execute overwater gunnery (with partners) and sustainment gunnery over land. In addition, they accomplished individual and crew served weapons qualifications. All this was accomplished by establishing four lines of effort (LOE) based on the 36th, and later the 42nd, Combat Aviation Brigades' LOE (the 4-227th ARB's higher headquarters in Kuwait): Partnering and Theater Security Cooperation, Deployable Aviation Task Force, Maritime Security, and Training.

Shortly after transfer of authority, the 4-227th ARB published training guidance to ensure there was a well-coordinated plan to take advantage of the training opportunities available in Kuwait and to ensure the battalion was prepared for all contingencies. The plan included exercising AH-64D capabilities to include manned-unmanned teaming level of interoperability - 2 capabilities and the aircraft's fire control radar. The bottom line for 4-227th ARB's training plan was to ensure they maintained proficiency and readiness on all tasks required of an ARB.

Partnering and Theater Security Cooperation

The 4-227th ARB provided an attack reconnaissance company at Ali Al Salem Air Base to partner with the 17th and 20th Squadrons of the Kuwait Air Force (KAF). The first priority was to establish a professional relationship with the leaders and aviators from the KAF host nation squadrons.

Charlie Company, 4-227th ARB flew several combined missions with their partners from the 17th and 20th Squadrons, KAF. The first mission, consisting of two Kuwaiti led teams (1x KAF and 1x 4-227th ARB aircraft), flew from Ali Al Salem Air Base to Failaka Island off the northeast coast of Kuwait where they conducted simulated attacks on a military compound and a communications tower. The flight followed the attacks with an area reconnaissance of the eastern portion of the island to identify potential forward arming and refueling point locations to support future overwater training missions. Following the mission, they discussed future training opportunities with the squadron training officers to ensure there was a deliberate plan of action to build on this foundation training mission.

The battalion and company command groups attended the weekly Kuwaiti hosted breakfasts at Ali Al Salem Air Base. This was a key event to build enduring relationships and facilitate future

training opportunities. The 4-227th ARB emphasized establishing camaraderie with their Kuwaiti partners. Without first establishing a personal relationship, the Kuwaiti partners would not have been as motivated to conduct training flights. On several occasions the KAF squadron leadership traveled to Camp Buehring and Udairi Army Airfield (UAAF). On the first visit, 4-227th ARB provided a tour of the battalion and company areas on UAAF, demonstrated how they integrate their systems to execute their deployed mission set in Kuwait, and conducted a briefing for the 17th and 20th Squadron Commanders. They also discussed scheduling of partnership events, and means of furthering the partnership. In turn, Charlie Company, 4-227th ARB aviators attended the 17th and 20th Squadron Aviator's briefs on a regular basis to share tactics, techniques, and procedures (TTP) and lessons learned from previous combat operations, maintenance practices, and the tactical employment of the AH-64D to further the partnership.

In January 2014, the 4-227th ARB deployed to the UAE to participate in Operation Desert Talon II. This exercise, partnered 4-227th elements with the 10th Aviation Group, and the UAE Joint Air Command (JAC) for their culminating battalion level training event. The 4-227th ARB Task Force (TF) consisted of their headquarters and headquarters company with augmentation from the combat aviation brigade (CAB) staff, one attack reconnaissance company, one assault company, one medical evacuation aircraft/crew, aviation unit maintenance (AVUM), a fire support cell augmented by personnel from the general support aviation battalion (GSAB) and the aviation support battalion (ASB), U.S. Air Force joint terminal attack controllers (JTAC), and weather personnel from the 82nd Expeditionary Air Support Operations Squadron (EASOS). Task Force Desert Talon operated at the UAE Combat Training Center from Al Hamra Air Base to conduct partnered aviation mission planning, develop and sustained mission command interoperability, develop and execute partnered flight tactics and procedures, and posture for future contingency operations. Each of these tasks promoted regional stability by strengthening aviation partnerships with the UAE JAC.

The objectives for this exercise were to build upon the relationships developed during Operation Desert Talon II and ensure the partnered growth of air-ground operation capabilities between UAE and U.S. forces. A month prior to the exercise, the TF conducted a final planning conference focusing on establishing training objectives with planners from the UAE JAC and ensured all logistical requirements were identified. The objectives for Operation Desert Talon II included successfully integrated planning conferences, partnered staff integration, logistical activities to successfully deploy and support all operations, and partnered complex maneuver to include overwater gunnery. Consequently, upon execution of the exercise the task force made every effort to remain on course with the training objectives established with the UAE JAC leadership.

Each overwater (day and night) mission of Operation Desert Talon II was conducted with teams made up of 4-227th and UAE crews. They conducted partnered planning, thoroughly rehearsed each mission, and conducted detailed after action reviews to ensure everyone learned from the mission achievements and mistakes. Deliberate attacks and air assaults sustained by forward arming and refueling operations on islands off the coast of the UAE were conducted over a two-week period replicating offensive actions against a seaborne attack from an enemy force. The TF engaged a varied array of targets on land and over water in a culminating training event involving four 4-227th ARB and four UAE AH-64D aircraft. The USS Harpers Ferry supported the exercise by anchoring approximately 12 nautical miles off the coastline near Al Hamra Air Base enabling TF crews to complete deck landing qualifications (DLQ) and sustainment landings. The highlight for the exercise was the culminating training event, overwater gunnery with eight (4x U.S. & 4x UAE) AH-64Ds.

Deployable Aviation Task Force

Immediately upon arrival in Kuwait, the 4-227th ARB staff and commanders began course of action development and analysis to ensure they were prepared to

deploy as a task force. They identified the manning and equipping requirements and deficiencies and developed a plan with the brigade staff to execute a series of command post exercises, and communication exercises to ensure the TF was organized, manned, equipped, and validated for expeditionary operations throughout the CENTCOM AOR.

The initial training event was an emergency deployment readiness exercise (EDRE) in which the brigade staff went through orders production to validate the N-hour sequence to deploy a battalion task force from Kuwait. Throughout the deployment, the CAB executed increasingly complex EDREs and were able to validate equipment and personnel requirements when the 4-227th ARB TF deployed to the UAE in support of Operation Desert Talon II.

Maritime Security

The 4-227th ARB continued to build upon their pre-deployment training to bolster aviation operations in support of maritime surface warfare through a maritime operations working group (MOWG). They accomplished this objective with SOP refinements and TTP development through integration with U.S. Navy Patrol Coastal Vessels and U.S. Coast Guard Cutters during overwater joint exercises. A specific training plan was established to conduct deck-landing qualifications and to maintain proficiency once qualified in order for the 4-227th ARB to provide the combatant command a lethal overwater force projection capability.

One of the 4-227th ARB's major initiatives in support of OSS was to continue to develop their capabilities for joint maritime operations. They implemented a MOWG at Camp Buehring, Kuwait that permitted planners from the United States (U.S.) Army Central Command (ARCENT) G-32 (Aviation), U.S. Naval Forces Central Command (NAVCENT), JTACs from the USS Ponce (the Navy vessel we habitually staged from for DLQs and joint exercises), and planners from the 36th CAB to synchronize efforts, assets, and training opportunities to allow the ARB to execute their mission. The 4-227th ARB coordinated a monthly MOWG that focused on:

- Joint maritime operations coordination including development of future training events (overwater gunnery); joint surface, surveillance, and coordination; and integration of intelligence, surveillance, and reconnaissance (ISR) assets during overwater operations.
- Development of joint capabilities such as integration of multiple joint assets in support of maritime operations.
- Refinement of joint TTP to include utilization of AH-64D aircraft, ISR, and maritime platforms in support of joint maritime operations.
- Counter fast attack craft (FAC)/ counter fast inshore attack craft (FIAC) TTP development in order to understand the latest FAC/FIAC capabilities and how the AH-64D can be utilized to counter these platforms.

After the inaugural MOWG, planners from ARCENT G-32, 36th CAB, and 4-227th ARB attended a working group hosted by NAVCENT to coordinate the terms of an ARCENT and NAVCENT memorandum of understanding (MOU) supporting U.S. Army Aviation maritime operations. The MOU provides direct liaison authorization between the U.S. Navy Patrol Craft (PC), U.S. Coast Guard Cutters (USCGC), and the CAB/ARB when those vessels are operating in the Northern Arabian Gulf (NAG).

Other topics of discussion during this working group included PC interoperability training and MUMT-2 full motion video (FMV) feed into the ARCENT Counter-Improvised Explosive Device Operations Integration Center (COIC), Exercise Spartan Kopis, and interoperability exchanges.

- PC/USCGC Interoperability Training: Once the MOU authorized direct liaison, the 4-227th ARB Operations Officer and Standardization Instructor Pilot coordinated with the Skipper of the USS Tempest, to identify their maritime operational area and how the AH-64D could support the PC/ USCGC mission in the NAG.
- FMV Feed: One of ARCENT G-3's priorities was to receive the video feed from AH-64Ds in the COIC. While working with elements of the U.S. Navy's 5th Fleet, AH-64Ds provided maritime security operations that included high value asset defense and armed reconnaissance in conjunction with a host of joint air and surface

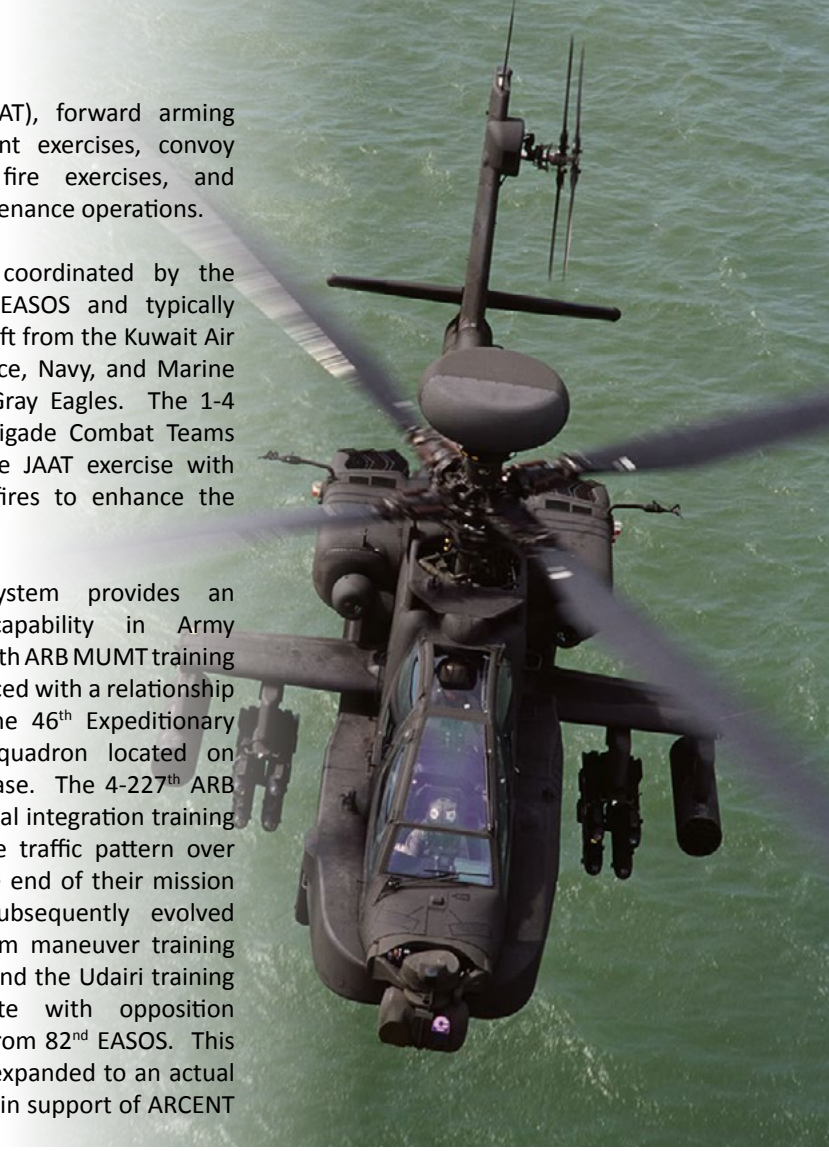
warfare assets. The AH-64D aircraft provided FMV to any U.S. Naval vessels with the capability to receive the feed significantly increasing situational awareness for developing the common operational picture and significantly reducing time in operational risk and rules of engagement decisions. The AH-64D MUMT-2 systems provided the capability to "team" with any manned or unmanned asset capable of distributing FMV providing an increased layer of security to protect vital assets.

Training

The objective of the 4-227th ARB leadership was to continue to build on their pre-deployment training to ensure the Soldiers and aircrews were fully mission qualified for all contingency operations in support of ARCENT while deployed to Kuwait. They sustained an aggressive individual training regimen through regularly scheduled sustainment gunnery, helicopter overwater survival training, deck landing qualifications, pilot-in-command and air mission commander evaluations, small arms training , combat lifesaver training and, physical readiness training. Collective training events included joint air attack team training (JAAT), forward arming and refueling point exercises, convoy operations, live fire exercises, and aviation unit maintenance operations.

The JAATs were coordinated by the JTACs from 82nd EASOS and typically incorporated aircraft from the Kuwait Air Force, U.S. Air Force, Navy, and Marine Corps and Army Gray Eagles. The 1-4 and 2-4 Armor Brigade Combat Teams also supported the JAAT exercise with M109A6 Paladin fires to enhance the training effects.

The MUMT-2 system provides an unprecedented capability in Army Aviation. The 4-227th ARB MUMT training was further enhanced with a relationship developed with the 46th Expeditionary Reconnaissance Squadron located on Ali Al Salem Air Base. The 4-227th ARB crews initiated initial integration training with MQ-1s in the traffic pattern over Ali Al Salem at the end of their mission window which subsequently evolved into bi-weekly team maneuver training over Ali Al Salem and the Udairi training complex, complete with opposition forces and JTACs from 82nd EASOS. This skill set was later expanded to an actual overwater mission in support of ARCENT and NAVCENT.



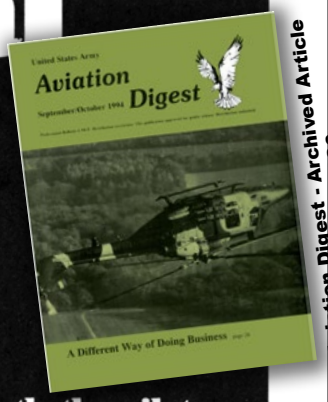
MAJ Mary K. Miller is the Southeast Asia Plans, Policy and Analysis Division Chief for Special Operations Command, Pacific. Previous duty positions include Executive Officer and Operations Officer for 4-227th Attack Reconnaissance Battalion "Guns Attack"; Deputy CJ3 Air for Combined Joint Task Force-1, Regional Command (East), Afghanistan; Chief of Plans and Future Operations for 1st Maneuver Enhancement Brigade, Task Force Warrior, Afghanistan; Attack Company Commander and Platoon Leader; and Support Platoon Leader. She has deployed to Bosnia Herzegovina in support of Operation Joint Endeavour, Implementation Force; to Afghanistan in support of Operations Enduring Freedom VI, VIII, and 11-12, and Operation Enduring Freedom-Kuwait 13-14. MAJ Miller has over 20 years of active service. She is qualified in the AH-64A/D.

Acronym Reference

AOR - area of responsibility
ARB - attack reconnaissance battalion
ARCENT - Army Central Command
CAB - combat aviation brigade
CENTCOM - Central Command
DLQ - deck landing qualification
EASOS - Expeditionary Air Support Operations Squadron
EDRE - emergency deployment readiness exercise
FMV - full motion video
GCC - Gulf Cooperation Council
GSAB - general support aviation battalion
ISR - intelligence, surveillance, and reconnaissance
JAAT - joint air attack team
JTAC - joint terminal attack controller
KAF - Kuwait Air Force
LOE - lines of effort
MOU - memorandum of understanding
MOWG - maritime operations working group
NAG - Northern Arabian Gulf
NAVCENT - Navy Central Command
OSS - Operation Spartan Shield
PC - patrol craft
SOP - standing operating procedure
TF - task force
UAE - United Arab Emirates
U.S. - United States
USCG - U. S. Coast Guard

Night CAS on the Conventional Battlefield

Captain Phillip P. Taber, U.S. Air Force
3d Brigade, 24th Infantry Division (Mechanized)
Fort Benning, Georgia



Night close air support (CAS) is inherently more difficult for both the pilot and ground forward air controller (GFAC). This article addresses several challenges associated with night operations, and offers techniques to overcome these challenges.

INTRODUCTION

According to multiservice night and adverse weather combat operations, Tactical Air Control Pamphlet 50–44, "Night complicates all aspects of combat operations, and presents challenges, problems, opportunities, and risk."

Before the Gulf War, night CAS had not been actively pursued within the U.S. Air Force (USAF). Night CAS/air interdiction had been dedicated almost exclusively to special operations forces (SOF) contingency operations. However, during Desert Shield, the need for night CAS, on the conventional battlefield, became very apparent. Aggressive night CAS training programs were implemented for both pilots and tactical air control party (TACP) personnel.

This training raised serious questions concerning such issues as target acquisition, friendly position, and terminal control by GFACs. A myriad of different "field expedient" techniques were developed to support the night CAS mission. Unfortunately, very little information on night CAS filtered into the post–war training publications (MCM 3–1, ***The Air Land Sea Bulletin, Weapon Review***, etc.).

CHALLENGES

Fighter/attack aircraft enjoy a significant advantage during night operations. The aircraft are less vulnerable to optically sighted, surface–to–air threats. However, darkness also limits the pilot's ability to visually acquire targets and friendly positions. Generally speaking, as the threat intensity decreases, target acquisition improves. Likewise, as radar–guided surface–to–air missiles and antiaircraft artillery intensifies, accurate night CAS employment decreases.

Positive identification (ID) of target locations and friendly positions not only is the most important task, but also the most difficult task on a fluid battlefield. When this task is combined with night operations, it can be virtually impossible for the pilot to distinguish who's who without the assistance of a GFAC. The GFAC must be able to provide target and friendly positions, using the best means available. An accurate target ID improves the probability of a successful first–pass attack by the fighters. In addition, an accurate mark reduces the risk of fratricide.

MISSION PLANNING

Successful night CAS operations require extensive mission preparation by both the fighter/attack crews and the TACP personnel. Pilots should address how tactics, formations, interflight deconfliction, terrain, and contingency plans are affected directly by night operations. TACPs require detailed integration with all available fire support element assets.

Tactical Air Control Pamphlet 50–44 lists the following planning factors:

•Location of friendly forces

•Method of target and aircraft ID
•Availability of mortars or artillery for target illumination and suppression of enemy air defense (SEAD)
•Infared (IR) and laser capability of CAS aircraft
•Laser designation capability of the TACP or fire support team
•Aircraft support for illumination with aircraft flares (LUU–1 or LUU–2 from OA–10 Thunderbolt II or U.S. Marine Corps (USMC) OV–10 Bronco)
•Friendly and enemy air defense systems
•Deconfliction of airspace control areas and other procedural control measures used to prevent fratricide for direct and indirect fire support.

TARGET ACQUISITION

With few exceptions, conventional brigade/battalion size units possess the organic assets necessary to mark and/or illuminate a target during hours of darkness. These assets include flares, artillery, and laser designators. The TACP selects and integrates the assets that best suit the fighter/attack aircraft's capabilities.

The illumination flare is currently the most commonly used asset for target acquisition. Flares can be fired from artillery, mortars, or naval gunfire. The flare can be set either to "air–detonate" for airborne illumination, or can be set to "ground-detonate" to impact the ground and burn for about 10 to 15 minutes. Air-released flares (LUU–1, LUU–2) also can be dropped by an airborne forward air controller fighter or flare–ship. Higher threat environments may preclude this type of flare delivery.

Ground–detonated (GND) flares serve as excellent target marks, and can be used as a common reference point (a CAS bullseye) for the fighters. The GND flares allow additional targets to be located by referencing the target to the flare by cardinal direction and distance. GND flares do not affect night vision devices (NVDs) to the same degree as airborne flares. In addition, GND flares do not offer the enemy an illumination source that can be used to his advantage.

Artillery and mortars also can deliver white phosphorous (WP) or high–explosive–type rounds to impact in the target area. This type of mark also serves as SEAD for the fighters. WP is an excellent heat source; however, if the fighter is using a forward looking infared (FLIR) system, the WP smoke can obscure the target area.

Laser–designating devices are, by far, the most accurate means to mark a target or friendly location. Laser designators allow for target acquisition without the use of conventional illumination devices. TACPs with access either to the laser target designator, or the ground/vehicle laser locator–designator equipped with NVD/thermal sights, can ensure positive target ID/mark. Aircraft equipped with the laser spot tracker (LST), or pave penny pod, can acquire the laser spot and attack without "visually" identifying the target. Aircraft equipped either with self– or pod–contained LSTs include the A–6E Intruder, AV8B Harrier, A/OA–10, F–15E Eagle, F/A–18 Hornet, F–111F Aardvark, OH–58D Kiowa Warrior, AH–64 Apache, and AC–130 Spector. The use of laser designators to mark targets also carries an additional advantage: a ground laser can provide terminal guidance for laser–guided munitions. This type of employment requires a very high level of proficiency and planning by both the aircrew and the TACP.

