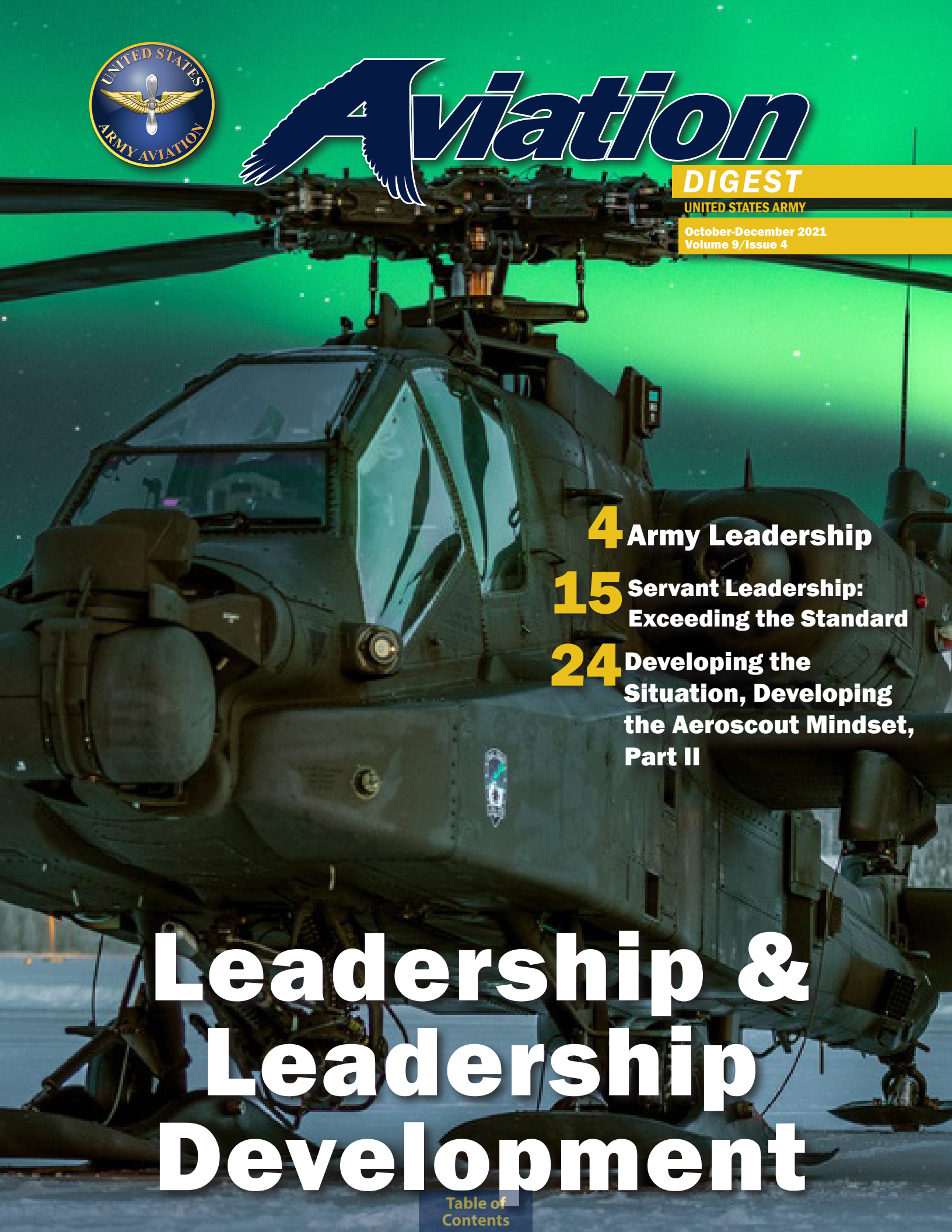

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Leadership & Leadership Development

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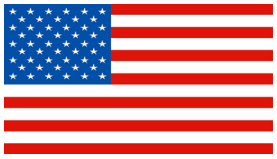

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2127902

About the Cover:

U.S. Army AH-64D Apache Longbow attack helicopter assigned to 1st Battalion, 25th Aviation Regiment Attack Reconnaissance Battalion (ARB) under an aurora sky on Fort Wainwright, Alaska, January 13, 2019. Auroras are the result of disturbances in the magnetosphere caused by solar wind. U.S. Army photo by CW2 Cameron Roxberry

The Command Corner

Leader Development–"The most important thing we do."

