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TACTICAL OPERATIONS and LARGE-SCALE COMBAT OPERATIONS

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About the Cover:

An aircrew of the New York Army National Guard's 3rd Battalion, 142nd Aviation airlifts one of a dozen 105-mm howitzers to the 10th Mountain Division's Alpha Battery, 2nd Battalion, 15th Field Artillery Regiment during an exercise on May 4, 2017. (U.S. Army National Guard photo by MSG Raymond Drumsta, 42nd Infantry Division)

The Command Corner

The Aviation Warfighter Initiative, or AWI, was introduced to the field this spring. I certainly realize that it takes significant time for initiatives of this magnitude to take hold of an enterprise as large as the Aviation Branch, but that is why it is so important to keep the conversation progressing. Aviation Digest continues to present a valuable vehicle for communicating our branch efforts to both the field and those that we support. Within the confines of that conversation, directed toward both audiences, are efforts to find greater balance between our technical and tactical competencies. In part, this need to regain balance stems from our long accepted concept of small lethal teams of aviation assets, focusing heavily on individual capabilities and mission sets that were fairly limited in scope. That is all changing. Our focus is shifting toward future requirements and the need to address the looming problem sets presented in the framework of Large-Scale Combat Operations.

Aviation's role within the framework of future warfare requires the members of our formation to possess greater tactical competence. What does that entail? Simply put, every member of the Aviation Branch must have a better understanding of his/her place and part to play in the greater operational picture. We can no longer afford to focus solely on small teams; instead, the branch must realize the gravity of our place within the big picture and the impact that our force brings to the large scale fight. Aviation must become tactically savvy, competent not only in our own tactics and doctrine but also possess an understanding of the enemy's. This requires increased personal study, willingness to adapt to new doctrinal initiatives, and more rigorous training at home station and abroad.

This month's Aviation Digest is sure to spur on exciting conversation. A highlight in this issue is the article Russian Aviation in Support of the Maneuver Defense. It is a dynamic study penned by Dr. Lester Grau and Mr. Charles Bartles, both faculty at the Foreign Military Studies Office at Fort Leavenworth, Kansas. Additionally, there are fantastic articles that address direct fire planning, changes in aviation maintenance doctrine, and the aviation perspective of a Brigade Combat Team's sustainment in a Decisive Action fight. I urge you all to continue the conversations found within these pages at your respective units, and continue to strive to become tactically proficient professionals. Never stop pursuing excellence in all that you do.

Above the Best!

William K. Gayler
Major General, USA
Commanding

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Photo by SSG R.J. Lannom Jr

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INTELLIGENCE SUPPORT FOR AN ATTACK RECONNAISSANCE BATTALION

By CPT Shane Hasbrouck

I served as the S2 officer in charge (OIC) for the 1-501 Attack Reconnaissance Battalion (AH-64D Apaches), out of Fort Bliss, Texas, for 2 1/2 years. During that time, we participated in multiple Combat Training Center (CTC) rotations and several joint training exercises throughout Europe. It was an exceptionally rewarding job. There is no doubt in my mind that the Attack Reconnaissance Battalion is the most lethal organization in the United States Army. However, intelligence support to rotary-wing aviation is a niche requirement, and our foundational training often focuses on support to the ground warfighter. In my experience, rotary-wing aviation lacks the necessary support from military intelligence (MI). This article discusses manning, equipping, training, and the utilization of processes inherent to the success of the both the intelligence warfighting function and the aviation battalion.

Photo by Gertrud Zach

MANNING: A battalion aviation unit intelligence section is authorized five Soldiers: a 15C captain, a 35D lieutenant, and all source analysts (1x35F30, 1x35F20, and 1x35F10). My organization was lucky–we had two intelligence officers, a mid-level analyst, and two junior analysts.

I would consider us fully manned. In the Decisive Action Training Environment (DATE), it is important to staff both future and current operations (FUOPS and CUOPS). At a minimum, this requires three people: two Soldiers on 12-hour shifts to battle track on the CUOPS floor and one leader to facilitate future planning.

During our rotation at the National Training Center (NTC), we completed 84 missions in 2 weeks with three MI Soldiers. That equates to one mission every 4 hours and realistically, gave the staff about 3 hours of planning time for each mission. This was a sustainable operational tempo given the talent in subordinate companies that were able to augment the hasty military decisionmaking process (MDMP) with troop-leading procedures. The intelligence section was able to inform the hasty MDMP through CUOPS battle tracking and FUOPS information collection (IC); I consider this sustained analysis. The operational environment did not change, and many of our standard products remained the same throughout the rotation. However, three Soldiers would not have been able to keep pace with this operational tempo if the unit were to transition to a different battle space and support an adjacent ground brigade. This would require a more robust battle tracking and plans capability. In the event that a battalion-sized Multifunction Aviation Task Force was required to operate throughout a division battle space, the battalion S2 section would need to maintain situational understanding of the entirety of the battle space. Our current personnel allocation does not enable us to accomplish this. Battle tracking alone would likely require up to five people operating three Army Battle Command Systems and analog trackers. In addition, we would require a more robust FUOPS cell capable of fusing division and multiple brigade products, and then forecasting the collection and intelligence needs for the battalion more than 72 hours in advance. I believe that minimum manning requirement of sustained operations

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in a division battle space would be seven personnel. Current operations would include four all source analysts (1x35F30 and 3x35F10) to support 24-hour operations composed of digital and analog mission command systems. Future operations would include a geospatial intelligence imagery analyst (35G10), IC manager (35D/Q7), and the OIC.

I look across the two aviation brigades that I have worked with, and the glaring truth is that most aviation battalions are not in a position to allocate an aviation captain to the S2 section. This often results in intelligence lieutenants fresh out of the Basic Officer Leader Course (BOLC) fulfilling the role as the battalion's senior intelligence analyst. One of the running themes at the Military Intelligence Captains Career Course (MICCC) was The U.S. Army Learning Concept for Training and Education, 2020-2040 (U.S. Army Training and Doctrine Command [TRADOC] Pamphlet [TP] 525-8-2, 2017), which models learning in three domains: the institutional, the operational, and the self-developmental. Each of the domains is essential to individual development and empowers course participants to function in their assigned duty position. By our educational model, inexperienced lieutenants have approximately one-third of the analytical tools necessary to fulfill the roles all coming from the institutional domain. This problem is compounded when S2 shops are undermanned, because the aggregate talent pool is insufficient.

A recent Center for Army Lessons Learned (CALL) report titled, CTC trends stated, "[Specifically,] S-2s struggle to produce a detailed terrain analysis, a detailed threat model, and an event template (EVENTEMP) that depicts the enemy in time and space. These deficiencies hinder information collection, course of action development, and targeting." It goes on to report that, "S-2 sections did not sufficiently complete step 2, describe environmental effects on operations, specifically developing a modified combined obstacle overlay (MCOO) only 61 percent of the time, and accounting for civil considerations only 54 percent of the time…S-2 sections identified and analyzed threat capabilities and threat system capabilities only 38 percent of the time… S-2 sections produced EVENTEMPS and matrices only 69 percent of the time" (U.S. Army Combined Arms Center, 2017). These are maneuver brigade S2s supported by an MI company and subordinate battalions. Their staffs are much larger than the average aviation task force and, in general, have more access to talent. If ground brigades in the DATE environment are having trouble completing the mission analysis (MA) products, then what expectation can be set for a small shop led by a young lieutenant straight out of BOLC who, by our developmental model, simply lacks experience?

To fix this, we need to modify the modification table of organization and equipment, and place MICCC graduates into aviation battalions along with MI lieutenants. I do not believe the loss of a pilot in the S2 shop will hinder the overall intelligence warfighting function. Aviation battalions are allocated two Air Mission Survivability Officers (AMSOs) and three Electronic Warfare (NCOs), who are the resident experts on tactics, air defense threats, and electronic countermeasures. In my experience, they work closely with S2s and can be relied upon to help bridge the MI ground-to-air knowledge gap, which ensures that products meet the needs for aerial warfighters. Additionally, I have found that aviators don't require special products, they simply need the standard set of MA products that intelligence professionals are taught to create through institutional training. The same products that, according to the aforementioned CALL report (U.S. Army Combined Arms Center, 2017), we only create half the time.

EQUIPPING: At the battalion level, the intelligence architecture is composed of two Distributed Common Ground Systems (DCGS), a Command Post of the Future (CPOF), and two radios. Distributed Common Ground System is largely unused because there are no 35Ts (Military Intelligences Systems Maintainer and Integrators) allocated to the aviation battalion or brigade. Additionally, at the battalion level, we are not allocated a DCGS server stack, which leaves us dependent on

Headquarters and Headquarters Company, 34th (CAB) Soldiers watch and listen to mission updates during a CPOF commander's update brief at Camp Ripley, Minnesota., on June 21, 2016. The 34th CAB set up communications with 2-147th Assault Helicopter Battalion and 834th Aviation Support Battalion to conduct the CPOF commander's update brief. (Minnesota National Guard photo by SGT Sebastian Nemec, 34th CAB Public Affairs NCO)

connectivity to the tactical information network (internet). Even when we were able to get the necessary support to connect the DCGS, we did not have the bandwidth available to actually use the system.

In DATE, ground units are constantly moving, and their access to tactical information network is intermittent. In both CTC rotations we participated in, we did not connect our DCGS at the supported brigade, rather, we attempted to connect to the CTC's division-level infrastructure. We were always able to connect but never had the bandwidth necessary to maintain a connection allowing us to pull data. The only useable function of the DCGS was the chat application. However, brigade and division collection managers would use DCGS as the primary source for publishing collection products. The resulting impact was that we competed for assets rather than collaborated with the supported ground brigade for division collection assets. At the NTC, we talked directly to the division collection manager and had more requested and approved collection missions than the ground brigade. At the Joint Multinational Readiness Center (JMRC), the division collection manager was less prone to entertaining our requests. This led to a dichotomy shift in our unit's lethality.

The CPOF proved to be an invaluable tool for digital battle tracking and was used extensively. The CPOF is not, however, adequate for intelligence mission planning and cannot replace a working DCGS. Because we were only allocated one CPOF, it stayed on the CUOPS floor. As a result, most of our mission planning occurred on analog products, which is not necessarily a bad thing. Analog, however, does not allow for continuous shared situational understanding across the supported brigade or division. When we did require a digital capability, specifically for conducting terrain and line of sight analysis, we would normally turn to the S6's digital line of sight computer or FalconView™ on the AMSO's Air Mission Planning computer.

Unfortunately, at the operational level, the intelligence architecture is reliant on the tactical information network. Due to limited availability of the network, supported ground brigades tended to rely on Joint Capabilities Release (JCR) for mission command and battle tracking. Within the section, we lacked this interim mission command capability. Changing aviation intelligence section equipment allocations to account for a JCR would give us the ability to have over-the-horizon communications and continue to battle track and share information in an electronically contested environment.

TRAINING: When it came to training, I found that my Soldiers lacked tactical experience and had difficulty conceptualizing the fight. They didn't understand what it is like to sit on an observation post for 12 hours, to peer though night-vision googles for an hour, and did not empathize with a pilot who is communicating on four radios while taking notes and simultaneously maneuvering at 3–5 kilometers a minute. This lack of experience is the biggest inhibitor to understanding and supporting the tactical and operational battle.

Military intelligence Soldiers and junior leaders find it difficult to envision the battlefield in time and space. We often do not understand and cannot articulate how an enemy unit will use terrain, fires, massing of combat power, etc., to achieve the desired end state. My Soldiers out of advanced individual training and BOLC understood how to build threat templates but did not understand how the enemy fights as individuals or as a unit. It takes a level of understanding and fidelity that comes from experience. To overcome this, we spent several weeks after work hours training on the fundamentals of the defense, offense, and reconnaissance—all classes taken from Common Core at MICCC. This training needs to be introduced earlier and in the institutional domain.

To be productive, value-adding members of the decisionmaking process, my Soldiers needed to be able to explain how small units maneuver and fight. A tank, for instance, is going to use terrain to mask movement and utilize intervisibility lines to establish primary and alternate fighting positions. Mechanized infantry will likely dismount outside of the maximum effective range of friendly forces weapon systems. Self-propelled

Photo by SGT Melissa N. Lessard

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artillery will conduct survivability moves after firing in order to mitigate the threat of counter battery fire. Special artillery munitions may be used to close a breach lane in an area defense. Understanding the tactical fight builds a strong foundation for understanding combat at the operational level and allows MI Soldiers to establish credibility with the chain of command.

In order to build lethality within the MI ranks, MI Soldiers need to experience combat through tough, realistic training opportunities. We need to force them out of their comfort zones, away from their computers and put them in positions to participate in the fight. We can do this through operational (unit) training and by taking advantage of institutional training such as: the Air Assault School, the Cavalry Leader Course, the Army Reconnaissance Course, the Air Cavalry Leader Course, and the AMSO Course. These training courses will help the intelligence section understand the warfighter's needs and tailor analytical products to those needs.

INTELLIGENCE PLANNING PROCESSES: The purpose of the Attack Reconnaissance Battalion is to deliver decisive combat power, at the decisive location, and at the decisive time. In order to feed the commander's decisionmaking process, we utilized the products and work flow as detailed in the following paragraphs.

Upon receipt of the mission, we began with submission of IC requests. Often, the air tasking cycle for rotary-wing aviation is 72 hours, which is the same tasking cycle for IC assets. The first step of the MDMP was to call the division collection manger and secure collection support. Later, during wargaming, we refined the collection products and mission.

Following the collection request, we began mission analysis–MCOO, civil consideration, threat templates, and situational templates. During course of action (COA) development, we emphasized the High Value Target List (HVTL) and helped define destruction criteria. During wargaming, we validated the collection plan and continued to update the enemy event matrix.

The collection plan worked best when the S2 and S3 collaborated to develop a scheme of maneuver supporting the collection objectives and ground scheme of maneuver. Oftentimes, we say the intelligence drives operations, but the reality at the battalion level is that the mission will dictate the collection plan. The mission from higher will not change based on my analysis, but the battalion execution matrix and decision support matrix can be adjusted once collection validates the location and time that the commander wants to engage the enemy.

Reconnaissance is inherently necessary to every mission that an attack aviation unit performs, because we fight in minutes. If we fail to identify the decisive time or place, we elongate our station time. We are forced to trade lethality for time, or quite literally speaking, we trade bullets for fuel. This leads to increased tactical risk to the aircrew, increased logistics requirements for the unit, and most importantly, it can reduce combat capability and limit the ground force commander's options for other near-term operations. Attack aviation has the time sensors, mobility, and firepower required to rapidly develop the enemy situation and provide the ground force commander options to mass fire at the decisive time and location of our choosing. In order to bring our full lethality to bear, the aviation mission needs to be supported by good staff planning.

The no-fail products in a DATE environment that ensure correct allocations of combat power at the decisive place and decisive time are the collection plan, the enemy event matrix, and the commander's decision support matrix. The obvious issue is that if the MCOO, threat templates, and situational template are ignored, it inhibits our ability to synchronize with operations, thus causing the unit to miss the decisive time and location, increasing risk to warfighters and the mission.

BATTLE TRACKING: If the shop can only be good at one thing, it needs to be maintaining an accurate common operating picture (COP). This is as close to ground truth as the intelligence community will come in a decisive action fight. Accurate battle tracking, shared understanding of the battlefield, and timely reporting will ensure that pilots have an accurate situational understanding prior to takeoff and will be able to inform the command team during missions. Additionally, the COP synthesizes a shared understanding and empowers aircrews to provide options to the ground force commanders or to take bold initiative and shape the battlefield.

Typically, I was only able to allocate one Soldier (35F10) to battle tracking on the CUOPS floor. During high-intensity operations, FUOPs would collapse and also support the mission. The Soldier on the CUOPs floor monitors frequency modulation communication, updates the CPOF and analog common operating picture, maintains DCGS communication via chat, and, if able, will monitor the collection feed. Additionally, they will receive reports from the battalion's radio operators whenever a significant action comes across the JCR.

This equates to one analyst monitoring three computers, two radios, two chat feeds, an IC feed, and updating the CPOF and all analog products. Analog products include the common operating picture, the significant acts tracker, kill board, and enemy COA; then they have to share their understanding of the enemy situation with fires, electronic warfare, and operations to ensure that all other warfighting functions remain lethal. Military intelligence Soldiers need to be well versed in military symbols, be practiced communicators, and have the mental

capacity to understand the big picture through the collection plan, information requirements, and key enemy indicators.

It is a daunting task and easily overwhelms Soldiers on the CUOPS floor. In order to battle track properly during high-intensity conflict, FUOPs must cease planning and integrate into the CUOPS cell. At most, there will be three analysts on the floor, and even then it takes repetitious training to battle track to the necessary standard. Anytime FUOPS has to cease planning, it has obvious implications on the unit's readiness to conduct follow-on operations given the multitude of missions and the planning time allotted.

Some readers will argue that a CTC rotation is designed to stress systems and is not a good litmus test for a "real" operational tempo. I counter by saying that aviation is one of the most requested assets on the battlefield. I truly believe that in a Department of the Army fight, our aircraft will only be on the ground long enough to refuel, rearm, and receive maintenance. While I have never been in a real decisive action fight, precedents show that leaders are going to employ aviation assets whenever and wherever possible. This will likely result in an operational tempo that mirrors a CTC, and intelligence manning needs to be changed to support continuous operations on the CUOPs floor.

SUPPORT THE TACTICAL ASSEMBLY AREA: Oftentimes during our CTC rotations, we failed to prioritize defense of the tactical assembly area (TAA) and did not identify its crucial vulnerabilities. This is a fatal mistake when facing asymmetric threat. Proper intelligence products can empower base defense, allows the unit to be proactive in deterring and interdicting attacks against the TAA, and enables the implementation of the scatter plan. The best time to destroy a helicopter is before it takes off. In fact, I would argue that every time a helicopter departs the TAA, the enemy has already failed.

The aviation TAA is a high-value target, and we learned some painful lessons at our CTC rotations. The standard MA products must be created for the TAA. Modified combined obstacle overlays, threat templates, event templates, and a collection plan enables the battalion to better secure the large aviation TAA with limited manpower. Support to the TAA must be prioritized. If aircraft cannot be fixed and fueled, it is detrimental to the long-term readiness and future mission success.

CONCLUSIONS: This article opened with the statement that intelligence support to aviation is a niche requirement. It doesn't have to be. Pilots do not need "special products." They are satisfied with the same basic products that they have been taught to create in the schoolhouse. In reality, the issue we faced during our CTC rotations is that products were not created or lacked the fidelity to understand the battlefield in minutes. This level of fidelity comes from creating routine intelligence products regularly and ensuring a thorough synchronization between operations and intelligence. It is hard to achieve. It requires experienced personnel, proper (functional) equipment, and an operational understanding of the division battle space. Oftentimes, we work in a resource-constrained environment. These constraints are personnel, training, experience, equipment, and time. We use this as an excuse to water down our mission analysis—that is BAD. Poor planning leads to reduced mission capability, increased tactical risk, and overall less lethality. With or without resources, we are called to perform a mission and are required to provide very specific and detailed planning inputs. We can make it easier to inform the unit's lethality by addressing our constraints, but regardless of whether these issues are addressed or how quickly they are addressed, we cannot fail to do our jobs. We must continue striving to bring our lethality to bear at the decisive location and time.

CPT Shane Hasbrouck served as the S2 with the 1-501 Attack Reconnaissance Battalion, 1st Armored Division Combat Aviation Brigade from 2015 to 2018. He holds a BS in History, an MBA, and is pursuing an MS in Informatics. He has deployed in support of Operation New Dawn and Atlantic Resolve.

References:

U.S. Army Combined Arms Center. (2017). Army tactical task 2.2 provide support to situational understanding (CTC Trends FY2016). Fort Leavenworth, KS: Center for Army Lessons Learned. Retrieved from http://call.army.mil

Department of the Army. (2017). The U.S. Army learning concept for training and education 2020-2040 (U.S. Army Training and Doctrine Command [TRADOC] Pamphlet 525-8-2). Fort Eustis, VA: Headquarters, Training and Doctrine Command, Department of the Army. Retrieved from http://adminpubs.tradoc.army.mil/pamphlets.html

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MODERN WAR INSTITUTE AT WEST POINT

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WHAT THE ARMY'S RETURN TO LARGE-SCALE OPERATIONS MEANS FOR THE INTELLIGENCE WARFIGHTING FUNCTION

By Caroline Bechtel

The recently published US Army doctrine manual, FM 3-0: Operations, describes how the Army is adapting its posture to the current operational environment. Emerging regional threats like Iran, North Korea, and Russia require the Army to shift its focus from counterinsurgency to large-scale combat operations. At the same time, the character of war is evolving to battle across multiple domains including land, sea, air, space, and cyberspace. Given these converging changes, the next war the United States fights will be far more dynamic and complex than the counterinsurgency and stability operations in which it has been heavily engaged for more than a decade and a half. This reality creates new problems and requirements for the intelligence warfighting function, and requires intelligence professionals to develop the skills needed to meet these requirements and abandon the concepts, habits, and standard operating procedures learned and practiced over this period.

General Characteristics of Counterinsurgency

The new FM 3-0 asserts that today's threat environment requires the force to transition from readiness for counterinsurgency to readiness for great power conflict. In order to understand what this transition means for intelligence, it is useful first to dissect counterinsurgency operations, and particularly how intelligence functions in them.

In counterinsurgency, the insurgent threat has limited land warfare capacities and little to no capabilities in other domains. As strategist Bill Dries has discussed, the dominance that the United States enjoys in the counterinsurgency (and counterterrorism) fight allows for war planning and fighting to be highly centralized and controlled: combatant commanders plan, task, and execute operations using function components. The United States is able to maneuver its joint force largely uncontested. As Dries writes, "With the Air Force and Navy providing air superiority, maritime superiority, theater-wide awareness, and long-range communications, Army and Marine forces move into theater and freely maneuver."

US counterinsurgency operations have centered on clearing designated areas of threat forces while training and assisting local security forces. These protracted conflicts may require incredible persistence, but they demand little adaptation on the part of friendly forces. As such, operations are highly cyclical. Deployments are regularly scheduled. Missions are conducted from static, fortified bases. This is not to say that counterinsurgency is easy. Limited success in Afghanistan and Iraq alike suggests otherwise. Rather, counterinsurgency's remarkable complexity lies in the political problem—finding a way to legitimize another government as a third-party actor—more so than the military one.

Counterinsurgency and Intelligence Preparation of the Battlefield

Intelligence Preparation of the Battlefield (IPB) in counterinsurgency is informed by the characteristics

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of counterinsurgency described above. As such, the IPB process is largely population-centric. Battlespace analysis is human-focused, not terrain-focused. As the Army's counterinsurgency manual, FM 3-24, states "IPB in COIN operations . . . places greater emphasis on civil considerations, especially people and leaders in the AO [area of operations], than does IPB for conventional operations." Describing and defining the operating environment focuses intensively on PMESII-PT factors (political, military, economic, social, information, infrastructure, physical environment, and time). Personnel analyze and understand battlespace characteristics like demographics, culture, tribes, and clans as much as they work to understand its terrain features. Counterinsurgency scholar David Kilcullen has noted that counterinsurgency emphasizes the importance of understanding political and cultural factors of the operating environment, and has suggested that counterinsurgents "become the world expert" on the PMESII-PT factors of their respective districts.

IPB in counterinsurgency is also cyclical. Determining threat courses of action is relatively repetitive. The threat's limited military capabilities constrain its potential courses of action. Though the precise time, location, and target of an attack may vary, the range of possible types of attack generally does not.