Hand–held, near–IR lasers can be used not only to designate targets, but also mark friendly positions. The LPL–30 and the personal illumination marker (PIM) are lightweight, cigarette pack–size/flashlight–size laser systems, respectively, used to point out targets with unpulsed laser energy. They produce a near–IR spot invisible to the naked eye, but easily seen with NVDs. Aircraft equipped with NVDs can visually acquire the near–IR spot/mark. This type of designator requires an unobstructed line–of–sight to the area being designated. It also allows anyone with NVDs to see both the designated target and the designator.

FRIENDLY LOCATION

During night operations, the risk of fratricide increases dramatically. Normal ground references used during day operations are not available to the pilot or GFAC. The GFAC must be able to provide the fighters with a mark to provide the relative position of friendlies. This mark greatly reduces the possibility of fratricide; however, the mark must be employed in such a way as not to compromise friendly forces.

Visual marking devices must be shielded from direct enemy observation. The marking devices can be "hidden" by direct terrain masking (operating the devices from behind a hill or other land mass), or by using vehicles parked in either a "V" or "U" pattern. Directional near–IR lasers and blue lighting are the preferred devices for covert marking of friendly positions. A position marked with white lights can be seen easily with the naked eye and undoubtedly will be compromised. In contrast, use of IR marking devices are invisible to the naked eye and require the enemy also to use NVDs to acquire the marks. A narrow beam, or focused light, similar to the MAG–LITE, equipped with either IR or blue light filters, can be used with NVDs to mark positions. The light can be made directional by fitting a tube, or sleeve, over the end of the light. The sleeve overcomes the "halo" effect that most flashlights produce. The sleeve makes the filtered light difficult to observe by

anyone except by the aircraft at which the light is being aimed. The light can be "aimed" at the aircraft with NVDs. This type of mark is seen easily by fighters in a low–threat, wheel-type formation. The LPL–30 and PIM also can be used in a similar manner.

IR strobe lights also can be an effective mark; however, when used as the "only" mark, the strobes are difficult for the fighter to detect. A strobe can be enhanced by placing it beneath a piece of thin white fabric. This fabric should be suspended from the side of a vehicle or vegetation. The fabric enhances the flash. The fabric must be shielded from direct enemy observation.

Friendly locations also can be identified to the fighters with an accurate grid or latitude/longitude position. Currently, all TACPs are equipped with the global positioning system (GPS). The GPS allows a TACP to accurately fix its position. This information can be passed by secure voice, or Have Quick ultra high frequency radio, to the fighters. This will allow the pilots to build a "picture" of the battlefield, and to increase the pilots' situational awareness (SA). Pilots must understand which grid is the target area and which grid is the friendly position. Grid information is meant to increase SA; it normally should not be used as the only means of "marking" friendly positions.

TERMINAL CONTROL

One of the most difficult tasks for the GFAC is the safety of friendlies. Night operations present the GFAC with many of the same challenges faced by the pilots. Those challenges include visual acquisition and depth perception, which directly affect when clearance to employ ordnance is given to the fighters. In addition, aircraft capabilities (LST, FLIR, or NVD) affect how the GFAC will employ the fighters in the target area.

The GFAC must establish positive control of night CAS operations. Thorough mission preparation is a must if the GFAC expects to maintain SA during the operation. If the situation permits, the GFAC should reconnoiter the observation position and general area of operations. Selection of initial points (IPs) will dictate attack geometry. The IPs will allow the GFAC to have some idea where he can expect to visually acquire the fighters before employment of ordnance. A thorough reconnaissance will help in the visual acquisition of the fighters. Mandatory radio calls from the fighters, (Departing IP, 1 minute out, 5 miles out, joint light amplification by simulation emission of radiation calls, etc.) will help build the GFAC's SA. The fighters can expect to receive an earlier clearance to drop, if the GFAC knows where the fighters are during an attack. These control measures allow the GFAC to ensure safety of friendlies and increase the chance for target destruction on the first pass.

Visual acquisition also can be assisted if the fighters are equipped either with external IR position lights or formation tape lights. The GFAC also should know the fighters run–in altitude during the attack. This data will give the GFAC a "piece of sky" to search, instead of scanning an entire horizon or tree line.

Because of the inherent risks involved with night CAS operations, minimum safe distances should be based on aircraft capabilities, type of target mark, attack geometry, and ordnance fragmentation patterns. Aircraft equipped with operational LSTs, NVDs, or FLIR, and a compatible target mark can be brought in as close as 1 kilometer (km) to friendlies. Aircraft attacking "grid only" should be brought in no closer than 2 km to friendlies.

Despite aircraft capability, attack geometry will affect minimum safe distances. If the attack heading is parallel to friendlies (+ or - 30 degrees), the minimum safe distance should not be affected. However, if the attack heading is perpendicular to friendlies, the minimum safe moves out to at least 2 km. In a troops–in–contact situation, the decision to employ ordnance inside the night minimum safe distances would still fall to the Army ground commander.

CONCLUSIONS

The Gulf War has shown that the USAF must be able to provide night CAS for Army operations. In most situations, the Army will conduct offensive operations during periods of darkness to exploit their technological advantage. Aircraft equipped with LSTs and NVDs greatly enhance the fighters' ability to pinpoint target locations and accurately identify friendly positions. The U.S. Navy (USN) and USMC currently have a night CAS capability with the F/A–18, A–6E, and AV8B. The USAF is slowly developing this capability with the acquisition of NVDs for both the A/OA–10 and F–16 communities. This acquisition will require both CAS pilots and TACPs to establish building–block training programs for night CAS operations. Until USAF operational fighter squadrons can offer this capability, TACPs can train with USN/USMC assets.

Night CAS requires equipment not currently authorized for most conventional TACPs. The "high" cost of this equipment may be prohibitive for a conventional TACP's budget. The table of allowances needs to be adjusted to reflect night CAS requirements. TACPs should be equipped with IR position markers and IR target–designating devices. Without this type of equipment and training, the USAF cannot provide accurate night CAS support for ground forces.

You fight like you train....

Manned-Unmanned Teaming IN A HEAVY-ATTACK RECONNAISSANCE SQUADRON

By LTC Stephen M. Gilbertson
and MAJ Tanner J. Spry

As part of the Fiscal Year 2015 Aviation Restructuring Initiative, 1-4 Attack Reconnaissance Battalion (ARB) was designated as one of two attack helicopter battalions to transition to a heavy-attack reconnaissance squadron (ARS). Paramount to this transition is the addition of three platoons consisting of twelve RQ-7B Shadow unmanned aircraft systems (UAS) to the already assigned twenty-four AH-64D aircraft. After activating in May 2014, 1-4 ARB received the first platoon of tactical UAS equipment and personnel in October and had the opportunity to test new doctrine and employment techniques at the National Training Center (NTC) Rotation 15-03 in January 2015.

We captured what we feel are useful lessons learned. Our intent in this article is to provoke discussion on emerging doctrine of employing RQ-7B Shadows/AH-64D Apache manned-unmanned teaming (MUM-T) in order to capitalize on the increased technological capabilities now organic to the combat aviation brigade. Specifically, we will address ARS task organization and mission command as an ARS, mission planning, and team employment. Lastly, we will highlight successful employment techniques as well as distinct challenges faced during this NTC rotation. We recommend that other units re-configured under ARI consider these challenges in order to exploit the full potential of future ARS.

Task Organization and Mission Command

In order to facilitate integration and promote habitual working relationships, the RQ-7B Shadow platoons were task organized within the attack troops. This proved to facilitate a better understanding of RQ-7B Shadow/AH-64D capabilities and limitations while developing a shared understanding of synchronizing assets to confront a near-peer enemy through combined arms maneuver on a linear battlefield. Even more so, this task organization fostered a climate that rejuvenated the dissipating espirit de corps of the cavalry aeroscout and hunter-killer culture. The significance of this culture created by educating and indoctrinating our manned-unmanned teams as scouts with the fundamentals of reconnaissance cannot be underestimated. Our UAS operators' eagerness to catalyze this transformation and fulfill this role escalated during the first remote live Hellfire engagement.

This task organization does, however, constitute some mission command challenges at both the battalion and troop levels. At the battalion level, there is an inherent inclination to employ the RQ-7B Shadows directly. 1-4 ARS achieved significant success early in the rotation by working directly with the UAS mission coordinator and conducting dozens of indirect fire missions during UAS reconnaissance missions. By utilizing the one station relay video terminal (OSRVT) in the battalion tactical command post (TAC) to observe the UAS video feed, the battle staff collectively collaborated to identify the enemy brigade tactical group reconnaissance elements, forward command and control nodes, and associated supply trains. The fire support officer and non-commissioned officer generated fire missions from within the aviation task force's TAC to the brigade combat team (BCT). Although the employment of the UAS at the battalion level was intentionally highlighted to demonstrate the ability of

an ARS to synchronize direct and indirect firepower, the battalion staff admittedly would have hindered the simultaneous employment and integration of all three RQ-7B Shadow platoons and their respective troops in similar capacities.

At the troop level, RQ-7B Shadows were often used to conduct area reconnaissance

and screening operations prior to committing attack aviation assets. Hence, the Apaches were able to preserve combat power while awaiting the opportunity to mass fires in an engagement area at a particular time and place. Yet, company command posts are not equipped or resourced to conduct split-based operations or maintain the situational awareness of the current friendly and enemy situations. Unable to co-locate the UAS launch site with the rest of the battalion, even disseminating the required daily airspace control order and special instructions nearly halted UAS operations altogether. Likewise, the troop relies on the battle staff to identify and articulate how the concept of operations can best shape the battlefield by influencing the enemy's decision point tactics while nesting with the division or BCT scheme of maneuver. It is incumbent upon and a challenge for the battalion staff to provide this shared understanding while providing task and purpose to both platforms without being prescriptive on how to accomplish the mission. This process begins and is dependent on the deliberate mission planning process.

Mission Planning

The key to successful MUM-T employment begins with the integration of the UAS platoon during the mission planning cycle. Often, the aviation task force was tasked to initiate movement and begin screening operations prior to the completion of the BCT planning cycle. As such, it is particularly crucial to disseminate current graphic control measures quickly and integrate the UAS platoon early in the planning cycle. In a decisive action environment, the ARS must protect its assets from becoming part of the intelligence, surveillance, and reconnaissance (ISR) collection plan. Instead, it must seek ways to support the division's maneuver plan through the appropriate selection of named area of interests tied to specific priority information requirements. In turn, the ARS must identify a plan that sets the conditions and is able to influence the enemy's decision point tactics in order to provide the division with adequate reaction time and maneuver space. Unlike Task Force ODIN, the ARS utilizes its UAS assets to facilitate maneuver and is therefore the customer of its own product. This can only be achieved through parallel planning with the division during the initial stages of each planning cycle.

Within the battalion staff, it is imperative to utilize the newly authorized tactical UAS Operations Technician (150U) and Unmanned Aircraft Systems Operator (15W30) early and build a shared understanding of how the RQ-7B Shadow will be employed as an aeroscout and associated with maneuver as opposed to the ISR collection plan. Constant communication and information flow between these subject matter experts and the troop's UAS platoons regarding upcoming missions will greatly increase the ability to synchronize the ARS's operations with the higher headquarters' maneuver plan. These positions were yet to be filled prior to NTC Rotation 15-03 but the value and relevance of these key personnel on a battalion staff were recognized and appreciated.

These additional staff personnel should also serve as dedicated quality control representatives to ensure that the UAS mission coordinators have current battlefield graphic control measures and understand the friendly scheme of maneuver. This simple, instinctive notion proved to be very time consuming, often overlooked, and difficult to achieve when the UAS operators are not co-located with the battalion. Equally important to the mission planning cycle is the necessity to rehearse both manned and unmanned operations at the combined arms rehearsal. If employed correctly, it is likely that the ARS's RQ-7B Shadow operators are the first to observe and communicate the information necessary to influence the commander's decision points, which must be rehearsed prior to mission execution.

Team Employment

Two specific employment techniques contributed to 1-4 ARS's successful MUM-T operations during this rotation. The first method was to utilize the RQ-7B Shadows for reconnaissance while preserving the ability to mass

combat power with the Apaches once a predetermined trigger was met. Until this launch criterion was met, there was not much interaction or coordination between the AH-64D aircrews and the UAS operators. As a non-conventional approach to MUM-T, 1-4 ARS eventually had a crewmember from each aircraft observe the current situation from the TAC while the other crewmember prepared the aircraft for flight. These crewmembers then moved

to the aircraft and were able to maintain situational awareness by receiving the RQ-7B Shadow feed in the cockpit while waiting to launch. The ability to receive the RQ-7B Shadow video feed in the aircraft significantly increased situational awareness prior to takeoff or during refuel. Although resourceful, this increased information is irrelevant without definitive triggers established that meet specified criteria to commit the attack aircraft. The ARS relies on its RQ-7B Shadow operators to become true aeroscouts, proficient at vehicle recognition and threat identification while truly employing the fundamentals of reconnaissance.

The second and most effective employment technique was the actual coordination and synchronized MUM-T engagement of enemy forces between the RQ-7B Shadows and the aircrews. Communications proved to be a distinct challenge when the RQ-7B Shadow launch/recover site is not co-located with the TAC. While the air-to-air-to-ground capability of the AH-64D permits the aircrew to transmit their sensor video to the TAC while receiving the RQ-7B Shadow video and meta data in the cockpit, it cannot be relied upon in the TAC as a primary means of receiving situational reports. In a decisive action environment, the flight profile of the AH-64D often exceeds the current line of sight requirement for the TAC to receive the AH-64D sensor video. Instead, it relies on the aircrew to communicate directly with the UAS mission coordinator to fully exploit the sensor/shooter roles. In doing so, several targets were passed from the aircrews to other BCT assets for engagement while the AH-64Ds focused on their specific target priorities. The use of the RQ-7B Shadows for target identification and handovers facilitated the ability to mass fires on the enemy while ensuring the survivability of the AH-64Ds. Furthermore, the RQ-7B Shadow operators conducted simultaneous call for fire missions on remaining targets while maintaining constant communication and synchronized fires with the Attack Weapons Teams within the engagement area. This example of the capability, technology and firepower led to the acknowledgement by the NTC Opposing Force that 1-4 ARS was one of the most lethal aviation task forces observed during a rotation.

Conclusion

The ARS is a lethal and proficient organization capable of providing sufficient reaction time and maneuver space for the division while retaining the necessary firepower and mobility to sustain itself during enemy contact. The key to this capability is the rejuvenation of the hunter-killer concept through the transformation of UAS operators into proficient aeroscouts and the associated culture innate to a cavalry squadron. The most efficient means to achieve this transformation is to task organize the new RQ-7B Shadow platoons directly within the AH-64D Troops, thereby establishing a habitual working relationship with the aircrews and integrating aeroscouts as such. In a decisive action environment against a similarly formidably opponent, it is incumbent upon the ARS to protect the RQ-7B Shadow assets from becoming additional ISR platforms. Instead, the ARS is the customer of its own product. Their tasks and purposes should be tied to maneuver through MUM-T in order to identify decision points, facilitate massing combat power, and increase survivability by providing synchronized direct and indirect fires against the enemy in an engagement area of our choice. This requires constant parallel planning with a higher headquarters, detailed integration of UAS personnel and considerations in the mission planning process, and the ability to communicate through multiple means. The inability to co-locate our RQ-7B Shadow launch and recover site with our TAC created significant challenges to our ability to realize the full potential of an ARS. Therefore, it should be a major planning factor when employing an ARS in a decisive action environment. Whilst there is significant room for improvement and refinement, 1-4 ARSs eventual amalgamation of these aforementioned considerations during NTC Rotation 15-03 earned special recognition from the NTC Eagle Team as 'the most lethal aviation task force during an NTC rotation.'

LTC Stephen Gilbertson is currently serving as Commander, 1-4 Attack Reconnaissance Battalion, Fort Carson, CO. His previous assignments include Platoon Leader, 3/6 Cavalry, Combat Aviation Brigade (CAB), 2d Infantry Division, Republic of Korea; Platoon Leader, 3-101 Attack Battalion, 159th CAB, Fort Campbell, KY; 3rd CAB Liaison Officer to the 3rd Infantry Division and the 1st Brigade Combat Team; and Commander, 1-3 Attack, 3rd CAB, Hunter Army Airfield, GA. LTC Gilbertson has also served as the Aide-de-Camp to the Army Aviation Branch Chief and Attack Team Chief, Directorate of Evaluation and Standardization, Fort Rucker, AL. Following his assignment at Fort Rucker he returned to the 3rd CAB where he served as Deputy Brigade S-3; S-3, 1-3 Attack Battalion; Operations Officer, Task Force Viper; and Executive Officer, Task Force Falcon. LTC Gilbertson was assigned to Offutt Air Force Base where he served on the Joint J7 Staff, became certified as a Nuclear Strike Advisor, and later served as Aide-de Camp for the Deputy Commander, United States Strategic Command. LTC Gilbertson has deployed to Iraq and Afghanistan. He has 19 years' service and is qualified in the AH-64A and AH-64D aircraft.

MAJ Tanner Spry is presently assigned as the 1-4 Attack Reconnaissance Battalion Executive Officer. His Previous assignments include Platoon Leader, C Company, 3-6 Cavalry Regiment, Camp Humphries, Republic of Korea; Assistant S-3, Liaison Officer, Commander, B Company and Commander, D Company, 1-3 Aviation Regiment, Combat Aviation Brigade, 3rd Infantry Division, Hunter Army Airfield, GA; and Human Resources Command as the Aviation Branch Future Readiness Officer and Post-Command Captains Assignment Officer. MAJ Spry has deployments to Iraq and Afghanistan. He is qualified in the AH-64D and has 13 years' service.

Acronym Reference

ARB - attack reconnaissance battalion
ARS - attack reconnaissance squadron
BCT - brigade combat team
ISR - intelligence, surveillance, and reconnaissance
MUM-T - manned-unmanned teaming
NTC - National Training Center
OSRVT - one station relay video terminal
TAC - tactical command post
UAS - unmanned aircraft system

Timely Employment of Attack Aviation

(Triggers – Time vs. Event)

By CPT (P) Nathan Longworth

It is Training Day 11 at the National Training Center (NTC). The brigade combat team is postured to defend key terrain in order to prevent the envelopment of the division's main body. The aviation task force (TF) is tasked to attack the enemy's assault force in engagement area (EA) DOG in support of the BCT's defense. Based on an arbitrary timeline, the TF postures attack aviation assets to attack enemy forces at first light. Just prior to sunrise, one Attack Weapons Team (AWT) launches to provide security along the BCT's northern flank. Once on station, the AWT identifies and destroys two enemy wheeled vehicles. The TF receives the engagement report and launches a second AWT to maintain continuous coverage. While the first two AWTs conduct their battle handover, the BCT receives a report of another enemy vehicle along the western boundary of the area of operation. Assuming that the enemy is posturing for their attack, the aviation TF launches the third, and last, AWT. After a few hours, the BCT intelligence analyst determines the enemy forces previously identified were a portion of the reconnaissance force. As the enemy delays their attack, the aviation TF is faced with a number of challenges: fighter management, Apache maintenance, and manpower. As aviator duty day dwindles away, the enemy executes their attack. Meanwhile, two AWTs are frustrated in the forward arming refueling point and the third AWT is Winchester (ammunition expended) within thirty minutes resulting in a break in attack aviation coverage. During the break in coverage, friendly forces receive mass casualties and the enemy envelops the BCT.

Unfortunately, this scenario is a commonly observed trend at the NTC. As an aviation TF, we must become more effective at employing our attack aviation assets in the right place at the right time in support of the BCT commander. This is achieved by conducting the proper mission analysis and utilizing a solid decision support matrix (DSM) with event-based triggers.

During the military decisionmaking process, the staff develops decisionmaking tools such as a DSM to facilitate battlefield decisions. A DSM is a staff product of the wargaming process that lists the decision point, its location, the criteria to be evaluated at the point of decision, the action or operations to occur at the decision point, and the element that has responsibility to observe and report the information affecting the criteria for the decision.[1] There are two components to highlight that facilitate the development of the DSM: the decision support template (DST) and triggers. A DST is a staff product initially used in the wargaming process that graphically represents the decision points and projected situations and indicates when, where, and under what conditions a decision is most likely to be required to initiate a specific activity or event. In order to initiate a specific activity, criteria must be identified to trigger an action.[2] The trigger is the condition(s) that, when met, require the aviation TF to make a decision resulting in an action. This information is captured in a DSM (see Figure 1).