As we continue to the momentum in modernizing and transforming our Army, we will have to leverage all three leader development domains (operational, institutional, and self-development) to ensure full integration of emerging new doctrine, tactics, and techniques across the maneuver force. We are making rapid changes to the Aviation institutional training and education framework, along with the operational force providing its leaders with rigorous training opportunities, both at home station and at Combat Training Centers. We expect our leaders to learn and grow through experiences, education, independent study, and a routine review of the critical tasks required to make them proficient. We are moving Army Aviation toward training organically at the Division level and away from forward operating base operations with heavy contract maintenance. Our branch has to get creative in developing the tools and the forums to enhance, encourage, and support leader development.

To mold our leaders for tomorrow, we need strong leader training and education initiatives–growing our future leaders is the most important thing we do. Emerging threats require leaders with the knowledge, skills, and behaviors to evolve, adapt, and apply the principles of combined arms maneuver earlier, at lower echelons, at distributed locations, faster, and with greater agility. Creating a complex learning environment is critical to providing tough and realistic training and education. Adaptability is paramount to enabling leaders to thrive in ambiguity and chaos, enabling success against highly capable threats in multidomain operational environments.

Through a USAACE initiative, we are providing a quick reference digital library (kit bag) containing the necessary references and links to key resources to assist and enable the development of our future leaders. This online *Aviation Leader Kit Bag,* located at https://intranet.tradoc.army.mil/sites/usaacealkb, is a collaborative effort by the entire USAACE team to ensure it is relevant and useful. We are introducing and utilizing this resource during Initial Military Training (IMT) in the Basic Officer Leader Course (BOLC), Warrant Officer Basic Course (WOBC), and reinforced during Professional Military Education (PME). Our Senior Leaders will become familiar with this initiative through the Pre-Command Course (PCC), the Aviation Warfighting Forum (AvWFF), and the Aviation Senior Leader Course (SLC).

Our Army and our branch have a responsibility to set the foundational environment for the future of our branch and profession. The *Aviation Leader Kit Bag* is a resource for all of our leaders, allowing us to remain relevant and aligned with our ground force leaders. Every leader has a responsibility to advance our expert knowledge, skills, and abilities in Army Aviation and maneuver warfare. With individual commitment, leader resourcing, and usable relevant tools, we can develop, educate, and sharpen the skills of our aviation leaders. Leadership matters, and shaping our future leaders is an inherent responsibility of every Junior and Senior Leader across our branch.

Above the Best!

David J. Francis
Major General, USA
Commanding

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U.S. Army photo by SPC Jessica Scott

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Author Guidelines

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Soldiers of 2-6 Cavalry Squadron, 25th Combat Aviation Brigade, were afforded the unique opportunity of an orientation AH-64D Apache flight with Squadron senior Instructor Pilots on Wheeler Army Airfield, Hawaii. These Soldiers work diligently every single day to ensure the readiness of our Apaches. U.S. Army photo by SGT Sarah D. Sangster

Army Leadership

By CPT Matthew P. Sandoval

Army Doctrine Publication (ADP) 6-22, "Army Leadership and the Profession," outlines the leadership requirements model. The model identifies what the Army *requires* its leaders to BE, KNOW, and DO. The leader's attributes (character, presence, and intellect) represent *who they are* while their competencies (leads, develops, and achieves) are *what they do* (Department of the Army [DA], 2019a, p. 1-15). While this model embodies the Army's desire for well-rounded, ethical, complete leaders, it is also obvious that more slices of the leadership pie (Figure) are dedicated to DO than for BE and KNOW. Why is this the case? Army Doctrine Publication 6-22 answers this question by explaining that "competencies are skills that can be *trained* and *developed* [emphasis added] while attributes encompass enduring personal characteristics, which are *molded* [emphasis added] through experience over time" (DA, 2019a, p. 1-15). Attributes are shaped and reified as a *result* of exercising one's agency in the world, not the other way around. The bottom line is that the Army recognizes it can *build* leaders and *generate* overall military effectiveness by establishing standards and measuring itself against those standards.