Targeting and Collection in Counterinsurgency

Targeting is critical to the "clearing" aspect of counterinsurgency. FM 3-24 refers to targeting as "cutting out cancerous tissue while keeping other vital organs intact," noting that intelligence drives the process. As a result, intelligence personnel are trained extensively on targeting processes like D3A—decide, detect, deliver, and assess— and F3EAD—find, fix, finish, exploit, analyze, and disseminate. Intelligence professionals have become expert at researching personalities, mapping insurgency networks, and designing intelligence collection plans that enable kinetic "finishing" operations. This training and application is largely specific to counterinsurgency operations and has limited application to large-scale combat operations.

Counterinsurgency heavily leverages two types of intelligence. First, it requires a robust employment of human intelligence. Many have highlighted that the interaction with the local population is critical to painting a picture of the human terrain. As a result, the Army invested heavily in HUMINT assets like cultural support teams. Targeting operations emphasize nonlethal means so that collectors can have access to the target, mining her or him for more information on the threat network.

Second, signals intelligence has also proven important in the targeting process during counterinsurgency operations. SIGINT is used to exploit the enemy's digital and electronic footprint, and is critical particularly in the "find" and "fix" portions of D3A.

Advantages of Operating in a Counterinsurgency Environment

Another important characteristic of counterinsurgency is its degree of unprecedented interagency cooperation and jointness. In counterinsurgency operations, there is a significant level of visibility and access to information between the tactical, operational, and strategic levels of war. This means that intelligence personnel, even if operating at the tactical level, can enjoy an abundance of products and assets usually reserved for, or at least principally intended for, the operational or strategic levels. For example, a battalion S2 has access to products built by civilian intelligence agencies. Similarly, if a unit takes contact, higher headquarters can often immediately re-task assets to assist them.

In a counterinsurgency environment, the United States enjoys dominance across all domains. The threat does not have the capability to overrun US units. American forces safely enter the area of operations; they often fall in on equipment, procedures, and products that already exist in theater; and they relieve other units with relative ease. Soldiers know generally when they will be deploying. In a large-scale combat situation, none of these things would likely be true.

Rather, counterinsurgency has an identifiable, consistent problem and solution, which greatly reduces the complexity of the war. This becomes particularly clear when compared to the complexity of the warfare intelligence personnel face in large-scale combat operations.

General Characteristics of Large-Scale Combat Operations

The character of large-scale combat operations differs dramatically from that of counterinsurgency. Many of the differences emerge from the stark contrast in capabilities between an insurgent and a peer or near-peer threat. These threats have an ability to compete with the United States across the domains of land, sea, and air; the United States does not enjoy dominance as it does in counterinsurgency. As a consequence, the battlefields of large-scale operations are, as the new FM 3-0 describes them, "more chaotic, intense, and highly destructive than those the Army has experienced in the past several decades." For instance, a modern peer or near-peer like Russia could potentially hack intelligence systems. A threat could also deny US and friendly forces all full-motion video collection in the deep fight, an ability that the United States enjoys in counterinsurgency, with its vast number of surveillance drones—what retired Gen Stanley McChrystal famously dubbed the "unblinking eye."

Both threat and friendly goals dif-

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fer greatly between counterinsurgency and large-scale combat. As discussed above, population-centric counterinsurgency operations aim to break the enemy's will through attrition of its forces (i.e., targeting) and sapping of its primary resource—popular support. Large-scale combat primarily aims to break the enemy's will through simultaneous attrition of its forces and acquisition of territory, denying the threat any advantage in terrain.

Intelligence in Large-Scale Combat Operations

Intelligence operations would look far different in modern great power conflict than they do in counterinsurgency.

First, the IPB process must focus on terrain effects and threat capabilities, not the population. This means that HUMINT collection processes such as detainee operations are less important (and more difficult to employ in a useful way). At the same time, SIGINT and IMINT capabilities become critical to identifying the threat composition and disposition on the battlefield.

Second, targeting is employed far differently in great power conflict than it is in counterinsurgency. Targeting does not center on eliminating the threat itself, but rather the key assets that enable threat capabilities. Likely targets in large-scale combat operations would be ammunition storage facilities. In World War II, a key operation that set the conditions for the Normandy invasion was a targeting campaign called the "Transportation Plan." In the operation, Allied forces strategically bombed all bridges, railroad centers, and railway repair shops in the days running up to the invasion in order to delay German forces's efforts to reinforce the Normandy beaches.

Third, the process of intelligence collection and production would differ significantly. In large-scale combat, intelligence must work with less time, less support, and more disruption than faced in counterinsurgency. Professionals should be prepared to conduct intelligence "on the move," jumping tactical operations centers potentially every twenty-four hours (or less) to prevent destruction by threat forces, standing up and tearing down systems with exceptional expediency. They must also be well trained on analogue systems because of the possibility of hacking or disruption of digital products.

Training in an FM 3-0 World

FM 3-0 represents a challenging new horizon for the intelligence warfighting function, from the highest headquarters down to the individual soldier. The intelligence warfighting function has already begun to experience the second- and third-order effects of the Army's change in focus from counterinsurgency to large-scale combat operations.

Organizationally, military intelligence brigades were restructured, their titles changing from "Battle Field Surveillance Brigades" to "Expeditionary Military Intelligence Brigades." The name is emblematic of their new mission to prepare for great power conflict. They are "expeditionary" in that they can conduct intelligence on the go, jumping TOCs frequently. Some of these units have been re-tasked completely from preparing for counterinsurgency operations in Afghanistan to posturing for a conventional threat. Even units that are still on rotation to Afghanistan must now train for large-scale combat situations. This refocusing is a tough change. The lack of institutional and personal experience in large-scale combat operations means that entire units are often not even re-learning large-scale combat situations, but learning them for the first time.

At an individual level, intelligence personnel must learn to conduct IPB in an entirely new way. Currently, intelligence personnel have acquired an incredible amount of personal and collective memory from counterinsurgency operations. They are experts on Afghanistan and Iraq, collection for counterinsurgency, and targeting operations that aim at identifying and eliminating a network. But many do not know how to conduct IPB in conventional operations. Much of a soldier's relearning will occur with more training exercises geared towards large-scale operations, featuring peer or near-peer adversaries. Even more will come down to the individual soldier—her or his attention to new doctrine and disciplined learning of IPB in large-scale defense and offensive operations.

Looking Forward

Competition in the digital and space domains (in addition to land, sea, and air) changes the battlefield significantly. Intelligence professionals must understand and assess a threat with unprecedented military capability, potential characteristics (e.g., composition, disposition), and available courses of action. They must also prepare for a fight many of them have never fought before.

At the same time as the intelligence community prepares for this great power conflict, it should be careful not to lose the institutional knowledge acquired from Afghanistan and Iraq. Following any great power conflict has also been a period of instability requiring careful reconstruction efforts. In other words, any large-scale combat operation could likely be followed by stability and counterinsurgency operations. This is the challenge intelligence professionals must meet: prepare to fight the war FM 3-0 describes, hold onto the lessons learned and institutional memory of counterinsurgency, and ensure they contribute to an effective intelligence warfighting function for whatever mission the Army requires.

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TECHNICAL PUBLICATIONS MANAGEMENT

By Mr. Charles T. Brown and CW4 Dustin Case

"Aircraft publication management ensure [sic] current maintenance procedures are being performed which is critical to the safety and airworthiness of the aircraft....QC, shops, and maintenance personnel establish and maintain a complete, up-to-date set of technical publications for supported aircraft and equipment" (Department of the Army [DA], 2017).

Over the last decade, our maintenance leaders have adopted the P4T3 strategy (P4—Problem, People, Parts, and Plan; T3—Time, Tools, and Training) to organizing maintenance. Publications are a critical part of the problem statement and are included in the tools used for repair. Aircraft maintenance requires detailed technical information. Every task, every step of every task, and every substep of a task is presented to our aviation maintainers with the expectation they understand and can correctly perform these steps.

When a Noncommissioned officer is assigned to a quality control section, one of his first tasks will undoubtedly be to read the unit's familiarization chart (Fam Chart). A Fam Chart (Figure 1) is equivalent of the unit's reading file for aviators; a list of very specific, very important information that will help keep crewmembers alive. The unit's Fam Chart is the technical inspector's bible and the maintainers guide to everything important to maintaining a safe helicopter. The question then becomes: Where is the standardized Fam Chart for the aviation branch? What should the Fam Chart for an attack reconnaissance battalion look like? Or an assault helicopter battalion? When we ask the same questions about the aviator's reading file, the answer is straightforward; the U.S. Army Aviation Center of Excellence Directorate of Evaluation and Standardization (DES). This directorate (of Evaluation and Standardization) is the cornerstone for crew coordination, the operator manuals, the aircrew training manuals, and other flight-related standardization. The maintenance community has no

* Quality Control

TECHNICAL DATA FAMILIARIZATION CHART

BY PLACING MY INITIAL OPPOSITE MY NAME, I CERTIFY THAT I HAVE READ AND I AM FAMILIAR WITH THE LITERATURE LISTED BELOW

**TECHNICAL MANUAL	CHANGE NUMBER	MSG LAYMAN	MSG MATTOX	SFC BARR	SFC GAST	SSG HONEYCUTT	SSG WILEY	SSG MAZER	SGT KAY	SGT KEMP	SGT FAUSTICH	SGT WESLEY	SGT KRAFT
55-1510-201-23	21	ℒ	𝓂		𝒴			𝓂				K	
55-1510-202-23	2	ℒ	𝓂		𝒴			𝓂			W	K	
55-1510-205-23		ℒ	𝓂		𝒴			𝓂					
55-1510-206-23	1	ℒ	𝓂		𝒴			𝓂		K			
55-1520-202-23	16	ℒ	𝓂	B		H		𝓂					
55-1520-203-23		ℒ	𝓂	B		H		𝓂					
55-1520-204-23		ℒ	𝓂	B		H	W	𝓂	K				
55-1520-205-23	6	ℒ	𝓂	B				𝓂			F		
55-1520-206-23		ℒ	𝓂	B				𝓂	X				
55-1520-208-23		ℒ	𝓂	B			W	𝓂					
55-1520-210-23	31	ℒ	𝓂	B		H		𝓂					
38 750	102	ℒ	𝓂	B	𝒴	H		𝓂		K	F		
55-1500-204-25/1	31	ℒ	𝓂	B	𝒴	H		𝓂		K	F		

*Enter name of section or shop.
**Enter manuals most commonly used when performing the duties of each shop or section.

Figure 1. Example Fam Chart (DA, 1995).

such standardization for our Fam Chart. We leave it to our Soldiers to determine the correct information. As quality control professionals, we take on these responsibilities without a second thought. It is a mission first approach, and getting the aircraft safely back in the fight is our only mission. As leaders, our approach must attempt to reduce the publication management burden.

The Consolidated Fiscal Year 2017 Aviation Resource Management Survey trend shows 44% (44 of 101 units surveyed) failed to establish and maintain a complete, up-to-date set of technical publications for supported aircraft and equipment (U.S. Army Forces Command, 2017). Let me emphasize that—nearly half our units fail to maintain current and accurate publications. Changes occur to the manuals an average of once per year. As issues requiring change are identified—airworthiness, safety, and maintenance messages are released. Units must acquire the message from a website, read and correctly interpret the message, make the required change to an electronic technical manual, and then distribute that change to every computer platform being used in the hangar. Only then can they fully focus on training the Soldiers on a new or improved maintenance action in the hangar. The fact is, the old pen and ink method of changing a paper publication was easier than the technologies we have created.

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The following are centralized repositories of information intended to aid in establishing and maintaining an up-to-date technical publication library:

- The Joint Technical Data Integration website provides and manages a trove of information required to maintain our fleet of aircraft and aviation ground support equipment. The site requires Common Access Card login and is located at https://www.jtdi.mil/
- The U.S. Army Aviation and Missile Command (AMCOM) Safety Message website maintains applicable safety messages for each mission design series. The site requires a Common Access Card and is located at https:// asmprd.redstone.army.mil/
- The U.S. Army Material Command Logistics Support Activity website (LOGSA) maintains all modification work orders, technical manuals, and technical bulletins. The site requires a Common Access Card and account and is located at https://oampro.logsa.army.mil/oamcustomlogin/
- U.S. Army Aviation and Missile Command publications online located at https://pubsweb.redstone.army.mil/PubsOnline/ provide more sources for technical information. The site requires a Common Access Card.

These informational repositories are on dissimilar interfaces with varying standards in terminology. This results in an ad hoc knowledge management system that places the management burden squarely on the units in the field. It's up to the individual unit to develop and execute an up-to-date publications program with little to no guidance.

The U.S. Navy offers a good solution to publications management. They provide this by using a top down approach. The Naval Air Systems Command Technical Library Management Program utilizes the Technical Publications Application System (TMAPS) (U.S. Navy Naval Air Systems Command, 2016). This system is the authoritative source and central repository for all Naval Aviation Technical Manuals. It provides worldwide desktop access to Maintenance and Operational Technical Manuals via a standard web browser. Its capabilities include providing configuration control, library management, distribution, replenishment, archiving, deficiency reporting, and publication forecasting. Users simply perform an audit in TMAPS to determine if they currently have the most up-to-date publications. The System displays the status of each publication with color icons indicating if they have the correct publications and if those publications are up to date (Figure 2).

Ultimately, the technical library is the starting point for every maintenance action in the hangar, and Soldiers need the proper tools to build and maintain an up-to-date technical library. Evolving information management technologies, or technologies for knowledge management offer new ways to update and maintain technical manuals. Army aviation has missed the mark on modernizing how we support and sustain the fleet. We must address the clear lack of standardization in our technical publication processes all the way down to the Soldier level.

C	This pub has been cancelled
D	Your Library has more current information. TMAPS: mm/dd/yyyy ELMS: mm/dd/yyyy
D	Manual is in the initial distribution cycle. Remains in audit report for 60 days after TM is posted. After 60 days, defaults to a Red D.
D	TMAPS has more current information. TMAPS: mm/dd/yyyy ELMS: mm/dd/yyyy

Figure 2. TMAPS status icons.

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CW4 Dustin Case is an AH-64D/E maintenance test pilot. He is currently serving in the Doctrine Division, USAACE Directorate of Training and Doctrine at Fort Rucker, Alabama. CW4 Case has deployed five times in support of Operation Iraqi Freedom, Operation Enduring Freedom, and Operation Freedom's Sentinel. He has more than 15 years of Army aviation maintenance experience.

References:

Department of the Army. (1995). Army aviation maintenance, Army aircraft quality and technical inspection (Field Manual 1-500, Chapter 8). Retrieved from http://www.library.enlistment.us/field-manuals/series-2/FM1_500/CH8.PDF

Department of the Army. (2017). Army aviation maintenance (Army Technical Publication 3-04.7). Washington, DC: Headquarters, Department of the Army.

U.S. Army Forces Command. (2017). Final consolidated FY17 arms trends (V22.0/1). Fort Bragg, NC: U.S. Army Forces Command.

U.S. Navy Naval Air Systems Command. (2016). Naval air systems command technical publications library management program (NAVAIR 00-25-100). Patuxent River, MD: U.S. Navy Naval Air Systems Command.

RUSSIAN AVIATION

IN SUPPORT OF THE

MANEUVER DEFENSE

манёвренная оборона

By Dr. Lester W. Grau and Mr. Charles K. Bartles

Maneuver defense [манёвренная оборона] **is a form of defense whose goal is to inflict enemy casualties, gain time, and preserve friendly forces with the potential loss of territory. It is conducted, as a rule, when there are insufficient forces and means available to conduct a positional defense (Ministry of Defense of the Russian Federation, 2001). This differs from the U.S. concept of the mobile defense which "is a [type of] defensive operation that concentrates on the destruction or defeat of the enemy through a decisive attack by a striking force. It focuses on destroying the attacking force by permitting the enemy to advance into a position that exposes him to counterattack and envelopment. The commander holds the majority of his available combat power in a striking force for his decisive operation, a major counterattack.**

He commits the minimum possible combat power to his fixing force that conducts shaping operations to control the depth and breadth of the enemy's advance. The fixing force also retains the terrain required to conduct the striking force's decisive counterattack" (Department of the Army [DA], 2001). This differs from the Russian concept in that the Russians do not intend to permit the enemy to advance in order to counterattack. They intend to fight the enemy and reduce his forces without becoming decisively engaged. Russian maneuver battalions and brigades conduct maneuver defense, whereas the U.S. considers mobile defense as a corps-level fight (DA, 2001).* In future conventional maneuver war, continuous trench lines, engineered and fixed defenses extending across continents, as occurred in Europe in World Wars I and II will not occur. According to Russian military guidance, the maneuver defense, eventually leading to a positional defense will be their primary defense and will be conducted by the maneuver brigades as their base formation (Ministry of Defense of the Russian Federation, 2013).*

Ever since the Gulf war, ground forces have realized that unprotected maneuver in the open may lead to decimation. Less modern ground forces have attempted to negate this by moving the fight to terrain that defeats or degrades high-precision systems—mountains, jungles, extensive forests, swamps, and cities—while conducting a long-term war of attrition to sap the political

*"Units smaller than a corps do not normally conduct a mobile defense because of their inability to fight multiple engagements throughout the width, depth, and height of the AO, while simultaneously resourcing striking, fixing, and reserve forces." This is not to say that Russian army groups would not conduct maneuver defense, nor that their concepts will differ radically from those of a U.S. Corps. Rather, the training and planning for such is at lower level in the Russian force.

*Ministry of Defense of the Russian Federation, 2013. This is a major change since Stalin's infamous order 227 issued on 28 July 1942-"Ни шагу назад" [Not one step backwards]-which condemned thousands of Soviet soldiers to die needlessly in positional defense.

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will of the enemy. This difficult terrain will also be a valuable ally in future conventional maneuver war, as will camouflage, electronic and aerial masking, effective air defense systems, and secure messaging. Maneuver defense will clearly be a feature of future conventional maneuver war. One thing that may change dramatically is the fundamental concept of the main linear, positional defense that the maneuver defense leads to. Perhaps the main linear defense will be anchored in difficult terrain. Perhaps the main defense will more closely resemble the security zone maneuver defense. The main defense may become an expanded security zone containing counterstrike/counterattack forces and a concentration of high-precision weapon systems.

Open flanks may be covered by maneuvering artillery fires, aviation, and positional forces not under duress. The Russian concept of maneuver by fire may dominate the battlefield as it alone may enable maneuver (Grau & Bartles, 2016).

The linear battlefield may be replaced by the fragmented [очаговый] battlefield where brigades maneuver like naval fleets, deploying maneuver and fire subunits over large areas protected by air defense systems, electronic warfare, and particulate smoke. Strong points will be established and abandoned, artillery fires will maneuver, and difficult terrain will become the future fortresses and redoubts. The First World War on the Western Front was a positional fight where artillery, field fortifications, and interlocking machine gun fire prevented maneuver. The First World War on the Eastern Front, however, was not positional, but fluid. The antithesis to the stalemate in the West was the tank. Yet, the tank did not spell the end of the linear defense. During the Second World War, the tank enabled maneuver in some places, but in other places, difficult terrain and integrated defenses prevented maneuver, and fires prevailed. The Korean War began with a great deal of maneuver but stalemated into positional mountain combat enabled by fires. The Vietnam War was about the maneuver of the helicopter, but difficult terrain dominated the battlefield. The antitank-guided missile and precision-guided munitions currently threaten maneuver. Still, advances in fires, electronic countermeasures (ECM), robotics, and air defense may enable maneuver. The Serbian Army proved quite adept at hiding and surviving in difficult terrain during the 78-day Kosovo air war (Operation Allied Force). What they lacked was a ground force to combat at the termination of the bombing (Grau & Bartles, 2016).

The fragmented battlefield has become common following the Gulf War. The Soviet-Afghan War, the Angolan Civil War, the Chadian-Libyan conflict, the Battle of Mogadishu, Operation Enduring Freedom, most of Operation Iraqi Freedom, the Libyan Civil War, the Sudan conflict, and the Saudi Arabian-Yemen conflict—all have involved fragmented battlefields (Kalachev, 2016). How do peer forces fight conventional maneuver war on a fragmented battlefield? Permanent combined arms battalions appear to be an important component. For decades, the Soviets and Russians have struggled with fielding, training, supporting, and fighting a combined arms battalion with its own tanks, motorized rifle, artillery, antitank, and support subunits capable of fighting and sustaining independently over a large area. The Russian maneuver brigades now have one or two battalion tactical groups and are working to achieve four (Grau, 2014). The Russians have a long history of conducting a fragmented defense on a fragmented battlefield. The Russian Civil War is replete with such examples (Ministry of Defense of the Russian Federation, 2002). During the Second World War, in addition to its large conventional force, the Soviets fielded the largest partisan army in history. It conducted a fragmented offense and defense against a linear German force (Grau & Gress, 2010). Afghanistan, Chechnya, and now Syria also featured fragmented offense and defense.

FIGURE 1 shows a Russian motorized rifle brigade in a notional positional defense (Grau & Bartles, 2016). It has three motorized rifle battalions, a tank battalion, four artillery battalions, two air defense battalions, an engineer battalion, a signal battalion, a support battalion, an Unmanned Aerial Vehicle (UAV) company, and an electronic warfare company. It is defending in two echelons with two battalions forward and two back. The location of forces, systems, and distances will be

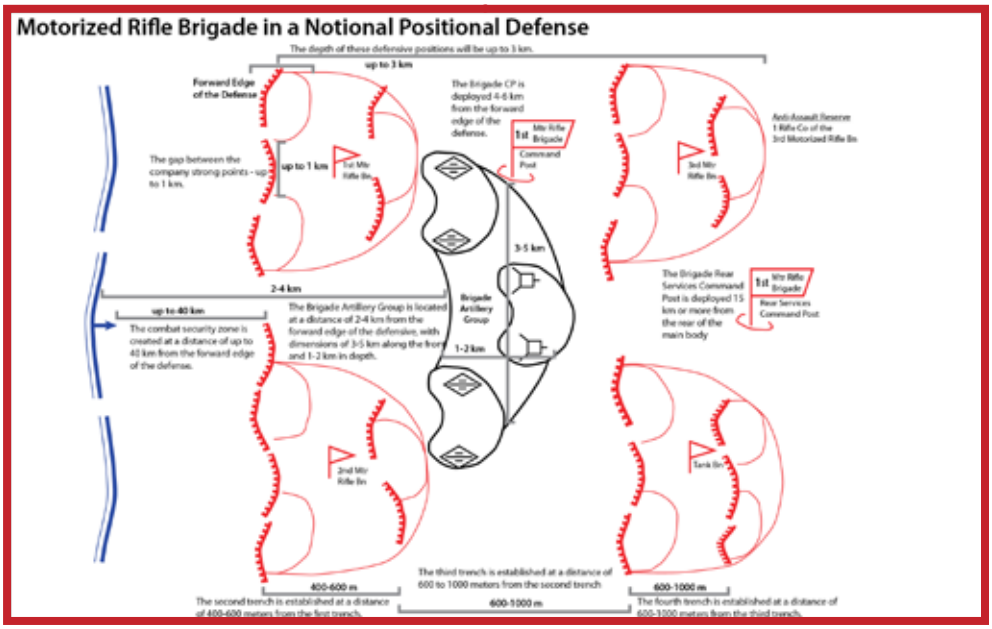

Figure 1. Motorized rifle brigade in a notional positional defense.