Decision Support Matrix (DSM)

DP#	Decision	Criteria/Conditions	PIR/NAI		Action
	What decision must be made	*The criteria is the condition(s) that when met require the decision to be made.* **"If the enemy does ....."**	*What PIR(s) and NAI(s) are linked to the DP*		*The action is the response taken to the criteria once the decision has been made.* ***Then we do.....***
1	Order SWT to RTB from supporting 5/4 CAV	112TH BTG Recon and Fixing forces are defeated by 5/4 CAV -Or- 5/4 CAV executes "Geronimo" call and goes to ground	PIR	NAIs	- SWT breaks station with 5/4 CAV and returns to base. SWT will assume REDCON 3 posture.
2	Place AWT1 and AWT2 at REDCON 1 posture	112TH BTG Disruption forces observed crossing PL Gene -Or- 5/4 CAV executes "Geronimo" call and goes to ground	PIR	NAIs 16, 17, 18	- AWT1 crew upgrades to REDCON 1 posture.
3	Launch AWT1	30 minutes after Disruption forces confirmed crossing PL Gene -Or- Assault forces observed crossing PL Gene	PIR	NAIs 16, 17, 18	- AWT1 departs TAA Gunfighter 2.0 to occupy ABFs Shotgun and Revolver via Routes Orange and Black ISO 1-18 IN. -AWT2 returns to RECON 2.
4	Recall AWT1	One hour on station ISO 1-18 IN without contact with Enemy Assault or Exploitation forces	PIR	NAIs	- Order AWT to RTB and Assume REDCON 2 posture.
5	Launch AWT2/Heavy Pink Team	AWT1 confirms Assault/Exploitation forces IVO EAs -Or- Conforms Assault/Exploitation forces east of PL Gene -Or- AWT1 does not achieve REDCON1 with both aircraft	PIR	NAIs 16, 17, 18	- AWT depart TAA Gunfighter 2.0 to occupy ABFs Shotgun and Revolver via Routes Orange and Black ISO 1-18 IN>

Figure 1. Aviation task force decision support matrix utilized at the NTC

Aviation TF staffs often utilize DSMs during attack aviation operations to assist the commander in establishing triggers for the commitment of forces. When the commander decides to attack, "the execution of that attack must mass the effects of overwhelming combat power against selected portions of the enemy force with a tempo and intensity that cannot be matched by the enemy."[3] There are two types of triggers often utilized at the NTC: event-based and time-based triggers. More often than not, units utilize time-based triggers based on an arbitrary BCT planning timeline or with the assumption that the enemy will attack at first light. This often is not the case. The utilization of time-based triggers poses a number of challenges for attack aviation. In an effort to increase the amount of available firepower as the enemy enters the engagement area, Aviation TF often surge attack assets during this time. If the AWTs launch too early, the TF faces potential issues to include fighter management, desynchronized refuel/rearm operations, maintenance posture, and aircrew availability. On the other hand, event-based triggers prove to be much more effective if given the proper analysis.

Let us next discuss a scenario often seen at the NTC which will assist in understanding the application of triggers. During a typical NTC decisive action rotation, the BCT will face a number of distinct battle periods. In this article we will focus on the defense. To set the conditions for this scenario, the aviation TF is tasked to attack by fire (ABF) to destroy the enemy's assault force in EA DOG. Despite being a defensive operation, attack aviation conducts "attack operations during both offensive and defensive operations."[4] This poses the question, "How do we ensure attack aviation arrives in the right place at the right time in order to effectively mass fires in the EA?" While conducting wargaming, the aviation TF identified two decision points:

1. Increase my AWT's readiness condition (REDCON) level to REDCON 1
2. Launch my AWTs to occupy ABFs in vicinity of EA DOG

At this point we have to determine what criteria must be met in order to trigger an action associated with the decision point. If the staff properly develops their DST, it will include time phase lines (TPL), named areas of interest (NAI), targeted areas of interest (TAI), and decision points (DP). TPLs are used to represent the movement of forces over time and are extremely useful and necessary when identifying triggers.[5] For this scenario the following analysis applies:

1. The amount of time it takes the AWTs to achieve REDCON 1 is 30 minutes.
2. Enroute time to the ABF position is 15 minutes.
3. The enemy's assault force rate of movement from phase line (PL) GENE to PL FRANCIS is 30 minutes.
4. The enemy's assault force rate of movement from PL FRANCIS to EA DOG is 15 minutes.

By applying these conditions, the trigger for DP one is the assault force crossing PL GENE (H-45) and the trigger for decision point two is the assault force crossing PL FRANCIS (H-15). According to our TPL analysis and the development of our triggers, the AWTs should be able to mass fires with the BCT at the right place at the right time.

All of this analysis is well and good so long as we establish NAIs associated with the DPs and identify, through a proper information collection matrix, which asset is responsible for observing and reporting the information required to trigger a decision. Too often, units develop DSMs without tasking assets (unmanned aircraft systems [UAS], rotary-wing, scouts, etc.) to observe the NAIs in order to facilitate the commander's decisionmaking process. Under the current Aviation Restructuring Initiative, Aviation TFs have the opportunity to employ organic Shadow UAS to enhance timely reporting and trigger identification. Not only must an asset receive the tasking, but it must also be able to provide the reporting in a timely manner given the proper guidance. To be an effective reconnaissance platform, aircrews must have a shared understanding of the commander's intent and the commander's critical information requirements which will facilitate what to report, when to report, why to report, and how to report. This guidance is often lacking, which slows the decision making process and serves as a detriment to the operation. A common trend observed at the NTC is a lack of a communications systems PACE (Primary, Alternate, Contingency, Emergency) plan for reporting. Too often our PACE plan stops at frequency modulation/Blue Force Tracker or TFs do not utilize equipment such as a one-source remote video terminal (OSRVT) to observe UAS feeds in the command posts as a reporting mechanism. In two years as an NTC Observer/Trainer Controller, I have observed one aviation TF effectively utilize an OSRVT in order to identify triggers (see Figure 2).

Figure 2. Aviation Task Force observing the assault force via UAS feed in the Main Command Post

Additionally, we must be able to identify the various enemy forces by understanding the composition, disposition, and the enemy order of battle. In the first example, three AWTs

launched at the first sight of enemy forces, which turned out to be the reconnaissance element, rather than the enemy main body, which was the AWT's decisive operation. If the AWTs launched in accordance with the DSM and resulting event-based triggers, they would have deployed at the right time to the right EA to maximize their combat power and synchronization with the BCT's efforts. Apaches must be employed efficiently, deliberately, and with disciplined initiative in order to maximize effectiveness and meet the commander's intent.

Success on the battlefield begins with detailed planning while achieving a shared understanding at echelon of how to achieve the BCT commander's endstate. By simply applying these principles and committing the requisite time for planning and synchronization across the battlefield, units will see increased results in an extremely complex operating environment seen during decisive action rotations at the NTC.

CPT (P) Nathan Longworth is currently serving as the Senior Cavalry/Attack Observer Controller / Trainer at the National Training Center, Fort Irwin, CA. He has deployed twice in support of Operation Enduring Freedom as a Squadron Assistant Operations Officer and Troop Commander.

[1] Army Doctrine Reference Publication (ADRP) 5-0, The Operations Process, 17 May 2012, 4-4.
[2] Ibid.
[3] FM 3-04.126, Attack Reconnaissance Helicopter Operations, February 2007, 3-58.
[4] Ibid.
[5] Army Technique Publication (ATP) 2-01.3. Intelligence Preparation of the Battlefield/Battlespace. 10 November 20014

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Acronym Reference

ABF - attack by fire
AWT - Attack Weapons Team
BCT - brigade combat team
DP - decision point
DSM - decision support matrix
DST - decision support template
EA - engagement area
NAI - named area of interest
NTC - National Training Center
OSRVT - one-source remote video terminal
PL - phase line
TAI - targeted area of interest
TF - task force
TPL - timed phase line

LETS COMPLETE THE AVIATION MISSION SURVIVABILITY OFFICER'S EDUCATION

By CW4 Chad Ford

We should all realize that damage inflicted on Army Aviation assets in Iraq and Afghanistan was from an unsophisticated air defense threat. Army Aviation's response to that threat was relatively quick and effective. We can count on rogue nations to supply more sophisticated surface to air weapons to the innumerable terrorist organizations surfacing throughout the world and as a result we can count on the certainty that our assigned mission and survivability will become a much greater challenge. We cannot rest on our laurels and must prepare for what we will likely face. Completing the aviation mission survivability officer's (AMSO) education is the starting point for this preparation.

Since the introduction of the electronic warfare officer and throughout his transformation into today's AMSO, aircraft survivability considerations have become a more significant and studied component of mission planning. During this evolution, we have acquired technological advancements that significantly reduce the signature of our aircraft and provide early warning, jamming, and decoy capabilities to prevent the enemy from completing a successful engagement against our aircraft. In the event that a successful threat engagement occurs, aircraft hardening and redundant systems are emplaced to provide a final lifeline preventing a significant emotional event from becoming a personnel recovery operation.

These improvements have undoubtedly given our aircrews critical tools for success, but the improvements have also been marginalized by a gap in the development of aviation tactics to counter the air defense threat. Over the last four years, Army Aviation has spent over 5.8 billion dollars on aircraft survivability equipment (ASE) with almost no significant contributions to the development of supporting tactics. With the seemingly constant upgrades in equipment over the last 10 years, AMSOs have morphed from their initial role as tactical advisors, to that of ASE instructor and custodian. Consequently, aviators and decision makers have come to rely almost exclusively on ASE technology instead of implementing it as it was intended - to ***augment*** aircraft survivability tactics.

The solution to this dilemma lies in the reassessment of the current Tactical Operations (TACOPS) Officer Course. By eliminating all nonessential duties that the AMSOs are currently tasked and empowering them to manage tactical training much like our counterparts do in the Navy, Air Force, and Marine Corps, I believe we can solve this dilemma and more effectively prepare for future combat operations. Put in a different perspective, Army Aviation could realize an increased survival rate (read fewer aircraft and personnel lost) against an air defense threat if AMSOs were provided with the additional education to teach the maneuvers intended to be flown in concert with ASE.

Where We Are Now

The Aviation Mission Survivability Branch has worked diligently alongside the Aircraft Survivability Development and Tactics Branch to produce products in support of the Training and Doctrine Command's Doctrine 2015 initiative. From these publications comes the latest edition of the TACOPS Officer Course curriculum which focuses largely on the growing scope of the AMSO's responsibility to provide survivability fundamentals. These publications discuss the Aviation Mission Planning System, personnel recovery (PR), and aircraft survivability collective training which is implemented primarily in the Aviation Combined Arms Tactical Trainer (AVCATT). The fallacy of the program

lies in the assumption that AMSOs can effectively manage teaching, training, and mentoring these principles based solely on an academic understanding of systems, limitations, and tactical maneuvers - all without logging a single flight hour.

The Issue

There is no Army Aviation standardized tactical training program that teaches the employment of validated threat avoidance tactical flight maneuvers to the AMSO. A recent modification of the TACOPS and Aviation Warrant Officer Advanced Course (AWOAC) teaches the fundamentals of instruction which provides the AMSO with the knowledge to organize, train, and then evaluate crew members during simulations or tactical flight profiles; however, there are many AMSOs in the field who have not had this instruction. I believe teaching aviators the employment of tactics against enemy threat systems, understanding enemy tactics, techniques, and procedures (TTP), and understanding tactical mission planning in the joint environment are the core fundamentals of the aviation mission survivability program.

Army Aviation has avoided teaching threat avoidance tactics because there has been no one identified to teach them – center stage, the AMSO. At best, threat avoidance flight maneuvers are passed through the ranks by aviators with combat experience. This is not all bad, but these experiences should be cataloged and channeled into a formal certification program with standardized evaluation of procedures in a course that does not exist. Many of our experiences in threat avoidance tactics are disseminated from newsletters and PowerPoint presentations which discuss findings identified during model testing or shoot-down assessments. Again, this is not all bad since some valid information is better than none. However, it is from these findings that the AMSO is expected to develop aviation survivability TTP, develop a training plan, and develop ASE scenarios based on findings of missions flown in the AVCATT and other simulation devices. As previously mentioned, new topics added to the TACOPS Officer Course and the AWOAC will help current graduates but many "old guys" that have not had the opportunity to complete these courses are left on their own to provide instruction and conduct evaluations without the necessary skills. The number one system to reduce the probability of hit (Ph) or defeat threat systems is the properly trained aircrew applying effective tactics. Ask yourself, "How much training have I received from my unit AMSO over the years on flight maneuvers and TTP that reduce my exposure to Ph or to defeat threat systems?"

The AMSO's education is lacking in another important area of responsibility – that of the commander's personnel recovery (PR) manager. The TACOPS Course material on PR is rudimentary and does little toward helping the prospective AMSO to understand the incorporation of PR as part of unified actions. Although the AMSO course PR curriculum has evolved and is improving, it is still not recognized as a certified PR course. The commander depends on advanced courses provided by the Joint Personnel Recovery Agency to complete the detailed PR education the AMSOs require.

Advanced PR courses and other courses providing direct job related knowledge for the AMSO like the Joint application of Firepower (JFIRE) and airpower integration courses are essential sources of knowledge. These courses, however, are only recognized as "nice to have" or recommended to AMSOs for professional advancement but left up to the individual's unit to acquire seats. Until focus is placed on tactics and tactical education of AMSO's we will continue to ask commanders to assume the inherent risk of employing tactically untrained aircrews in a combat environment.

A Partial Solution

I had the opportunity to attend the Marine Corps' Marine Aviation Weapons and Tactics Squadron 1 (MAWTS-1) Weapons and Tactics Instructor (WTI) Course and learned more about threat avoidance tactics in those four weeks than I have in 14 years in Army Aviation. Not only did I learn tactical mission planning, employment of weapon systems, and integration of joint assets, but also received invaluable detailed instruction on how to reduce my Ph and defeat threat systems as well. The WTI Course consists of academic and flight components. I completed the academic component and only received an introduction to the flight portion but left the course with a vision that one day Army Aviation would have a comparable course. The flight instruction is a culminating event testing the academic portion, mission planning, air ground operations, small unit tactics, call for fire,

threat system identification, defensive maneuvering, and tactical employment of electromagnetic warfare. Every WTI graduate leaves MAWTS-1 and returns to his unit as a tactical instructor and adviser to the commander.

I believe we should use the MAWTS-1 WTI course as a template and establish an Army Tactics Instructor Course to teach similar course material in order to produce certified tactical trainers. Perhaps a more financially responsible approach would be to expand Army Aviation's partnership with MAWTS-1, similar to what the Army Special Operations Aviation Regiment and the Air Force have established. In the interim, we should immediately incorporate the following subjects into the existing AMSO core curriculum:

- JFIRE
- Expanded PR instruction
- Joint mission planning
- Joint asset's capabilities
- Mission planning
- Military decisionmaking process
- Tactics to defeat threat systems or reduce the Ph

Conclusion

The unit AMSO is not adequately prepared to provide tactical instruction for threat avoidance or to advise the commander on issues pertaining to PR. The TACOPS Officer Course has recently added fundamentals of instruction so the issue of the AMSO's ability to teach and evaluate has been acknowledged and corrected for AMSOs now completing the course. Now we need to go back and provide the same fundamentals of instruction to the AMSO in the field.

Present course material on PR is essentially introductory in nature and leaves the AMSO inadequately prepared to perform this important unit function. Other skills identified in this article are invaluable to the AMSO and should be consolidated in an Army weapons and tactics course. The alternative for advancing these skill sets places the burden on the AMSO's assigned unit to absorb the loss of the AMSO and provide the funding for the advanced instruction administered by organizations other than the Army such as the Marine Corps MAWTS-1.

Current budget restraints may make it unrealistic to expect the current TACOPS Officer Course to be lengthened to include the material that would complete the AMSO's PR and tactics instruction education. It is reasonable, however, to expect additional layers of fully funded instruction be scheduled following an AMSO's first or second utilization assignment as planned professional development progression. The MAWTS-1 provides an existing single source of excellent information for the AMSO. Similarly useful materials are available in the Army's Master Gunner's Course and the Air Force Air Ground Operations School and should be evaluated for inclusion in the TACOPS Officer Course now.

CW4 Chad Ford is currently assigned as the U.S. Army Special Operations Aviation Command's Tactical Operations (TACOPS) Officer, Fort Bragg, NC. CW4 Ford's initial aviation assignment following flight school was with the 2nd Assault Battalion, Combat Aviation Brigade (CAB), 2nd Infantry Division, Republic of Korea. He served as the unit TACOPS Officer in subsequent assignments with the 2nd Assault Battalion, 10th CAB, 10th Mountain Division, Fort Drum, NY; 12th Aviation Battalion, Fort Belvoir, VA; and 1st CAB, Fort Riley, KS. While assigned to the 12th Aviation Battalion, CW4 Ford also functioned as the liaison to the Pentagon for emergency evacuation operations of the Military District of Washington. He has deployed in support of OEF 7, OIF 9, OEF 11, and OEF 13. CW4 Ford has 18 years' service. He is qualified in the UH-60L aircraft.

Acronym Reference

AMSO - aviation mission survivability officer
ASE - aircraft survivability equipment
AVCATT - Aviation Combined Arms Tactical Trainer
AWOAC - Aviation Warrant Officer Advanced Course
JFIRE - joint application of firepower
MAWTS-1 - Marine Corps Aviation Weapons and Tactics Squadron 1
Ph - probability of hit
PR - personnel recovery
TACOPS - tactical operations
TTP - tactics, techniques, and procedures
WTI - weapons tactics instructor

A Return to the Specialist Rank

By Mr. Terry Martin (MSG Retired)

"I am NOT a leader," the young Staff Sergeant emphatically decried. "I don't have the patience or the tolerance for leading Soldiers; that's NOT what I joined the Army to do, but I am a GREAT controller!"

Pausing briefly to let him finish venting, I reminded him of his responsibilities to his subordinates, and that if all he wanted to do was control aircraft, he could do that in a civilian capacity. He continued, as if justifying his role in the military: "Don't get me wrong, I love the Army, but I'm smart enough to realize that I can NEVER be a good leader. But the Army also needs good technical experts like me. There has to be a role for those of us who don't WANT to lead."

The aforementioned conversation took place at the Noncommissioned Officers Academy, Fort Rucker, Alabama, during a peer-led discussion on leadership. The sentiment of this young non-commissioned officer (NCO) is not an isolated ideology; on the contrary, it is quickly becoming more pervasive over an era that has seen the Army rely heavily on its technical experts to usher it through a decade of persistent war. In a diverse and challenging field such as Army Aviation, that requires a multitude of highly skilled technical military occupational specialties (MOS), the enlisted subject matter expert (SME) has become the "backbone" of the branch.

Whether mechanical, administrative, or operational, the aviation SME keeps the branch flying in a combat environment that demands safety in all phases of execution. Given that safety is paramount and all-encompassing to everything we do in Aviation, this question begs answering: is it more advantageous to the Army to have an enlisted member who is an exceptional leader, but is mediocre in his technical field; or one who provides expert support to the aircrew but is not inclined to lead? I maintain the latter is true, and that a move back to the establishment of the specialist or technical rank for some Army MOS in the grades of E-5 through E-7 may be necessary to ensure that experience stays in Army Aviation.

History of the Specialist Rank

A brief review of the history of the rank is necessary to understand the reasoning behind the rise and subsequent discontinuation of the specialist rank. While Department of the Army messages, circulars, and regulations give little insight to the formation and deletion of certain ranks and commonly reflect the "just do it" mentality, reviewing the events that occurred simultaneous to their existence provides some insight into why they came into being, and why they ultimately went the way of the dinosaur. In 1920, the Army made the first reference to the technical rank. A rank design of "three chevrons and an arc of two bars, the upper bar of the arc forming a tie to the lower chevron" was used to indicate the rank of technical sergeant second grade (War Department Circular No. 303, dated 5 August 1920). In 1942, seeing the need to provide upward mobility for their

technical experts, the Army expanded the technical grades, adding three more grades within the rank structure of "Technician in the third, fourth and fifth grades", and added a "T" below the chevrons to further delineate between the ranks of leaders and their technician peers (War Department Circular No. 5, dated 8 January 1942). This move allowed the Army to retain the skill set of its technical SMEs while allowing them to progress in the equivalency of their

leadership peers without the added responsibility of Soldier development.

1955 saw the first real changes to the rank structure since the Great War that impacted the technical ranks; technical sergeant second class (E-7) would become master sergeants (with 1SGs serving as an occupational title), while the technical ranks were changed to master specialist (E-6), specialist first class (E-5), specialist second class (E-4) and specialist third class (E-3) respectively (Army Regulation 615-15, dated 2 July 1954). The rank was also changed, with the chevrons inverted and an eagle embroidered atop the rank. Two years later the specialist grades in the rank of master specialist, specialist eight, and specialist nine (E- 7, E-8, and E-9) were added to the rank structure in accordance with War Department Circular No. 670-3, dated 12 October 1955. The E-8 and E-9 Specialist ranks were never filled, and were subsequently deleted from the rank structure in 1965. Master specialist was retitled specialist seven in 1958, and was discontinued in 1978, with the remaining grades being dropped effective October of 1985.

The Cost to the Army

The Army describes a leader as "…anyone who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals" (Field Manual 6-22, p 1-1). While there are several field manuals in circulation intended on developing leaders, the basis of most Army dialogue is centered on the premise that leadership, assumed or assigned through promotion, is desirable to most (if not all). Current senior NCO leadership tends to support and enforce this premise with a "compete or get out" attitude. How many technical experts have we lost due to this mentality, and what are its effects on today's young NCOs? In the words of one young staff sergeant: "I never had time to make my own mistakes or develop my own learning curve before I was thrust into a leadership role. I still yearn for the time I missed where I could mess up and not be responsible for so many others. I'm thinking about getting out, if nothing else for a break!"

There are definite advantages to promotion, such as the pay incentive and the ability to better influence your professional environment. However, with increased rank comes increased responsibility; responsibility that invariably materializes in the obligatory role of a leader of Soldiers. I believe this is where the disconnect occurs with some Army professionals. Not all those promoted to a leadership position want or desire to "inspire" others to achieve, and not all those who can be promoted SHOULD lead Soldiers. Some simply want to do their jobs.