I argue that in order to BE and KNOW, the leader must DO. *Doing*,

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Figure. The Army leadership requirements model (DA, 2019, p. 1-15).

necessarily, is a requirement for *being* and *knowing.* Without the DO,[1] leadership potential never develops in the individual because they never demonstrate their capacity, ability, intent, or commitment to BE and KNOW (DA, 2019c, p. 4-26). Army Doctrine Publication 6-22 again supports my position by defining leadership as "the *activity* [emphasis added] of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization" (DA, 2019a, Glossary-2). By establishing this basic premise that leadership requires action, I aim to reaffirm that while anyone *can* be a leader, not everyone *is* one. In a profession that expects every individual to be a leader (DA, 2019a, pp. 1-17 to 1-19)[2] and upholds leadership as its greatest catalyst to mission success and the most dynamic element of combat power (DA, 2017, p. 2-22), why then isn't everyone a leader, and what should we do about this? The answer to these questions is beyond the scope of this essay, but I ask them to provide a backdrop to this discussion. This paper is all about embracing competence as the key to leader development. Competence requires effort, movement, and action as well as an objective standard by which to measure it. It is the antithesis of laziness, stagnation, ineptitude, and subjectivity. Just as competence is the watchword by which the Army establishes its military effectiveness, so too must this be the watchword of the leader. In what follows, I provide four separate examples that display the irrevocable nature of action and leadership

To do or not to do, That is the Only Question!

Individuals who don't DO never manifest or translate their BE and KNOW into anything tangible (e.g., achieving an objective) or intangible (e.g., creating a positive command climate). The leader must first demonstrate his disposition to DO before he can ever claim to BE or to KNOW. For example, a Soldier must first demonstrate his proficiency with map reading and land navigation by *plotting* points on the map, *orienting* his map appropriately, *planning* a route, *counting* out his pace count, *measuring* distance, *shooting* azimuths, and ultimately *finding* his points before he is said to BE proficient at land navigation or KNOW how to read a map. Proficiency, expertise, and mastery are only demonstrated through action and are measured against a standard. The Soldier who continually fails on the land navigation course, yet claims that he *knows* how to read a map and *is* good at land navigation not only lies to himself, but loses the respect, trust, and confidence of his fellow Soldiers, leaders, and subordinates (Wong & Gerras, 2015, p. 13).[3] Objectivity is derived from an established standard. You are not proficient at land navigation if you never find points, no matter what you subjectively think or say! Getting results transcends finding your points on the land navigation course. Leadership is no different. A leader who *cannot* and *is* not hitting the target on the leadership requirements model is not a leader! Because the individual's actions and not his personality, skin color, quirks, or other identity markers are the hallmarks of his leadership capabilities, he can thereby be evaluated and judged against a standard. Again, the leadership requirements model fills this billet.

The other two aspects of leadership, to BE and to KNOW, are also verbs. This means that in order to

[1] A purely coincidental, yet convenient happenstance is that DO, the action, can also be contrived as D.O., decisive operation. I take DO to be the decisive aspect of the leadership triad. Being and knowing shape and sustain the leaders' actions. See ADP 3-0, "Operations," section 4-26 through 4-30 (page 4-5) for further descriptions.

[2] Before crying foul to this statement, remember that the Army recognizes its hierarchical nature. Therefore, all Army leaders are also followers (ADP 6-22, sections 1-102 through 1-104). Leadership and followership are two sides of the same coin. Moreover, this statement still applies to the most junior Soldier because the situation, enemy, and the environment always have a vote (ADP 6-22, sections 1-89 and 1-98).

[3] This is rampant in our current culture of "making the slides green."

4th Infantry Division Pre-Ranger students practice Air Assault operations Sept. 2, 2021 at Fort Carson, Colorado. The Pre-Ranger students learn how to plan, prepare, and execute combat operations to include repetitions on detailed Troop Leading Procedures, Air Assault operations in conjunction with small unit tactics. U.S. Army photo by SSG Benjamin Northcutt, 14th Public Affairs Detachment