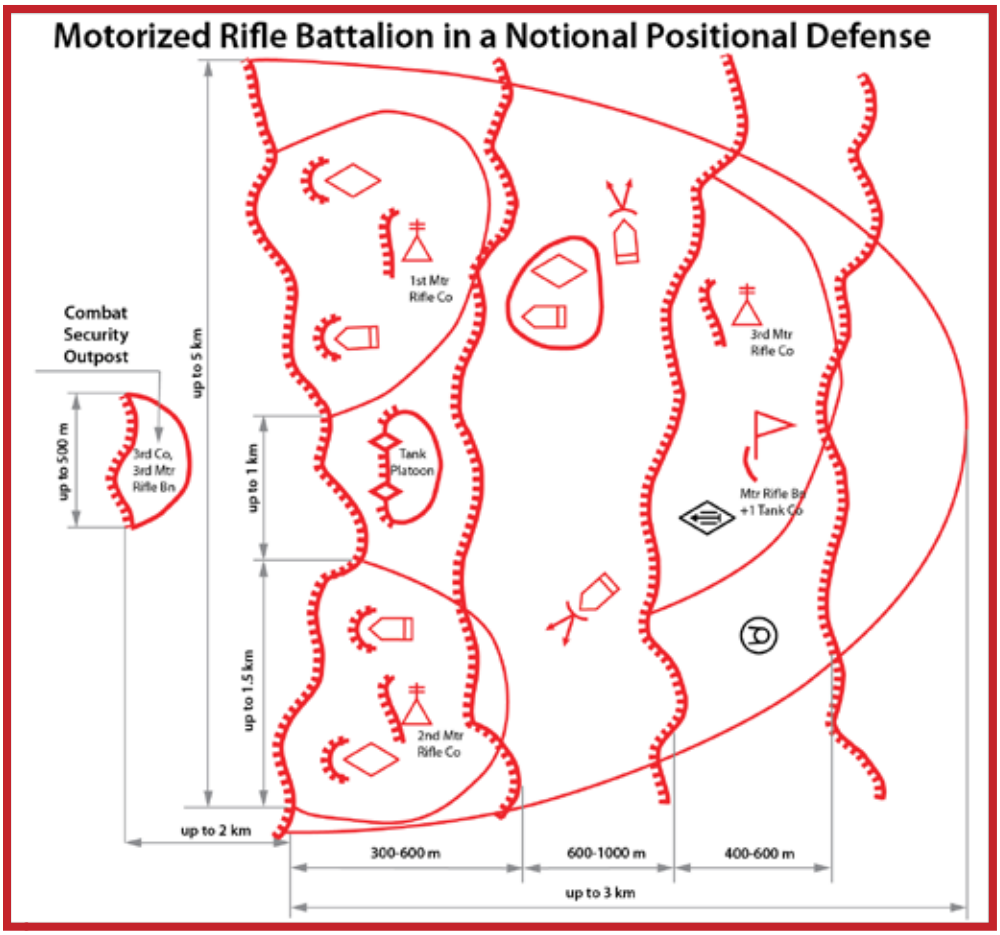

Figure 2. Motorized rifle battalion in a notional positional defense.

adjusted to fit the demands of the situation, threat, forces available, and terrain.

FIGURE 2 shows a Russian motorized rifle battalion in a notional positional defense. It has three motorized rifle companies and an organic mortar battery and AGS (Avtomatischeskyi Granatmyot Stankovyi)-17 automatic grenade launcher platoon, plus attached tanks, air defense systems, and flame-thrower weapons. The location of forces, systems, and distances will be adjusted to fit the demands of the situation, threat, forces available, and terrain (Grau & Bartles, 2016).

Soviet/Russian positional defenses are dug in and have been difficult to overcome, but expected forces ratios and the experience from recent conflicts have demonstrated that positional defense may work well in urban terrain and mountains, but is not the norm elsewhere. Armed conflicts during recent decades are characterized by the absence of a continuous line of contact and by extensive use of raiding and commando detachments, flanking actions, and infiltration. The maneuver defense may become the "normal" defense, with the positional defense as an anomaly. In a maneuver defense, within the brigade, the battalion is assigned an area of responsibility of 10 by 10 kilometers (frontage and depth, respectively), and a company position is up to 2 kilometers in frontage and up to 1 kilometer in depth. There is a distance of up to 1.5 kilometers in depth between positions, which ensures mutual support of defending subunits and allows maneuver to the subsequent position (Artemyev, 2017).

FIGURE 3 shows a Russian motorized rifle brigade in a maneuver defense (Artemyev, 2017). Battalion positions are shown and company fighting positions are depicted within the battalion positions, showing that the companies will fight from more than one position within each battalion position. The brigade defends against an attack from the west with its tank battalion to the north and the 3rd Motorized Rifle Battalion to the south. The 2nd Motorized Rifle Battalion is deployed further to the west in forward positions and is not initially shown on this diagram. The tank and 3rd Motorized Rifle Battalion cover three enemy high-speed avenues of approach. The northern approaches are considered the most dangerous. The enemy initially engages the 2nd Motorized Rifle Battalion, which forces the enemy to deploy and slows its advance while Russian artillery or aviation fire damages the enemy advance. The 2nd Motorized Rifle Battalion does not be-

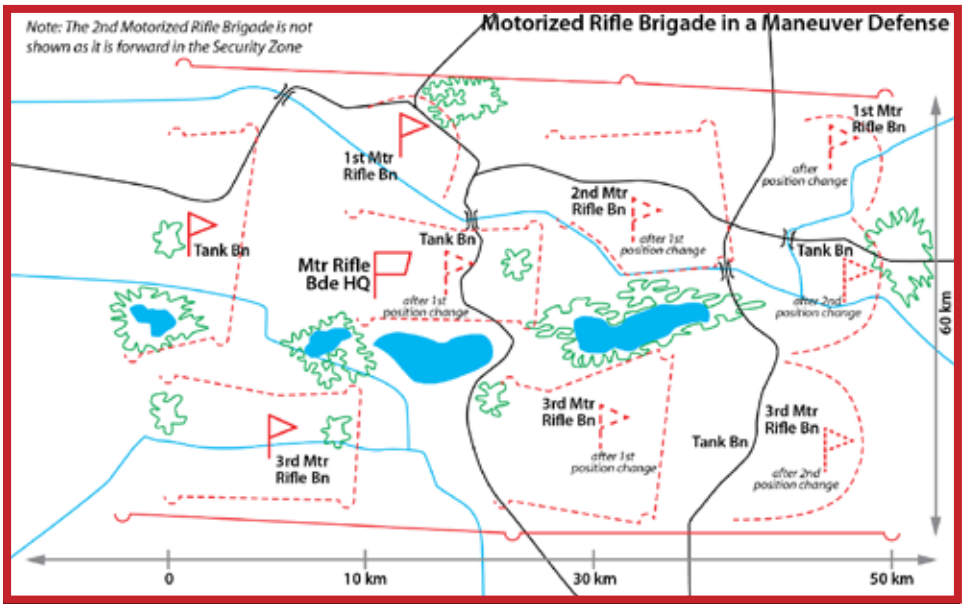

Figure 3. Motorized rifle brigade in a maneuver defense.

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come decisively engaged. Rather, it withdraws to the north and through the tank battalion, moves past the 1st Motorized Rifle Battalion, and occupies a defensive position in the north.

The enemy then engages the tank battalion and the 3rd Motorized Rifle Battalion, which again forces the enemy to deploy, while Russian aviation or artillery fire once more damages the enemy advance. Neither battalion becomes decisively engaged, but withdraws. The tank battalion withdraws under the covering fire of the 1st Motorized Rifle Battalion, moves through the 2nd Motorized Rifle Battalion, and assumes a central defensive position to the east. The 3rd Motorized Rifle Battalion moves directly back and goes on line with the 2nd Motorized Rifle Battalion to its north. The enemy continues to advance and is engaged by the 1st Motorized Rifle Battalion and the tank battalion, which again forces the enemy to deploy while being engaged by Russian artillery or aviation. The 1st Motorized Rifle Battalion and tank battalion do not become decisively engaged, but move to a new position north of the tank battalion. The enemy continues to advance and is engaged by Russian artillery or aviation fires while deploying against the 2nd and 3rd Motorized Rifle Battalions. The 2nd and 3rd Motorized Rifle Battalions do not become decisively engaged. The 2nd Motorized Rifle Battalion again moves directly back and goes on line with the tank battalion to its north. The 2nd Motorized Rifle Battalion moves through the 1st Motorized Rifle Battalion and tank battalion to take up a reserve position or to deploy as a forward detachment to start the sequence again.

FIGURE 4 shows a Russian motorized rifle battalion in a maneuver defense within its initial battalion box (in this case, it is the initial position of the 3rd Motorized Rifle Battalion in the brigade defense). The battalion is facing an enemy attack from the west and has a reconnaissance patrol forward. The battalion has a shallow security zone consisting of a motorized rifle squad in ambush to the north; a motorized rifle platoon reinforced with a tank, obstacles, and two mixed minefields in the center; and a tank in ambush protected by a mixed minefield. The battalion mortar battery is in the security zone in support of these elements. As the security zone elements withdraw and reposition, the enemy is met by three motorized rifle companies (of two platoons each) on line. The companies are reinforced by a tank platoon and protected by seven mixed minefields. Man-portable air defense systems (MANPADS) are moved up to the rear of the company positions. The mortar battery has repositioned behind the center company. There are four firing lines for the antitank reserve protecting the flanks and junctures of the companies. The third platoons of the forward companies occupy fighting positions in an intermediate line from which they can cover the withdrawal of their companies. Three self-propelled artillery batteries are located each in support of a forward company, but able to mass fires. The battalion command post is centrally located.

The companies do not become decisively engaged, but withdraw under the covering fire of their rear platoon to take up new positions. The north and south companies move directly back to new positions in an alternate line while the combined arms reserve and antilanding reserve cover the center. The central company moves further back on line with the forward company reserves and the on-order positions of the combined arms reserve and antilanding reserve in an intermediate line. The battalion command post, mortar battery, and three artillery batteries move behind the final position shown in Figure 4. The enemy advance encounters a line of six platoons that cause the enemy to deploy and slow down while being hit with artillery or aviation strikes. This line does not become decisively engaged, but withdraws behind the two companies now on an alternate line with on-order positions for the combined arms reserve and antilanding reserve. Again, the enemy attack is slowed and punished, and then the line withdraws to its eastern position with the battalion on this alternate line. After slowing and punishing the advancing enemy, the battalion withdraws to its next battalion box, handing the battle off to a supporting battalion.

The battalion defends a 10 kilometer by 10 kilometer box. Russians consider that normally, there will be a 2–2.5 kilometer distance between intermediate and alternate lines.

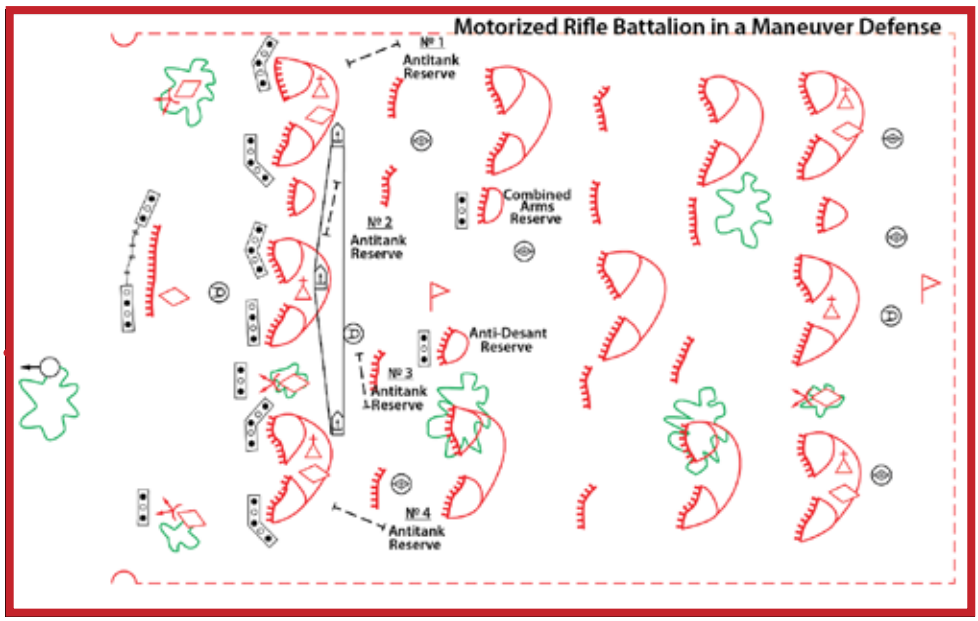

Figure 4. Motorized rifle battalion in the maneuver defense.

The rate of advance of the enemy fighting through the defensive positions is problematic; however, the Russians calculate that, should the Russian defensive positions prove stable, standard values in average conditions find that the enemy may be capable of covering the distance between defensive lines in 1–1.5 hours. Depending on the location of supporting helipads, aviation support must function quickly and effectively to mitigate this advance, particularly should the enemy attempt to flank or encircle the defenders using ground and air assault forces (Artemyev, 2017).

Thus, in a maneuver defense, defending troops displace from line to line both deliberately and when forced. The enemy organizes pursuit with the interdiction of routes of withdrawal and attacks from the flanks and rear. These actions require separate fire support in which army aviation units are assigned to support covering-force subunits and rear guards, to engage flanking detachments, and to slow the rate of pursuit. In certain sectors, maneuver will be combined with blocking and employment of flanking and raiding detachments (Artemyev, 2017).

RUSSIAN AVIATION FIRES IN SUPPORT OF MANEUVER DEFENSE

The Soviet Air Force had the largest air force in the world. Today, the Russian Air Force is much smaller than the U.S. Air Force after having undergone force reductions and much restructuring. Currently, the Russian Aerospace Forces (VKS) consists of three main branches: the space troops, who operate Russian satellites and ground-based space infrastructure; the air defense troops, who operate strategic air defense systems such as the S-300, S-400, and S-500; and the Russian Air Force, who operate all non-naval aviation and large UAVs. The Russian military has fielded a modern, extensive, integrated air defense system at the strategic and operational-strategic levels (provided by the VKS air defense troops), and the operational and tactical levels provided by air defense assets organic to the ground troops, airborne (VDV), and naval infantry* (there are two air defense battalions in most maneuver brigades). This integrated, and overlapping air defense system, frees the Russian Air Force from many air defense-related missions, allowing it to concentrate on other missions. Since the Russian ground forces, unlike the U.S. Army, possess no manned aviation assets, most combat support of the Russian ground forces, airborne, and naval infantry is now accomplished by the Russian "army aviation." Russian army aviation belongs to the air force and consists of helicopter aviation and close air support aircraft such as the SU-25 Frogfoot (single-seat twin-engine jet). Maneuver defense is fast-moving and fluid. Since the maneuver defense is based on not becoming decisively engaged, the defender and attacker are spending 60–65% of a battle in maneuver. Consequently, artillery fire has less time to destroy an enemy effectively before the enemy has moved (Artemyev, 2017).

Artillery, antitank weapons, and aviation strikes are concentrated against the most threatening enemy axes of advance. The efforts of these systems should be distributed by time and place. Impact areas from artillery concentration produce zones of dust and smoke, which can reach 1,000 meters altitude and remain for 20 minutes. Visibility within these zones does not exceed 500–1,200 meters. Introduction of aviation strikes in an area will severely curtail artillery fires and fire density. It also raises the problem of airspace deconfliction. In a defense, the bulk of tank, antitank, and artillery fire is concentrated within 3 kilometers of the forward edge of defenses while fires from 3–10 kilometers away, as well as fires to the flanks of an attacking enemy, are less numerous (Artemyev, 2017).

There will be a limited number of army aviation sorties available and, in the absence of a fixed front line, they should not be expended in fragmented efforts. They must provide a decisive effect against the most dangerous threats while preserving decisive power for the final defensive effort in a positional defense. In a maneuver defense, defending forces displace from line to line on order or under pressure. The enemy will attempt to pursue these forces, interdict their routes of withdrawal, and attack from the flanks and rear. Army aviation may support covering forces and rear guards; attack enemy flanking detachments; and slow the enemy pursuit. In some sectors, maneuver withdrawal may be combined with holding actions and use of flanking and raiding detachments. Aviation support to ground forces in the maneuver defense includes:

-Air support to containing actions [авиационной подержке сковывающих деиствий];

-Air support to troop maneuver [авиационной подержке маневра войск];

-Air support to raids [авиационной подержке рейдовых деиствий]; and

-Air support to flanking actions [авиационной подержке обходящих деиствий] (Artemyev, 2017).

The aviation requirements will be reduced during air support to containing actions as ground forces fight to hold prepared positions. The line of contact is determined on the most likely enemy avenue of approach (which is, as a rule, limited by physical features, barrier lines, or by engineer and troop terrain preparations). Army aviation units are on

*Although the just the term "ground forces" is generally used throughout this document, the concepts are equally applicable to Russia's other mechanized infantry forces, the Russian airborne (VDV) and naval infantry.

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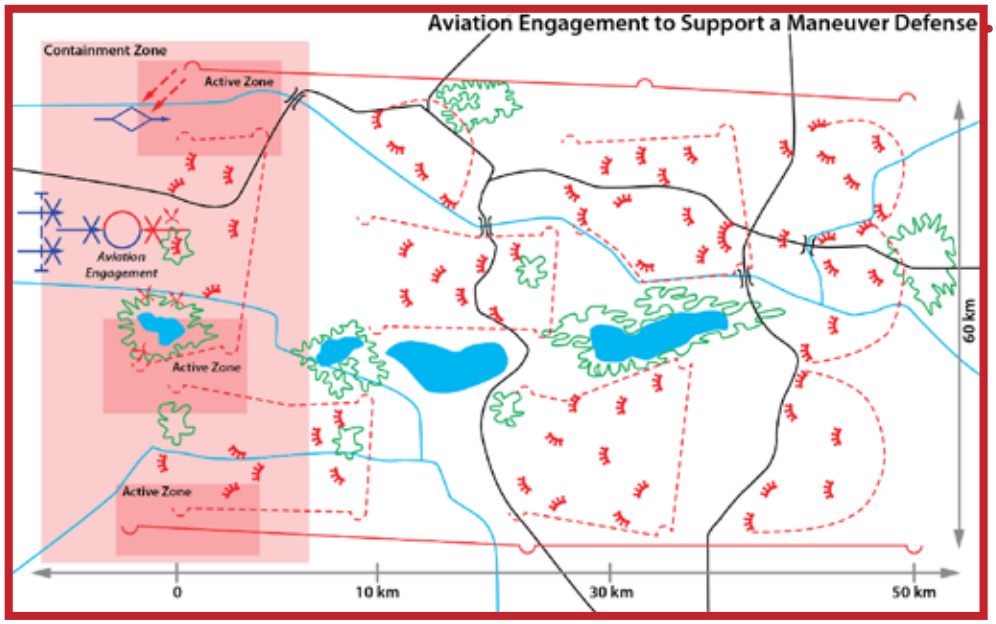

Figure 5. Aviation engagement maneuver defense.

call at ground alert positions at established helipads and prepared to carry out successive strikes against targets discovered during combat (Artemyev, 2017).

Army aviation requirements differ considerably during air support to troop maneuver. Ground forces usually maneuver from line to line along specified routes; however, the location of enemy flanking and encircling attacks can only be predicted. Consequently, the limited forces and assets can provide a unified response package only if the information component and reconnaissance fire component are working capably to provide timely ground and air ambushes (Artemyev, 2017).*

Air support to raids places strict demands on rapid action. Raiding detachments, moving in the rear of an enemy force, have a limited time to carry out their mission, move out of the way of enemy attack, and either rejoin the main body or occupy a designated defensive line. Along with the time restraints, air support must achieve surprise while not revealing the activity of the raiding detachment prematurely. Subsequently, aviation should support the raiding detachments' withdrawal by transitioning to the air support to troop maneuver mission (Artemyev, 2017).

Air support to flanking actions is a logical continuation of air support to containing actions. The reconnaissance fire systems of army aviation will be determine the nature of aviation unit actions (Artemyev, 2017).

Continuous aviation support will rely on established airborne "loiter areas" and strip-alert forces while retaining some aircraft for rapid-response reconnaissance fire missions. For support of maneuver defense, Army aviation should divide the combat employment area into active and containment zones.

The active zone is delineated by priority fire engagement of enemy ground targets, which are limited by the flanks and unit boundaries to the space between the positions of the ground forces being supported. This will permit the defending brigade to concentrate its firepower (and antitank reserve) to delay and erode the attacking enemy. In this instance, an enemy tank unit is attacking the northern flank of the Russian brigade (Figure 5) and is attacked by army aviation SU-25 combat support aircraft (Artemyev, 2017).

The army aviation containment zone will concentrate on repelling or denying the enemy air by engaging its airborne assault force and enemy fire support helicopters. It is permissible for aviation to enter this zone either by skirting the friendly tactical air defense zone during the cross-country flight of the enemy airborne assault force or flying directly through friendly air defenses upon detecting attack groups of enemy fire support helicopters (Artemyev, 2017).* In FIGURE 5, three enemy gunships (in dark blue), presumably leading an air assault, are flying directly toward the defending tank battalion. A Russian helicopter has overflown the battalion position (hopefully after getting the applicable air defense into "weapons tight" or "weapons hold") and is engaging the enemy gunships in aerial combat and calling for reinforcement.

RUSSIAN RECONNAISSANCE IN SUPPORT OF ARMY AVIATION

The Russians divide the information space into the far zone and near zones with separate reconnaissance/intelligence groups attending to each. One of the difficulties in detecting enemy forces in areas with ground relief are the cut-out or "shadow" zones behind hills, in valleys, or in other places where reserve forces and loitering helicopters hide. Unmanned aerial vehicles from the organic brigade UAV Company or external UAVs, reconnaissance aircraft, and satellites can provide a look into the far "shadow" zones with a priority of early detection of enemy airborne systems. The reconnaissance effort is directed to those axes presenting the greatest danger of armed enemy air penetra-

*The Russian reconnaissance fire complex links reconnaissance assets with a command and fire direction center with dedicated artillery, missiles, and aviation for destruction of priority enemy targets upon detection in near real time.

*Helicopter air-to-air combat has long been trained for and practiced by Russian army aviation. See Lester W. Grau & James H. Adams. (2003, January–February). Air Defense with an attitude: Helicopter versus helicopter combat. Military Review.

tion of the Russian information zone (Artemyev, 2017).

As shown in FIGURE 6, the 2nd Motorized Rifle Battalion is withdrawing through the tank battalion to its next position. The enemy is following in strength with an enemy tank battalion attacking the northern flank of the brigade's tank battalion. An enemy mechanized battalion with mobile air defense is facing the tank battalion main defenses. Two enemy battalion task forces are moving in column into the space between the tank battalion and 3rd Motorized Rifle Battalion. A tank battalion is attacking directly into the 3rd Motorized Rifle Battalion. Several Russian howitzers have been knocked out by the enemy. Army aviation responds with helicopter gunships following aviation turning points (PPM) [поворотный пункт маршрута (ППМ)] to attack the enemy on the flanks and unit boundaries or to the point of combat deployment (PBR) [пунут боевого расхождения (ПБР)].

The far zone data are usually provided as a flat map (Figure 6) and the near zone data as a 3-dimensional model (Figure 7). They unify the data provided by the brigade and reconnaissance augmented by UAV and other reconnaissance systems. The reconnaissance strike group receive the same data. In this case, the enemy has massed significant combat power against the brigade, which is in danger of having elements surrounded should the planned withdrawals not go as planned. Further, the presence of enemy air defenses will cause the army aviation to pass through these weapons kill zones. The Avenger (U.S.), Roland (French/German), Gepard (German), Strela-10/Tunguska (Soviet Union and successor states), and similar air defense systems are high priority targets for artillery and army aviation (Artemyev, 2017).

FIGURE 7 concentrates on the initial position of the 3rd Motorized Rifle Battalion and posits an attack by an enemy company task force to the north of their position, a battalion task force to the center of their position, and a company task force to the south of their position. It shows the height and engagement areas of friendly systems. It plans an army aviation attack involving SU-25 Frogfoot close air support aircraft and helicopter gunships against the northern enemy company task force. The initial target of the SU-25 will be the enemy air defense vehicle. Artillery will concentrate on the attacking battalion task force and southern company task force. Enemy air defenses are high priority for army aviation and artillery destruction. Identification, Friend or Foe (IFF) systems are crucial and, in some sectors, air defense will go on "weapons tight" or "weapons hold" status.