The military also serves as a microcosm of our society, and our Soldiers represent a cross section that directly reflects the societal expectations and ideology of the time. Typically those who are impacted by current events of their time and stay in the Armed Services have a delayed influence on how we do business, sometimes taking a decade or two to catch up with the sentiment of their peer group; you can see this effect in the formation of the specialist rank. The technical sergeant, or specialist, took shape following World War I, and was refined during and after World War II, a protracted era of war in Europe. Accountability and responsibility for Soldiers can be very rewarding and exhaustive during peacetime operations. During combat operations, the added stress of imminent danger in conjunction with Soldier care issues can quickly burn out the most seasoned leader. The formation and expansion of the specialist rank in the years following World War II could be a direct reflection of those who no longer wanted to lead, but wanted to stay in the military and serve. How are the issues of the past any different than what we are experiencing today? Was serving in a combat environment any more stressful then or now? Does it make the sentiment for responsibility any more or less appealing?

The NCO leaders of today bear strong character and professional traits similar to those of our Great War forefathers: many were young, received accelerated promotions, and despite their youth were expected to be technical experts in their respective fields while learning their profession through on the job training. While they both served in protracted combat environments, today's young leaders have actually served longer tours in persistent combat environments

than those of both World Wars. This exhaustive and stress laden environment has caused a huge turnover of Soldiers, resulting in a young NCO corps forged from an era of combat where technical expertise has taken precedence over garrison mentorship.

The specialist rank would be a reprieve from the burden of leadership, not mentorship. It would help to alleviate the stress that some SMEs feel when compelled to lead against their nature or will, while still allowing them to be a productive member of a team. An example is the Blackhawk unit that lost one their aircraft and crew to a shoot down during Operation Iraqi Freedom 06-08. Due to the sheer emotional trauma of losing friends, peers, and mentors; many no longer had a desire to fly or lead troops; however, their technical experience as crew chiefs and mechanics was invaluable to operations on the ground. Transitioning to a role of quality control (QC) or technical inspector (TI) allowed them to remain a valuable member of the team without the added pressure of leadership responsibility; however, it also limited their promotion potential due to the grade authorizations of the TI or QC NCO. Technical grades above and beyond their current authorization would have allowed these Soldiers to stay and serve in a capacity that rewarded their tenacity without forcing them to serve in an undesirable state. The anguish that a Soldier suffers may not permit him to be a leader anymore, however he can continue to mentor junior NCOs and enlisted Soldiers in the execution of their duties without being directly responsible for their welfare.

There are many military occupational specialties in Army Aviation that could benefit from a specialist rank structure. These include, but are not limited to Aviation Operation Specialist (15P), Air Traffic Control Operator (15Q), AH-64 Helicopter Repairer (15R), UH-60 Helicopter Repairer (15T), CH-47 Helicopter Repairer (15U) and Air Traffic Control Equipment Repairer (94D). These skills sets are perishable, and those who endeavor them can be facilitators of their technical side without forcing them to perpetuate leadership principles that hamper their technical development.

Conclusion

A return of the specialist five through seven rank would reinvigorate an era of junior and mid-grade NCOs that would otherwise leave the Army. Retention of their technical skills are vital to the future of our Army, and could be retained given the opportunity to serve in a capacity where their expert skills are applied appropriately and appreciated. Let the Soldier choose his path, with proper mentoring from his leaders. I feel it would change the dynamic of our Army, resulting in more competitive and qualified leaders while retaining the best technical experts in Army Aviation.

MSG (Ret) Terry Martin was an Army Air Traffic Controller and Operations NCO with twenty-seven years of service. He left active duty in 2011, serving the past three years as an Overseas Operations Manager for an intelligence, surveillance, and reconnaissance platform in support of combat operations in Afghanistan. His previous tours of duty included Haiti, Bosnia, Kosovo, Iraq and Afghanistan. His last military assignment was as Operations Non-Commissioned Officer, 1st Battalion, 114th Aviation Regiment (Security & Support).

Acronym Reference

MOS - military occupational specialty
NCO - non-commissioned officer
QC - quality control
SME - subject matter expert
TI - technical inspector

The Importance of Teaching Followership in Professional Military Education

"Can effective followers prevent leaders from making future unethical decisions?"

By LTC Paul Berg

In Danny Miller's book, The *Icarus Paradox*, he describes how having a "competitive advantage, multiple resources, and superiority status can lead to an unforeseen downfall of organizations and individuals by not seeing the situational awareness."[1] He argues that people and organizations "get caught in a vicious circle whereby victories and strengths become weaknesses leading to their downfall."[2] He describes how Icarus from Greek mythology made a great pair of artificial wings and tried to fly close to the sun. As he flew closer to the sun, his wings melted and he fell to his death. Elevating oneself above greatness and becoming too powerful can blind people and organizations to their weaknesses and result in personal or organizational destruction.

Is there a Problem with some of our Army Senior Leaders?

Army Doctrine and Training Publication 6-22, *Army Leadership*, describes the leadership and followership framework as "everyone belongs to a team, serving as either leader or responsible subordinate, for these teams to function at their best, leaders and followers must develop mutual trust and respect, recognize existing talents, and willingly contribute talents and abilities for the common good of the organization."[3] Recent news headlines have told the stories of senior military officers at the peak of their profession violating the nation's trust by grossly abusing power, exercising toxic leadership, performing criminal acts, and demonstrating unethical/immoral behavior. Just like Icarus, these leaders could not see their approaching downfall. They did not understand their problem of being blinded by greatness. Even though the strengths of these top military officers made them elite within their profession, it also became their weakness which led to their ultimate downfall. The difficult and real question is, whose fault is it? Who do we blame? Is it the institutional, organizational, or individual's fault? The challenge for the Army (in the case of this paper) is how can it correct the moral compass and re-establish trust with the Soldiers these fallen Army leaders have led and re-establish the faith of the American people.

The U.S. Army can't allow moral decrepitude to become an infection. Leadership at the highest levels are exploring new methods and strategies to prevent these behaviors and prepare leaders to recognize vulnerabilities, prevent missteps, and restore Soldier confidence in their leaders and equally important, public respect and trust.[4] The U.S. Army is built on the framework of serving the nation and the theme demands public trust. The organizational pillars that trust stands on are "trustworthiness, military expertise, honorable service, esprit de corps and stewardship of the profession."[5] When senior officers fail in one of these pillars, the organization's trust with society erodes. The U.S. Army has challenges declaring itself to be a profession, because the "label of profession can only be granted when they earn it from the society they serve."[6] The military is a profession and one that has higher moral standards than most private sector organizations.

There is a larger institutional challenge in the scenario. If the subordinates know about the unethical decisions, why don't they counsel and guide their leaders to prevent them from failing? Can we as an institution provide an educational framework to educate subordinates to prevent leaders from making unethical

decisions? If the Army taught more effective subordinate followership in the professional military education process, then effective subordinates could possibly be better prepared to prevent senior officers from making unethical decisions. The answer could be that the military education system should teach and implement new followership classes to prevent unethical decisions and help re-instill the trust with the American people. This challenge can't be rectified by having classes alone; it requires a culture shift to develop informed effective followership.

Characteristics of Military Service Education

In 1867, General William Tecumsah Sherman, who assisted in founding the Command and General Staff College, described subordinate leadership as "we have good corporals, some good sergeants, some good lieutenants and captains, and those are far more important than good generals."[7] In regards to military leadership and followership, Lieutenant Colonels Sharon Latour and Vicki Rast describe Soldiers as simultaneously both leaders and followers the day they enter military service, throughout their career, and into retirement.[8] Latour and Rast state that all Department of Defense professional military educational curricula focuses on teaching and developing leaders but few of the military schools spend time developing effective follower cultures and skills.[9] The dominant military organizational culture encourages subordinates to adopt a follow me behavior through discipline and lawful orders. Their research findings conclude most teaching philosophies devalue followership in their contribution of warfighting. They conclude that the military services expend most of its resources educating a small fraction of its service members, communicating their value to the military institution, and then establishing career paths for a select few while ignoring the vast majority of subordinate followers in the military service.[10] The Army educational philosophy in entry level officer and enlisted courses implies that before a Soldier can be a leader, the Soldier must learn how to be a good follower. The question becomes, how effectively is this philosophy communicated to new Soldiers?

The conceptual idea is that by teaching everyone to follow orders completely, they also learn how to become leaders when the time comes for them to be in charge. The challenge arrives when those Soldiers and junior officers become senior enlisted and field grade officers and just following orders is not acceptable behavior. Further followership development has to be implemented into the organizational culture because merely taking orders is not acceptable. In the Fiscal Years of 2014 and 2015 Departments of Army and Air Force Command and Select List, the selection boards have selected between 9-18% of available lieutenant colonels for battalion or squadron command, which means the other 82-91% of lieutenant colonels will remain in subordinate staff positions. This selection rate supports Latour and Rant's thesis that the majority of military leadership educational classes are useful to only a small select percentage of the force.

Why is Followership Important in Relation to Ethics?

In regards to leadership, James McGregor Burns wrote that "leadership is one of the most observed and least understood phenomena on earth."[11] Leadership and followership are complex fields of study. Both are dependent on each other because without one the other can't exist. There can't be leadership without followers and followers need a leader to exist. So, if leaders fail because of unethical decisions, it is reasonable to assume that subordinate staff officers should also be held responsible because they have a duty to be effective followers.

One of the most recognized authors of followership is Robert Kelly who defines followership not as a subset of leadership but as an equal component to leadership. In his book, *The Power of Followership*, Kelly introduces a new followership model to describe different followership styles in relation to leadership models.[12] In Kelly's research, he identifies that "the primary traits that produce the most effective followers in an organization were critical thinking and active participation."[13] Kelly's research proposes that an exemplary follower is an independent critical thinker who has learned to be a critical thinker through education and development, enhances motivation, has intellect, and becomes self-reliant in achieving the mission of the organization. Critical thinking is learned behavior that must be accompanied with adequate reflection time. This concept means the follower or subordinate can truly "not just follow orders without critical analysis and must participate with the superior for the good of the institution."[14]

Ira Chaleff is another key followership researcher and author of *The Courageous Follower*. He uses military examples such as the German guards in concentration camps during WWII and Lieutenant Calley at My Lai, Vietnam to provide examples of

virtue ethics to explain different levels of the leadership-followership relationship. Chaleff's followership model emphasizes that selective rule breaking is a key attribute to being a courageous follower: "It is not ethical to break rules for simple convenience or personal gain, but neither is it ethical to comply with or enforce rules if they impede the accomplishment of the organization's purpose, the organizations' values, or basic human decency."[15] This concept is that followers and/or subordinate must be courageous against the boss when events demand and require action of "dissent" for the good of the organization. Chaleff also emphasizes those organizations that have courageous followers have no need for whistle-blowers because the followers do their duty to prevent leaders from conducting unethical decisions.[16] One of the key statements Chaleff comments on in his introduction is that "proximity and courage are the critical variables in the prevention of the abuse of power."[17]

The challenge in respect to followers is how do they approach their superior and look them in the eye and tell them that they disagree with their decision? The military has a wide breadth of competent and educated personnel in subordinate ranks working for superiors who do not appreciate or acknowledge this asset. They do not want to have anyone challenge their authority. Good followers are expected morally and ethically to bring up opinions, recommendations, and judgments to their superiors because of their critical and effective reasoning as followers.[18]

Dissent in Followership

The military is more unique than other organizations because the military works under a distinct chain of command for daily operations and the military culture promotes working with your boss before going over your boss' head in the chain of command. Lieutenant Colonel Mark Cantrell (USMC) wrote an article about military dissent emphasizing that followers have a responsibility to make sure the boss is wrong before they make note of the fact and bring the correct information and guidance to the boss for his own good and future perspective.[19] Loyal dissent follows an ethical guideline to maintain an effective chain of command. In the military culture, most organizations have a chain of command and going around your command is almost always discouraged. The result is few courageous followers.

Military Education Opportunities

There are a multitude of opportunities to teach ethics and followership in all levels of military education. Military entry-level officer basic courses teach leadership classes, but almost no formal academic classes discuss followership concepts. This does not mean the courses do not promote a team based, chain of command, subordinate training model, but there are few lessons on how to provide negative feedback to your boss when the boss might be wrong. The perception from the military culture turns the message into sharpshooting and challenging your boss instead of providing an analyzed dissent.

Due to many recent senior military leader investigations, ethics is becoming mandatory training, especially in the field grade ranks. In Command General Staff College Class 13-01, ethics classes (E100 & E200 blocks) of instruction were introduced into the curriculum by directive from the Department of the Army. This is one of many starting points to address the large number of senior level commanders making unethical decisions and their staffs not doing enough to prevent them. In the next couple of years, ethics will be more prevalent in the junior officer courses, but followership still remains a topic that is not popular to educate in the Army organization academia.

Organization Culture as Organizational Life

Many references of the bureaucratic framework relate to how the employees become a part of the organization (or machine) and the employee's life becomes the job. The Army does the same thing by encompassing every facet of life around military culture to include medical care, housing, social events, and work place environment. Does the Army create officers who are so success driven that failure is not an option they can comprehend? There are always asymmetric power relations while running an Army, a multinational corporation, or family business that result in the vast majority of employees working in the interest of a select few.[20] The Army has a history of military prodigies who were chosen by current general officers to rule in the future because of their connections, family lineages, and "entitlement" of authority. The theory of the "iron law of oligarchy" reflects on the military institution just like it does in political organizations and labor unions where an elite group runs the organization while the premise of equal opportunity and merit are merely "window dressing" for the organizational culture and society.[21] In regards to this understanding, who can blame these senior officers for their unethical conduct because they were made that way and any pretense of ethics and morality were merely window dressing? The bureaucratic culture in any organization can stifle creativity, honesty and constructive criticism.

Conclusion: Effective and Courageous Followers

The effective followership question is if Icarus' assistant knew the feathers would melt with the heat of the sun; why didn't he tell Icarus before he attempted to fly toward the sun? If a leader is going down the wrong or unethical path, then the subordinate followers' duty to is to prevent that leader from going to where they will fail or fall like Icarus. The idea is that effective and courageous followers will use professional dissent to challenge their leaders' decisions. By understanding dynamic followership, military organizations can treat followership like a discipline and improve leader-follower cultures. Through education all Soldiers and officers can learn how to be effective and courageous followers through education as well as be good leaders. Teaching the conceptual dynamics between the

relationship of followership and leadership could prevent future unethical decisions.

In a cultural movement toward followership in military ethical leadership, many retired Army officers are addressing the senior ethical problems as a followership dissent problem. In his presentation at the International Leadership Association annual conference in Denver Colorado on October 25, 2012, Dr. George Reed COL (R), former Director of Command and Leadership at the U.S. Army War College, described leadership through an ethical lens with "well meaning followers facing conflicting loyalties as they balance their own sense of right and wrong with desires of leaders and the best interest of the organizations they ultimately serve".[22] His expressions and the themes of his presentation reflect that the institution might have created the leader who has a tendency to fail at his pinnacle job but the responsible subordinate professional follower also has to find a method to address his boss in the environment for the good of the organization.

LTC Paul Berg, U.S. Army, is currently a Military Leadership Instructor in the Department of Command and Leadership and Team Leader at the U.S. Army Command and General Staff College. He holds a B.B.A. and M.B.A. in Marketing from the University of North Texas and a M.S. in Adult and Continuing Education from Kansas State University. During his career, LTC Berg served with the 1st Cavalry Division, 101st Airborne Division (Air Assault), 25th Infantry Division (Light) to include four combat tours. He has also been an instructor for the Aviation Officer Basic Course and a Small Group Leader in the Aviation Captains Career Course. He commanded Aviation Officer Basic Course during the BOLC transition. He is currently a doctoral student at Kansas State University majoring in Adult and Continuation Education.

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Aviation Planning Constants in COIN and DA Environments

By LTC Travis M. Habhab

As multi-functional aviation Task forces (ATF) train for future operations, there are several planning constants that apply to both counter-insurgency (COIN) and decisive action (DA) environments. In fact, most planning and operating concepts remain similar, but their application differs between the two training environments. During the last year, the aviation combat trainers (Eagle Team) at the National Training Center (NTC) helped train aviation units in four COIN scenarios and four DA environments. This article captures the different application of planning and operating concepts for the two training environments, and offers recommendations for multi-functional ATF preparing for operations anywhere in the world.

Parallel Planning with the Brigade Combat Team

Deliberate planning (the military decisionmaking process) coordinated at the multi-functional ATF level and nested with the brigade combat team (BCT) planning cycle is essential to integrate/synchronize aviation assets for all mission sets (air assault, attack, reconnaissance, medical evacuation). Regardless of the training environment, it is imperative for the ATF to communicate frequently with the supported BCT and ground task forces in order to conduct aggressive parallel planning and provide recommendations to the ground elements on how to employ all aviation assets to help accomplish the BCT's objectives. This process begins at home station by developing a working relationship with ground units and training together during staff exercises, field training exercises, and other opportunities. Integration continues during off-post training, such as an NTC rotation, in order to set the conditions for combat operations. At the NTC, this integration tends to be a slow process at the beginning of a rotation and improves throughout. Aviation task forces that are proactive and aggressively integrate into the ground forces' planning cycles are typically more successful during force on force operations.

During a COIN environment, aggressive parallel planning and integration with ground forces is usually necessary to synchronize attack, utility, or cargo helicopter assets for a deliberate mission, commonly involving an air assault. During a DA environment, parallel planning is increasingly more important due to decentralized, dynamic operations combined with an unpredictable enemy. Frequently, units become overwhelmed with multiple, near simultaneous operations. For example, the ATF may be conducting a defense while simultaneously planning an attack to be conducted within the next 24-48 hours, potentially supporting different maneuver units within the supported BCT. Aggressive parallel planning, integration into the supported ground forces planning cycles, frequent communications with the brigade aviation element, and utilizing liaison officers typically improve the planning process and facilitate more effective operations.

Planning Responsibilities

In both COIN and DA environments, it is imperative that the ATF develop standing operating procedures that clearly define the planning responsibilities of the staff and companies. Units that understand these responsibilities prior to beginning the planning process typically achieve a more effective plan while conducting operations. In a COIN environment, this process typically refers to air assault planning, designating the appropriate staff/company elements to conduct terrain analysis, developing infil and exfil routes, selecting landing zones and pickup zones, developing the concept of attack helicopter and reconnaissance support, conducting forward arming and refueling point synchronization, and coordinating employment of fires or electronic warfare assets.

In contrast to common COIN practices for an ATF, aviation companies should be more involved while planning for DA operations. Company planning cells can be essential to developing/modifying attack-by-fire (ABF) and battle positions (BP), developing direct and indirect fire plans, completing engagement area development, and establishing landing zones for medical evacuation or casualty evacuation operations.

Synchronization and Triggers

At the NTC, units typically struggle with developing/utilizing triggers and synchronizing aviation assets in conjunction with the supported ground scheme of maneuver to maximize

effectiveness at the decisive point of the mission. Regardless of the type of mission or environment, aviation assets should typically be postured for employment based on the factors of mission, enemy, terrain, troops available, time available, and civilian considerations (METT-TC). In a COIN environment, aviation elements frequently receive an on-station time or an air assault H-hour based primarily upon the mission as the enemy factor of METT-TC (insurgent activity) is less dominant or may be difficult to predict.

Synchronization of assets and trigger utilization can be more pertinent during DA operations. Whether the supported ground unit is conducting an attack, defense, or movement to contact, ensuring attack and reconnaissance assets are on station at the decisive point of the mission is essential to the operation's success. While it sounds simplistic, units typically defer to the COIN technique of assigning a time on station for the required aviation assets. Without a trigger based upon enemy activity, the aviation assets may not be available at the decisive point due to not taking off yet, breaking station for refuel, or running out of crew duty day or available flight time. Additionally, thorough analysis of the enemy composition may yield the requirement to employ more aviation assets than originally planned.

The ATF should plan with the BCT to determine the desired outcome for aviation assets to yield on the enemy, and then determine the trigger to launch those aviation assets in order to achieve those effects. As an example, the ATF may receive the task to destroy two companies of a mechanized infantry battalion (approximately 15 armored vehicles) in an engagement area. Utilizing BCT and division level assets (i.e. scouts, unmanned aerial vehicles, ground moving target indicator), the ATF and BCT can develop an observable trigger to launch the appropriate number of attack aircraft to ensure they can occupy an attack by fire/battle position and destroy the 15 armored vehicles, therefore maximizing combat power at the decisive point in the battle. Effective rehearsals conducted from the aviation company to the BCT level will assist in synchronizing assets throughout the battlefield.

Conclusion

Although there are many constants for an ATF in COIN and DA environments, the application of planning and operational concepts differ. Aggressive parallel planning and integration with ground forces, well defined planning responsibilities throughout the BCT and the ATF, establishing observable triggers based on enemy activity, and synchronizing assets through planning and rehearsals are essential concepts in both environments. Understanding these concepts and their application in both environments will assist the multi-functional ATF to improve training for combat operations anywhere in the world.