establish that one *is* and that one *knows*, one must first *do*! That is, the relationship between the three variables is circular and grounded in the fundamental fact that the individual must act in order to manifest results. Without action, *being* and *knowing* remain mere potential and theoretical. I may claim to BE a great pianist, but until I actually *play* the piano, no one will ever KNOW if I am because I cannot be judged against a standard. Likewise, I may say that I KNOW calculus, but until I DO some equations, *show* my work, *proof* my work, and get the correct answer, then I cannot claim to BE a mathematician. Forrest Gump's momma always said that "Stupid is as stupid does" (Zemeckis, 1994). I say that a leader is as a leader does. A leader's actions serve as evidence for his competency and character. Without action, the leader is as useless as any other inanimate object—if not worse. Lack of action is an action in and of itself. Life expects nothing from a rock. We expect the world from our leaders. Designatedleaders, by virtue of rank, position, or context are expected to translate potential and possibilities into reality. As the decisive aspect of combat power, leadership translates unrealized potential into action through action (DA, 2017, p. 2-21). Leadership is, at its core, just a compilation of many tasks to accomplish a purpose. These tasks take many forms, such as actively listening, leading by example, creating shared understanding, etc., but the purpose remains consistent—provide a purpose, direction, and motivation to accomplish the mission and improve the organization. This purpose is scalable and applies to the most junior Soldier through the most senior general and nests within the professional framework of the Army.

DO as I say and do as I do

Notice the lack of say in the leadership requirements model. The classic counterproductive leadership maxim, as stated by John Selden in the 1500s through 1600s is "Do as I say, not as I do."[4] This statement affirms that the individual wants others to consciously ignore the fact that their actions do not align with their words. Essentially, the individual is avowing "I am a hypocrite!" *Say* is an important intentional omission in the leadership requirements model because it shows that the Army acknowledges the fact that humans are primarily visual learners. We *read* facial features of others while they speak, we *watch* them interact with others and their environment and remember what they've said, and we *see* what they *do* in comparison with what they *say* or what the established standard *is*. To combat this type of counterproductive leadership, I argue that the adage should be "Do as I say *and* do as I do," because we recognize that we do communicate with others verbally *and* physically! To retain our leadership integrity, our audio must match our visual.

Leadership necessarily means leading by example. Trust, the fundamental currency involved in leadership, is gained and maintained by doing things that others can witness and feel. Through *doing*, we allow others to verify and validate the intent (words) in conjunction with the effects (actions). As I discussed earlier, communication naturally sets the conditions for trust to develop and grow. As the saying goes, if it walks, talks, and acts like a duck, it's probably a duck. The same can be said for a leader. When word and deed are incongruous, the authenticity of the leader is questioned, and trust is sacrificed. On the contrary, when the leader 'talks the talk *and* walks the walk' they strengthen the bonds of trust with others. Moreover, because Leadership is proven through actions, then an objective evaluation model can be established for training, mentoring, and assessment.

The Army's model takes form as the officer and noncommissioned officer evaluation reports. The beauty of these assessment tools is that because BE and KNOW are nested into the individual's DO, evaluators need only look at the individual's actions to determine where they lie on the continuum of commitment to BE and KNOW. Our leadership doctrine supports this claim: "Leaders who intentionally *live* [emphasis added] by the Army Values and the Warrior Ethos will consistently *display* [emphasis added] the character and actions that set a positive example" (DA, 2019a, p. 5-12). If the leader is *doing* the standard, then they *are* the standard and probably *know* it too (DA, 2019a, p. 1-17).

[4] "Counterproductive leadership is the demonstration of leader behaviors that violate one or more of the Army's core leader competencies or Army Values, preventing a climate conducive to mission accomplishment" (DA, 2019a, p. 8-7).

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The Physics of Leadership

Outside of simply providing purpose, direction, and motivation, the leader's responsibility is to get results, accomplish the mission, and improve the organization (DA, 2019a, p. 7-1). The leader works within a system of systems, called echelons, and is responsible for producing positive change within those systems to manifest desired effects elsewhere. A leader does this primarily through action, and action may be transcribed as work. Work is the primary means by which the state of a system is changed. Energy is the ability to do work (van Fraassen, 1970, pp. 99–101). For example, a commander must accurately assess the current state of his unit in order to determine what, how, and why it needs to change. This may result in identifying the need to improve the climate or simply deploy it to the field more often to codify its standard operating procedures. In either case, work must be done, and the leader must expend energy to do it. Depending on the context, the leader may have to inject more energy into the system to get it working. The system we're talking about, of course, involves other people, which is why Leadership is fundamentally a human endeavor.