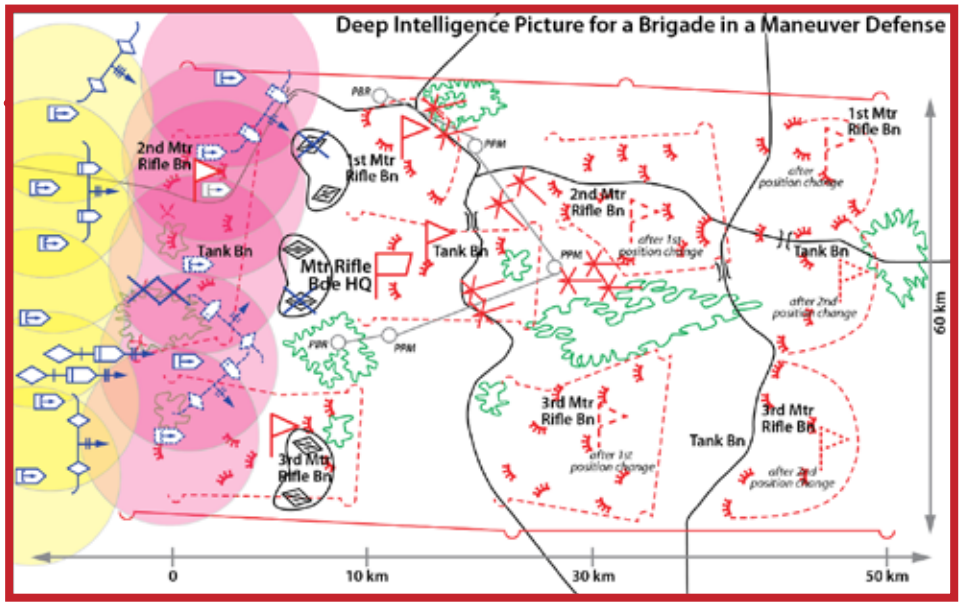

Figure 6. Deep intelligence picture for a brigade in a maneuver defense (Artemyev, 2017).

CONCLUSION

In conventional maneuver war under nuclear-threatened conditions, maneuver defense leading to a positional defense seems most likely to Russian theorists and planners. Skilled maneuver defense is designed to destroy enemy systems at long range and then withdraw without becoming decisively engaged. Aviation and artillery are key to this

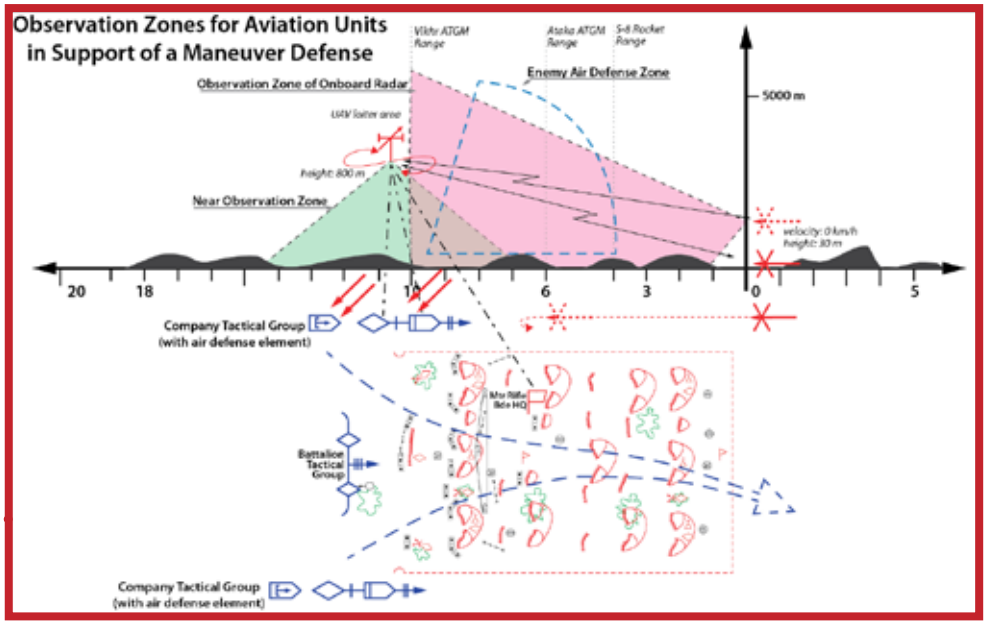

Figure 7. Observation zones for aviation units in support of the maneuver defense (Artemyev, 2017).

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long-range destruction, but never work the same target simultaneously. Artillery fights the enemy in front of the ground formation, whereas aviation fights any enemy trying to flank or encircle the defenders. A key target for both is mobile enemy air defense. The Soviets, and now the Russians, have long worked on developing a system that could detect, target, and destroy high-priority targets in near real time. The Russian reconnaissance fire complex now links reconnaissance assets with a command and fire direction center with dedicated artillery, missiles, and aviation for destruction of priority enemy targets in near real time. This system is tied in with the aviation and maneuver headquarters and will be involved in the maneuver defense when appropriate.

Russian aviation does not like to fly over friendly formations during battle, as this will require shutting off indirect fire artillery and mortars and putting air defense weapons in "weapons tight" or "weapons hold" status. Russian artillery is usually positioned closer to the Forward Edge of the Battle Area (FEBA) than Western artillery and conducts much of its defensive fire from direct lay or low trajectory to avoid airspace difficulties. The problem still remains warning or shutting off mortars and air defense systems. Russian army aviation will overfly friendly formations when enemy helicopter gunships approach the formation, as these gunships may be escorting an air assault intent on cutting off defending units before they can withdraw. Russian army aviation has an aerial combat role and trains for it using air-to-air missiles and chain gun fire.

Russian army aviation has changed procedures and tactics, techniques, and procedures to deal with the fluid nature of the maneuver defense. Priority importance is given to:

-preserving the combat potential of supported troops through rational distribution of forces and assets to fire engagement zones within the limits of the phases of fire engagement of the enemy; and

-preserving decisive might for the final stage of the mobile defense zone with simultaneous execution of missions of air support to troops on all defensive lines (Artemyev, 2017).

Army aviation units will conduct reconnaissance-strike actions to destroy highly mobile important enemy targets. Such actions will be employed on fully independent axes (zones of active operations) in spaces between zones and positions and on the flanks of attacking enemy groupings 3–10 kilometers away from defending or counterattacking units. The substantial increase in the independence of army aviation unit operations in conducting reconnaissance-strike actions drove a new approach to evaluating fire engagement targets based on determining the priority of their destruction and on selecting the status of the attack target (Artemyev, 2017).

Training for aerial combat by Russian helicopters has been engaged in for at least 15 years and uses chain guns, the SA-18 Igla (surface-to-air missile), and air-to-air rockets. There are at least 10 derivations of the standard S-8 rocket, several of which may be employed in aerial combat against enemy helicopters, UAVs, and cruise missiles.

Photo by Charles Rosemond

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Dr. Lester Grau is a retired Infantry Officer, Russian Foreign Affairs Officer, and research director of the Foreign Military Studies Office. He has published 15 books and 250 articles for professional journals. He and Chuck Bartles published The Russian Way of War: Force Structure, Tactics and Modernization of the Russian Ground Forces, which may be found at https://community.apan.org/wg/tradoc-2/fmso/

References:

Artemyev, A. (2017). Подержка с воздука: Армейская авиация в маневренной обороне сухопутных войск. [Air support: Army aviation in ground troops mobile defense]. Армейский сборник [Army Digest], 8, 39–46.

Department of the Army. (2001). Tactics (Field Manual 3-90, Chapter 10). Washington, DC: Headquarters, Department of the Army.

Grau, L. W. (2014, February). Restructuring the tactical Russian army for unconventional warfare. Red Diamond, (5)2. Retrieved from https://community.apan.org/wg/tradoc-g2/fmso/m/fmso-monographs/195087

Grau, L. W., & Bartles, C. K. (2016). The Russian way of war: force structure, tactics and modernization of the Russian ground forces. Retrieved from http://www.armyupress.army.mil/Portals/7/Hot%20Spots/Documents/Russia/2017-07-The-Russian-Way-of-War-Grau-Bartles.pdf

Grau, L. W., & Gress, M. (Eds.). (2010). The red army do-it-yourself Nazi-bashing guerrilla warfare manual (The partisan's companion). Havertown, PA: CASEMATE PUBLISHERS.

Kalachev, D. (2016). Оборона-тоже маневр: Мотострелковый батальон и маневренная оборона [Defense is also maneuver-The motorized rifle battalion and maneuver defense]. Армейскнй сборник [Army Digest], 10, 27–34.

Ministry of Defense of the Russian Federation. (2001). "Манёвренная оборона," (Военный энциклопедический словар в двух томак [Military encyclopedic dictionary in two volumes]), Volume II. Moscow: Ripol Klassik Publishing House, 27.

Ministry of Defense of the Russian Federation. (2002). Очаговая Оборона [Fragmented defense]. Военная Энциклопедия [Military Encyclopedia], Volume VI. Moscow: Voyenizdat, 214.

Ministry of Defense of the Russian Federation. (2013). Боевой Устав Сукопитных Вонск, Частъ 2 (Баталъон Рота) Combat Charter of Sukopitnykh Vonsk, Part 2 [Ground troops field manual, part 2 (Battalion, Company)], Moscow: Voyenizdat, 801.

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Photo SGT Gregory T. Summers

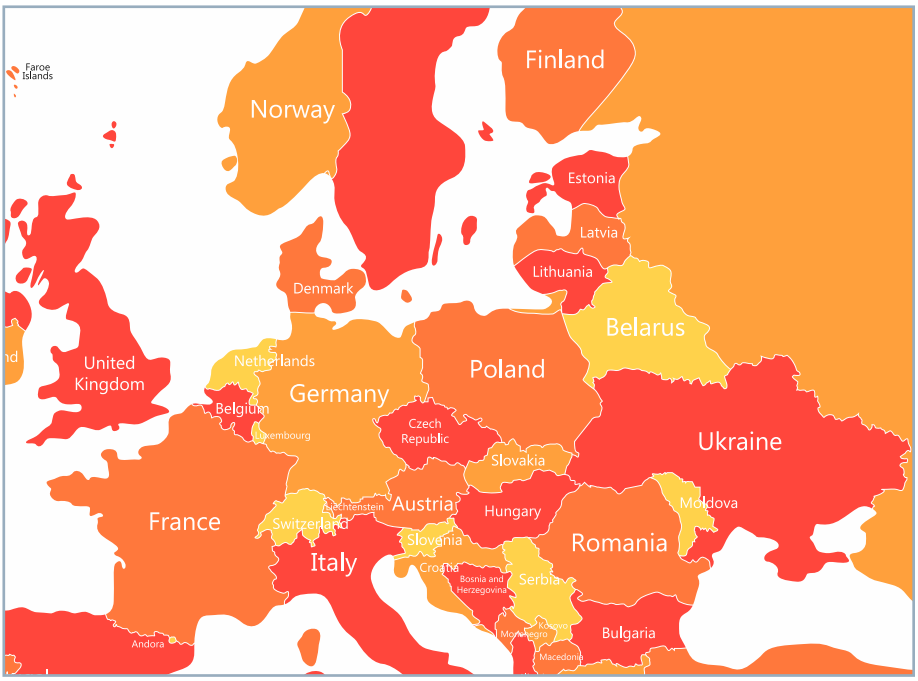
OPERATION ATLANTIC RESOLVE

A DEPLOYMENT TO LEARN

By CW4 Chris Zamora

Atlantic Resolve 2.0 was an educational experience to many leaders over its 9-month duration. This is a continued mission formulated to assure our North Atlantic Treaty Organization (NATO) allies that we as a country are invested in a secure Europe, and Russian actions in Ukraine, Crimea, and Georgia have not gone unnoticed. Russia has made provocative moves in Eastern Europe, often under the guise of response to NATO aggression. Post-Cold War U.S. numbers in the region have fallen from a height of 300,000 to 61,710 military personnel in recent years, framing demilitarization as more accurate (Bialik, 2017). This is where the education begins for our junior leaders who have been invested in counterinsurgency (COIN) operations early in their careers. Currently, the Army is simultaneously transitioning through a culture change, as the highly digital Generation Y starts to fill our ranks at all levels, while also going through an operational change to meet near-peer threats. Atlantic Resolve allowed these junior Soldiers and leaders the opportunity to build valuable experience away from conventional combat training center (CTC) rotations. The deployment brought different struggles that leaders will encounter when working with our military partners in the next conflict, while also building operational knowledge at the lowest level. In aviation, crewmembers gained skills and experience on how to employ aircraft in multiple mission sets and new environments. It is accurate to discern that defense spending caps have shrunk our military's ability to respond to threats, making NATO a priority in our vested interest. Atlantic Resolve was a success when all formations were mission ready in early March of 2017. In order to continue to be a success, there are elements of the rotation that can be enhanced to better facilitate future unit rotations to the region.

At the company level and below, we operate at the micro-level in the Army. It is here that lessons learned must be captured. This allows leaders at higher echelons to know if their units are operating close to their vision and allows continuity to be created for the



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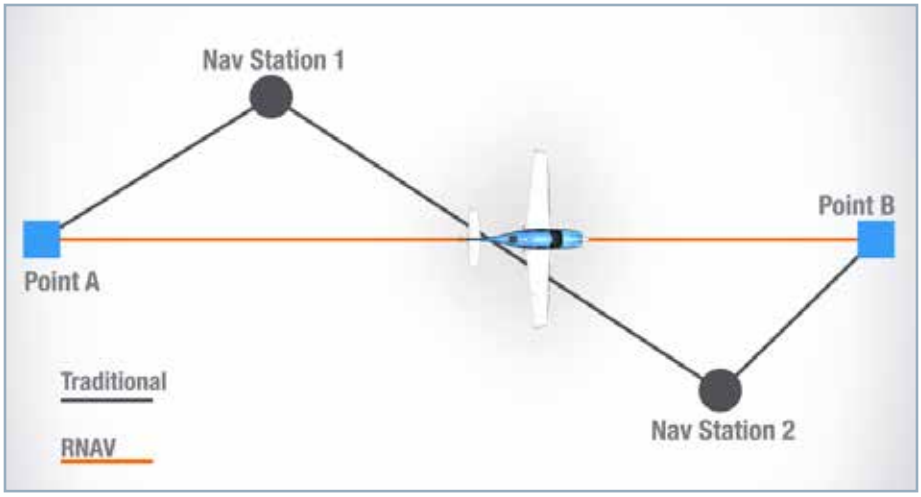

Figure. Traditional navigation vs. RNAV (Martin, 2017).

next rotational forces. One of the most critical points of mission success is the ability to communicate. With units spread over multiple European countries, the communication piece must be addressed. Aviation requires a high degree of command and control, as well as robust support channels. Soldiers accomplished direct communication because they understood the importance of mission success. They did this through the use of commercial off-the-shelf (COTS) systems and applications.

In the operational spectrum, as units moved further east, the lack of interoperability of communication with host nations became apparent. A large-scale conflict will undoubtedly be multinational, and an intuitive secure system that allies can all utilize should be implemented. The flow of information in the dynamic environment in which the Army operates results in many operational changes. Having a solid communication plan supporting all vested players may be the primary factor to success in the battle space. Emphasis should be placed on expanding training for multinational command and control elements to improve the exchange of information for all players. This will refine the speed of decision, speed of assembly, and speed of action in future exercises.

In the aviation realm, having area navigation (RNAV) capability would have made rotary-wing units more versatile when transiting the European airspace. Area navigation makes instrument flight more efficient; however, it has some limitations. One of the primary issues is the global positioning systems' (GPS) accuracy being degraded due to geomagnetic storms and other adverse space weather. It is important that air crews remain proficient utilizing inertial navigation systems and dead reckoning in preparation for future conflicts. The use nondirectional beacon (NDB) and very high frequency omnidirectional range (VOR) systems must also continue as they are ground based and easier to monitor for faults. For rotational purposes, RNAV capability would have made units more efficient and safe, as they may have been more inclined to file instrument flight rules (IFR) when traveling cross-country (Figure). Filing IFR was not an option for the H-60M helicopter crews due to fuel constraints and lack of ground-based systems. The Army has addressed the issue and is working to field the Federated Advanced Navigation System (FANS) to rotational units. The fielding will provide H-60M crews the ability to perform their required functions faster, safer, and more efficiently as the Army's utility platform.

The process of creating a set foundation of goals to meet operationally and doctrinally while training should evolve as new units transition through Europe. Continuity must be maintained to enable new entrants to the area of operation up-to-date feedback. This will prevent rotational units from having to negotiate previous lessons learned that provided little leadership development and operational knowledge. This will enable Atlantic Resolve to continue to provide units the opportunity to learn a different operational tempo while also building unity with our allies.

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References:

Bialik, K. (2017). U.S. active-duty military presence overseas is at its smallest in decades. Pew Research Center Factank. Retrieved from http://www.pewresearch.org/fact-tank/2017/08/22/u-s-active-duty-military-presence-overseas-is-at-its-smallest-in-decades/

Martin, S. (2017). Does RNAV always mean GPS? Boldmethod. Retrieved from http://www.boldmethod.com/learn-to-fly/aircraft-systems/does-rnav-always-mean-gps/

Nicholas, M. (2017). After tanks the boots: Thousands of US troops touch ground in Europe on way to Russian frontier. GlobalResearch. Retrieved from https://www.globalresearch.ca/after-tanks-the-boots-thousands-of-us-troops-touch-ground-in-europe-on-way-to-russian-frontier/5568310

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MAXIMIZING MISSION COMMAND WITH BEHAVIORAL HEALTH ASSETS

By MAJ Rebecca A. Blood, Ph.D.

Filling a critical behavioral health need, as of 2013, two behavioral health officers (BHOs) have been placed within each combat aviation brigade's (CAB) footprint. Prior to this change, aviation brigades only received organic behavioral health support during deployments. Working together to maintain overall operational readiness of the Soldiers, a social worker and specialty aeromedical psychologist are assigned to the CAB, directly supporting the CAB mission and commander. In addition to the two BHOs—as of 2016—every CAB was assigned to an Embedded Behavioral Health (EBH) clinic. Not to be confused with your organic BHOs, the EBH team typically consists of 6–8 civilian providers, to include therapy providers, psychiatrists, and more recently, substance use disorder clinical care providers. Embedded Behavioral Health personnel are part of a hospital's temporary duty assignment—not the brigade modification table of organization and equipment—and the EBH's role is to support both the BHOs and CAB, while also fulfilling the Military Treatment Facility's (MTF) mission.

Photo by SPC Paige Behringer, 1st BCT, 1st Cavalry Division Public Affairs

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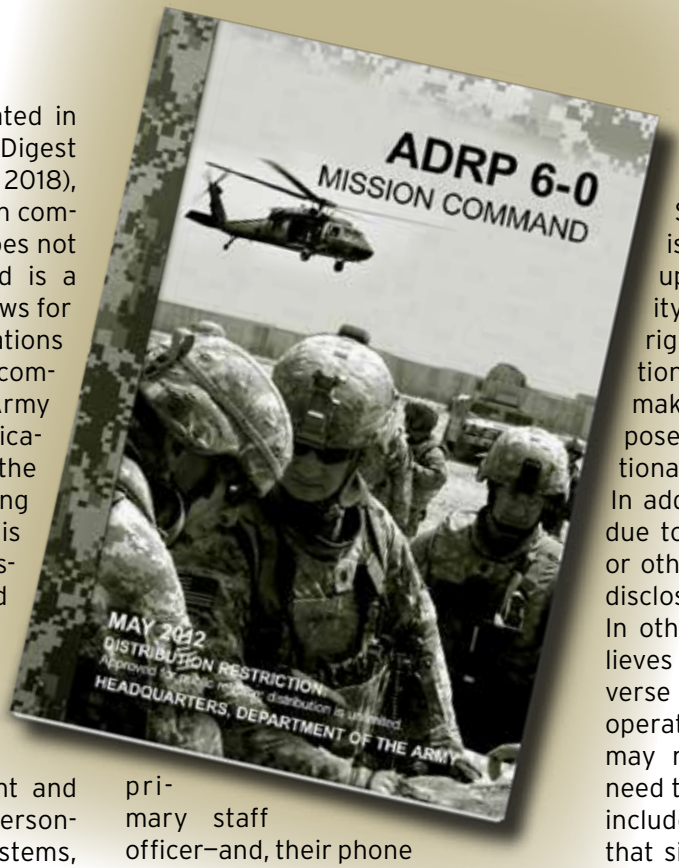
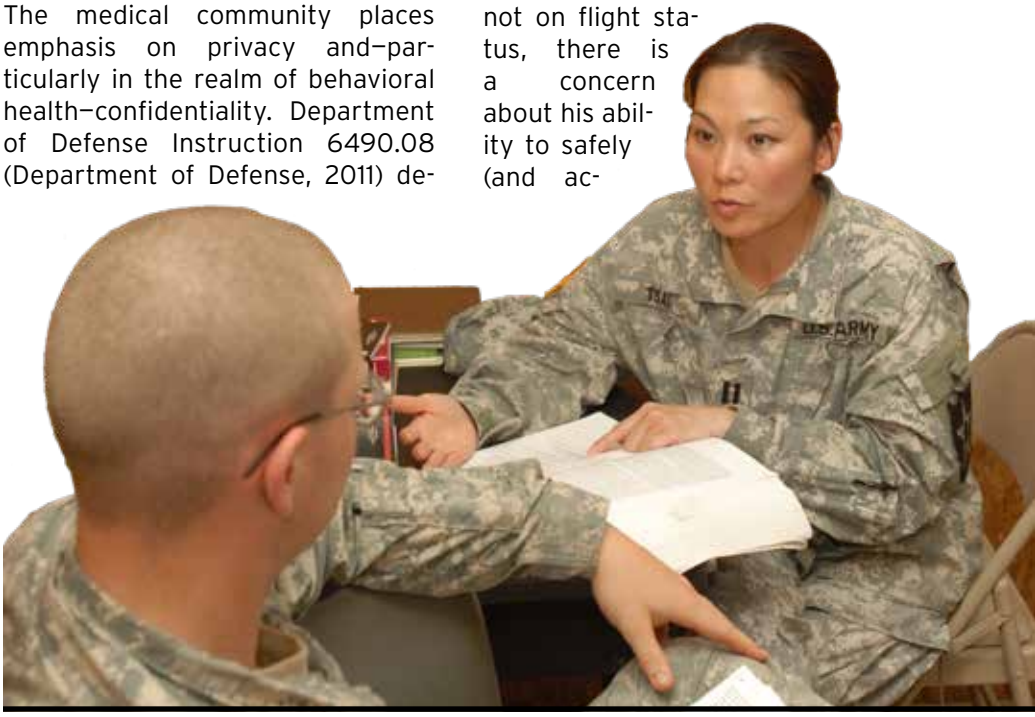


As MG William K. Gayler stated in the previous issue of Aviation Digest (Department of the Army, 2018), "there is little that the mission command warfighting function does not influence." Mission command is a function of authority that allows for both individual and organizations to exercise initiative to accomplish a specified mission (Army Doctrine Reference Publication [ADRP] 6-0). Although the mission command warfighting function itself is a term that is recognized and frequently discussed, the mission command system is often forgotten. According to ADRP 6-0, at every stratum of command, each commander establishes a mission command system. This is the arrangement and subsequent interactions of personnel, networks, information systems, processes and procedures, and facilities and equipment that enable commanders to conduct operations (Department of the Army, 2012). Personnel is the underpinning of the mission command system; the substance of the Army. Army Regulation (AR) 600-20 also emphasizes the importance of personnel within characteristics of command leadership. Specifically, it highlights the command's responsibility to, "… develop, maintain, and use the full range of human potential in their organization…critical factor in ensuring that the organization is capable of accomplishing its mission" (Department of the Army, 2014).