LTC Travis Habhab is the Commander, 1-1 Attack Reconnaissance Battalion, Ft Riley, KS. At the time of this article, he was the Senior Aviation Operations Trainer (Eagle 03) at the National Training Center in Ft Irwin, CA. His other key assignments include the Professor of Military Science at the University of Texas; Executive Officer, 159th CAB; Battalion S-3 and Executive Officer, 4-101 AHB; and Commander, B/1-227th. LTC Habhab is a Master Aviator qualified in the AH-64 A/D and has deployments to both Afghanistan and Iraq.

Acronym Reference

ABF- attack-by-fire
ATF - aviation task force
BCT - brigade combat team
BP - battle position
COIN - counter-insurgency
DA - decisive action
METT-TC - mission, enemy, terrain, troops available, time available, and civilian considerations
NTC - National Training Center

USING THE Integrated Training Environment TO PREPARE FOR Future Air Ground Operations

By MAJ Patrick J. Culpepper

The 3rd Combat Aviation Brigade (CAB), 3rd Infantry Division, conducted a mission rehearsal exercise (MRX) from 10-12 March 2014 in order to prepare Task Force (TF) 1-3 Attack Reconnaissance Battalion for a future rotation to the Joint Readiness Training Center. The MRX utilized the integrated training environment (ITE) at Fort Stewart, GA to provide the commander and his staff a tough realistic training event. Task Force 1-3 and 3rd CAB recently returned from Afghanistan and this MRX served as their first training exercise within the decisive action training environment (DATE). This first step proved critical as the unit transitioned their mindset from counter-insurgency to decisive action operations against a near peer threat. The training objectives for this MRX forced their staffs to use both digital and analog systems within their command post, conduct the military decision making process, and plan and conduct air ground operations (AGO) in a constructive and virtual simulation. With the help of 2-7 Infantry Battalion, TF 1-3 was able to conduct AGO utilizing the Close Combat Tactical Trainer (CCTT), and the Aviation Combined Arms Tactical Trainer (AVCATT) to train on close combat attack, interdiction attack (IA), and air assault operations. These tasks represent the return to decisive action tasks utilizing virtual trainers to increase proficiency prior to live exercises or combat training centers rotations. The goal of this article is to inform both ground and aviation commanders on the capabilities of the ITE to train mission command and air ground operations at home station and to reintroduce decisive action tasks aviation units will conduct in support of ground forces.

The Integrated Training Environment

The ITE was utilized to make this exercise a tough and realistic event and prepared the unit for future live training. The ITE, a system of systems, by design, combines and connects key training enablers in a persistent and consistent manner to accurately stimulate mission command systems (MCS) to meet the commander's training objectives within the appropriate operational environment. Key components of the ITE include the live, virtual, constructive – integrating architecture (LVC-IA) and DATE. With the ability to stimulate MCS, the staff and commander are able to manage operations just as they would in a live exercise or real world operating environment. The difference is that the unit does not have the logistical or support requirements inherent with a live exercise. Training with the ITE allows the commander to focus almost exclusively on the identified training audience and the training objectives.

The DATE is a document that provides detailed information to build an operational environment to operate in and conduct a range of military operations. The DATE provides detailed information commanders and staffs need to understand the environment and create the conditions that challenge leaders to think critically and become more adaptive. For this exercise, the Caspian Sea Region was overlaid on the Fort Stewart terrain so that the operational environment could support virtual and constructive training simultaneously on correlated terrain. The area of operations was constructed to support an east to west movement that utilized the Atlantic Ocean as the Black Sea and parts of coastal Georgia as the country of Gorgas (See Figure 1). Although live training was not a training objective for this exercise, the products now exist to fully utilize live instrumented units within the ITE for future exercises.

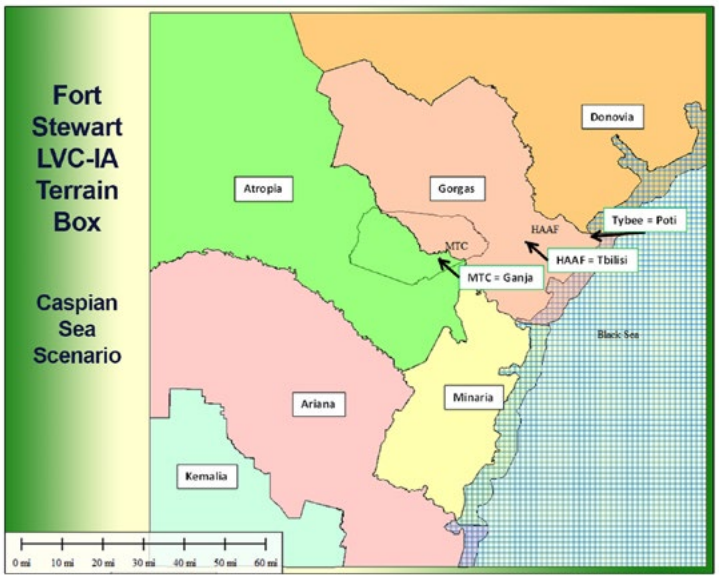


Figure 1

The story line for this exercise involved defeating elements of the Atropian military that conducted a coup to overthrow the legitimately elected Atropian government. The DATE merely sets the conditions of the operational environment by providing the political, military, economic, social, information, infrastructure, physical environment, and time variables for each of the countries. The Training Brain

Operation Center (TBOC) assisted in the development of the scenario by building the operations order and fragmentary orders for the exercise. Based on the TBOC recommendation, we selected the Atropian military coup scenario because it allowed for a realistic, smaller opposing force (OPFOR) to confront with our aviation battalion supporting a brigade combat team. The scenario also utilized the DATEs hybrid threat with insurgent and local militia forces working in concert with the Atropian forces and supported by Ariana.

Pilots from 3rd Combat Aviation Brigade conduct a mission brief in the AVCATT prior to execution. The AVCATT and CCTT were integrated in order to conduct Close Combat Attack missions. (SGT William Begley)

To stimulate the training audience's MCS, this exercise employed the LVC-IA to synchronize the CCTT, AVCATT, and Joint Conflict and Tactical Simulation (JCATS). The CCTT and AVCATT are virtual training devices while JCATS is a constructive simulation. These systems were originally designed as independent training systems. The LVC-IA links these systems together to train multiple echelons across training environment boundaries. Companies from the 2-7 Infantry Battalion supported this exercise by providing a company commander, platoon leaders, and a fire support officer each day in the CCTT. Simultaneously, forty miles away, aircrews flew the AVCATT and conducted AGO with the maneuver unit. The JCATS represented the remainder of the blue force units and all opposing force (OPFOR) units. What makes the LVC-IA so useful is that it combines all of the advantages of using selected training aids, devices, simulators, and simulations into one near seamless environment within which, ground and aviation forces can work together and improve AGO tasks and battle drills.

Some key advantages of utilizing virtual trainers include an expanded training environment, adjustable environmental conditions, repetition, and playback in support of the after action review (AAR). One of the most difficult aspects of training a mechanized force at Fort Stewart is the limited and compartmentalized training areas available that units can train on and reduce noise pollution in the surrounding communities. By employing the LVC-IA to train within the ITE, our training area expanded to 180 square kilometers and the limits of the Fort Stewart boundaries disappeared. By leveraging the high fidelity terrain data base, both the ground and aviation units could execute longer and more realistic movements to gain the tactical advantage over the enemy. The virtual environment was built to replicate the real world environment so all of the map products were relevant; we simply added a layer to change training areas and city names in accordance with the DATE scenario. This environment allows units to transition from wooded areas to highly populated cities which more accurately represent the range of conditions a unit may operate within. The virtual environment also eliminates the constraints placed on firing weapons such as Hellfire missiles. For instance, units could conduct close combat attack (CCA) anywhere without real world limitations due to surrounding communities or restricted firing areas. With more area available in the simulation environment, the air assault conducted during this exercise was at a realistic distance to stress all aspects of the operation.

Another advantage of virtual training absent from live training is the ability to quickly and easily change environmental conditions. Environmental conditions include everything from weather to illumination that impact the training audience's ability to maneuver. Poor weather conditions can prevent or significantly hamper aviation units from conducting live training due to safety and risk concerns. However, pilots may be expected to fly in those same (poor) conditions to support the ground unit in combat. Virtual training allows the commander to challenge leaders to operate in nearly any environmental condition(s) without the risk of loss or injury to Soldiers and equipment. This exercise was conducted during day time hours in clear weather since this was the first exercise in which most of the ground units, Soldiers, and aircrews had the opportunity to train together. However, in future exercises, as proficiency is gained, conditions will change to provide more dynamic, challenging environments and conditions. For instance, missions will be conducted where the unit begins movement at dusk but is engaged by OPFOR or does not make it to the objective until dark. In this manner all the tasks of transitioning from day to night driving and operating under low visibility will be conducted in the exercise.

Virtual trainers allow units to quickly reset and execute a mission or task again if the unit failed to meet the commander's training objective(s). Resetting often involves a simple magic move back to the start position or to any other appropriate location. In contrast, live training requires

physically moving the unit and OPFOR back to the start point or other location. That move can be so difficult and time consuming that resetting is not worth the effort, or time and resources prevent it. In our exercise, the ground unit took a wrong road and missed the objective. Although there was benefit from this mistake that ultimately reinforced the need to maintain situation awareness, the training objective to conduct CCA was missed. Once the ground unit realized their mistake and fought through an ambush, the unit was quickly repositioned back at the start point and the mission was conducted again. This time the lead tank was more aware of the route and the unit made it to the objective and had an attack weapons team in support. In a live exercise, it would have been difficult to impossible to quickly position an OPFOR along a route the training audience was not supposed to take and help reinforce the importance of troop leading procedures and situational awareness. In the virtual world, it merely takes a few mouse clicks or key strokes to quickly move or emplace an OPFOR to change the dynamics of an engagement to challenge leaders' critical thinking and adaptability.

Having the ability to see and playback unit actions in the virtual environment significantly adds to the value of the AAR. In live training, observations are limited to the location and number of observer controller/trainers (OC/T). In the virtual environment the OC/T can be anywhere on the battlefield and observe from multiple vantage points. As the OC/T observe events they want to highlight in the AAR, they can move the camera to that point and begin recording. With the OC/T behind the screens in the control room, the unit is not distracted or alerted to OC/T presence in the area. The OC/T can observe unit actions from a third person perspective from any angle to clearly see what units are doing. This same capability is especially important for unit commanders to understand the actions of subordinate leaders. Many leaders are familiar with some of these training tools; however, now that we are able to train together using the CCTT and AVCATT, commanders can better understand how leaders operate three dimensionally and identify the challenges associated with air and ground units attempting to see and orient on the same terrain. Obtaining AAR data from virtual trainers increases the effectiveness in capturing and identifying lessons learned by leaders and aids in making Soldiers more capable and better prepared to conduct live training.

Aviation Tasks in Support of Ground Forces

Three of the tasks assigned to the aviation battalion to support the ground unit involved CCA, IA, and the air assault. While some of these tasks were conducted during prior deployments, the significant change for this exercise involved the presence of enemy air defense systems, synchronized movement, and synchronization of field artillery. The true power and potential of the combined arms team is only realized when all members of the team work together. Practice and repetition are essential to mastering the execution and synchronization of these tasks which is why training in the virtual trainers is critical prior to live training. Being better prepared prior to live exercises reduces the learning curve and allows the unit to achieve a higher level of proficiency in less time and cost than in live only training.

The CCA provides the maneuver commander another means to attack an enemy in close proximity to friendly forces. The distances where CCA takes place range from tens of meters to several thousand meters. It is important to note that CCA is not synonymous with close air support which is typically provided by the Air Force and involves different requirements and procedures. The CCA can be coordinated and directed by a team, platoon or company ground unit element. Tables and briefs outlined in FM 3-04.126 provide both the ground unit and the aircrew the most critical information to ensure a safe and effective use of force in close proximity.

The three components of a CCA involve the CCA fragmentary order (FRAGO), check-in brief, and the CCA brief. Standardized procedures and practice help reduce the risk of fratricide and increase the effectiveness of the combined arms team. The CCA FRAGO communicates critical information from the ground unit to the aircrew and should note whether or not changes have been made since the final conditions check. Once the aircraft are in the area, the aircrew gives the ground unit a check-in brief to inform them of their restrictions and limitations. These briefs are important anytime a new aircraft team checks in because the brief provides details such as team composition, ammunition type, and station time. The CCA brief is used to initiate the attack and helps reduce the risk of fratricide and ensure enemy destruction. Table 3-5 of Field Manual 3-04.126 provides the most complete transmission of information between the ground and air units.

CLOSE COMBAT ATTACK BRIEF (Ground to Air)
1. *Observer/Warning Order:*
"_____ (Aircraft). THIS IS _____ (Observer C/S). FIRE MISSION. OVER."
2. *Friendly Location/Mark:*
"MY POSITION _____ (TRP, Grid, etc.). MARKED BY _____ (Strobe, Beacon, IR Strobe, etc.)."
3. *Target Location:*
"_____ (Bearing [magnetic] & Range [meters], TRP, Grid, etc.)."
4. *Target Description/Mark:*
"_____ (Target Description). MARKED BY _____ (IR pointer, Tracer, etc.). OVER."
5. *Remarks:*
"_____ (Threats, Danger Close Clearance, Restrictions, At My Command, etc.)."
AS REQUIRED: 1. Clearance: Transmission of the CCA brief is clearance to fire (unless Danger Close). Danger close ranges are in accordance with FM 3-09.32. For closer fire, the observer/commander must accept responsibility for increased risk. State "CLEARED DANGER CLOSE" on line 5. This clearance may be preplanned. 2. At my command: For positive control of the gunship, state "AT MY COMMAND" on line 5. The gunship will call "READY FOR FIRE" when ready.

Table 3-5

Since most CCA missions are hasty, conducting team training and battle drills in virtual trainers are critical to build familiarity and confidence for the future. One of

MAJ John Culpepper (right) briefs BG Peter L. Jones DCG-S 3rd ID (middle), and COL John D. Kline commander 3rd Combat Aviation Brigade (left), on the commander's training objectives and expected end state of the mission readiness exercise. (SGT William Begley)

the most difficult parts of CCA is clearly understanding where friendly forces are located in relation to the enemy. During this exercise, ground commanders and pilots realized how difficult referencing ground features can be. In one instance, a tank crew thought it was clear as to what corner of the intersection they were marking. However, the aircrews, at altitude and moving from a different direction, could not see the same reference cues. Misunderstandings like this could lead to delaying the attack, or worse, lead to fratricide. Repetition while varying the conditions as crews gain proficiency can help ensure that CCA missions are timely and lethal. In the future, ground unit Soldiers and aircrews will switch roles in the AVCATT and CCTT. This training method will help the ground and air units gain increased appreciation of each other's situation and gain a better understanding of the other's limitations and capabilities. This type of training is nearly impossible in real aircraft and the difference in perspective is enlightening. The IA can be hasty or deliberate and is used to disrupt or destroy an enemy force from limiting friendly forces freedom of movement or from reinforcing an enemy force. Deliberate IA missions can be planned as a branch plan on a decision support matrix. The IA may be planned to prevent an enemy from conducting their most dangerous course of action or planned to attack a key objective. Interdiction attacks are often conducted as hasty attacks as in the case of intelligence gathering assets that have identified an impending enemy attack or when necessary to destroy a fleeting high value target. This exercise directed a deliberate IA as national intelligence assets determined that an Ariana armored force was moving north into Atropia to reinforce the military coup. Since the IA is generally conducted out of direct contact with friendly forces, additional factors must be considered when planning these missions such as recovering of downed aircraft and establishing forward arming and refueling points to extend aircraft on station time for the effective destruction of the enemy.

Air assaults are some of the most difficult missions to execute due to the high level of synchronization required to maintain the element of surprise and build friendly combat power. Air assaults can be utilized for a variety of reasons such as the emplacement of reconnaissance elements, the seizure of an objective, or the dislocation of enemy forces. The ITE is a valuable training tool to practice air assaults within DATE as it allows the commander and staff to coordinate fires, visualize the movement of aircraft and equipment, and react to enemy actions.

Conclusion

The ITE provides the commander and staff the ability to train in tough and realistic environments. This exercise challenged leader's ability to execute mission command within the DATE. The commander and staff refined battle drills and digital and analog products. Utilizing the CCTT and the AVCATT allowed both the ground and aviation elements the opportunity to practice AGO and refine procedures necessary to make the combined arms team more lethal while reducing the risk of fratricide. The use of the IA provided the ground commander the means to destroy an enemy force from reinforcing the objective well before other friendly assets could maneuver into position. And finally the air assault planning drove the staffs to coordinate all the critical tasks necessary to conduct the mission. The missions conducted in the ITE with support from the LVC-IA allowed commanders to utilize all MCS while subordinate units practiced battle drills, thus preparing units to train at a higher proficiency during live exercises and which will increase lethality in combat later.

MAJ Patrick J. Culpepper is currently assigned as the Simulations Officer, 3rd Combat Aviation Brigade (CAB), 3rd Infantry Division, Hunter Army Airfield and supports the commander in developing training exercises and establishing the knowledge management program throughout the CAB. MAJ Culpepper's previous assignments included Assistant Professor, Department of Geography and Environmental Engineering, United States Military Academy, West Point, NY and Commander, F Company, 35th Engineer Battalion, Fort Leonard Wood, MO.

Acronym Reference

AAR - after action review
AGO - air ground operations
AVCATT - Aviation Combined Arms Tactical Trainer
CAB - combat aviation brigade
CCA - close combat attack
CCTT - Close Combat Tactical Trainer
DATE - decisive action training environment
FRAGO - fragmentary order
IA - interdiction attack
ITE - integrated training environment
JCATS - Joint Conflict and Tactical Simulation
LVC-IA - live, virtual, constructive – integrating architecture
MCS - mission command systems
MRX - mission rehearsal exercise
OC/T - observer controller/trainers
OPFOR - opposing force
TBOC - Training Brain Operations Center

EVERYTHING OLD IS NEW AGAIN

By CSM Paul Hutchings

Military history teaches us that fortune favors the Army willing to adapt and change to meet threats and challenges. Sometimes that change, or way forward, is to look at where you have been. "Everything old is new again," is not simply a line from a song, but has been my mantra since my battalion fell off the patch chart and actually increased our operational tempo. Since then, we have striven to re-create ourselves. This foundation is based upon two of the Chief of Staff of the Army's (CSA) major objectives for the future of the Army, "A Globally Responsive and Regionally Engaged Army" and "A Ready and Modern Army." Our most recent field exercise included tactical assembly area (TAA) operations in an austere environment; a mission unfamiliar to us as an aviation battalion accustomed to operations in Afghanistan and Iraq. This requirement made us to look to the past in order to meet current CSA guidance and evolve from an Army Force Generation mindset into an expeditionary one, postured to respond to an ever-evolving threat.

I started to research TAA operations when we were tasked as the aviation task force (TF) headquarters with a mission to operate out of a TAA supporting the Royal Netherlands Army's 11th Air Manoeuvre Brigade. The mission involved an exercise to validate the North Atlantic Treaty Organization response force during Operation Falcon Preydrive. 13 years of war, predominately operating out of established forward operating bases, resulted in atrophy of TAA and expeditionary operations. It had been a long time since I had done any TAA operations, so I started by researching doctrine of which there is a great deal of information with regards to TAA operations. However, little of it is specifically about the challenges of operating an aviation TAA, e.g. size of the area to be occupied/defended, secured, etc. Therefore, I filled in the blanks with the empirical experience of my battalion commander, my brigade commander, and myself.

My experience in TAA operations stemmed from my time in the 2-82 Assault Battalion when I was a crew chief, roughly 21 years ago, and we conducted company level TAA operations during a rotation at the Joint Readiness Training Center at Fort Polk, Louisiana. Since I was in a flight company, everyone pulled their share in the defense. Pilots, crewchiefs, and doorgunners alike pulled "stand-to" in the morning and security throughout the day. This was fine as the preponderance of our flights were in the day or early evening. It was not until we had a major air assault mission with a time on target of 2300 that we ran into problems. The day prior to the mission, we all went down for crew rest and as a result, our security lapsed. Due to this, there was no security element that night which allowed the opposition force unrestricted access to our aircraft. When we went out to pre-flight our aircraft the next day, each one had a 2X4 block of simulated C-4 with a chemlight on their stabilators denoting they were destroyed. What I learned is that aviation units are not manned to pull security and conduct missions with their organic assets. So, one of the things we sought with our exercise with the Dutch was infantry support to augment our defense. The Dutch were more than accommodating and initially tasked an infantry company to assist in our defense. To better support this tasking, the exercise scenario was refined to co-locate the aviation TF with the ground force forming a contiguous mutually supporting TAA.

My battalion commander's experiences, combined with his mission intent, brought into consideration that above all, a TAA is an area from which to conduct operations, including mission command. With that in mind, we practiced and perfected jump command post (CP) and tactical command post (TAC) operations at multiple Joint Multinational Readiness Center exercises prior to Operation Falcon Preydrive. What he understood, and what we practiced, was that our purpose was to conduct operations to support the ground force regardless of the threat. So, our ability to conduct mission command throughout all phases of TAA operations (e.g. establishment, sustainment, and defense) was an integral part of our planning process.