Kinetic, mechanical and physical action, is the highest form of energy that humans can exchange with our environment. By comparison, other forms such as chemical and thermal energy decrease significantly in their potential for work. Social dynamics and interactions parallel the laws of physics. Are you surprised that nothing gets done while we all sit around and talk about a problem? Or, worse yet, when we let problems fester and metastasize by ignoring them?[5] Talking merely generates heat, the lowest form of energy, and ignoring a problem often saps energy from a system in other ways. It is only when someone gets up and physically acts on the problem that it gets solved. Of course, active discussion and problem-solving is inherent to leading, but the act of accomplishing the mission takes physical work to complete. Moreover, physical, mechanical work also generates heat as a byproduct, so when things are getting done, heat is naturally being produced and disseminated throughout the organization. This may manifest as heightened esprit de corps or inspired subordinates who witness and experience the effects of good leadership and wish to emulate it themselves. The undeniable truth here is that leaders must be *doers* if they wish to get results.

Most importantly, a leader's physical actions produce reverberating and reciprocating effects in an organization. In physics, this process is called entropy and is embodied in the Army's philosophy of mission command. Entropy carries a negative connotation tied to disorder or chaos in a system; however, I understand the concept in a more positive light since, unlike inanimate particles in physics, humans can act autonomously within their environment. We are not simply billiard balls on a table that interact with each other, the walls, and the pockets due to causes and effects out of our control or against our will. We are guided by morals, emotions, desires, duties, and reason. Therefore, it is within an individual's capacity and disposition to act in ways that exponentially increase the energy in a system, rather than dissipate it into chaos and disorder. Because the entropy of a system is tied to the amount of energy present in that system, then it stands that an organization that is all *say*, and no *do* won't produce results, while an organization that says *and* does will! In his book *Leaders Eat Last,* Simon Sinek provides another physics analogy. He says "In physics, the definition of power is the transfer of energy. We measure the power of a lightbulb in watts. The higher the wattage, the more electricity is transferred into light and heat and the more powerful the bulb. Organizations are the same way. The more energy is transferred from the top of the organization to those who are actually doing the job, those who know more about what's going on on a daily basis, the more powerful the organization and the more powerful the leader" (Sinek, 2014, p. 229, 349).

The Army understands these principles and applies them to our concept of mission command to counteract the fog and friction of war. Mission command is that the Army's "approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation" (DA, 2019b, p. vii). Mission command is a philosophy of action that corroborates the laws of physics and places leaders responsible for generating entropy within their respective systems by transferring power down through the ranks. Mission command operates on mutual trust between professionals, and that trust is built on individual competence. Mission command cannot work as a philosophy of command and control without competent individuals at echelon who trust one another. The Army, recognizing leadership as both a multiplying and unifying element of combat power, *applies* leadership through mission command (DA, 2019c, p. 5-2).

Leadership and Golden Rule Ethics

Golden Rule Ethics and Leadership are symbiotic because, like gold, you can verify their authenticity. No subjective judgement call is requested or required. It's the gold standard. The Army Values and Ethic are based in the Golden Rule principle of *treat* others the way you want to be treated (DA, 2019a, p. 1-7 [Table 1-1]). Leaders are leaders who understand this standard and embrace the fact that their charac-

[5] This is the elephant in the room problem. It isn't until that elephant is called out and acted on that it goes away. For example, everyone can hear the leaking faucet, but it won't stop dripping until someone fixes it.

ter is objectively judged against it through their actions. Living by the Golden Rule requires that an individual acknowledge the humanity in others and act in ways that affirms this knowledge through mutual respect. Moreover, it means that the individual must expose himself to hardships, trials, and tribulations in order to better understand himself. A fundamental aspect to this principle, and to leadership, is self-awareness (DA, 2019a, p. 1-17). When one has insight into oneself, one has insight into others and vice versa. We develop this insight through action.[6]

Because LeaDOers are leaders who live by this standard, naturally other aspects of the leadership requirements model supervene on this most basic principle. The Golden Rule Ethic is rooted in the BE aspect of a leader's character but prevails in the other attributes and competencies through the leader's actions. In order to BE disciplined, the leader must DO the right thing (Character). In order to BE physically fit, a leader must DO physical training (Presence). In order to KNOW one's job and BE an expert, one must DO it (Intellect). A leader does all of these things because it is what he expects from his own leaders and followers. The leader leads by example because, as a follower, he too wants to be led viscerally (Leads). The leader develops others and creates a positive environment because he too wants to be developed and work in a unit with high esprit-de-corps and camaraderie (Develops). Finally, the leader executes, adapts, and gets results because he wants others to operate with the same mentality that he does (Achieves). Leadership and Golden Rule Ethics revolve around the premise that in order to maintain the title of leader, an individual must actively and consistently display *(treat)* his desire *(want)* to BE, KNOW, and DO.