Why are we discussing mission command and behavioral health? Effectively utilizing behavioral health resources can significantly augment a commander's ability to exercise mission command. The BHO is a critical staff member, just as essential as the judge advocate officer and any primary staff officer—and, their phone number should be programmed into every company commander's speed dial! Frequent communication between the BHOs and command teams (at all levels—company, battalion, and brigade) is vital to the success of the mission. A quality relationship between command teams and BHO lends itself to increased communication, shared understanding of the interaction between mission and medical, and mutual trust.

The medical community places emphasis on privacy and—particularly in the realm of behavioral health—confidentiality. Department of Defense Instruction 6490.08 (Department of Defense, 2011) details the commander's role in dispelling stigma in providing mental health care to Service members. The intent is to provide balance between upholding patient confidentiality rights and the commander's right to know specific information in order for him or her to make informed decisions for purposes of risk mitigation and operational oversight of available forces. In addition to command disclosure due to concern about harm to self or others, providers are authorized disclosure due to "harm to mission." In other words, if the provider believes there may be a serious adverse effect to a specific military operational mission, the provider may notify the commander on a need to know basis. Some examples include current presenting issues that significantly affect impulsivity, insight, reliability, and judgment.

For example, a 15T (UH-60 Helicopter Repairer)—who is not on flight status—self-refers to behavioral health. The Soldier presents with severe depression. His symptoms include sadness, increased crying, difficulty concentrating, extreme fatigue (falling asleep while at work), and inability to sleep at night. Even though this Soldier is self-referring, is not suicidal or homicidal, and is not on flight status, there is a concern about his ability to safely (and ac-



FORT POLK, Louisiana. – CPT. Michelle Tsai, the behavioral health officer for the 4th Brigade, 2nd Infantry Division, conducts training with a Soldier in her office at the Joint Readiness Training Center June 17. Tsai, an Alexandria, Virginia. native, is here with the Raider Brigade in support of training operations for the unit's upcoming deployment to Iraq. (U.S. Army photo by PV2 Luke Rollins)

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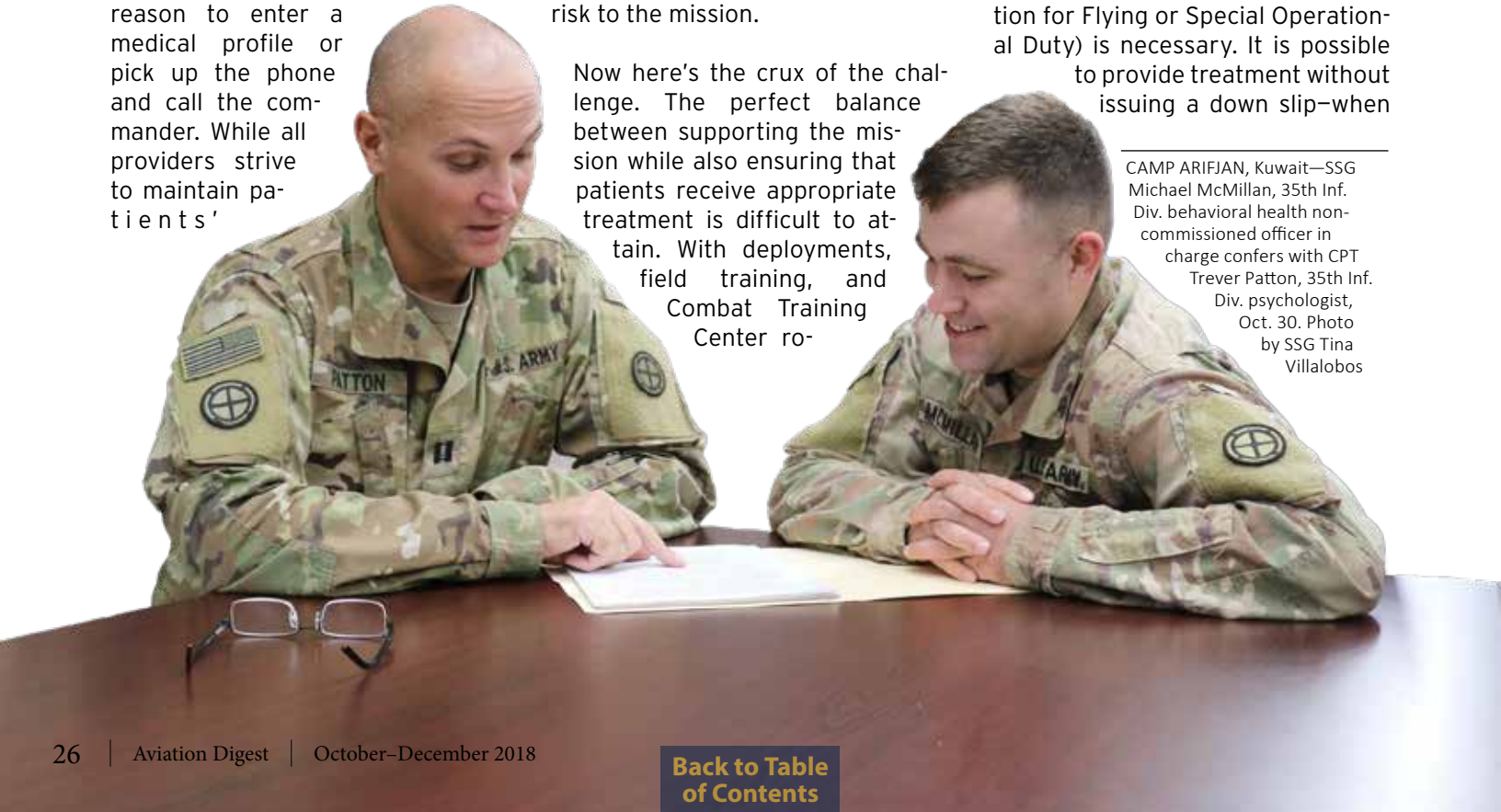
THE 3RD COMBAT AVIATION COMMAND TEAM OF COMMAND SGM GEORGE M. DOVE, CW5 TIMOTHY SMAIL, AND COL JEFFREY A. BECKER WELCOME ZOEY, THE NEWEST ADDITION TO THE EMBEDDED BEHAVIORAL HEALTH CLINIC ON HUNTER ARMY AIRFIELD. ZOEY IS A CERTIFIED THERAPY DOG AND IS OWNED BY DR. TIM FORTNEY (PICTURED), A CLINICAL PSYCHOLOGIST WHO PRACTICES AT THE CLINIC.

PHOTO BY SGT WILLIAM BEGLEY

curately) perform maintenance on the aircraft. Two questions BHOs often ask themselves when evaluating CAB Soldiers are: "Would I feel 100% comfortable flying in an aircraft that this individual just maintained?" and "Would I feel comfortable flying with this pilot or crew?" If the answer is not an unmistakable yes, then there is likely reason to enter a medical profile or pick up the phone and call the commander. While all providers strive to maintain patients' confidentiality, safety is paramount. In this case, a recommendation could be made to the commander to limit maintenance duties for this Soldier for a few weeks. The commander does not need to know specifics as to personal details underlying the depression, but he can certainly know that the Soldier is extremely fatigued and is a potential risk to the mission.

Now here's the crux of the challenge. The perfect balance between supporting the mission while also ensuring that patients receive appropriate treatment is difficult to attain. With deployments, field training, and Combat Training Center rotations, commanders are pressed to uphold a ready and reliable force. Aeromedical psychologists do their best to avoid unwarranted grounding of pilots and crew. Part of the medical mission is to aid commanders in maintaining a deployable unit; however, there are times when issuing a down slip (Directives Division Form 2992, Medical Recommendation for Flying or Special Operational Duty) is necessary. It is possible to provide treatment without issuing a down slip—when



CAMP ARIFJAN, Kuwait—SSG Michael McMillan, 35th Inf. Div. behavioral health noncommissioned officer in charge confers with CPT Trever Patton, 35th Inf. Div. psychologist, Oct. 30. Photo by SSG Tina Villalobos

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a Soldier is presenting with subclinical symptoms and their functioning is not impaired. A key point is that medical providers would much prefer to address symptoms before they become a more serious issue. Accordingly, do not wait until the "perfect storm of life" is happening before you decide to seek (or refer) treatment. It is in the best interest of all parties involved (command team, Soldier, and medical) to treat as early as possible.

Collaboration between the aviation community and behavioral health is essential for developing the proper state of unit readiness. Without an enduring and deliberate relationship, it is less likely that commanders and BHOs will have the trust and confidence in one another that is required for these difficult mission-related recommendations and decisions. Trust that the provider will not recommend treatment or a down slip unless absolutely necessary. Trust that the medical community is as invested in maintaining a deployable force as commanders. Trust that the medical community is attempting to ensure and balance safety and readiness––similar to commanders. Finally, trust that BHOs fully support the commander's intent, mission, and priorities and are striving to achieve a common goal.

CAPT VICTORIA CASHIO, THE BEHAVIORAL HEALTH OFFICER WITH THE 3RD INFANTRY DIVISION RESOLUTE SUPPORT SUSTAINMENT BRIGADE, TALKS TO MARRIED SOLDIERS DURING A FORUM AT BAGRAM AIRFIELD, AFGHANISTAN, MAY 31. CASHIO SAID, "THE PURPOSE OF THE MARRIED FORUM WAS TO PROVIDE MARITAL TOOLS AND IDEAS ON WAYS TO RECONNECT WITH SPOUSES WHEN WE GET HOME."

PHOTO BY SGT ELIZABETH WHITE

MAJ Rebecca Blood is currently a forensic psychology fellow at the Center for Forensic Behavioral Sciences in Washington, D.C. She was assigned with the 1st Air Cavalry Brigade as the aeromedical psychologist for 3 years and subsequently as the EBH Chief for this same unit. She earned her undergraduate degree from the State University of New York at Buffalo, a Master's degree from Towson University, and a doctorate degree from Georgia State University. She is a recent graduate of Command and General Staff College.

References:

Department of the Army. (2012). Mission command (Army Doctrine Reference Publication 6-0). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2014). Army command policy (Army Regulation 600-20). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2018, April-June). The command corner. U.S. Army Aviation Digest, 6(2), 2.

Department of Defense. (2011). Command notification requirements to dispel stigma in providing mental health care to service members (Department of Defense Instruction 6490.08). Washington, DC: Department of Defense.

SUSTAINING the BRIGADE COMBAT TEAM in the DECISIVE ACTION FIGHT

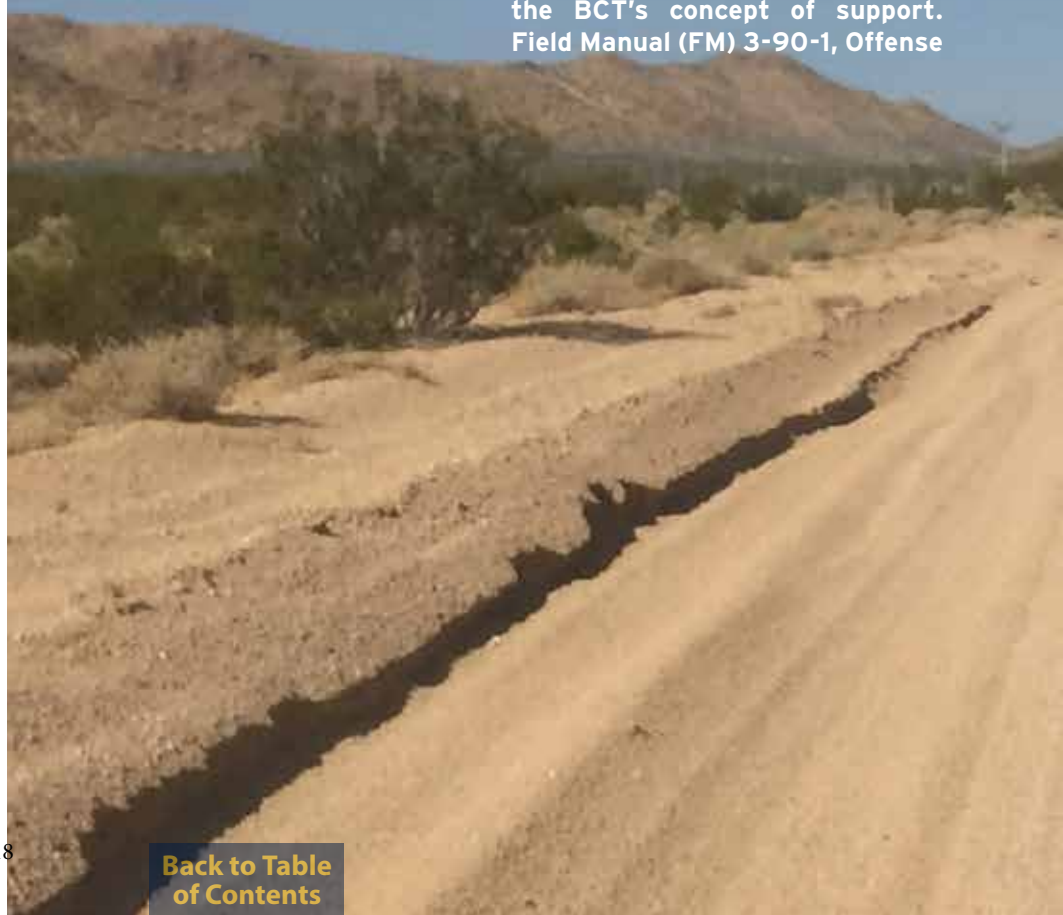
An Aviation Perspective

By CPT Edward Richards

Ground maneuver in the Decisive Action (DA) environment requires Brigade Combat Teams (BCTs) to establish and manage lines of communication across a potentially large and contested battle space to support and sustain Large-Scale Combat Operations (LSCO). The likely absence of proven and tested logistics infrastructures—especially immediately after initial forced entry into a theatre of operations—further compounds the inherent friction of conducting LSCO against a near-peer adversary and places an unfamiliar strain on unit operations. The National Training Center (NTC) at Fort Irwin, California, replicates this operational complication by blending its uniquely austere and expansive desert training area with an aggressive peer-level Opposition Force (OPFOR) capable of mimicking the complex hybrid threat observed in current and emerging conflict areas on the global stage.

At the NTC, units regularly struggle to synchronize their logistics support operations with their maneuver counterparts–a consequence of a systemic lack of consideration for logistics and sustainment factors during staff Military Decisionmaking Process (MDMP) and/or Rapid Decision Making and Synchronization Process (RDSP) efforts. Nonexistent, or at best, underdeveloped systems and processes to routinely collect and analyze sustainment information often inhibits the unit's ability to efficiently resource ground logistics efforts, let alone their ability to effectively incorporate the employment of rotary-wing assets in their concept of support. This failure to harmonize efforts across the entire spectrum of the Warfighting Function limits the commander's ability to achieve cross-domain synergy in the Multi-Domain Battle arena (U.S. Army Training and Doctrine Command, 2017-January).

Employment of Army Aviation rotary-wing assets provides the supported BCT commander with a myriad of tactical options to give him/her an unfair advantage over the enemy–this includes enabling the BCT's concept of support. Field Manual (FM) 3-90-1, Offense



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and Defense Volume 1 (Department of the Army, 2013), FM 3-96, Brigade Combat Team (Department of the Army, 2015-October), and FM 4-95, Logistics Operations (Department of the Army, 2014), all recognize the advantages of utilizing rotary-wing assets to provide a degree of operational dexterity and allow ground forces to overcome disrupted lines of communication. In fact, one of the seven core competencies of Army Aviation is to conduct air movement of personnel, equipment, and supplies (Department of the Army, 2015-July). So where is the disconnect?

DOCTRINE– MANUALS WITHOUT INSTRUCTIONS.

The ancient Chinese general, Sun Tzu, stated prophetically that if you "...know yourself...you will win all battles." Although knowing doctrine is certainly not the single key to success, it is a good place to start. Understanding the systems and science of tactics, logistics, and aviation capabilities builds the foundation upon which tactical options can develop, and the art of tactics can be practiced. This simple concept can enable the commander's means of creating a flexible array of forces, remove sustainment-related uncertainty from his/her decision-making cycle, and mitigate the stressful effects of combat on Soldiers (to a degree) (Department of the Army, 2017).

The Army has published a plethora of doctrinal references that address the different levels of sustainment in one fashion or another; however, these documents lack any substantial reference to the integration of rotary-wing assets into the BCT's logistics and sustainment apparatuses. Sustainment-specific doctrine, such as Army Doctrine Reference Publication (ADRP) 4-0, Sustainment (Department of the Army, 2012) and FM 4-95, Logistics Operations (Department of the Army, 2014), place emphasis on strategic and operational-level functions, but these publications holistically neglect to address operations at the tactical level. Consequently, BCT sustainment leaders and planners are left without a useful guide to integrate and utilize Army Aviation assets to set favorable logistic conditions for the BCT. The Army's sustainment publications only allocate a sentence or two for aerial resupply operations in more than a thousand pages of doctrine.

A challenge for the BCT is that they simply do not have the doctrinal base to guide their staffs through developing aerial lines of communication. The inverse is often true for Army Aviation, which has the base guide but often struggles with knowing its own doctrine. Establishing aerial lines of communication at the NTC is a process of great frustration for both the BCT and Aviation Task Forces (TFs) who both struggle with investing the necessary planning energy required to synchronize efforts. Army Techniques Publication (ATP) 3-04.1, Aviation Tactical Employment (Department of the Army, 2016-April), references types of air movement missions, capabilities, and load limitations of mission design series (MDS) aircraft,

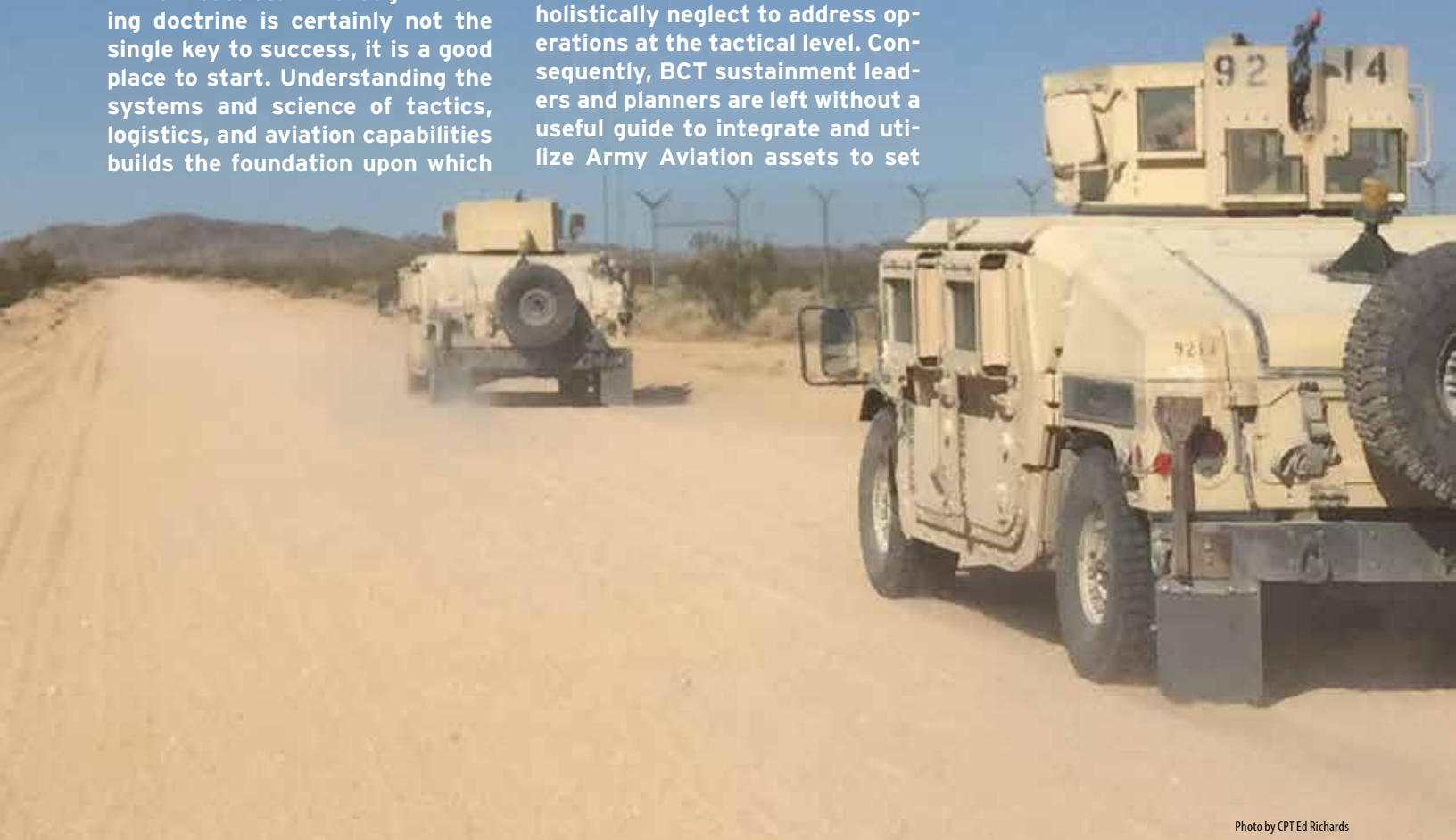

Photo by CPT Ed Richards

supported and supporting unit responsibilities, and methods of aerial resupply.

OBSTACLES—GETTING IN OUR OWN WAY.

Disrupting the BCT's ability to achieve cross-domain synergy from its sustainment enterprise—and to the point of this article—is often a result of lack of emphasis on maneuver tempo sustainability analysis. The BCT's unfamiliarity, or reluctance to develop a deliberate aerial resupply component to its concept of support, inhibits the requisite coordination needed to successfully conduct tactical air movements of personnel and supplies.

Doctrine already recognizes that the mission variety and operational complexity inherent to LSCOs requires sustainment operators to establish flexible and tailorable distribution systems to support tactical commanders (Department of the Army, 2017). Integration of rotary-wing assets into the BCT's concept of support enables the sustainment of the BCT commander's desired operational tempo when ground lines of communication are disrupted, frustrated, or impeded by austere terrain and/or enemy influences. When planned for and employed properly, rotary-wing platforms aid in mitigating tactical risk to sustainment operations, as well as the risks of overextending the Brigade Support Battalion's (BSB) and/or Combat Sustainment Support Battalions' (CSSB) organic capabilities (this concept can be scaled to the division level with sustainment brigades).

Although the added capabilities of aviation assets can minimize these risks, inadequate or incomplete planning and coordination can desynchronize and delay sustainment mission timelines during execution. The most significant obstacles hindering the successful execution of aerial resupply operations are the negative habits developed from nearly two decades of sustained small-intensity conflict during counterinsurgency (COIN) operations. The general support relationships employed in the Afghanistan and Iraq theatres have produced generations of leaders accustomed to an "on-demand" style of rotary-wing support, which in DA and LSCO, is no longer an afforded luxury. Deliberate planning and synchronization, especially when the BCT is not the division's main effort, are essential to the successful integration and employment of rotary-wing assets in support of BCT sustainment operations.

Taken during a UH-60 slingload drop during an aerial resupply operation at the National Training Center (NTC) (Photo by CPT Ed Richards).

When developing the BCT's concept of support, sustainment planners and operators, under the leadership of the BCT S-4, must identify critical gaps in the BCT's supply chain and determine when and how to utilize rotary-wing assets. This planning effort must be continuous and blend with the assessment portion of the operations process. The BCT S-4 and sustainment leaders at echelon must determine the operational energy required for each phase of the operation and calculate the necessary rotary-wing support to ensure the desired operational tempo is sustained. A way to get after this is to utilize the expertise and knowledge of an aviation liaison officer (LNO) positioned in the Brigade Support Area (BSA). If there isn't an LNO present, BCT commanders should request one, and aviation TFs should provide an individual who, because of their talent and expertise, has a palpable absence within the losing formation.