The Dutch's operational goals for Falcon Preydrive evolved during the planning process. Consequently, they were only able to commit two platoons of infantry instead of an entire company for TAA defense. However, they planned to commit a company of mechanized infantry as a screen line between the TAA and the forward line of own troops. Our portion of the TAA was approximately two kilometers in length and a kilometer in width. A TAA of this size would have been difficult for an infantry company to defend let alone two platoons. Therefore we would have to augment the defense more than anticipated with

maintainers, fuelers, and if need be, pilots and crew chiefs. While discussing this issue with our brigade commander, he said, "Well, the secret to aviation TAA operations is a scatter plan." His empirical knowledge was just what we needed to develop our planned defense. We did not need to protect the entire TAA, we just needed to disperse the security we had in order to give enough warning to the TAA in order to "scatter" the aircraft, and if need be, carry on mission command with the TAC from a secure location.

The combination of doctrine and experience allowed us to formulate a plan for our TAA. The occupation would begin with the quartering party and infantry as security. A security sweep would be conducted of the areas where the CP, forward arming and refueling point, cantonment, and aircraft parking areas were planned. These areas would also be marked for the main body's arrival. A TAC would be established to provide mission command until the CP was up and operational upon the main body's arrival. We would have a layered warning/defense using the mechanized infantry screen line and listening posts/observation posts (LP/OP) as triggers to increase our force posture. A quick reaction force (QRF), and the scatter plan, would be activated should the screen line or LP/OPs receive contact or be breached. If the LP/OPs received contact, they would fall back onto secondary positions alongside the QRF. Once the QRF was activated the TAC would also be alerted along with an escort. The scatter plan called for the attack aircraft of our task force to launch to assist in the defense of the TAA. The assault aircraft would launch and go to either a predetermined air or ground laager site. Should contact persist or increase, the TAC, with escort, would leave the TAA in order to continue mission command of the fight. The final, crucial element to the success of this plan was the cooperation and understanding of the Dutch. They understood that their mobility was our strength, but our weakness was our vulnerability in a TAA.

The lessons we relearned during the development of a TAA security plan can be looked at on a much larger scale. The development of an expeditionary mindset will require us to draw from our past experiences and integrate those lessons with the hard won experience fighting the long war on terror (for example, the 101st Combat Aviation Brigade's initial entry operations into Iraq). Together, these combined experiences need to be codified in updated aviation doctrine as well as practiced at the Combined Training Centers. As a branch, we must stand ready to do this as part of a combined or joint multinational task force. Only then, will we realize the CSA's vision and more importantly, be prepared for the expeditionary challenges of the future.

CSM Paul Hutchings is the Command Sergeant Major, 3-158th Assault Helicopter Battalion. Previous assignments include the 82nd Combat Aviation Brigade; 160th Special Operations Aviation Regiment; Combat Aviation Brigade, 2nd Infantry Division, Republic of Korea; the 1-228th Aviation Regiment, Honduras. He has 24 years of Army service.

Acronym Reference

CP - command post
CSA - Chief of Staff of the Army
LP/OP - listening post/observation post
QRF - quick reaction force
TAA - tactical assembly area

Army Aviation Maintenance;

A New Operational Model Forged in Combat

By MAJ Thomas G. Ivanco

Under ever-tightening fiscal constraints, Army Aviation must continually strive for an efficient use of resources. This article proposes a new operational model for aviation maintenance and force structure that will maximize flight-hour usage, enabling more missions with fewer aircraft. As will be shown, it is possible to achieve this substantially increased throughput with minimal cost by utilizing already existing management tools and refocusing leadership. In particular, there are two key concepts. First, there is a need to quantify with standardized metrics the experience and proficiency of aviation mechanics. Secondly, there is a misunderstanding about the meaning and importance of the operational readiness (OR) rate and the efficient allocation of maintenance teams to support that rate. Both topics are discussed in this paper because they are intimately related, and any maintenance unit that can effectively address one will see a significant impact upon the other.

This paper will first discuss the issues surrounding these concepts and will introduce the new operational model. An example of this model in practice in Iraq will then be presented where the unit surpassed the preceding unit's flight hours while possessing only 57% of the aircraft. Finally, the impact to aviation doctrine of applying this model aviation-wide will be discussed.

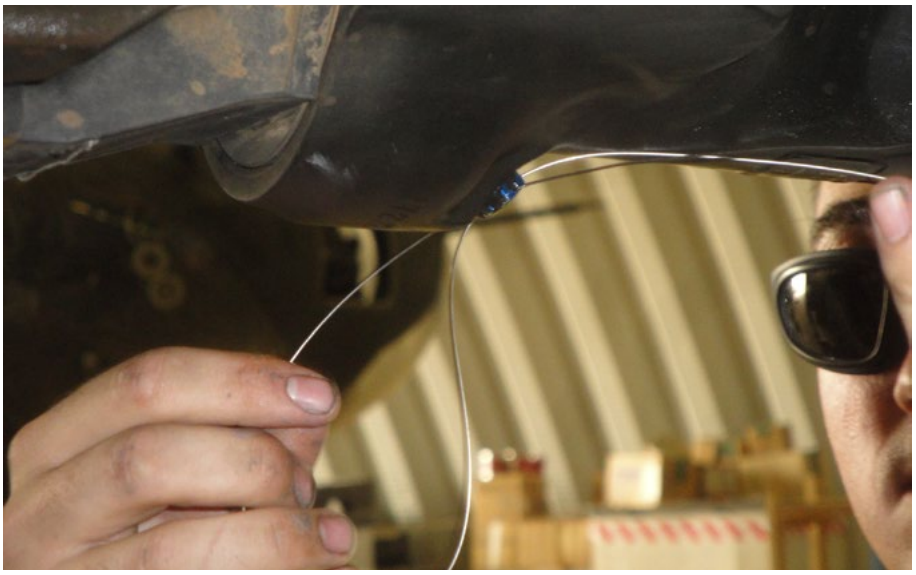
Issue and Proposal - *Proficiency*

No commander would manage an aviation unit where the pilots and non-rated crew members (NCM) do NOT track flight time, readiness level (RL) progression, semi-annual minimums, take written exams, and check rides, or maintain currency requirements. It would also be unrealistic if during the mobilization process the proficiency and experience of the aircrew were not evaluated or considered by the training support battalion. However, this is how Army aviation maintenance is doctrinally managed. The skills, knowledge and experience required to be a proficient pilot are indeed more perishable than those needed to be a proficient mechanic, but not by an overwhelming amount.[1] Additionally, required aircrew training is rather easy to predict with regard to modes of flight and potential mission sets, whereas required mechanic training can be rather obscure since the trouble-shooting skill-set necessary to correct a peculiar aircraft fault is difficult to anticipate. Many aircrew members will also agree that the proficiency of the mechanics plays an equally vital role in overall flight safety. Additionally, technical inspectors are charged with the task of determining whether or not an aircraft is flight-worthy. Why then do we as an aviation community hold no regard to tracking the proficiency and experience of our maintainers and inspectors? It was already revealed in the late 1990s that it takes multiple maintenance Soldiers to equal the productivity of one contractor due to Soldier inexperience and other distractions. [2]

Fortunately, by adopting only a few procedural changes, it will be significantly easier to train and manage our maintainers. Similar to flight records for aircrew, there is a need to develop a standardized set of measureable maintenance metrics. One such metric could be similar to the former skill qualification tests (SQT) in the form of an annual written exam. The opinion of some senior Soldiers is that the SQTs were discontinued because they were unfair to non-commissioned officers (NCO) who were not currently employed in their military occupational specialty (MOS), and that some of the questions were trivial or irrelevant to the assigned equipment.[3] Similar to required written tests for aviators, this written test should only be required when a particular Soldier is working within his/her MOS, and they should be tailored to each skill level (10-level, 20-level, and so forth). Additionally, these written tests should be open-book and encourage Soldiers to use published references. If a Soldier fails the written test, then a successful retest should be required to designate him/her as proficient at that skill level. Whether or not successful tests are a requirement for promotion or favorable action can be determined independently from the matter of proficiency.

In addition to the written test results, assigned mechanics should undergo a standardized training program analogous to the RL progression program for aircrew. Sets of tasks are already identified for each 15-series MOS and associated skill level in the Soldier's Manual and Trainer's Guide. Additionally, a tracking system is already an option within the Unit Level Logistics System – Aviation (Enhanced) (ULLS-A(E)), the electronic maintenance records system, that is capable of recording the number of maintenance man-hours and number of tasks conducted by each maintainer categorized by aircraft

subsystem. Unfortunately, these tools are too often overlooked, and inadequate maintenance data is too often entered into the system. Simply using existing systems and linking them to a standardized and visible tracking method combined with written test results, will easily give commanders at every level a quantitative picture of how proficient and experienced each maintainer is. It will also help distinguish between NCMs with flight experience versus NCMs with maintenance experience. With the development of standardized metrics, the Army could implement a maintenance records program; whereby, it is commonplace for new mechanics arriving from other units or advanced individual training to carry with them a detailed history of their maintenance experience and test results – analogous to flight records for aircrew. Similarly, senior and master NCM badges could be linked to a certain number of maintenance man-hours. Finally, a less obvious benefit would be a cultural change with respect to maintenance. With the establishment of experience levels revolving around maintenance task completion, maintainers would be more inclined to remedy aircraft faults in order to rise in the experience rankings.



Issue and Proposal - *Operational Readiness Rate*

Aside from mechanic proficiency, a unit's maintenance effectiveness is quantified by its OR rate. The intent behind the OR rate is to not only quantify the maintenance effectiveness of a supporting organization but also to provide the aviation commander with a picture of the average percentage of his/her fleet that can be launched at any given time. However, in reality, the OR rate is often manipulated such that it reduces the number of available aircraft and increases maintenance response time. Therefore, units with a lower OR rate may actually have significantly better maintenance. Additionally, a unit boasting an 80% OR rate may not be able to launch 80% of its fleet at any given time. [4]

Operational readiness rate is simply calculated as the percentage of mission capable (MC) aircraft out of total aircraft, and it is tracked by the length of time an aircraft is MC or non-mission capable (NMC). On the surface, this is a useful metric to gauge the quantity of available aircraft. However, an aircraft is often reported as MC even if it is not mission available due to a required test flight, inspection, or pending scheduled service.[5] In these cases, the aircraft is reported as MC until the first safety wire is broken and maintenance begins. Since OR rate accounts for the length of time that the aircraft is down, maintenance is often delayed, sometimes for days, until there is adequate time in the work day and until a full team of proficient mechanics are available to tackle the problem in a timely manner. For example, an aircraft can spend three days in post-phase test flight making track and balance adjustments. Since the aircraft is only NMC while adjustments are being made, the three days that this aircraft is not available for mission use are tracked as approximately three hours of NMC time and 69 hours as MC time in the current system.[5,6,7] Compare this to a unit disregarding OR rate who always continues maintenance to the end of the work day leaving an aircraft down overnight or over the weekend as required. This aircraft will likely be out of test flight sooner, but will record on the order of 15 NMC hours in lieu of three.

If one analyzes the need behind a metric such as the OR rate, the actual information desired by the maneuver commander is available flight hours, or available sorties, since available flight hours can be significantly more important than MC rates.[8] The ultimate speed limit that determines the maximum sustainable flight hours for any fleet is set by the number of phase teams and the average time it takes to conduct phase maintenance. This speed limit is fixed regardless of the number of aircraft. In fact, increasing the number of aircraft in a fleet without adjusting the number of phase teams will often decrease the amount of long-term sustainable flight hours due to an increase in unscheduled maintenance activities and calendar-based inspections. For example, assume an aircraft has a phase maintenance schedule of 200 hours, and that the average phase takes 25 days. If the combined maintenance team (unit-level, intermediate-level, and contractor) has three phase teams, then the maximum sustainable flight hours is 720 hours per month. Notice, this equation is independent of the number of aircraft. As more aircraft are added to the fleet, the magnitude of calendar-based scheduled maintenance items increases. Now consider a unit with a fleet of 10 aircraft. Maximizing the three phase teams leaves seven aircraft at any given time that are not in phase maintenance. Out of these seven, it is likely that two aircraft are down for other forms of maintenance leaving on average approximately five aircraft available for missions.[9, 10,11] If the fleet size is reduced below 10 while sustaining the same flight-hour rate, the variability of unscheduled maintenance items will make the availability of aircraft too unreliable. If the fleet size is increased above 10 while attempting the same mission-load, then the workload per mechanic will increase but the average aircraft availability will increase less than the number of added aircraft, and the maximum number of available flight hours per month will slightly decrease. Therefore, the optimum ratio of aircraft to phase teams is about 3.5. The only advantages

to increasing the number of aircraft are it enables additional manipulation of bank time for a short-period flight hour surge, and it serves as a risk reduction in aircraft availability. Therefore, maintaining a mission available rate of approximately 50% to 60% will yield the highest flight-hour return per number of aircraft invested in a unit as long as a mission is not anticipated that will require the simultaneous launch of more than 50% of the fleet. Contrast this with Army doctrine listing a targeted OR rate of 80% and an aircraft to phase team ratio of about 10.[5, 12] However, increasing the number of aircraft may be beneficial for units such as attack helicopter battalions in conventional warfare where the ability to mass fires may take precedence over the number of available sorties or flight hours.

New Operational Model in Practice

The concepts discussed here were put into practice during the recent deployment of D Company 5-159th General Support Aviation Battalion to Iraq in support of Operation Iraqi Freedom from 2009 to 2010. The first step undertaken during preparation for deployment was to entirely disregard the OR rate. The second step was to invent a new mission available rate that included a status to designate an aircraft requiring a maintenance test flight or ground run. Additionally, anytime an aircraft was no longer mission available due to a pending service or inspection, it was immediately designated as NMC rather than waiting for maintenance to begin before that designation. By adopting these rules, the unit did not report an aircraft as MC unless it could be immediately issued for flight on a three-hour or longer mission. Therefore, the aircraft status showed an accurate picture of what was actually available to the flight commander. Furthermore, the mission schedule was posted next to the aircraft status board in the maintenance production control office. As a result, every mechanic at every level could immediately deduce the urgency of the maintenance required in order to meet mission requirements.

Another technique that was enabled by disregarding the OR rate was to utilize every mechanic asset. If an aircraft had a pending service/inspection, and a mechanic was available, work would begin even if that work would be less than optimally efficient due to experience levels and supervision required. Inefficient maintenance is always faster than no maintenance, even though it could adversely impact traditional OR rates.[13] Additionally, that inexperienced team would then gain an increased understanding of that particular maintenance task.

Finally, an MOS proficiency tracking program was established. This was a two-part program that first required accurate maintenance documentation within the logbook to include man-hours and all involved mechanics every time a task was completed. Maintenance summaries from ULLS-A(E) were then reviewed and compared to the MOS task list from the Soldier's Manual and Trainer's Guide for each skill level. Mechanics were then assigned tasks by their section leaders that would enable them to complete all items on their task list. Furthermore, printouts of maintenance man-hours were reviewed by the leadership which immediately led to mechanics actively seeking long duration maintenance tasks and competing for more work.

Contrary to popular maintenance lore, aircraft do not get offended if you work them hard.

As a result of these efforts, D Company mechanics were able to sustain a surge rate of over 80 hours per CH-47 aircraft per month, with a peak of 92.1 hours per aircraft for a 30-day reporting period. According to the theater AMCOM logistical aviation representative, this was a theater flight hour record and is believed to be the standing record for the Iraqi theater.[14, 15] Additionally, the aviation support battalion (intermediate-level maintenance) redeployed and the contractor staff was reduced to a mere two CH-47 mechanics. This reduced the maintenance support to approximately 50% of the manpower from what doctrine would dictate.[12] As a result, D Company assumed all phase maintenance tasks and the majority of all intermediate level maintenance tasks, yet the surge flight hour rate was sustained. With eight aircraft assigned, the unit averaged 650 flight hours per month, a mission available rate of approximately 55%, and launched an average of six sorties per day and sometimes as many as nine.

Operating in this fashion means that the working aircraft are flying at incredible rates approaching 100 hours per week. Contrary to popular maintenance lore, aircraft do not get offended if you work them hard. Barring an incident exceeding limitations, components of machines fail due to material fatigue of dynamic components or wear due to exposure and corrosion. For helicopters, this equates to flight hours or length of calendar time. Since more flight hours are occurring in a shorter time span, the number of mechanical issues per flight hour actually decreases.

Implications to Army Doctrine of the New Operational Model

Adopting this model of maintenance activities aviation-wide would impact doctrine, organization, training, and leadership. Doctrine would need to be adjusted to: define mechanic readiness levels (MRL); establish an MOS-centric annual written exam; improve procedures for logbook entry following maintenance work; redefine MC as immediately available to fly a mission of approximately three hours,[16] redefine the target MC rates for aircraft; and shift the emphasis away from OR rate with regard to maintenance performance. Organization of maintenance companies (unit-level and intermediate-level) would need to be adjusted to include a full-time standardization officer focused upon tracking individual MRL progression, written test proficiency, and man-hour experience. This position is analogous to the standardization officer assigned to track and help manage the proficiency of aircrew. While on deployment and away from other distractions, section leadership could track these qualities of a limited staff. However, this is not possible in the larger and constantly changing environment of home station operations, especially with the part-time leadership of the Army Reserve or National Guard. Training would need to include a focus on proper maintenance entries in ULLS-A(E) for mechanics and additional familiarization for administrators in order to extract the

appropriate experience reports. Leadership throughout aviation units would need additional education to better understand maintenance capabilities, the newly developed proficiency tracking system, and reduce the focus upon OR rate. Finally, a critical element in the development of new proficiency metrics is command visibility and emphasis. Located beside the RL progression rates of aircrew on any command update brief should also be the MRL progression of mechanics, maintenance man-hour metrics, and written test percentages.

Concluding Remarks

The operational model demonstrated here could enable the same flight-hour rate with significantly less aircraft and maintenance support. This model was based on two key concepts: First, a system was adopted to track the proficiency and experience of aircraft mechanics at all levels in a manner similar to aircrew; secondly, an aircraft readiness reporting system was adopted that emphasized mission availability and maintenance manning while disregarding traditional OR rate targets. Both concepts created an operational model that was proven during the unit's deployment to Iraq where record-breaking flight-hour rates were sustained with minimal external support. As a result of these concepts, the mechanics experienced an increase in MOS training and experience resulting in better unit morale and cohesion in addition to ability. Finally, this operational model enabled an efficient use of aviation resources at a time that the Army must do more with less.

MAJ Thomas G. Ivanco is a U.S. Army Reserve Component Officer and Research Aerospace Engineer at the National Aeronautics and Space Administration, Langley Research Center, in Hampton, VA. He is presently assigned as the Assistant Brigade Operations Officer, 244th Theater Aviation Brigade, Joint Base McGuire -Dix-Lakehurst, NJ, USAR. MAJ Ivanco's previous assignments include Platoon Leader, A/1-104th Aviation Regiment; Platoon Leader B/5-159th General Support Aviation Battalion (GSAB); Commander, A/1-104th Aviation Regiment; and Commander, D/5-159th GSAB. He has deployed in support of Operation Enduring Freedom (Kosovo 2003-2004), Operation New Horizons (Peru 2008), and Operation Iraqi Freedom (2009-2010). MAJ Ivanco has 20 years' of military service. He is qualified in the OH-58A/C, AH-64A, and CH-47D.