Conclusion

I've explained how action is fundamental to leadership. My intent for this article is to strip away any rationalized or emotional excuse that anyone has for not being a leader or understanding what is required of a leader. The Army makes its expectations abundantly clear and offers us a plethora of examples and doctrine to help us to BE leaders and KNOW leadership. Moreover, due to its hierarchical design, propensity for putting us in difficult environments and situations, and fusing mission accomplishment with taking care of people, the Army affords us ample opportunities to DO leadership. Leaders don't manifest out of thin air by talking about awesome leadership development programs that will never come to fruition, nor is leadership so esoteric that only the brilliant and gifted few can be leaders. It is not a birthright, genetics, education, rank, or class that makes someone a leader. Leadership is a mentality and a way of life based in the simple principle of action.

Because leadership transcends domain specificity, leaders must therefore do the same. It is not enough that we, as a profession of arms, talk about leadership and record stellar examples, relegating it only to the institutional domain. We must transform that knowledge into appropriate *action* in the operational domain, too.[7] The medium between the institutional and operational domains is the individual, and the form of training that actualizes leadership is called self-development (DA, 2012, p. 1). Development of the self inherently means that change is occurring in the individual—that they are growing, maturing, improving, progressing, and advancing. Just as movement and action are inherent to existence both on and off the battlefield and in nature, leadership too is vital to maintaining our status as a profession of arms.[8] Leadership is simple, but not easy.[9] Just DO it.

Biography:

CPT Matthew Sandoval is a second-year master's degree student in Philosophy at San Francisco State University. He is a UH60 L/M pilot-in-command and most recently served as a company commander and operations officer in the 1st Infantry Division at Fort Riley, Kansas.

[6] David Epstein discusses this in chapter 7 of his book *Range* (https://davidepstein.com/the-range/). The subtitle, *Why Generalists Triumph In a Specialized World,* suits this article because leadership is fundamentally a human endeavor that requires a broad epistemic social palette. One cannot effectively function as a leader if they only understand themselves or others in a single context. Exposure to other domains (cultures, environments, psychological and emotional conditions, etc.) is essential for developing a leader's sense of self and of others as it opens up their proverbial map of the world and allows the leader to view themselves and others from different azimuths and vantage points.

[7] In his book *The Black Swan* (https://www.weblogibc-co.com/wp-content/uploads/2019/02/The-Black-Swan-Nassim-Nicholas-Taleb-1.pdf), Nassim Taleb covers this deficiency of human nature. He says that "this inability to automatically transfer knowledge and sophistication from one situation to another, or from theory to practice, is a quite disturbing attribute of human nature" (Chapter 5, pg. 139). Here, he refers specifically to inconsistencies in logical reasoning, but I also think that this applies to the fact that understanding a concept does not necessitate that one will act on that knowledge. Knowing is not doing.

[8] "Without leadership, there is no profession, only bureaucracy" (DA, 2019a, p. 1-8). See also Don M. Snider's *Will Army 2025 be a Military Profession?* https://press.armywarcollege.edu/cgi/viewcontent.cgi?article=2985&context=parameters.

[9] I borrow this phrase "simple, but not easy" from *Extreme Ownership* by Jocko Willink and Leif Babin. The underlying message is that leadership as a science is well documented and many "formulas," principles, and maxims have been created to show the methods and means to becoming a leader; however, the application of these methods and means requires skill, understanding, and nuance. This is what makes leadership an art and a science.

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AH-64 Apache attack helicopters of the 12th Combat Aviation Brigade, launch from Katterbach Army Airfield for a battalion attack training mission during Operation Eminent Strike on Mar. 17, 2021. U.S. Army photo by MAJ Robert Fellingham

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Planning is Everything: Combat Aviation Brigade Mission Planning in Large-Scale Combat Operations

By LTC Steve Sevigny and MG Jeff Colt (Ret.)

INTRODUCTION. Combat aviation brigade (CAB) staffs must improve their ability to plan in large-scale combat operations (LSCO). By improving planning, the CAB staff will arm the commander with the ability to provide aviation solutions to division-level problems in LSCO. First, this article will describe some of the existing challenges for CAB staffs in LSCO, mainly the differences in the threat and tempo of planning in LSCO vs. other operations. Second, this article will highlight some existing gaps in our doctrine that do not clearly address the role of the CAB staff in mission planning, or the role of the G3 Aviation cell. These challenges lead to the described observations that typically present themselves through multiple division and corps warfighter exercises (WFX). Finally, this article will conclude by providing simple and effective solutions that will greatly enhance CAB mission planning.