RELATIONSHIPS—COMBAT POWER CONTRACTS.

Determining the type of support relationship the BCT has with its aviation counterpart will drive much of the mission analysis process and assist BCT planners in the early identification of rotary-wing requirements. With the exception of MDS-specific load capacities and aircraft ranges, the fundamental principles of sustainment planning remain the same. Considerations for intermodal operations and the need for movement control remain the constant; however, the importance of terminal operations increase dra-

matically due to considerations for aircraft availability and station time (Department of the Army, 2014).

The lack of pre-mission coordination, the absence of procedural airspace control measures, and a lack of shared understanding of accurate unit locations habitually plague the aerial resupply process. These friction points prevent the efficient building of combat power in the BCT's close area and result in three major impacts: delayed and/or aborted Air Missions Requests (AMRs), a breakdown in the trust between the supported ground unit and supporting aviation element, and a waste of aviation combat power (fuel, maintenance, and aircrews) that borderlines negligence.

At the Combat Training Centers (CTCs), combat aviation trainers closely track these statistical trends, and the results are alarming. At the NTC where the Armor (ABCTs) and Stryker (SCBTs) brigades are the primary training audience, aviation units are regularly underutilized. Capable of transporting personnel and equipment with organic rolling stock, ABCTs and SBCTs rarely successfully incorporate rotary-wing assets in their logistic lines of communication. To reinforce this point, during a rotation at the NTC, an aviation TF transported less than 200 personnel and only 7,600 pounds (lb) of equipment in support of the rotational BCT, despite flying 225 flight hours over the course of 40 air movement missions. This particular rotation yielded a troubling success rate of 25 percent for aerial resupply[1] due to a lack of airspace synchronization at the brigade level, and the absence of terminal operations at echelon.

Although the aforementioned example is an extreme, it seems obvious that the expansive size of the NTC's training area would be cause in its own right for the increased utilization of rotary-wing platforms; however, such is not the case. Yet, the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, with a significantly smaller training area compared to the NTC, has experienced nearly polar opposite results. Rotational data yield a stark contrast of 3,460 personnel and 238,800 lb of equipment moved in a single rotation in support of an Infantry BCT[2] at its peak for Fiscal Year 2018. The organic ability, or lack thereof, to transport their (BCTs) own parts, people, and supplies has a direct correlation to the utilization of aircraft for logistics support; however, it neither negates the degree of planning and coordination necessary to successfully conduct air-ground operations (AGO), nor does it rationalize the underlying issue that we are simply not proficient at it with respect to sustainment.

Taken during a ground logistic convoy at the National Training Center (NTC) (photo by CPT Ed Richards).

THE FIX—A WAY.

So how do we get better? The question is simple enough, but as the German military strategist Carl von Clausewitz stated nearly three centuries ago, "Everything in war is very simple. But the simplest thing is difficult." Battalion and Brigade-level staff members must refocus the lens through which they observe this problem set and adjust the way we do business in order to rapidly aggregate disparate forces to exploit temporary dominance in select domains or decisive spaces by developing flexible and tailorable aerial lines of communication (U.S. Army Training and Doctrine Command, 2017-February). This starts with establishing and enforcing sustainment reports (LOGSTATS) and effectively synchronizing logistics efforts at echelon (LOGSYNCS) to generate situational awareness and gain depth to which the BCT commander can gauge his/her unit's tempo and trajectory. Where and how Army Aviation fits into the BCT's concept of support is predicated on the BCT's ability to receive routine running estimates, conduct detailed analysis of forecasted sustainment requirements, and synchronizing their internal priorities of support to their lines of effort—to include rotary-wing operations. Proper analysis of these data points will either produce the required routing and sequencing of allotted aircraft or generate the demand signal to submit for additional assets.

[1] Success measures formal Air Movement Requests (AMRs) executed within the assigned mission window without delays or mission aborts.

[2] Data reported from JRTC Combat Aviation training team as of July 2018.

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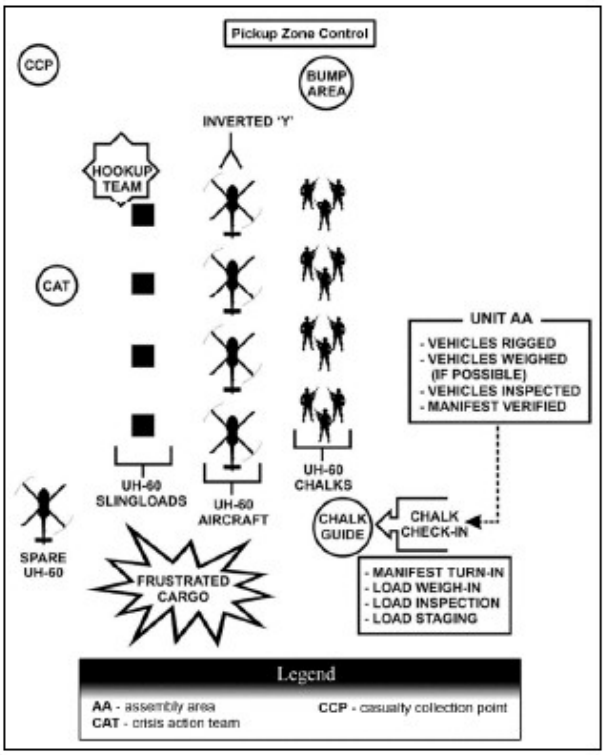

Figure 1. Pickup zone planning diagram (ATP 3-04.1-Department of the Army, 2016).

To ensure the correct aviation asset is requested at the right time, BCT S-4s must work closely with the organic Brigade Aviation Elements (BAE)[3] to ensure requests are requisitioned properly and in a timely manner. Additionally, when requesting rotary-wing support, BCT planners often focus on a specific MDS (i.e., CH-47s or UH-60s) instead of the desired end state. Similar to the processing of Department of Defense Form 1972, ***Joint Tactical Airstrike Requests*** (Department of Defense, 2003), AMRs should rather be focused on the desired effect—transport of palletized loads, sling load of fuel, blivets, etc. The aggregate approved AMRs should dictate the resourcing of the type aircraft, as the supporting aviation element will be best able to assess how to maximize use of its aircraft based on mission requirements. Army Techniques Publication (ATP) 3-04.1, Chapter 6 addresses the AMR process; however, it is not yet standardized throughout the Army (Department of the Army, 2016-April).

At the NTC, BCTs are allocated a limited number of utility and/or heavy lift aircraft in a direct support relationship in accordance with United States Army Forces Command (FORSCOM) training guidance. This limited support serves as a forcing function for both the BCT and the aviation TF to conduct detailed mission analysis of rotary-wing requirements. During nearly every rotation, a significant amount of operational friction is experienced by both elements when conducting tactical air movements and aerial resupply operations due to most of the factors already discussed.

Although the BAE cell plays a critical role in the requisition of aircraft, its role is not pigeon-holed to this one task. Working in conjunction with the BAE cell, BCT S-4s and Support Operations Officers (SPOs) can develop preplanned loads for aerial transport based on classes of supply and develop standardized terminal operations. Creating uniform pickup zone (PZ) control procedures (Figure 1), communications plans, helicopter landing zone (LZ) site criteria (Figure 2), and marking schemes (Figure 3) can assist in bridging the operational culture gap between air and ground units, thus satisfying many of the prerequisite conditions and reducing the probability of mission failure.

These procedural measures should minimize the chance of frustrated cargo and incorrect supply drops; however, it does not remove the necessity for routine (battle rhythm) coordination to ensure aerial resupply operations are nested both horizontally and vertically within the BCT's concept of support. Just as units establish Field Trains Command Posts (FTCPs) and Combat Trains Command Posts (CTCPs) to ensure resources are received and pushed forward to the appropriate end users at echelon, aerial resupply operations require a similar level of coordination; however, this command and control should be consolidated at the BCT level in the BSA.

[3]Sustainment Brigades are not modified table of organization and equipment (MTOE'd) a BAE cell and should route AMRs through the brigade-level battlespace owner in whose area of operations they operate.

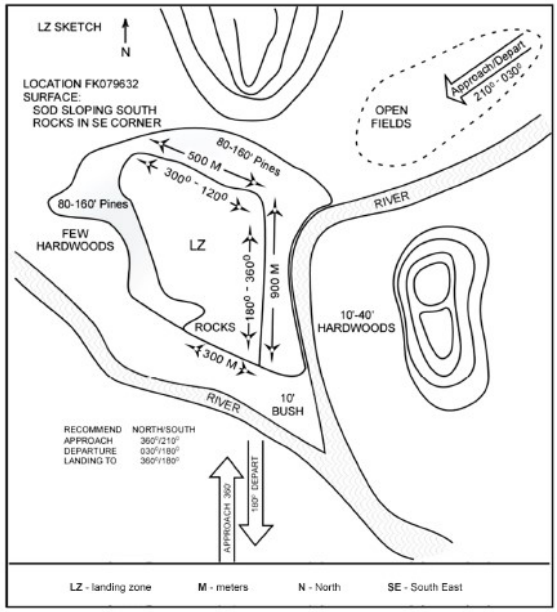

Figure 2. Example of landing zone sketch (ATP 3-04.1-Department of the Army, 2016).

Marking techniques for day and night pickup zones

Position In PZ	*Daylight Marking*	*Night Marking*
PZ entry	Guide and sign	Guide with 2 blue chemical lights
PZ control	M998 and VS-17 panel	2 green chemical lights on antenna
Aid station	M997	Steiner device
Chalk stage points	PZ control party guides/signs	Guide/blue chemical light per chalk
Lead touchdown point	VS-17 panel, smoke	Inverted Y, IR flashlight
Chalk touchdown points	Soldier on knees with raised rifle	IR chemical light per aircraft
Obstacles	Notify pilots on radio	Red chemical light ring around obstacle
Loads to be picked up	Hookup team on loads	IR chemical light per load

IR – Infrared
PZ – pickup zone
RP – release point
SP – start point

Figure 3. Marking techniques for day and night pickup zones (ATP 3-04.1-Department of the Army, 2016).

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Air Movement/Loading Table

Line #	Avn Unit	Lifted Unit	Lift #	Serial	Chalk	PZ	PZ Arr/ Load Time	T/O Time	SP Time	RP Time	HLZ	HLZ Time	HLZ Hdg	HLZ Form	Route		Load		Remarks
															Ingress	Egress	PAX	Sling	
1	4-379	SCT/1-603 IN				As per coord	As per coord				Raven	H-36+00:00	As per PIC	As per PIC	As per PIC	As per PIC	16		Bump 4
2	4-354	SCT/2-603 IN				As per coord	As per coord				Oriole	H-35+59:00	As per PIC	As per PIC	As per PIC	As per PIC	16		
3	3-354	2/C/6-4 CAV(-)				As per coord	As per coord				Pelican	H-35+58:00	As per PIC	As per PIC	As per PIC	As per PIC	20		Bump 12
4	3-354	2/C/6-4 CAV(-)				As per coord	As per coord				Dove	H-35+57:00	As per PIC	As per PIC	As per PIC	As per PIC	8		TAC CP

Table Note.
ARR – arrival
AVN – aviation
CAV – cavalry
COORD – coordination
TAC CP – tactical command post
FORM – formation
HDG – heading
HLZ – helicopter landing zone
T/O - takeoff
IN - Infantry
PAX – passenger
PIC – pilot in command
RP – release point
SP – start point
PZ – pickup zone

Figure 4. Example of an air movement/loading table (ATP 3-04.1-Department of the Army, 2016).

Consolidating rotary-wing coordination at the BCT level permits the prioritization of support for the entire brigade, not just a subordinate battalion. Additionally, frequent updates to locations, times, and mission requirement (cargo and personnel) must be transmitted to the supporting aviation unit for their pre-mission planning (Figure 4). This exchange of information must be a battle rhythm event for routine aerial resupply missions and a mission essential task during immediate (emergency) aerial resupply requests.

When consolidating mission command of aerial resupply operations, a primary, alternate, contingency, and emergency (PACE) plan must be developed and understood by all mission elements, to include aircraft. Oftentimes, line-of-sight communications will not effectively reach mission aircraft at all points along their route; over-the-horizon communication must be utilized if available. If blue force tracker/joint capabilities release (BFT/JCR) messages are to be used, a dedicated and identified user role name must be designated and monitored. All rotary-wing aircraft are equipped with this capability, but the communications structure must be identified early and enforced in order for it to be effective. Whether routine or immediate, the BCT S-4, in conjunction with the BAE, must develop and conduct mission command of aerial resupply operations (or at the very least, finalize planning and pre-mission coordination for decentralized execution). Through the analysis of running estimates, the BCT S-4 and SPO should maintain routine contact with the supporting aviation element and provide updated mission information at the earliest opportunity. However, mission command is not synonymous with mission command information systems (MCIS), and sustainment planners at echelon must understand the concept of support. In the preparation phase, movement control officers play a critical role managing not only the flow of personnel and supplies but also terminal operations.

During DA rotations at the NTC, BCTs often struggle to invest a sufficient level of planning energy for employment of attack rotary-wing platforms in support of offensive and defensive operations, let alone the use of utility and cargo rotary-wing platforms to facilitate their sustainment. The lack of staffing emphasis on aviation is evident in their orders productions, which often omit any details of substance for rotary-wing operations. On the flip side, aviation TFs often fail to read the BCT's orders in their entirety, and frequently disregard Annex F (Sustainment) of the operational order. This mutual lack of understanding is a root problem, but can be mitigated by establishing and sharing a logistics common operating picture (LOGCOP) with the supporting aviation TF. It may seem redundant, but it is a way.

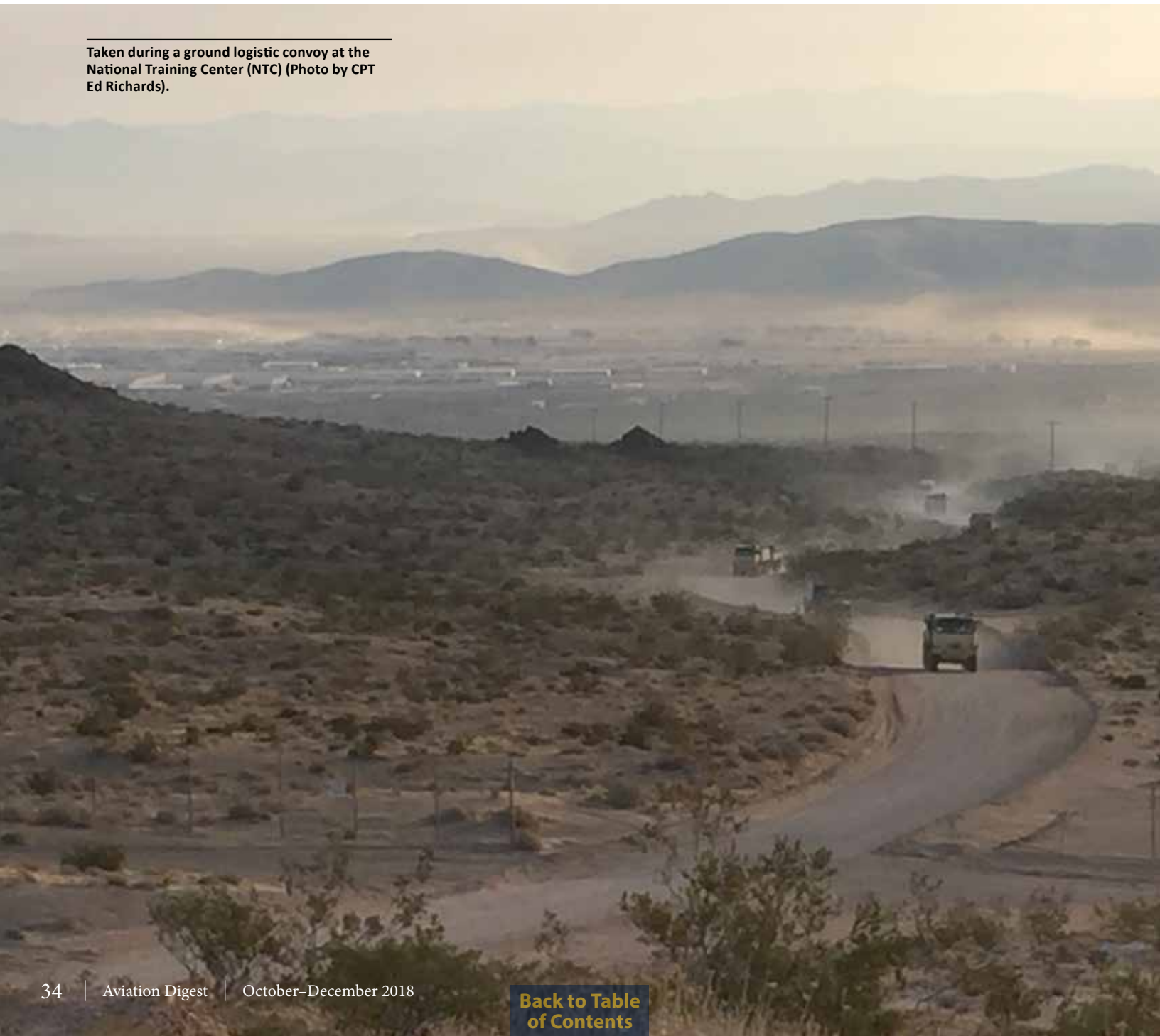
Understanding the operational requirements and available aviation assets is only part of the puzzle. Like ground sustainment operations, rotary-wing assets can utilize designated routes to traverse the battlespace; however, unlike ground convoys, aircraft are not restricted by terrain or to existing infrastructure. This statement may be painfully obvious, but what is not obvious is the level of airspace coordination required for aircraft to negotiate a complex airspace (enabling the synchronization of joint fires and ground maneuver) and survive an

Taken during a UH-60 dust landing at the National Training Center (NTC) (Photo by CPT Ed Richards).

enemy integrated air defense system (IADS) inherent to peer-level adversaries.

Airspace coordination and synchronization is an essential component to the successful employment of both attack and lift rotary-wing assets. Though the BAE and G3 Air elements are often undermanned and under-resourced, they are critical players in ensuring aircraft can successfully negotiate a complex airspace system below the coordinating level. Sustainment planners should not develop aerial resupply plans without consulting the BAE for both aircraft capabilities and airspace synchronization. Unlike COIN operation, airspace in the DA environment is inherently congested and requires deliberate planning to ensure fires and effects are synchronized throughout the battlespace and aircraft risk to IADS is minimized. Use of appropriate airspace coordination measures (ACMs) will enable airspace synchronization and ensure rotary-wing freedom of maneuver.

Implementing use of standard use Army aircraft flight routes (SAAFRS) and air corridors (AIRCOR) will expedite movement of equipment and personnel to/from division logistics support areas, BSAs, field trains, and combat trains (Department of the Army, 2016-October). Depending on the disposition of the battlespace, and the designation of division and brigade consolidation and support areas, ACMs may not be needed; however, decisions should be deliberate, not arbitrary, and based on planning convenience or lack of airspace understanding. Additionally, and arguably most critical, is the frequent reassessment or airspace requirements for aerial resupply operations. Does the



Taken during a ground logistic convoy at the National Training Center (NTC) (Photo by CPT Ed Richards).

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need for a dedicated route structure exist, or can the same effect be achieved utilizing existing ACMs and fire support coordination measures (FSCMs)?

As the battlespace evolves and units maneuver in both the offense and defense, these requirements must be continuously addressed. Within the division and BCT consolidation areas, the need for route structures may not exist as artillery assets might not be positioned in that area, and if they are, FSCMs may be sufficient. However, within the BCT and division close areas where commanders position most or all of their maneuver forces to rapidly concentrate overwhelming combat power to exploit success (Department of the Army, 2017), it would be prudent to implement these procedural ACMs. During rotations at the NTC, units too often stovepipe their planning and fail to integrate airspace into the development of their concept of support. A recommended tactic, technique, and procedure is to establish critical sustainment nodes (BSA, CTCPs, FTCPs, Forward Logistics Elements [FLEs], and Logistics Release Points [LRPs]) in proximity to established air route structures as these supply nodes approach the close area. Such practice will minimize airspace desynchronization and add an additional layer of redundancy to mission command systems in the event of upper tactical internet (TI) failure.

THE SO WHAT—"MAKING AGO GREAT AGAIN."

To achieve the desired cross-domain synergy outlined in the Army's Multi-Domain Battle Concept, sustainment leaders and planners must adjust their planning paradigm to encompass a broader understanding of Army rotary-wing capabilities and limitations as it pertains to their logistics operations—and aviation needs to help frame these requirements for the ground customer and aid them in navigating this process. As the Army collectively makes the transition from a COIN to an LSCO focus, it owes its maneuver formations a better doctrinal product that bridges the information gaps between the air and ground so that the end user staffs can rapidly conceptualize and employ Army Aviation. In the interim, executers and planners must ensure analysis of logistics requirements are conducted to the level of fidelity required to sustain the commander's desired operational tempo and ensure efforts do not prematurely culminate due to a sustainment failure.

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References:

Department of the Army. (2012). Sustainment (Army Doctrine Reference Publication 6-0). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2013). Offense and defense volume 1 (Field Manual (FM) 3-90-1). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2014). Logistics operations (Field Manual 4-95). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2015, July). Army aviation (Field Manual 3-04). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2015, October). Brigade combat team (Field Manual 3-96). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2016, October). Airspace control (Field Manual 3-52). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2016, April). Aviation tactical employment (Army Techniques Publication 3-04.1). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2017). Operations (Field Manual 3-0). Washington, DC: Headquarters, Department of the Army.

Department of Defense. (2003). Joint tactical airstrike requests (Directives Division Form 1972). Washington, DC: Department of Defense.

U. S. Army Training and Doctrine Command. (2017, January). The U.S. Army functional concept for sustainment 2020-2040 (Training and Doctrine Command [TRADOC] Pamphlet 525-4-1). Fort Eustis, VA: Headquarters, United States Army Training and Doctrine Command, Department of the Army.

U. S. Army Training and Doctrine Command. (2017, February). The U.S. Army functional concept for movement and maneuver 2020-2040 (Training and Doctrine Command [TRADOC] Pamphlet 525-3-6). Fort Eustis, VA: Headquarters, United States Army Training and Doctrine Command, Department of the Army.

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GETTING BACK TO THE BASICS:

ENGAGEMENT AREA DEVELOPMENT AND DIRECT FIRE PLANNING

By CPT James R. Duffy, Jr.

In the current operational environment, rarely do we see battalion-level deliberate attacks, even in training. The world's premier training facility, the National Training Center in Fort Irwin, California, currently only trains up to company-level deliberate attacks. During company-level deliberate attacks at the National Training Center, generally the aviation task force is given an engagement area from either the division or the rotational brigade. The battalion task force staff assumes the brigade or division has completed the first two to three steps of engagement area (EA) development creating a lack of ownership, resulting in the staff not completing or further refining any of the steps. In fact, the majority of the time the task force staff will subcontract the entire planning process down to the company level, either due to ignorance on EA development, perceived lack of time, or general apathy. Over time, this reinforces several poor habit transfers and atrophy in the event we must execute a battalion-level attack during large-scale combat operations (LSCO).

Photos by SPC Daniel Parrott. Background photo by CPT James R. Duffy, Jr.

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The attack planning process starts with EA development. The battalion task force develops its plan in parallel with the brigade and its subordinate companies (Figure 1; Department of the Army [DA], 2016). Army Techniques Publication (ATP) 3-04.1 continues stating, "The battalion or TF [task force] is responsible for planning EAs, whereas the company conducts direct fire planning" (DA, 2016). This is the exact phrase I hear almost every single rotation from company commanders. It does state that the battalion task force is responsible for EA development; however, it also states that the plan is conducted in parallel with the higher and subordinate units. This means the company has a vested interest in the EA development plan. While ATP 3-04.1 outlines the planning process for a battalion-level attack in which a higher level of integration between several companies is needed, it is easy to delegate the entire planning process to the company during a single company attack. This is equally, if not more harmful, than the company attempting to only plan direct fire.