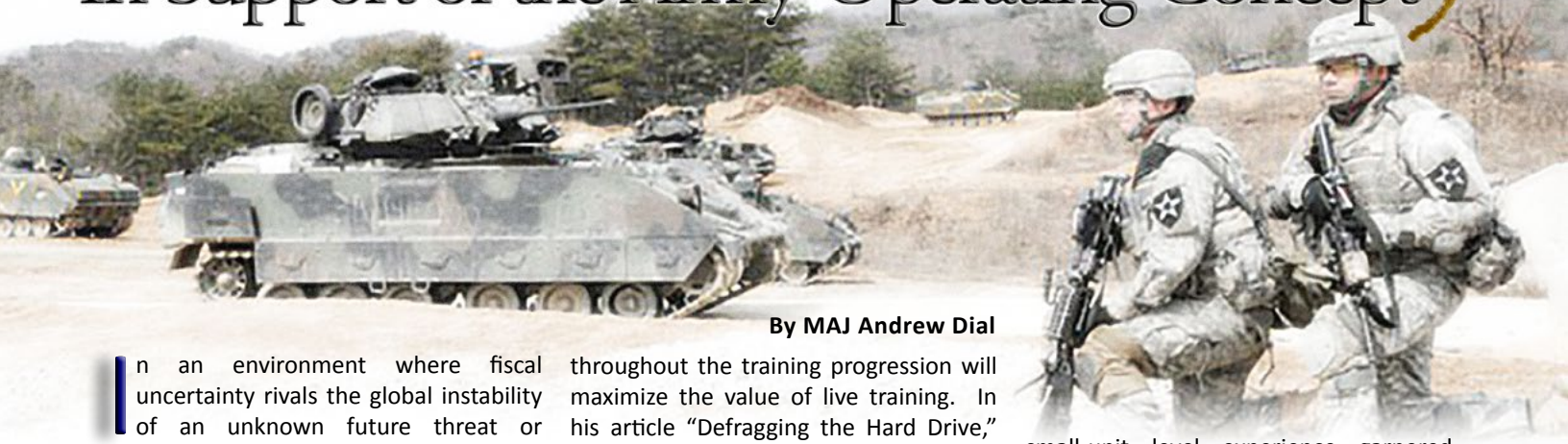
References and Notes

1. This statement is qualified by the author's experience as a helicopter mechanic, line company pilot and commander, and maintenance company (AMC) commander.
2. Evans, Samuel S.; Aviation Contract Maintenance and its Effects on AH-64 Unit Readiness; Thesis, Master of Military Art and Science; United States Military Academy, West Point, NY; June 1997.
3. Based upon interviews between the author and senior NCOs with over 30 years of Army aviation maintenance experience.
4. Pippin, Bradley W.; Allocating Flight Hours to Army Helicopters; Thesis, Master of Science in Operations Research; Naval Post Graduate School, Monterey CA; June 1998.
5. AR 700-138, Army Logistics Readiness and Sustainability, February 2004.
6. Assuming that the first test flight meets the requirements to complete the phase maintenance and end non-mission capable time in accordance with [5].
7. With the vibration kit installed, the aircraft is restricted to flight with a maintenance test pilot on a maintenance test flight. However, this is not a grounding condition and the aircraft will be reported as mission capable even though it is not available to fly a mission in accordance with [5].
8. If a mission set requires three aircraft in the morning for 3.0 hours, two aircraft in the afternoon for 2.5 hours, and three aircraft at night for 3.0 hours; then all missions can be accomplished with only three aircraft provided that an average of eight flight hours are available on each. Conversely, at least one mission will be aborted if eight aircraft are mission capable but an average of 2.5 flight hours are available on each.
9 Operational Requirements Document for the Improved Cargo Helicopter (CH-47D/F), Change 1, July 1997.
10. Selected Acquisition Report UH-60M Black Hawk Helicopter, Defense Acquisition Management Information Retrieval (DAMIR), December 2012.
11. Fleet-averaged maintenance statistics showing averaged scheduled and unscheduled maintenance rates are taken from 9, 10. Analysis of these statistics reveals that aircraft availability fluctuates by approximately the average number of aircraft in maintenance excluding phase. That equals 2.5 aircraft in this example, statistically resulting in two to seven mission capable aircraft at any given time with an average of 5.5.
12. TC 3-04.7, Army Aviation Maintenance, February 2010.
13. Suppose team A takes six hours to complete a scheduled service and team B takes 12 hours. If team A is busy and the maintenance is delayed a day, the aircraft will return to the fleet in 30 hours and record six hours of NMC time. If team B does the task, the aircraft will return to the fleet in 12 hours and record 12 hours of NMC time.
14. http://www.minnesotanationalguard.org/units/unit_template.php?unit=P7TB1
15. B/2-211th GSAB (Army National Guard) recorded approximately 1039.1 hours for a 1352 reporting period in 2011 which is believed to be the theater record (OIF and OND) for any flight company. However, this unit had 14 aircraft available which equates to approximately 74 hours per aircraft for that period. This data was acquired from the Minnesota National Guard website [14] and interviews with maintenance personnel from that unit.
16. Approximate un-refueled endurance. Recommend 2.5 hours for CH-47 aircraft so that the 2.5 hour maintenance window can be reached for a 25-hour service without forcing flights into the "back-side" of the window.

Acronym Reference

MC - mission capable
MOS - military occupational specialty
MRL - mechanic readiness level
NCM - non-rated crew members
NCO - non-commissioned officer
NMC - non-mission capable
OR - operational readiness
RL - readiness level
SQT - skill qualification test
ULLS-A(E) - Unit Level Logistics System – Aviation (Enhanced)

Aviation Training
In Support of the Army Operating Concept



By MAJ Andrew Dial

In an environment where fiscal uncertainty rivals the global instability of an unknown future threat or war, Army Aviation must maximize the efficiency, effectiveness, and the training audience during every training opportunity. This inherent ambiguity and uncertainty presents a significant opportunity to utilize inventive methods and develop what the Army Operating Concept (AOC) emphasizes as "innovative, adaptive leaders and cohesive teams who thrive in complex and uncertain environments." [1] However, future training requires imaginative changes in how aviation leaders manage operations and training and a willingness to integrate the adaptive, creative nature of the Global War on Terror (GWOT) experiences with the deliberate, detailed planning that characterized operations and training prior to Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF).

Training and Doctrine Command Pamphlet (TRADOC PAM) 525-3-1, Win in a Complex World, delineates how the Army contributes to the resolution of future conflicts in a Joint Force. Taking that further, Army Aviation will execute operations as part of a combined arms force. In order to maximize the training benefit within the constraints of a reduced operational budget, training opportunities must include the broader combined arms force in a multi-echelon and collective training audience. Every flight hour, every bullet, every gallon of fuel expended must be directly tied to the collective training audience reinforcing the combined arms fight. Additionally, leveraging the use of simulation systems throughout the training progression will maximize the value of live training. In his article "Defragging the Hard Drive," LTC Sauls alludes to the largest obstacle to innovative training; too often reverting to the stoic, lock-step methods to train aviators, crews, and teams, focused on the objectives of minimums, currencies, and qualifications instead of innovating a broader-based definition of qualified and trained.[2] If a crew completes Table VIII gunnery and meets the minimum number of flight hours during the semi-annual period, they are considered qualified and current. If this has all occurred in the absence of an integrated and supported ground force, are they truly qualified to accomplish their assigned mission?

While progressing from readiness level 2 to readiness level 1, aviators must demonstrate proficiency in specific mission tasks as defined by the unit standing operating procedure and the applicable aircrew training manual (ATM), regardless of mission, design, and series aircraft. While these are individual proficiency tasks, they support the larger unit mission. Through sufficient coordination and risk mitigation, this individually focused training can safely provide benefit to a broader audience. For example, an Attack Weapons Team can combine ATM Tasks 2010 (Perform Multi-aircraft Operations), 1410 (Perform Masking and Unmasking), 1413 (Perform Actions on Contact), 1412 (Perform Evasive Maneuvers), 1471 (Perform Target Handover), and 2128 (Perform Close Combat Attack) in a coordinated training scenario integrating home-station ground units. Despite the vast small-unit level experience garnered over the past 13 years of persistent conflict, ground forces lack a familiarity and confidence in air-ground operations (AGO) and radio procedures below the platoon leader/platoon sergeant level. Coordination between air and ground units to achieve mutually supportive training in this scenario would reap significant synergy in training objectives and provide greater proficiency for all Soldiers involved.

Another challenge exists with development of realistic continuation training and the weekly unit flight schedule that ensures aircrews achieve semi-annual minimums. Too often the flight schedule lists "Aircrew Training Manual Training" as the mission, relying on the air mission commander or pilot-in-Command to determine the training objectives. These training flights present a significant potential for combined training scenarios and need to be more structured in order to take maximum advantage of every flight hour. On many installations, scheduling a small arms qualification range presents a challenge. Units must often alter their training schedule based on the availability of the range as opposed to when the event would more optimally fit the training schedule. This results in a reactive training schedule process as opposed to a proactive process that would allow sufficient lead time and synchronization of resources and requirements. UH-60 and CH-47 crews conducting ATM flights can transport Soldiers to other range facilities at other installations with lower unit density per firing ranges. For example, the training area on Fort Campbell is only large enough to support 25% of the tenant units that require training. Since the Armor School's relocation and deactivation of the 3rd Brigade Combat Team, 1st Infantry Division, Fort Knox has a significantly smaller training population and less competition for its ranges. Air movement of units from Fort Campbell to Fort Knox for expanded range availability creates synergy through combined training benefit and a greater utility of flight hours and fuel expended for aircrew training. The 2-25th Aviation routinely used the Pu'uloa Range on Oahu for combined training, conducting air movement of Soldiers to and from the range complex via UH60Ls, maximizing the flight hour and fuel expenditures to increase range availability in an area with limited range availability due to unit density.

With the current capability of simulations technology, another pathway exists to improve the quality of large-scale collective and combined training. For example, the 10th Mountain Division utilized a rifle marksmanship methodology where Soldiers conducted pre-marksmanship instruction then completed qualification in the Engagement Skills Trainer prior to going to a small arms qualification range, with the intended end state of qualifying first time sharpshooter on all assigned Soldiers. This procedure reduced the number of rounds expended by increasing the number of first attempt qualifiers and preserving Class V for future ranges. As a branch, adoption of this training philosophy preserves the dwindling resources through more efficient expenditures in fuel, ammunition, repair parts, flight hours, and of increasing importance – time. While the availability of conveniently available training space for Army aviation operations remains relatively limited, no such limitation exists in simulation. The current suite of aviation simulations and support devices allows unit commanders to work their staff and crews to plan, rehearse, and fly a mission while performing specific tasks on which the commander has elected to concentrate. The refinement of these tasks is conducted without ever expending fuel or flight hours. Additionally, with the capability to connect the Aviation Combined Arms Tactical Trainer and other home station simulations, aircrews can engage in and support high quality collective and combined arms training regardless of geographic proximity or weather constraints. Furthermore, executing a combined training event in a virtual construct prior to execution in a live environment leads to even greater synergistic training benefit and proficiency while simultaneously mitigating risk.

These examples have additional intangible benefits to the combined arms fight aside from the specific training scenarios. Relationships, networking, and trust all increase through this conceptual AGO. Due to the Army Force Generation (ARFORGEN) manning and training cycles as well as the deployment "Patch Chart" of the GWOT operational environment, habitual relationships between aviation and supported maneuver units have nearly ceased to exist. Through transformation in 2005, the brigade combat team (BCT) became the self-contained "building block" of a tailored force which could be detached from its organic division headquarters for deployment to OIF/OEF. This created an environment where BCTs conducted home station training without aviation support due to off-cycle deployment of the combat aviation brigade (CAB). Conversely, the CAB would conduct home station training while

the BCTs were in the reset or employment phase of the ARFORGEN cycle, limiting the availability of a supported force for training. Through these scenarios, AGO from a planning aspect as well as from a relationship and trust standpoint atrophied considerably. With the drawdown of OEF and the end of OIF/Operation New Dawn, the habitual support relationships must be re-established. Through the conduct of combined training, increasingly effective training will enhances cross-unit coordination and renew the deliberate AGO planning and reliance that existed prior to modularity.

Additionally, the AOC highlights the continued sources of instability, from competing powers, regional entities, non-state actors, and hybrid threats, implying how future conflict may originate from

any combination or all of these threats. Accordingly, the AOC stresses the fundamental paradigm shift towards a focus on training the Soldiers, leaders, and teams within our force as opposed to the materiel focus of previous operating concepts. The intended outcome is a force that is innovative, adaptive, and capable of winning across a diverse range of military operations. Through experience in OIF and OEF, the Army as a whole learned to be innovative, adaptive, and capable of responding to rapidly changing or evolving conditions. However, this came at the cost of a diminished aptitude for deliberate and detailed planning. The AOC and preparation for future conflict requires the occlusion of the best attributes of both approaches.

To achieve maximum efficiency and synergy, the previous training examples necessitate deliberate, long-term planning and coordination. Time, resources, and terrain are all dwindling due to budget constraints, competing requirements, and more units conducting training in garrison than are deployed. Therefore, in order to protect these finite resources and maximize their use, long-range planning and coordination must occur to prevent squandering opportunities and exploit training event successes. While the force has become highly proficient at rapid decision-making and dynamic execution, branch or sequel adaptations to a deliberate plan are generally much more successful than plans created while in execution.

However, to achieve combined training, leaders and trainers need to be innovative in their actions and approach, seizing and exploiting opportunities, and not regress into regimented, over-structured mitigation. Leveraging unique training opportunities with other services through networking and partnerships develops the innovative, adaptive leaders necessary to win as a part of the larger joint force. Early in 2014, 6-6th Cavalry, 10th CAB conducted numerous training events integrated with 20th Air Support Operations Squadron, ranging from close combat attack (CCA) for joint terminal attack controller qualifications, hasty joint air attack team operations, and rapid deployment training on C-17 and C-5 aircraft. In 2004-2005, 2-17th Cavalry, 101st CAB conducted classroom instruction on AGO and CCA call for fire with all BCTs on Fort Campbell. This directly transitioned to combined training during Table VII/VIII gunnery events where infantry platoons from the BCTs marked the targets with lasers, M240s, or M2s. This integration of a ground force into preplanned aviation gunnery qualification provided realistic hands-on experience and far greater proficiency to all participating Soldiers while demonstrating exceptional use of training resources.

While the location, nature, and threat of future conflict is yet unknown, the constant will be that the Army will operate as part of a joint combined arms force. Army Aviation directly contributes to nearly every element of joint combined arms operations and functions both as part of the Army contribution to the joint force as well as within the Army's combined arms forces. To succeed in this ambiguous, ever-evolving environment, Army Aviation leaders must be innovative and adaptive and capable of thriving in a complex environment as part of a cohesive team. Army Aviation leaders must achieve this proficiency in an era of resource constraint, implementing innovative training strategies and methodologies that seize and exploit opportunity. The ageless cliché, "train as you fight," presents a clear philosophy to guide a training plan to win in a complex world. Army Aviation fights as part of the Army's combined arms force in support of the joint combined arms force. Thereby, Army Aviation needs to train as part of a combined and joint force, maximizing the training outcome and arriving at that endstate in the most efficient means possible.

MAJ Andrew Dial is currently assigned as an Instructor, Department of Army Tactics, U.S. Army Command and General Staff College at Fort Leavenworth, KS. MAJ Dial's previous assignments include Executive Officer, 6-6 Cavalry Squadron and S-3 of Task Force 3-10 General Support Aviation Battalion, 10th Combat Aviation Brigade; Commander, A Troop 2-6 Cavalry Squadron and S-3, 209th Aviation Support Battalion, 25th Combat Aviation Brigade. He has three deployments to Iraq and one to Afghanistan. MAJ Dial has 14 years' service and is qualified in the OH-58D aircraft.

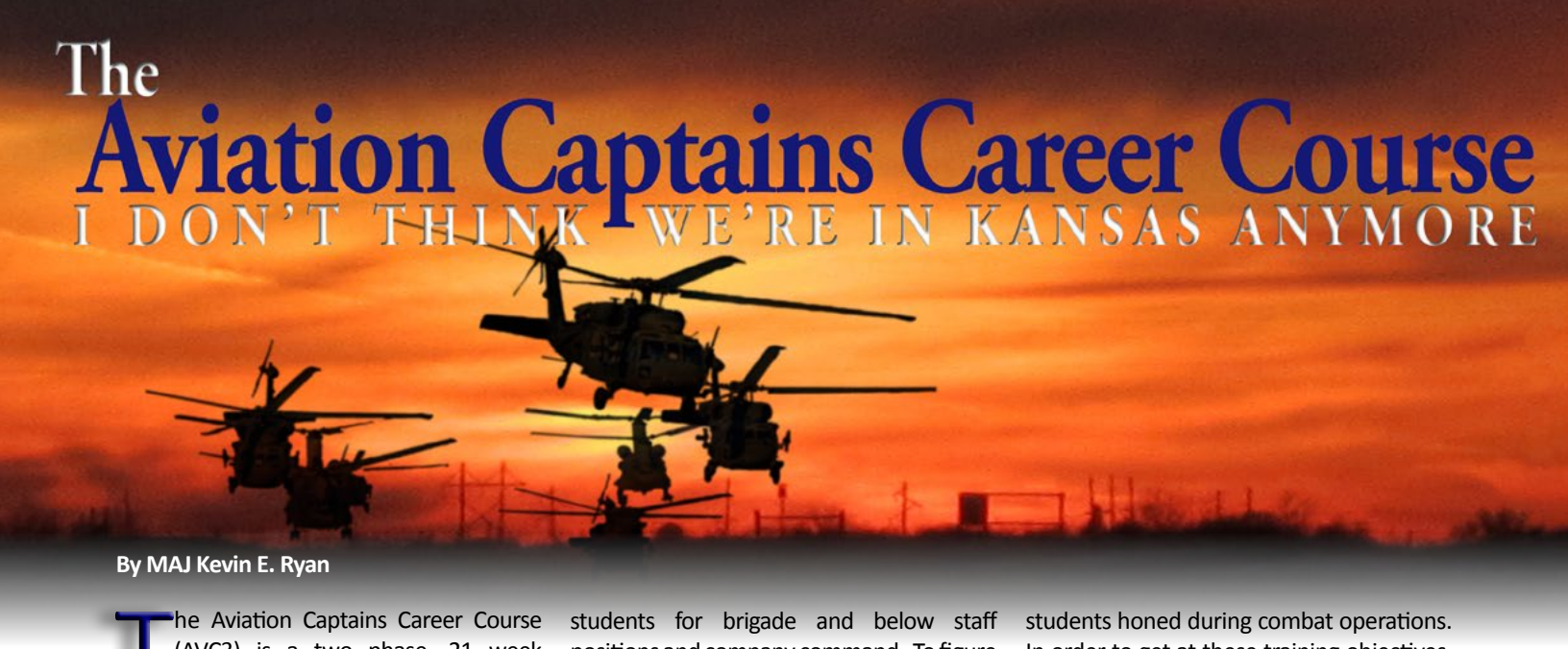
1. TRADOC PAM 525-3-1. (2014). *Win in a Complex Environment* (p. 12).
2. Sauls, J. (2014). Defragging the Hard Drive. *Aviation Digest*, Volume 2/Issue 3, p46.

Acronym Reference

AGO - air ground operations
AOC - Army Operating Concept
ARFORGEN - Army Force Generation
ATM - aircrew training manual
BCT - brigade combat team
CAB - combat aviation brigade
GWOT - Global War on Terror
OEF - Operation Enduring Freedom
OIF - Operation Iraqi Freedom

The Aviation Captains Career Course

I DON'T THINK WE'RE IN KANSAS ANYMORE



By MAJ Kevin E. Ryan

The Aviation Captains Career Course (AVC3) is a two phase, 21 week long program focusing on U.S. Army and Army Aviation doctrine, the operations process, and unit training management. Students spend the first six weeks of the course discussing Army Doctrine Publication (ADP) 3-0/Army Doctrine Reference Publication (ADRP) 3-0, Unified Land Operations; ADP 6-0 / ADRP 6-0, Mission Command; ADP 6-22 / ADRP 6-22, Army Leadership; and ADP 7-0 / ADRP 7-0, Training Units and Developing Leaders. During this phase of the course, students traditionally show a general lack of comfort with Army doctrine. For example, many students will argue that they are proficient on how to counsel a subordinate. However, when asked which manual covers techniques to counsel a subordinate, the majority of students cannot present a correct answer. Most answers show some form of, "well that's the way we did it at Hood, Campbell, Joint Base Lewis-McCord, etc." Students who worked as battalion or brigade assistant operations officers admit to working with mission essential task list (METL) development and cross walks; however, similar to the counseling discussion, when ADRP 7-0 is referenced, they seem lost. Students are very tactics, techniques, and procedures (TTP) driven, which is not necessarily a bad thing. However, we want students to understand that most TTP from the operational force are nested in doctrine. This lack of doctrinal foundation results in significant AVC3 small group leader effort dedicated to fundamental reviews instead of operational application of our doctrine at the mid grade officer level.

At the end of the day, this course prepares students for brigade and below staff positions and company command. To figure out how to best achieve that objective, we often ask ourselves what are the skills, knowledge, and attributes required of a new company commander? From my humble perspective, a combat aviation brigade commander wants competent, agile leaders who are confident in their professional skills. This future commander needs to be grounded in the Army ethic and the fundamentals of U.S. Army doctrine. More importantly, what do subordinate members of a company want in a future company commander?

Besides the attributes and competencies already listed, Soldiers desire an officer capable of developing a commander's intent and setting priorities nested in the tenants of mission command. How can the Army build junior officers with the tools to be that kind of leader?

When officers arrive at the AVC3, the leadership surprises student officers by explaining that the AVC3 is not a pre-command course. The 1st Aviation Brigade Commander, COL Shawn Prickett, informs students that "…we cannot teach someone how to be a good company commander; it comes from having good character and the commitment to do your duty. However, the one thing we will improve during the AVC3 is your competence as an Army officer." The Brigade Commander goes on to explain that the AVC3's number one priority is not for students to memorize and recite all 19 sub-steps of the mission analysis step of the military decisionmaking process (MDMP). The AVC3's focus is to teach leaders how to train, while building on operational adaptability and the critical thinking skills students honed during combat operations. In order to get at these training objectives, we have changed how and what we teach in the AVC3. This isn't the same advanced course the current aviation brigade commanders went through 15 years ago.

For the past six to eight years, the professional military education (PME) course was a place for officers to reset and catch their breath between short dwell periods. Historically, the majority of AVC3 students left Fort Rucker to fill shortages in deploying combat aviation brigades (CAB) and brigade combat teams. As the number of deployed CABs dropped from five to three to two, we noticed that aviation officers are not going down range as rapidly. Although the operational tempo has slowed down, student anticipation of taking a break at PME courses has not changed. While recuperating and resting are important parts of comprehensive Soldier fitness, some expectation management is required prior to attending our PME courses. Many leaders across Fort Rucker are working hard to adjust this culture by emphasizing the importance of the institutional domain of the leader development model. Even with the positive culture adjustments occurring across the installation, leaders at Fort Rucker are steering a very large, slow turning, PME ship.