1 STEP 1–INTELLIGENCE PREPARATION OF THE BATTLEFIELD

This is probably the largest gap in the EA development process if a task force delegates the attack planning down to the company level. The company is neither equipped, nor does it have the expertise to conduct intelligence preparation of the battlefield (IPB) to the requisite level. The task force staff cannot simply repurpose the general or overall enemy situation for the entire area of operations and neither should they repackage the products that the brigade handed them. The aviation S2 needs to develop specific information for the attack to include the possible enemy courses of action (COA) most probable through most dangerous in descending probability for both the ground forces and aviation assets. Intelligence preparation of the battlefield is the foundational support of the overall attack plan. The S2 (at a minimum) must answer the following questions before the operations order (OPORD) is published to the companies:

- WHERE IS THE ENEMY CURRENTLY LOCATED?
- WHERE IS THE ENEMY GOING?
- WHERE CAN WE BEST ENGAGE THE ENEMY?
- WHEN WILL THE ENEMY BE THERE?
- WHAT WEAPONS SYSTEMS DO THE ENEMY HAVE THAT CAN AFFECT OUR UNIT (DA, 2016)?

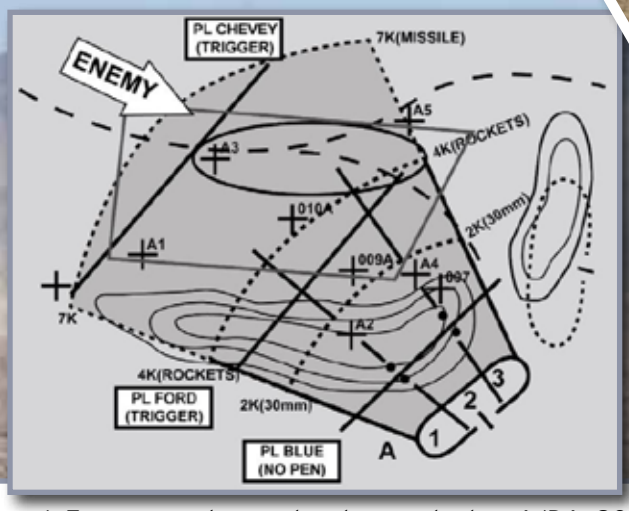

Figure 1. Engagement area development, step 4 (DA, 2016).

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Although this first step of the EA development process is primarily driven by the S2 that does not relieve the company of any responsibility for helping to develop the plan. The company has a great resource to assist the S2 section in the IPB process, the aviation mission survivability officer (AMSO). The AMSO provides support to the intelligence section's threat analysis, identifying enemy threat to aviation capabilities and limitations that affect the commander's ability to conduct aviation missions (DA, 2015). This great and often underutilized resource within the company will greatly increase survivability and lethality of aviation assets.

2 STEP 2–SELECT THE GROUND FOR THE ATTACK

Oftentimes, the division or brigade will have already selected the ground for the attack in the sense they have selected a box or area they are calling an engagement area. This is not sufficient. The task force staff needs to drill down further using the S2/AMSO's analysis of the enemy and select the exact place and time on the ground the enemy will be attacked. The task force and companies need to focus on enemy maneuver corridors and begin refining the named areas of interest (NAIs) and targeted areas of interest (TAIs) that resulted from step 1 of the EA development process.

3 STEP 3–INTEGRATE THE ENGAGEMENT AREA

Integration of the engagement area is often overlooked during company-level attacks by the task force, but should be one of the most highly focused areas. The company will/should have a large part of the planning in this area. The first step of integrating the engagement area is determining battle positions for the company based on terrain and a 75 percent (%) probability of kill (Pk)

Photo by SPC Daniel Parrott.

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for the helicopter's primary weapon system (DA, 2016). Terrain that is favorable to battle positions may also be favorable to enemy weapons employment. The task force guided by the commander will have to come to an agreement on the acceptable level of risk and attempt to mitigate it to the lowest level with the help of the AMSO.

Step 2 of integrating the engagement area can be scaled down from ATP 3-04.1. Although the manual talks about company battle positions, we can easily make it into platoon-level or team battle positions to ensure complementary direct fires. A great tool for this is the aviation mission planning system (AMPS). The task force staff, along with the company, can perform the line of sight analysis for each of the battle positions from varying heights. This will not only ensure we have converging fields of fire, but also will identify the dead space between each of the battle positions (BPs). Step 3 of integrating the engagement area is the final refinement of the engagement area along with the integration of fire support. In order to meet the commander's intent, the task force master gunner must determine the type and amount of munitions required to meet the destruction criteria. After the EA wargame, the fire support officer (FSO) along with the S3 and S2, will integrate the use of artillery, close air support (CAS), electronic warfare (EW), and mortars to shape the operational environment for the company's direct fire fight. Target reference points (TRP) should be utilized to cover possible avenues of escape for the enemy, and most importantly, to cover the dead space the company cannot engage with direct fires. Operating in a contested airspace environment with an integrated air defense system (IADS), the use of suppression of enemy air defense (SEAD), and electronic warfare is especially important. The FSO, along with the EWO, should develop an EW/SEAD plan that is equally as important as the tube or rocket artillery. Some of the major considerations of planning fires employment that are often forgotten are:

- WHO IS INITIATING THE FIRES?
- HOW ARE WE INITIATING THE FIRES?
- HOW WILL WE SHIFT FIRES?
- WHO WILL SHIFT FIRES?

4 STEP 4–DIRECT FIRE PLANNING

The direct fire plan is generated by battalion planners with input from the company planner (DA, 2016). Again, it is emphasized that direct fire planning is neither solely a battalion problem nor solely a company problem. Both entities have a vested interest in producing the best plan possible. The principles of direct fire planning are: mass fires, leaders must control fires, crews must understand the fires plan, focus fires, distribute fires, shift fires, and rehearse the fire plan. The company commander is responsible for the control measures of the direct fire fight and initiates the direct and indirect fire plan. On-scene visualization will help the company commander choose which fire distribution method to employ. These include: closest TRP, quadrants, fire patterns, target array, sectors, and priority fire zones (Figure 2, DA, 2016).

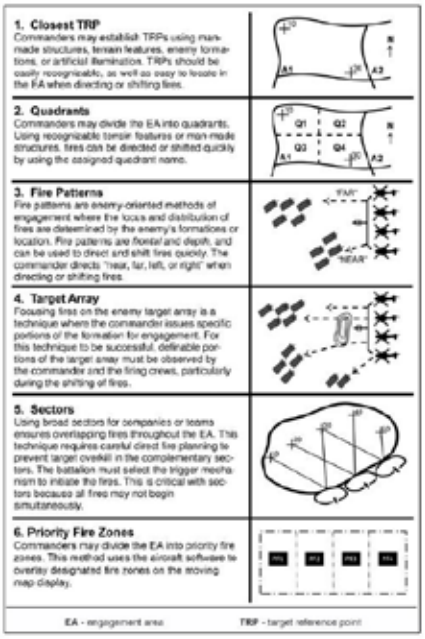

Figure 2. Techniques of fire distribution (DA, 2016).

Photo by CPT James R. Duffy, Jr.

After more than a year at the National Training Center, I estimate 75% of the deliberate attack missions we conduct do not have a direct fire plan. A robust direct fire plan is absolutely crucial in order to conserve ammunition and prevent overkill. This is a direct reflection of most aircrews not knowing or understanding the principles for distributing fire. The principles for distributing fire are:

- DESIGNATION OF WHICH AIRCREW WILL ENGAGE WHICH TARGETS IS DECIDED DURING PLANNING.
- DESIGNATION OF WHICH WEAPONS WILL ENGAGE WHICH TARGETS IS DECIDED DURING PLANNING.
- CRITICAL TARGETS ARE ENGAGED FIRST.
- ENGAGEMENTS ARE CONDUCTED LATERALLY AND IN-DEPTH SIMULTANEOUSLY.

Without a cogent direct fire plan that is integrated into the overall plan, the aircrews will piecemeal targets and not get the desired effects on the enemy. Utilizing the AMPS, we have several powerful tools at our disposal to increase ease of use and lethality. Priority fire zones (PFZ) are the primary method of distribution. A maximum of eight priority fire zones can be created and displayed in the aircraft. We can preprogram these and based on the situation or the objective, the commander can reorient the PFZs quickly and easily. Additionally, if it is preferred, the company can utilize ground lights or F1 control measures to execute the closest TRP fire distribution. Preplanning all of these control measures ensures that everyone in the flight is on the same page and working off the same graphical control measures throughout the mission.

Companies do a good job with fire control using both triggers and fire commands. This harkens back to our days in Operation Enduring Freedom in which fire control was a very important aspect of the engagement sequence. However, there are specific areas we can improve on as well. The muscle memory we have built over time in the counterinsurgency fight has created a bad habit of not correctly choosing the weapons fuse combination for the targets we intent to engage. Also, once on the objective, aircrews have the tendency to engage the first thing that comes into their view without regard to the overall enemy situation. In a target-rich environment, a unit may expend its ammunition and still not meet destruction criteria. Each weapon must be used effectively (DA, 2016). The following principles of fire control should be taken into consideration:

- ENSURE ENGAGEMENT PRIORITIES ARE FULLY UNDERSTOOD. THE TARGETS POSING THE GREATEST THREAT TO FORCE MUST BE DESTROYED FIRST TO EXPOSE THE MORE LUCRATIVE TARGETS.
- CONCENTRATE ON LONG-RANGE TARGETS. THIS PRINCIPLE WILL PROVIDE STANDOFF AND ALLOW THE COMMANDER TIME AND MANEUVER SPACE.
- TAKE THE BEST SHOT AND MINIMIZE EXPOSURE. THIS PRINCIPLE WILL INCREASE Pk, CONFUSING THE ENEMY IN REGARD TO FRIENDLY FORCE SIZE AND DISPOSITION.

CONCLUSION

As a whole, we need to take a much closer look at EA development and direct fire planning at both the battalion and company levels. Understanding the fundamentals of attack planning is not only the responsibility of attack reconnaissance battalions, but also assault battalions with attack aviation assets under task force configuration. It is especially important at training venues such as the National Training Center, where we have a hybrid enemy, a robust IADS airspace environment, and the harshest terrain in the world, to focus our efforts on improving our units to be "Ready Now." Army Aviation is outstanding in answering the call of the ground force commanders, quickly gaining situational awareness and creating effects on the enemy. As we focus on training for LSCO, we need to reorient ourselves and get back into deliberate operational planning that will serve as our fundamental base in the future when we are time restricted, dispersed, and without the mission command systems we currently enjoy.

CPT James Duffy is an attack company trainer at the National Training Center. Previous assignments include: Commander C/1-227 ARB, Assistant Operations Officer 3-6 HARS, and Attack Platoon Leader B/1-501 ARB. CPT Duffy currently has 8 years of Army Aviation service. He is an AH-64D/E pilot-in-command and served in Operation Enduring Freedom in Afghanistan.

References:

Department of the Army. (2016). Aviation tactical employment (Army Techniques Publication 3-04.1). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2015). Commander's aviation mission survivability program (Training Circular 3-04.9). Washington, DC: Headquarters, Department of the Army.

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Aviation's Newest Training Circular and the Aviation Maintenance Training Program

BY CW4 DUSTIN CASE

The Aviation Maintenance Training Program (AMTP) represents a culture change in aviation maintenance for the Army. We must develop a culture where technical skill has greater value, and a culture where mentors pass on their technical skill to journeymen. We must develop a culture where Soldiers perform maintenance with high-quality-standards and with efficiency, and our readiness rates and morale benefit. We have experienced atrophy in our execution of complex aviation maintenance tasks in the last decade. As with physical training, we must endure pain to improve our stamina and strength. We must make a deliberate decision to protect and improve upon the maintenance skills we have.

Soldiers of 1st Battalion, 3rd Aviation Regiment (Attack Reconnaissance) conduct 500 hours phase maintenance on an AH-64 Apache helicopter at Katterbach Army Airfield, Germany, Feb. 23, 2018. (U.S. Army photo by Charles Rosemond)

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It's important to point out that Training Circular (TC) 3-04.71 (Department of the Army [DA], 2018) does not create a new requirement. Commanders have long been required to train Soldiers to conduct maintenance as part of the Army Materiel Maintenance Policy (DA, 2017). The new training circular is designed to aid the noncommissioned officer (NCO) and the commander in that training. It standardizes the model to receive a maintainer in the operational domain, then integrate them into well-organized maintenance practices that include deliberate training.

The Federal Aviation Administration (FAA) expects a technician to have 30 months of experience before they are even eligible to attempt the exam for an airframe and power plant license. The average time an aviation maintainer spends in Advanced Individual Training (AIT) is about 4 months. If you are following the math, the implied task for our leaders is about 26 months of training in the operational domain for each individual maintainer. Referencing FAA standards, it takes longer to properly train a mechanic than it does to train a pilot. Let that sink in. The biggest difference between training a pilot and training a maintainer is where the majority of the training occurs.

SPECIAL SEGMENT: You might ask, why does it take so long to train an aircraft repairer? The answer is simple, these are the most complex machines in the Army's inventory; with even more complexity in logistics and management.

The repairer must grasp electrical theory, hydraulic theory, and material stresses. They must learn how each system interfaces with the other systems. What about the fault page, you ask? The fault page on an Army aircraft is about as accurate as the 8-ball on the First Sergeant's desk. They must learn to use hand tools, special tools, and test equipment. The books and references required number more than 100. How many professions in the Army have more than 100 written reference publications?

The maintainer must also learn the Army's materiel management practices. They must learn to order parts, handle hazardous material correctly, and record all of their actions on the aircraft. While they learn the Army requirements, they have to learn the local procedures. Where do you take the parts required to process a work order in the support battalion? How do you get the unusual corrosion compound required for this rotor head repair? What is a source, maintenance, and recoverability (SMR) code? Can you order Class II parts through technical supply? Well, how did you know it was a Class II part? What about condition-based maintenance? How do you check the vibration levels? Do you know how to log in to these four different computer applications? Is an oil sample necessary? How about the ground power unit, can you operate the hydraulics using ground power? I could go on and on; high-quality aircraft maintenance is not easy.

The 10-level is the entry level to the operational domain. All Soldiers are trained at the 10-level in AIT for their military occupational specialty (MOS). Advanced individual training does not make Soldiers proficient. They are considered apprentices in their duty designation. Once they arrive at their first unit of assignment, they continue training at the 10-level. This critical phase can be compared to the instrument phase, advanced aircraft training phase, and readiness level (RL)3-RL2 phase for an aviator. Obviously, the aviator completes most of this training in the institutional domain. The maintainer receives most of their training in the operational domain.

The good news is the commander has a small Army to conduct the training. The platoon sergeants, section sergeants, squad leaders, and team leaders must mentor and set standards. The NCO leaders focus their efforts, and the maintainer will close on proficiency at the 10-level in the first year. The new maintainers' goals include being designated as a specialist. It's not a coincidence that their maintainer designation correlates with the rank. In terms of aviation maintenance, a true specialist has the skill equivalent to an RL1 aviator. Young maintainers should move frequently for individual development; maybe a year in the maintenance company, a year in the flight company, a year in the support company. There is no substitute for experience, and these young Soldiers should be exposed to many different NCO mentors. Again, compare this phase to aviators-new aviators never fly with a pilot whom has less experience than they do.

One of the charter principles of the AMTP is to create a clear progression model. The model uses a combination of task levels and duty positions. Duty positions are important to building experience and knowledge for the maintainer—as RL progression is important for developing an aviator. Upon designation as a specialist, the maintainers' immediate goals are to be designated team leader and attend the Basic Leader Course. As a team leader, the commander expects from the maintainer the same sound judgment and mentorship that a pilot-in-command provides an aircrew. The team leader works with his or her team to complete complex 20-level tasks. The team leaders are probably 2-year veterans with operational or training center rotation experience. They fully grasp the importance of flight critical components. They understand the unit standard operating procedure (SOP), the technical manuals, and can correlate changes published in a maintenance message. The team leader is beginning to carry more responsibility—responsibility for the company's test, measurement, and diagnostic equipment (TMDE), bench stock, or petroleum, oils, & lubricants (POL) storage, much the same way pilots picks up additional duties. These additional duties build depth in the maintainers. They begin to understand the supply system, special tools, and understand why the military specifications on POL products is important to flight safety. They can easily handle basic maintenance like daily inspections, servicing, and corrosion control.

When Soldiers exhibit proficiency at skill level-20, they should be prioritized for attending the Advanced Leader Course (ALC). In the train-up for ALC, these NCOs study quality control, production control, dig deep into aircraft systems, and look for other self-development opportunities. A number of individual development opportunities are listed in Appendix B of the new TC (DA, 2018). Again, the commander must dedicate time for senior NCOs to mentor these mid-level trainers and managers. The cycle continues through the three training domains as the skill level increases.

SPECIAL SEGMENT: Aviation units are all busy. There is no down-time, and we have to create mentoring opportunities through planning and attention to detail. Maintainer training must be included in the company training meeting: How many skill level-10 maintainers with the apprentice duty designation does the unit have? How many maintainers are designated for duty as specialist? How many for team leader? Do we have enough team leaders to repair three aircraft simultaneously? How about four? We must also be asking questions at the battalion and brigade meetings. How many phase teams do we have? How many field maintenance teams could we stand up tonight? How many aircraft could we fold, transport, and unfold in the next 10 days? Could we do two phases and deployment operations at the same time? The answers to these questions are hidden in actions. How much outside maintenance support did your unit need to get your aircraft to the National Training Center? The culture change we need is one in which leaders place as much emphasis on training maintainers as they place on training flight crew members.

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The AMTP initiative also includes changes in the institutional domain. Each affected MOS is undergoing restructuring at AIT, and both the Fort Rucker and Fort Eustis NCO Academies are developing better synchronized programs of instruction. Another critical point to this program is structuring the individual critical task list to aid in that synchronization. The analysis for restructuring the lists happens during a board process called the critical task and site selection board. The Training and Doctrine Command (TRADOC) process is used to develop a Soldier career model. Following the design prepares Soldiers to support unit collective tasks and step-up in levels of responsibility as they progress.

Back in the operational domain, the brigade should be thought of as a machine that creates maintenance teams; the same way it creates aircrews. Commanders have the authority to add to the TRADOC-approved list and to strike a task off the list when the task is not suitable for their unit. In the case of a 15T repairer for example, the commander of a supply & service battalion would delete tasks for a UH-60 and focus on the tasks for a UH-72. The ultimate goal is for maintainers and their leaders to clearly understand the training received and the training necessary to support the unit's requirements. The training standards are available for download from the Central Army Registry, the Army Training Network, or the Digital Training Management System. There is more information on the critical task list in the new TC (DA, 2018).

At the Worldwide Aviation Logistics Conference hosted by the Aviation and Missile Command at Redstone Arsenal 12 July 2018, MG William Gayler spoke about the AMTP, stating that we should "make it clear that [the AMTP] is not about evaluating Soldiers. The program is about training Soldiers" (Gayler, 2018). Chapter 3 of the new training circular does describe requirements for evaluations. These evaluations are modeled on the aviator's annual proficiency and readiness test (APART) and the commander's evaluation. As with aviators—the evaluation is informative to the maintainer and to the commander. It is a necessary part of the learning process. We use these evaluations not to punish or threaten, but to check and guide the course of proficiency, study, and training. The deliberate check has to be skillfully introduced to the young enlisted Soldiers to prevent stifling their attitude toward their vitally important jobs.

Finally, we record these events. If for no better reason, so the Soldier can reflect. Records are important. They are critical to knowledge management and in preventing information loss. The records are necessary to help answer those questions that arise at the training meeting: Do we have a team leader that can run a phase? They are also an important motivator to young people trying to make their impression on the world. There are significant memories recorded in my logbook. Many of the entries include notes about maintenance procedures prior to a test flight and the people who did the work. Are you focused on all of the people on your team? Let's go fix an Army aircraft!

CW4 Dustin Case is an AH-64D/E maintenance test pilot. He is currently serving in the Doctrine Division, USAACE, Directorate of Training and Doctrine at Fort Rucker, Alabama. CW4 Case has deployed five times in support of Operation Iraqi Freedom, Operation Enduring Freedom, and Operation Freedom's Sentinel. He has more than 15 years of Army Aviation experience.

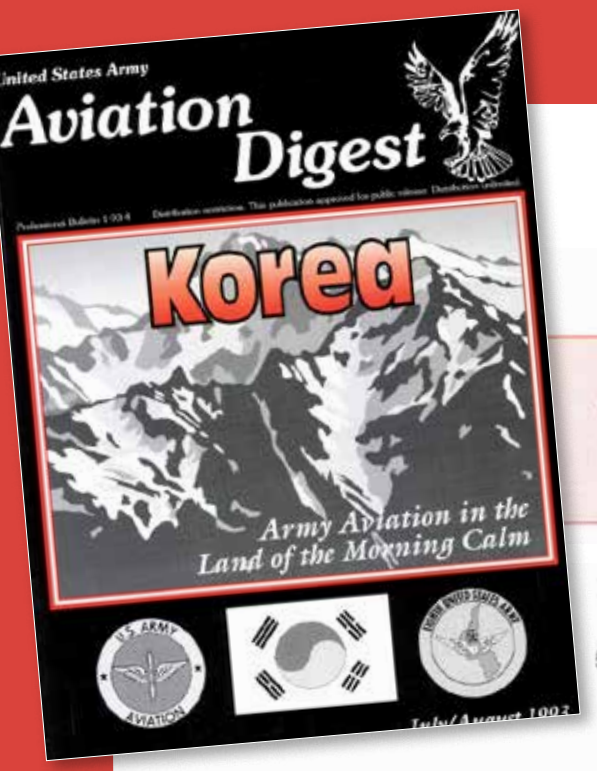
References:

Department of the Army. (2017). Army materiel maintenance policy (Army Regulation 750-1). Washington, DC: Headquarters, Department of the Army.

Department of the Army. (2018). Aviation maintenance training program (Training Circular 3-04.71). Washington, DC: Headquarters, Department of the Army.

Gayler, William. (2018, July 12). 2018 worldwide aviation logistic conference (WALC) general officer steering committee (GOSC). Steering committee convened at the conclusion of the conference hosted by the Aviation and Missile Command, Redstone Arsenal, Alabama.

Photo by Julie Frederick



Aviation Digest Archived Article
July/August 1993

Attack Helicopter Operations in the Combined Environment

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INTRODUCTION

Today, multinational forces quickly are becoming a normal way of conducting strategic, operational, and even tactical operations. Officers and soldiers must face the reality that they may someday be directed in battle by a commander from another country. Attack helicopters are an essential element of the combined arms team. With training, attack helicopters easily can be placed under the operational control of a commander from an allied nation. Learning about attack helicopter operations in a combined environment is important to all aviation leaders.

In Korea, interoperability between the Armed Forces of the Republic of Korea (ROK) and the U.S. Armed Forces is essential to successful military operations on the peninsula. Preparing our two great armies to fight side-by-side in the region of the world where the last vestige of the cold war still looms over the ROK is a continuing challenge.

The ROK Armed Forces are well trained and very capable. They have invested a great deal of time and money in high-tech weapons and force restructuring. This year, the ROK has assumed command of the Combined Forces Command, Korea, which includes all U.S. ground forces. The U.S. Government remains committed to being a part of the South Korean defense plan against a possible North Korean aggression well into the next century. Our two forces are strongly linked by a common cause and purpose.

To prepare for war, U.S. and ROK Forces conduct combined training at all levels. Major exercises, such as Team Spirit and Ulchi-Focus Lens, rehearse large-scale operations and tactical scenarios involving divisions and brigades. While other smaller exercises and ranges work the smaller units' capabilities. On a monthly basis, attack helicopter battalions in the ROK have the opportunity to train with ROK ground forces. Conducting attack helicopter training under the operational control of a ROK commander with ground troops presents some unique challenges.

DOCTRINE AND TACTICAL PROCEDURES

Our operational doctrine and tactical procedures are similar and compatible. The ROK has purchased most of its military hardware from the United States and, therefore, has adopted much of the doctrine and force structure to support the equipment.

As a result of our similarities, the ROK and U.S. Forces have developed a closely knit force that operates as one combined army. Still, there are some minor obstacles when combining U.S. attack helicopters in support of ROK ground forces. These obstacles can be overcome through effective training and good communications.

One obstacle is that ground commanders always do not understand how to successfully employ the attack helicopter assets assigned. This problem exists in both our armies. However, the ROK has had the AH-1 Cobra helicopter only since 1988. Many of its ground commanders have had limited training exposure to attack helicopter operations.

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Also, during training, we send only a company–sized element to support a range. This is done to conserve our limited resources and maximize our training opportunities. Some commanders may view this as standard operating procedure.

This problem can be solved by conducting combined operations training as often as possible; and by teaching our capabilities and limitations at every opportunity available, whether it is during a coordination meeting or an officer professional development session. Effective communications between the ground commander and the attack helicopter commander will resolve many of the problems during the onset of war.

COMMUNICATIONS

Language remains the foremost barrier to effective communications during combined operation between ROK and U.S. Forces. An interpreter is needed to conduct joint coordination meetings. During coordination meetings, the U.S. liaison officer (LNO) is assisted by a Korean Augmentee to the U.S. Army (KATUSA).

These young enlisted soldiers are members of the Korean Army but work directly with the U.S. Army throughout their enlistment. They have a good command of the English language, but do not always possess the tactical acumen required to successfully translate the information being passed. At times, hand gestures and simple drawings are needed to communicate.

ROK planners usually will have detailed graphics of the operations plan, but these too require translation. Their graphic symbols are the same as ours;however, Hangul, the Korean language, is difficult to read unless one is fluent. The most important thing to remember is to try and understand fully the operation plan and the commander's intent by whatever means available.

The attack helicopter air battle captain (ABC) must conduct detailed planning and precise execution when supporting ROK units. He also must remain flexible enough to meet the challenges on the fluid battlefield. Understanding the commander's intent assists the ABC when the ground commander has to change the plan to meet the enemy. Communications between the ground commander and the ABC during a rapid mission change is difficult. One solution is to assign an LNO to the supported commander's operations center. The LNO, assisted by an interpreter, will be able to advise the ground commander on the best use of the attack helicopters as well as provide effective communications with the ABC. Another solution is to assign a ROK aviation officer to the attack battalion to serve as an LNO. The ROK LNO can assist during coordination meetings and handle all Korean language traffic over the radio during the missions.

Radio communications also can affect the operations. U.S. and ROK ultrahigh frequency (UHF) and very high frequency (VHF) bands are compatible. This provides excellent communications between the ABC and the supporting Air Forces during joint air attack team (JAAT) operations. However, the ground forces use only nonsecure, single channel frequency modulation (FM) radios. This is in contrast to the frequency hopping, secure single channel ground and air radio system (SINCGARS) FM radio system of the United States. The problems of nonsecure radio conversation can be minimized by detailed planning and the use of code words.

BUILDING CONFIDENCE BY COMBINED TRAINING

Each time we conduct a combined operation, both the U.S. and ROK participants benefit immensely from the experience and exposure to each other's operational procedures. Both sides remain flexible to changes. Attack helicopter ABCs must understand the Korean commander's intent to complete the mission according to the ground commander's course of action.

On the other hand, the ground commander must understand the attack helicopter's capabilities and limitations to effectively use the deadly power of the attack helicopter. As we do with our own ground forces, Army Aviation must sell itself and emphasize its abilities to become a decisive asset on the battlefield.

The opportunity to do this is during combined operations training. JAAT and air assault security missions involve close coordination between the U.S. and ROK Forces and give prime opportunity for both to learn and rehearse our wartime missions.

CONCLUSION

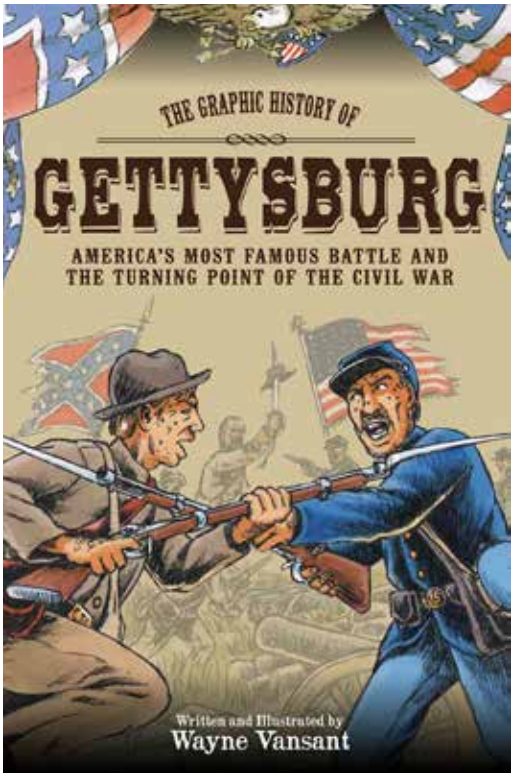
Combined operations between Korean and American Forces are an essential element of the defense plan for the ROK. As members of the Combined Aviation Force, the 5th Battalion, 501st Aviation Regiment (U.S.), and the 105th Attack Helicopter Battalion (ROK) have had the opportunity to conduct many joint and combined operations.

One important lesson to be learned is to remain flexible, but insistent when working with the ground commander to adhere to the doctrinal employment of his aviation forces. The lack of an habitual relationship with any one ROK unit has caused us to continuously face the same stumbling blocks during the coordination meetings and execution of the missions.

We have proven to ourselves and our Korean counterparts that U.S. and ROK Army attack helicopter units can and will continue to be a vital asset during any political conflict. Fighting side–by–side, in a combined effort we can maximize our combat power regardless of which country we support.

The Graphic History of Gettysburg: America's Most Famous Battle and the Turning Point of the Civil War

Written and illustrated by Wayne Vansant, Published by Zenith Press 2013, Maryland, 96 pagess



A book review by CW4 Leonard Momeny, MA MS

Today, modern day Gettysburg lies nestled in the rolling hills of Pennsylvania. The borough and township of Gettysburg is spread across a soft swath of land that surprises every visitor with its hidden potential, presenting both historical significance and great natural beauty. While it has, of course, found its way into the modern world, just as any location, there is a strong sense of historical significance that anyone can immediately sense, and one need not be a historian to detect it. Though serene today, its peaceful hills were once the scene of one of the bloodiest battles in American history, the Battle of Gettysburg, and Wayne Vansant wonderfully captures the dramatic unfolding of the battle in his graphic novel, The Graphic History of Gettysburg.

A graphic novel may strike some as unusual for a military history text, but it serves as a very consumable and exciting medium with which to paint the tale of two great armies, the Union Army and the Army of Northern Virginia, clashing on an unlikely field of battle. There are some readers of military history, and even graphic novels, who possibly even recognize the name of the author. As it turns out, Wayne Vansant, both writer and illustrator of The Graphic History of Gettysburg, was a longtime Marvel Comics artist for the series The 'Nam. Vansant clearly leverages that tremendous experience as an artist with great success in this particular graphic retelling of one of the most famous events in all of American history.

While the graphic novel itself is only 96 pages long, there would be many that suppose it incapable of doing the battle justice, but I assure you that the action-packed tiny tome tells a complete story. Vansant arranges the tale systematically, taking a macroscopic perspective to the events that pack the great battle's timeline. There is a significant effort by Vansant to bring the reader "up-to-speed" with respect to conditions leading up to the battle itself. The prologue opens with the death of Stonewall Jackson, explaining the significance of his death and its impact on the military capability of the Confederacy. The author/artist then makes every effort to explain, both via art and script, the great pain this event caused General Robert E. Lee. There are many who believe this event unhinged Lee, ultimately leading to faulty decisions and reasoning regarding his strategic plans in the days that lay ahead. Prior to moving on to the battle itself, Vansant finishes the prologue with a brief overview of Union circumstances before diving into a brief sketch of both Confederate and Union commanders, corps and below, that would eventually have a part to play in the unfolding scenes. Of course, most attention is placed upon Generals Lee and Meade, for obvious reasons, as they are about to take center stage in the whole dynamic affair.

Following the prologue, the author/artist moves quickly into the main throes of the great engagement, with major segments being divided into the days of July 1 to July 3, 1863. From the initial folly of Jeb Stuart, to the brilliance and foresight of Brigadier General John Buford, the opening scenes are accurately and quickly captured by Vansant. Critical details are often abridged or summarized within the confines of maps that depict forces and their movements with respect to exact geographical locations, giving the reader a complete experience of the progression of events. Not one detail is missed as the author/artist works efficiently to capture specifics pertaining to timing and location of all major points of the battle. Just as important as his tireless attention to detail, Vansant applies tremendous effort toward capturing the emotions and turmoil of all key leaders on both sides. Even agonizing elements of physical death and struggle are not omitted, and the medium of the graphic novel delivers on all points. Before the readers realize it, they have raced through the moments of Semi-

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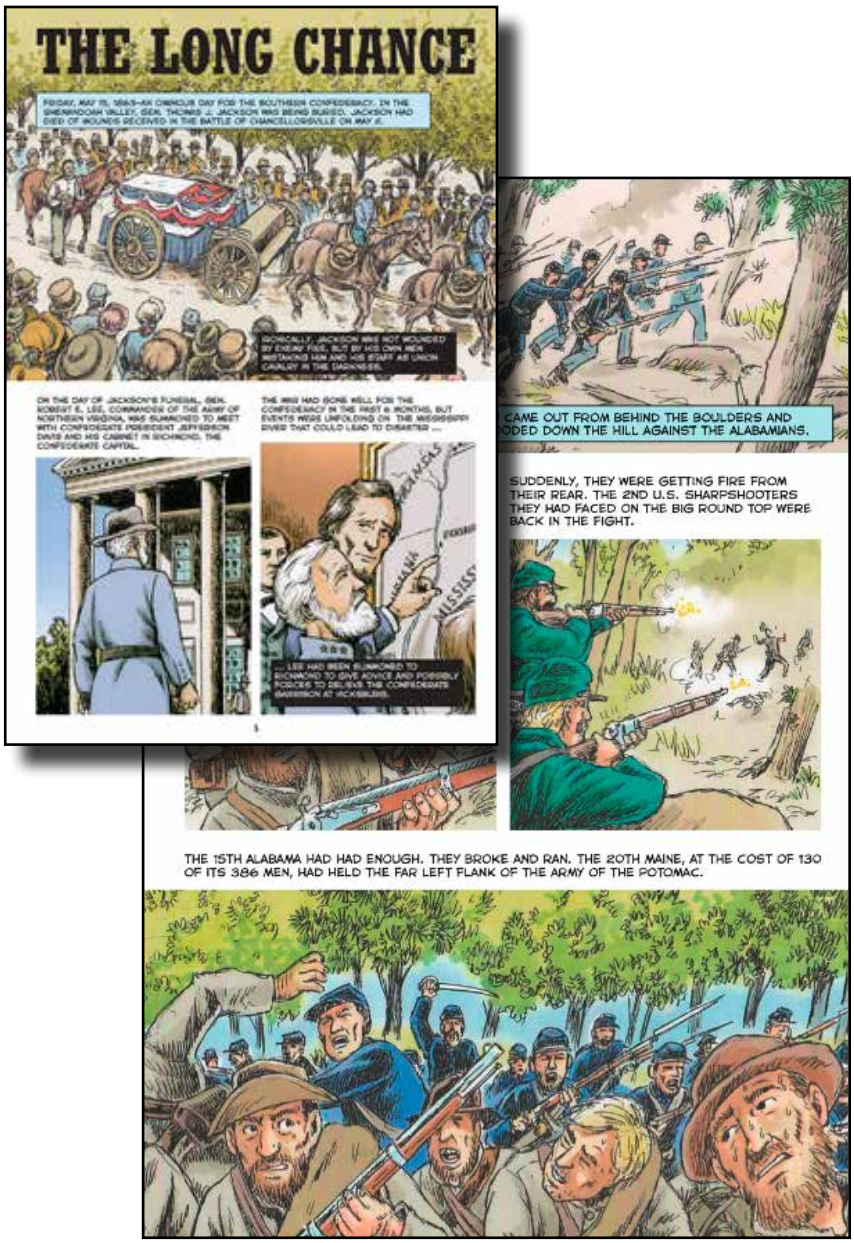
nary Ridge, the Devil's Den, Little Roundtop, and the fatal Picket's Charge, and three of the most terrifying days in our nation's history are over. It is a whirlwind of information, but Vansant paints a tremendous picture for the reader, capturing every moment with striking clarity. Finally, a brief aftermath allows the author/artist to bring closure to the entirety of the situation, culminating in the immortal words of Lincoln's Gettysburg Address.

This book may not be for everyone, as we are not all fans of military texts, but I would readily recommend this book to one and all. Vansant successfully packs both excitement and detail into a fantastic, albeit quick, historical read. Additionally, the details and maps depicting movement of formations would provide any Soldier with a quick degree of insight into the basics of large-scale combat operations. There are rarely opportunities to recommend quick reads with respect to significant battles, but this certainly is one of those opportunities, so I encourage all to take a chance on a little book that delivers in a big way.



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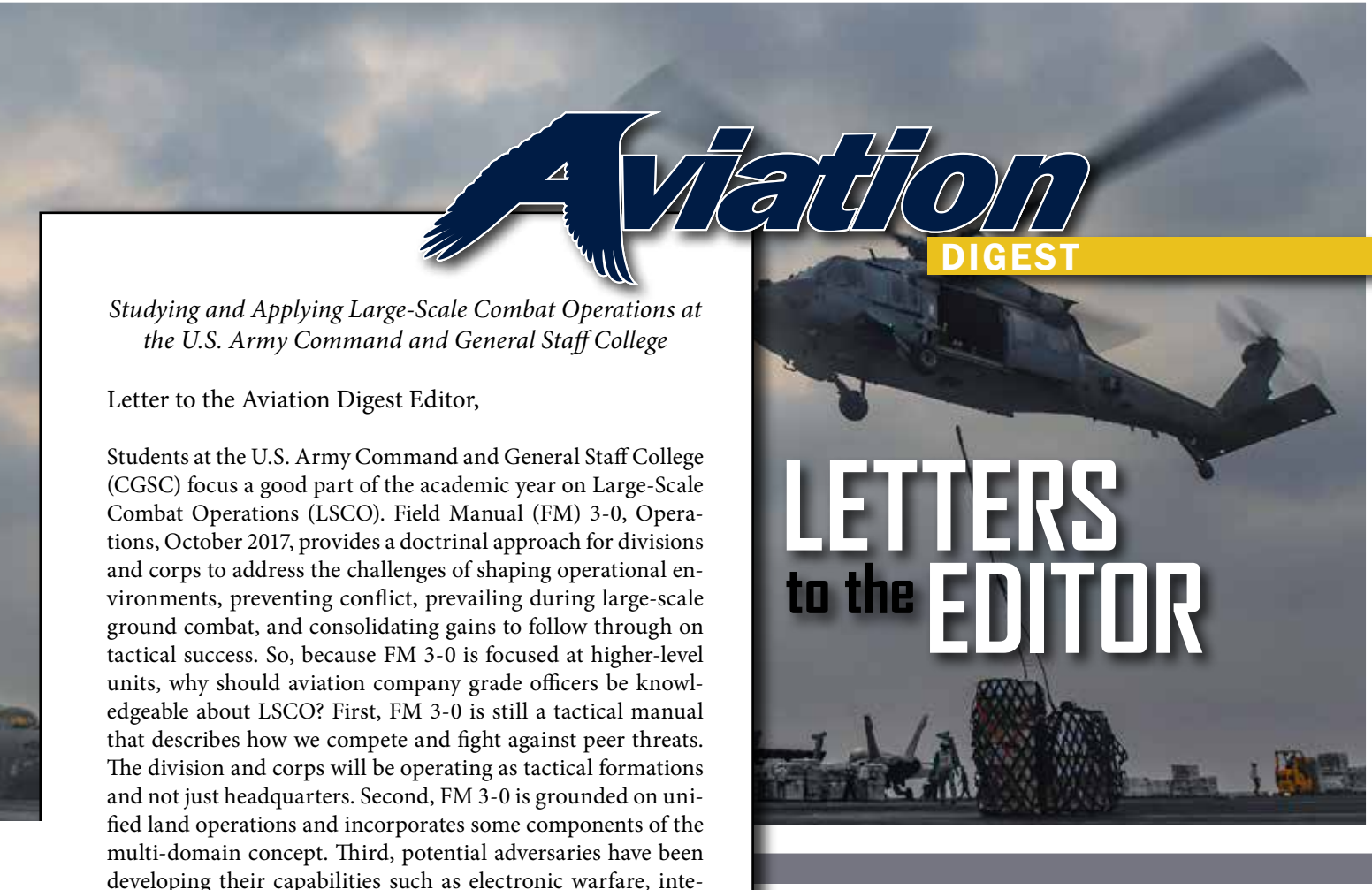

Aviation DIGEST

LETTERS to the EDITOR

Studying and Applying Large-Scale Combat Operations at the U.S. Army Command and General Staff College

Letter to the Aviation Digest Editor,

Students at the U.S. Army Command and General Staff College (CGSC) focus a good part of the academic year on Large-Scale Combat Operations (LSCO). Field Manual (FM) 3-0, Operations, October 2017, provides a doctrinal approach for divisions and corps to address the challenges of shaping operational environments, preventing conflict, prevailing during large-scale ground combat, and consolidating gains to follow through on tactical success. So, because FM 3-0 is focused at higher-level units, why should aviation company grade officers be knowledgeable about LSCO? First, FM 3-0 is still a tactical manual that describes how we compete and fight against peer threats. The division and corps will be operating as tactical formations and not just headquarters. Second, FM 3-0 is grounded on unified land operations and incorporates some components of the multi-domain concept. Third, potential adversaries have been developing their capabilities such as electronic warfare, integrated air defense, aviation, and long- range fires to counter our strengths.

Because the Army does not have the forward presence and size we used to have, deploying to future conflicts within LSCO is an additional challenge. The aviation community is well known for having an expeditionary mindset, but the scale, tempo, and level of chaos will be different in LSCO. To prevail in LSCO, understanding and mitigating risk while adapting to an ever-changing operational environment are two key factors whereby the aviation community has excelled. Thus, Army aviation plays a critical part in winning during LSCO. To win, we must count on Army aviation to be able to get to positions of relative advantage faster. Considering how potential adversaries are quickly developing warfighting capabilities, we must identify how to achieve combat power overmatch at the right time and place. Again, Army aviation is a key warfighting capability that provides division and corps commanders the opportunity to rapidly escalate violent and devastating combat operations on an unsuspecting enemy. Aviation officers preparing to attend CGSC must have a good doctrinal grip on LSCO and be prepared to educate officers from other branches and services during the planning and execution (in simulations) on how aviation assets and capabilities integrate into a division and corps fight.

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Aviation Digest thanks Scott Porter and John Kolodgy for their letters to the Editor. Aviation Digest is always eager to hear the thoughts and opinions of our readers, as well as their recommendations. We truly appreciate our readers taking the time to share viewpoints, comments, concerns, and kudos with Aviation Digest.

To facilitate productive conversations on topics, we need your input. Pick up a pen or grab your keyboard, and write us a letter explaining your opinions, thoughts, and ideas.

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Dear Editor,

I would like to expand on some of the information provided in the article titled, "ARMY AVIATION EXPEDITIONARY OPERATIONS in an Austere Environment" by CSM Etheridge and LTC von Hagel. Both have distinguished careers and carry a considerable amount of experience, but, having deployed a task force to an austere environment in Liberia in response to the Ebola epidemic, I contend that is unreasonable to believe that a company (+) or even a battalion can go it alone without a change to their modification table of organization and equipment (MTOE). Task Force Iron Knights was successful in Liberia 2014–2015, because they had external assistance from the U.S. Army Aviation and Missile Life Cycle Management Command (AMCOM) (I cannot say enough good things about AMCOM!) and the support of 101st Sustainment Brigade; but, more than one expeditionary unit will deplete those limited resources rather quickly.

I am by no means the authority, nor is this list all inclusive, but here are some planning considerations for an expeditionary deployment:

ARRIVAL AT PORT OPERATIONS

- If a unit is to be on the move and fighting as they are leaving the port, then they need to have all of their equipment and systems before anyone leaves port because an aviation unit is not manned to properly secure itself.

- How many CH's can you fit on the boat at one time? If it is more than one boat, you risk having half (or more) of your fleet still at sea.

- Do you prioritize your vehicles and support equipment to arrive first in order to support your aircraft, or do you have your aircraft sitting at port waiting for the vehicles and ground support equipment (GSE)?

- What if the ship that delivers your Heavy Expanded Mobility Tactical Trucks (HEMMTs) arrives a week after your aircraft arrive at port? Hopefully, you can relocate to your AA on a single bag of gas (if you can even have fuel in the aircraft).

- Port operations in an austere environment are harder than you might think; you may have to move the equipment yourself off of the boat as well as out of port.

MAINTENANCE

- IF you put your TIs and mission training plans (MTPs) on advanced echelon (ADVON), where are supply trains that deliver the parts for aircraft that failed to crank after arriving at port, and where are the parts coming from? Don't count on a steady supply of strategic airlift (STRATAIR) assets.

- Specialized equipment, such as the Spider Crane loaned to us from AMCOM made the difference for us in some of the maintenance we conducted. How many does the Army have? How can you get your hands on one? How are you going to transport it?

SUSTAINMENT

- Where is your aviation-grade fuel coming from? How reliable is locally procured fuel and the procurement process?

- Who has tested the fuel if the only test facility is in Europe and you are sitting in Africa or in South America?

- If your aviation support battalion (ASB) has a fuel lab with techs, will they dedicate them to your location as opposed to the rest of the brigade (BDE)? Their assets are finite.

- How many aqua-glow test kits can you take with you?

- Where will you store and how will you transport MREs (3 meals x headcount x days)?

SIGNAL

- How long will it take you to establish Secret Internet Protocol Router (SIPR) lines in order to get updated air tasking orders (ATO)/airspace control orders (ACO)/special instructions (SPINS)? Can we/do we disregard them?

- Do you have extremely sharp command post node (CPN)/joint network node (JNN) techs that are capable of fixing it without a field service representative (FSR)?

- What assets are in your aviation unit maintenance (AVUM) and forward support companies (FSC) that can assist you with signal operations?

- Are your joint capabilities release (JCR) maps loaded for that area, and has your equipment been properly linked to each other?

SECURITY

- Is it prudent to have your Soldiers carry around or even expose their weapons for protection if you are in a humanitarian support environment?

- How many extra vehicles will you need to take if you have to run logistical packages (LOGPACs) without the support of an ASB?

- How many extra (uncommitted) Soldiers will you need to take in order to provide your own security around the perimeter of your AA/Airfield?

- How much c-wire will it take to double or triple strand your perimeter?

SPLIT-BASED OPERATIONS

- If you have split-based operations, where will your MTP be? Where will your Stands Officer be?

- If you have split-based operations, which site will get the CPN?

Very Respectfully,
John Kolodgy, CSM(R)

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Our Featured Focus Will Be

Aviation Training Strategy

... and More

Write for *Aviation Digest*!

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