Several recent changes were made to the AVC3's program of instruction in order to add rigor and challenge junior officers during the 21 week course. To prepare future company commanders and staff officers for tomorrow's operating environment, a decisive action training environment based scenario is currently being nested into our MDMP staff exercises (STAFFEX). During

many STAFFEX, AVC3 students will parallel plan with Infantry and Armor students from the Maneuver Center of Excellence Captains Career Course. At the conclusion of each operations process, students conduct mission command using their operations order (OPORD) in a constructive simulation environment supported by our Directorate of Simulation (DOS). Through the use of the DOS' extensive virtual, constructive, gaming, and mission command training enhancement capabilities, the AVC3 is able to link to other Centers of Excellence to conduct simulated warfighter exercises.

Following the MDMP STAFFEX and warfighter exercises, students must demonstrate knowledge of unit training management to develop home station training events. Students are given a generic aviation battalion METL and asked to develop an OPORD for a collective company training event. This practical exercise forces students to use their knowledge of ADRP 7-0, FM 6-0, Commander and Staff Organizations and Operations, and their recently acquired simulation experiences to plan a virtual, constructive, or a game based training event.

Students finish the career course with an event known as Anvil Operations. Anvil Operations force students to use company planning cells and troop leading procedures to plan team, platoon, and company level aviation operations. Parallel to company planning cells, students at the task force level conduct the MDMP process while executing mission command over their subordinate organizations. Anvil Operations is the culminating event where students link doctrine based planning to mission execution.

During these training events and practical exercises, the challenge for the AVC3 instructor is to teach students how to plan, prepare, execute, and assess a training event. In order to teach students how to train, PME uses experiential learning and facilitated discussion to achieve higher level learning and increased retention. Gone are the days of long boring presentations operating at the speed of 50 Power Point slides an hour. To achieve the principles of experiential learning, we break students into groups no larger than 16 students for each small group leader. Along with smaller class sizes, the use of lecture based material is minimized. Instead of lecturing, small group leaders facilitate discussions by extracting student experiences. This method of adult learning reaches a higher level of application and retention which, in turn, improves critical thinking and adaptability. The implementation of experiential learning and facilitated discussion at the AVC3 teaches students how to think instead of the traditional memorize and dump technique of most lecture based programs.

How can the operational Army help The Training and Doctrine Command (TRADOC) help the operational Army? Army Doctrine Reference Publication 7-0 acknowledges that the majority of leader development occurs within the operational domain through on the job training. "Operational assignments build on the fundamental skills, knowledge, and behaviors developed in institutional training." It goes on to recommend to unit commanders that "[they] must allocate time during operational assignments to ensure leaders can meet the pre-requisites to attend and get the most benefit from institutional training." In order to get the most out of the AVC3, senior leaders need to reinforce the doctrinal building blocks with their junior officers.

I would recommend that CAB and battalion commanders demonstrate, in their unit leader development programs, that the building blocks for training and combat operations are nested in Army doctrine. Ensure that the AVC3 graduate company commanders are showing their lieutenants how Army doctrine can enable training management or leader development in their day to day activities. Specifically, junior officers must have a working knowledge of how to use Army Aviation's FM 3-04 publication series. We find that many officers are only versed in their respective unit standing operating procedures (SOP) and do not understand how a CAB or task force SOP is nested in the FM 3-04 series publications or Army regulations. Many officers can label all elements of an airfoil from out of FM 3-04.203, Fundamentals of Flight; however, very seldom can an officer articulate how understanding the fundamentals of reconnaissance assists during the planning and execution of a zone reconnaissance (FM 3-04.126, Attack Reconnaissance Helicopter Operations).

As senior leaders come through Fort Rucker for professional forums and the pre-command course, we ask you visit the AVC3 located in Adams Hall and interact with your future company commanders. We look forward to facilitating student communications with senior aviation officers in the fight. We value feedback from the operational Army on the quality of the AVC3 product. The TRADOC is here to support the force in the field and we demonstrate that by the quality of Soldiers produced during PME courses. The AVC3 is actively making changes to improve the aviation leader with much more work to do in the future.

Forge the Future! Anvils!

MAJ Kevin Ryan is presently serving as Commander, A Company 1-145th Aviation Regiment, Fort Rucker, AL. His previous assignments include multiple leadership positions in 4-4 Attack Reconnaissance Battalion (ARB) to include Platoon Leader, Battle Captain, Assistant S-3, S-3, and Commander, C Company, 4-4 ARB. Following redeployment of the 4th Infantry Division Combat Aviation Brigade (CAB) from Fort Carson to Fort Bliss and reflagging as the 1st Armor Division CAB, MAJ Ryan was assigned to Fort Rucker, AL where he attended the Aviation Captains Career Course. Upon completion of the Career Course, MAJ Ryan was assigned as a Basic Officer Leader Course Senior Platoon Leader and then as a Small Group Leader in the Aviation Captains Career Course. MAJ Ryan has deployed in support of Operation Iraqi Freedom and Operation Enduring Freedom. He has 10 years' service and is qualified in the AH-64D, OH-58A/C, and TH-67.

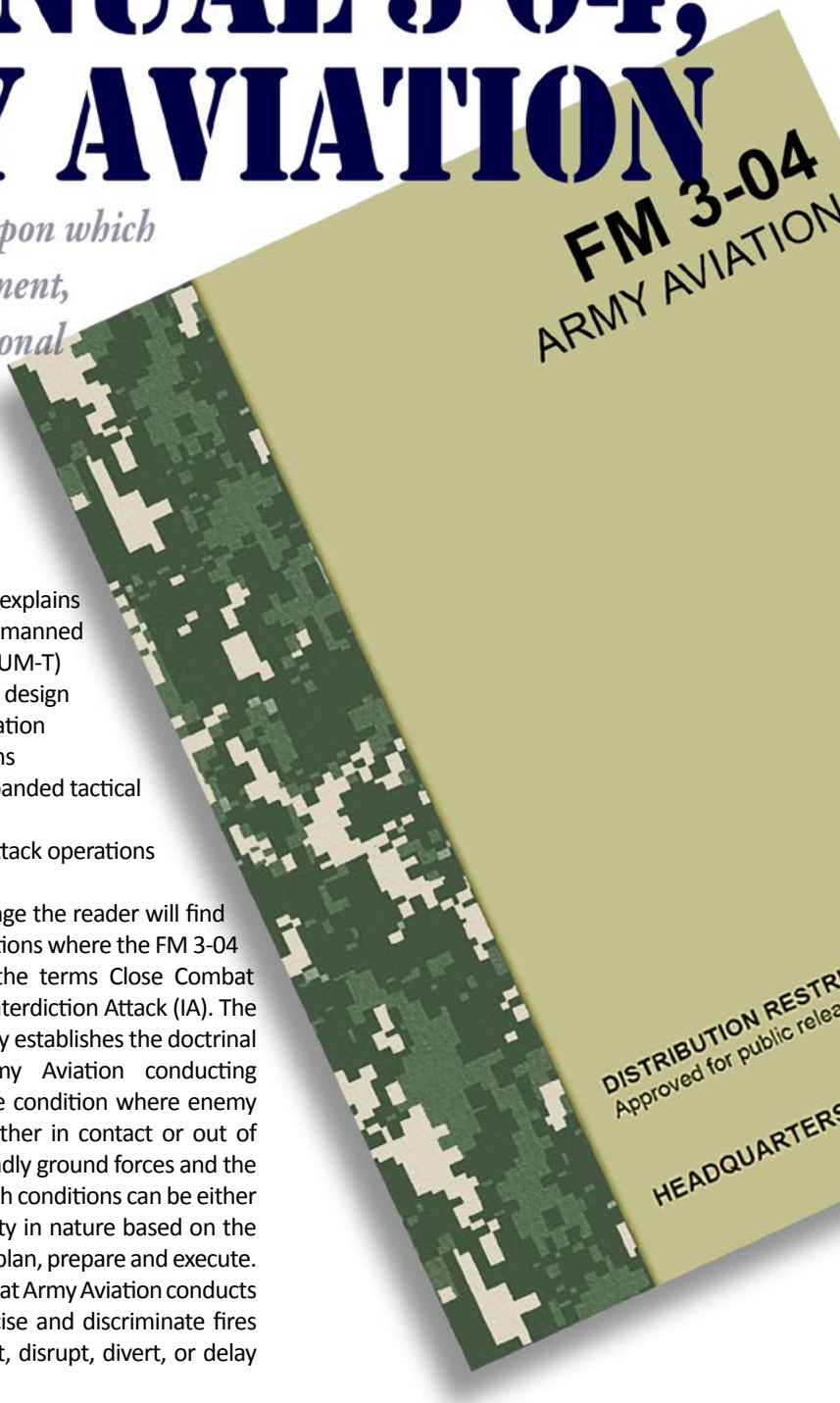
Acronym Reference

AVC3 - Aviation Captains Career Course
ADP - Army doctrine and training publication
ADRP - Army doctrine reference publication
CAB - combat aviation brigade
DOS - Directorate of Simulation
FM - field manual
METL - mission essential task list
OPORD - operations order
PME - professional military education
SOP - standing operating procedures
STAFFEX - staff exercises
TRADOC - Training and Doctrine Command
TTP - tactics, techniques, and procedures

FIELD MANUAL 3-04, ARMY AVIATION

"Without a solid intellectual foundation upon which to rest training, education, leader development, equipment modernization, and organizational design, the Army could easily become disoriented and unprepared."

- GEN(R) Gordon R. Sullivan



Field Manual (FM) 3-04, Army Aviation, is the Army's capstone doctrinal publication for conducting aviation operations. It charts Army Aviation's course for the future, defines how Army Aviation views the strategic environment, and establishes the basis for action in the branch. The manual represents the distilled wisdom of our profession fought over 30 years including the recent conflicts in Iraq and Afghanistan. Accordingly, it takes into account the challenges of the future, the uncertainty of the international environment, and the complex strategic situation the Army faces today.

The Army Operational Concept (2014) explains that doctrine instructs how current forces operate and guides leaders and Soldiers in the conduct of training and operations. Field Manual 3-04 is intended to provide the base doctrine for the operational employment, organizations, capabilities, and missions of Army Aviation. Its purpose is to provide the context for employing and integrating Army Aviation into unified land operations. All other Army Aviation doctrine and aviation publications, Army Techniques Publication 3-04.1 and the 15 planned training circulars, will be nested with this overarching doctrinal publication. The major changes presented in FM 3-04 are as follows:

- Explains operations in the complex environment
- Introduces the 7 Core Competencies of Army Aviation
- Defines and explains Air-Ground Operations
- Defines and explains Manned-Unmanned Teaming (MUM-T)
- Provides the design of Army Aviation Organizations
- Provides expanded tactical tasks
- Redefines Attack operations

A significant change the reader will find is in attack operations where the FM 3-04 no longer uses the terms Close Combat Attack (CCA) or Interdiction Attack (IA). The manual effectively establishes the doctrinal concept of Army Aviation conducting attacks under the condition where enemy forces may be either in contact or out of contact with friendly ground forces and the attacks under both conditions can be either deliberate or hasty in nature based on the time available to plan, prepare and execute. The key point is that Army Aviation conducts attacks with precise and discriminate fires to destroy, defeat, disrupt, divert, or delay the enemy.

With an expected publication release in early summer 2015, FM 3-04 is the strong foundation Army Aviation needs to move forward. The manual, provides the force with enhanced operational effectiveness, establishes a common frame of reference for solving military problems, provides a common language that allows a great deal of information to be passed quickly and succinctly, and fosters desirable traits in Soldiers and leaders.

Field Manual 3-04 is the driver of intellectual change necessary in Army Aviation as it improves Army and Joint doctrine. Nevertheless, the most important contribution of the manual is likely to be its role as a catalyst in the process of making the Army a more effective fighting organization that is better able to adapt and win in any operational environment.

Above the Best!

LTC Fernando Guadalupe Jr. is the Directorate of Training and Doctrine, Doctrine and Tactics Chief at the United States Army Aviation Center of Excellence.

TURNING PAGES

~ book reviews of interest to the aviation professional

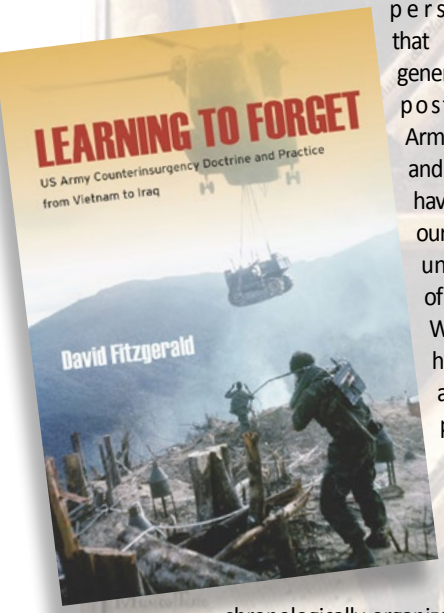
Learning to Forget:

US Army Counterinsurgency Doctrine and Practice from Vietnam to Iraq.

By David Fitzgerald. Stanford, CA: Stanford University Press, 2013. Introduction, Notes, Pp. 285. Hardcover, paper, and Kindle formats available.

A book review by COL Charles R. Bowery, Jr.

David Fitzgerald's book, which began as his doctoral dissertation at University College Cork in Ireland, attempts to do two things, and succeeds in both. On one hand, the book provides a concise and useful survey of U.S. Army counterinsurgency (COIN) and stability operations from Vietnam through the current conflicts in Iraq and Afghanistan. On the other hand, it is first and foremost a story of the Army's complicated relationship, through its doctrine, with the concept and practice of counterinsurgency itself. Fitzgerald demonstrates persuasively that successive generations of post-Vietnam Army leaders and thinkers have used our collective understanding of the Vietnam War to shape how we think about, and prepare to conduct, stability operations.



A series of chronologically-organized chapters lay out Fitzgerald's argument, beginning with Vietnam. This chapter focuses on the debate, continuing to this day, surrounding the two overall American commanders in that war. William Westmoreland was the commander of the U.S. Military Assistance Command, Vietnam during the rapid expansion of the American war effort following the introduction of U.S. ground troops in 1965. General Creighton Abrams replaced Westmoreland in June 1968, and presided over the gradual drawdown and withdrawal of U.S. forces. Conventional wisdom has held that Westmoreland conducted a very conventional war in Vietnam, focused on traditional tenets of the "American Way of War," involving large maneuver units, firepower, and technology to reduce casualties, while perceiving the enemy's conventional forces as the center of gravity. Abrams, this view holds, inherited a deteriorating situation from Westmoreland, and took steps to fight a "better war," focused on local security for the population of South Vietnam, pacification efforts in the countryside, and transition of warfighting responsibility to the South Vietnamese Army. Postwar academic debates have centered around whether or not the U.S. could have won the Vietnam War with an earlier and more comprehensive employment of small unit, population-centric COIN. Fitzgerald shows that in fact, both Westmoreland and Abrams possessed a more sophisticated understanding of the nature of the war than their critics have acknowledged, but that neither could overcome the cultural and institutional biases of the forces they led. In reality, the author concludes,

"Given the strategic choices available to Generals Westmoreland and Abrams, it is difficult to see what action they could have taken that would have led to success. The enemy was too well supported, the South Vietnamese government too weak and corrupt, and US forces were too ill adapted for the war they fought. Those who argue that General Abrams turned a failing war around overlook both the similarities between his campaigns and those of Westmoreland and the limitations he faced in prosecuting his 'better war.' Westmoreland was not as ignorant of counterinsurgency or the importance of pacification as critics have argued, nor was Abrams as strong an advocate of counterinsurgency as some have contended." (p.38)

More critically for the book's overall thesis, Fitzgerald assesses that the Army's failure in Vietnam led it to turn away from the war's lessons as it sought to rebuild a shattered force. The post-Vietnam army did this through its doctrinal revival of the mid-seventies and eighties. Led by Training and Doctrine Command, the Army focused its training, education, doctrine, and weapons acquisition programs on the Warsaw Pact threat in Europe, not coincidentally the threat that best aligned with the firepower-intensive, mechanized American way of war. But even as the Army developed the doctrine of Active Defense, followed in the 1980s by Air-Land Battle, certain portions of the force, most notably special operations, continued to fight small wars and engage in "operations other than war" in Central America and in the Balkans without a concurrent intellectual basis in doctrine and education. The post-Vietnam decades saw a continued atrophy of the Army's doctrinal and educational knowledge of stability operations and COIN, to the point that when U.S. forces encountered a growing insurgency in Iraq in the aftermath of the 2003 ground campaign, they approached the threat with a critical misunderstanding of its true nature. In this portion of the book, Fitzgerald constructs a devastating critique of U.S. strategy in Iraq, while highlighting tactical innovations, such as the use of Commander's Emergency Response Program funds, that eventually redeemed some of what was generally considered an irretrievable situation. To the book's larger point, though, these innovations proceeded from individual junior leader initiative and intelligence, not from a "learning institution" that was trained and prepared for COIN.

Learning to Forget is a cautionary tale of the dangers of retreating into an institutional "comfort zone" in a postwar or interwar period. In many respects, we are observing disquieting aspects of the same process now, with the end of combat operations in Iraq and Afghanistan and a refocus in professional military education (PME) and the combat training centers on "decisive action" competencies. There is reason for hope that the Army will not make the same mistakes this time around, because the inclusion of "hybrid threat" scenarios demands that leaders understand the simultaneous and fluid interplay of conventional operations and COIN. The advent of Doctrine 2015 also provides us a unique opportunity to institutionalize the tremendous operational and tactical knowledge of COIN that we have gained over the last ten years. This book is an excellent resource for doctrine developers and PME faculty and staff, and will be of interest to all professional soldiers.

21ST CAVALRY BRIGADE

Originally designated on 14 July 1984, the AH-64 Task Force Headquarters, 6th Cavalry Brigade, was charged with planning, programming, and force modernization actions related to the training and fielding of all AH-64A attack helicopter battalions.

On 15 January 1985, the Task Force was re-designated as the Apache Fielding Brigade (AFB). The AFB's mission was further refined to receive, equip, train, evaluate, and deploy U.S. Army AH-64A attack helicopter battalions not assigned to Fort Hood. This process eventually became known as the Unit Fielding and Training Program (UFTP).

On 1 August 1986, the Brigade was re-designated as the Apache Training Brigade (ATB).

Over the course of the next seven years, the ATB fielded, trained, and graduated 24 AH-64A battalions, including three Army National Guard battalions from North Carolina, South Carolina, and Florida. Every AH-64A battalion that participated in Operation Desert Shield/Storm was a product of the ATB program.

The ATB was re-designated once again on 1 January 1992 as the U. S. Army Combat Aviation Training Brigade (CATB). The name change was prompted by the CATB's additional mission to train and field OH-58D Kiowa Warrior-equipped units and provide sustainment training of currently-fielded Apache battalions.

On 20 May 1996, Headquarters Department of the Army added the requirement to field and train units upgrading to the Army's newest attack helicopter, the AH-64D Longbow.

On 22 October 1996, the CATB was re-designated as the 21st Cavalry Brigade (Air Combat).

As the conflicts in Iraq and Afghanistan expanded, the 21st Cavalry Brigade adjusted to provide relevant training to meet the requirements of these challenging training environments.

In 2007, the brigade transitioned to the Reserve Component UFTP (RCUFTP). Training was modified to introduce live and virtual team-level situational training exercises and a team-level live-fire close combat attack course. During the AH-64D UFTP/RCUFTP, the brigade trained 22 battalions/squadrons and two companies.

In addition to its primary mission of UFTP, the 21st Cavalry Brigade (Air Combat) was uniquely postured to support the Aviation Branch in other training events required to prepare units for the evolving combat environment in theater. These events included:

Support to the Hunter Standoff Killer Team (HSKT) Advanced Concept Technology Demonstration (ACTD) in April 2006 and the HSKT Extended User Evaluation in August 2006 involving the evolving concept of manned-unmanned teaming.

Training support to Task Force Observe, Detect, Identify, and Neutralize (TF ODIN) in late 2006.

The Mobile Assistance Team program that assisted deploying combat aviation brigades (CAB) by providing instructor pilot and maintenance pilot support during pre-deployment training, readiness level progression for late-deploying aviators, and post-deployment recovery operations throughout the Continental United States and U.S. Army Europe.

High altitude mountain environment training (HAMET) for units preparing to deploy to Afghanistan.

White cell and observer/controller support at Fort Rucker for 11 deploying CAB aviation training exercises.

Collective training support for an experimental design of a full spectrum CAB at Fort Campbell, with an organic RQ-7B Shadow troop assigned to the CAB reconnaissance squadron, and the newly-fielded MQ-1C Gray Eagle company.

Through the Army's Security Force Assistance program, the 21st Cavalry Brigade trained over 120 classes from the Netherlands, Singapore, Taiwan, Kuwait, United Arab Emirates, Egypt, and Israel. 1,100 aviators were trained while amassing over 21,000 flying hours and over 2,000 Longbow Crew Trainer hours.

Since 1985, the Brigade fielded, trained, and certified 74 combat-ready AH-64A/D or OH-58D units. In late 2013, the Department of the Army made the decision to end the UFTP. The 21st Cavalry Brigade (Air Combat) held its deactivation ceremony at Fort Hood, TX on 26 March 2015 and officially deactivates on 1 June 2015, leaving behind a 30 year legacy of aviation collective training.

Aviation Digest
ATTN: ATZQ-TDD
Directorate of Training
and Doctrine, Bldg 4507
Fort Rucker, AL 36362

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