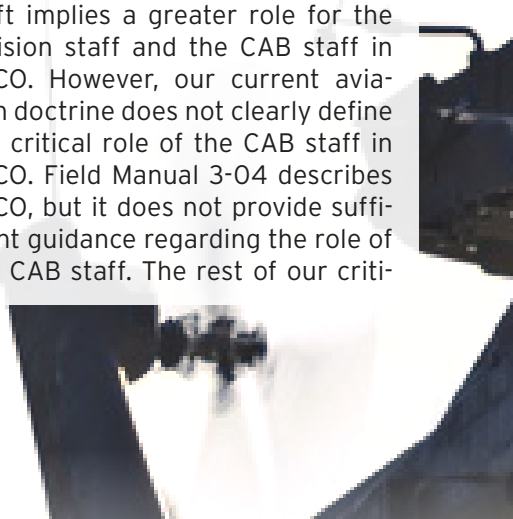
CHALLENGES FOR CAB STAFFS' PLANNING IN LSCO.

Threat and Tempo. Planning aviation missions in LSCO will be extremely challenging. Peer adversaries will challenge or reduce the Army and aviation's advantages from the past 2 decades of counter-insurgency (COIN) operations. Planners will face capabilities that are more robust across all warfighting functions, including more advanced intelligence collection, long-range artillery, integrated defenses, and cyber and communications capabilities. These enhancements of enemy peer capabilities across the entire area of operations will drive a much faster tempo in LSCO. U.S. forces will struggle to maintain the initiative as the enemy conducts simultaneous multidomain operations while attempting to disrupt or defeat U.S. dominance. As a result, CAB staffs will plan at a much faster rate. Success will demand the CAB make full use of all resources in mission planning—in particular—time.

DOCTRINE GAPS UNCLEAR IN ADDRESSING MISSION PLANNING ROLES OF THE CAB STAFF or G3 AVIATION.

Refining our Doctrine. Army and aviation doctrine continues to evolve as the Army works to improve understanding about fighting in LSCO. Field Manual 3-04, "Army Aviation," (Department of the Army [DA], 2020a) and other aviation doctrine are large steps forward, but these publications focus almost exclusively on the battalion and company, while ignoring the critical role of the CAB staff. In LSCO, the CAB staff is the critical bridge between the conceptual planning at a division headquarters and the detailed planning at and below the aviation battalion. Among other areas, our doctrine must evolve and clearly define what is expected of CAB staffs in LSCO, which is a dramatic change for a CAB in COIN operations.

CAB staff duties, roles, and responsibilities in mission planning. Army and aviation doctrine provide clear guidance to leaders regarding the importance of transitioning to LSCO. The newly published Field Manual (FM) 3-94, "Armies, Corps, and Division Operations," clearly states, "The division is the Army's principal tactical warfighting formation during large-scale combat operations"(DA, 2021, p. 5-1). This shift implies a greater role for the division staff and the CAB staff in LSCO. However, our current aviation doctrine does not clearly define the critical role of the CAB staff in LSCO. Field Manual 3-04 describes LSCO, but it does not provide sufficient guidance regarding the role of the CAB staff. The rest of our criti-



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cal aviation doctrine leaves out the CAB staff completely and focuses instead on flight-related battalion and company-level tasks within a troop-leading procedures framework. This leaves a large gray area between the conceptual planning at a division headquarters and the very detailed planning at the battalion and company level, which is not helpful for CAB staffs. Given that CAB staffs have more resources than battalion staffs and all of the warfighting functions, aviation doctrine must better define the role of the CAB staff in mission planning.

G3 Aviation duties, roles, and responsibilities in mission planning. Furthermore, there is also a lack of understanding and specificity for the duties, roles, and responsibilities of the division G3 Aviation cell. Currently, only the 2014 published FM 6-0, "Commander and Staff Organization and Operations," and Army Techniques Publication 5-0.2-1, "Staff Reference Guide, Volume 1 Unclassified Resources," describe these duties (DA, 2014; DA, 2020b). The latter states:

"The aviation officer is in charge of the aviation cell and plans, coordinates, and incorporates aviation into the ground maneuver commander's scheme of maneuver. The aviation officer focuses on providing employment advice and initial planning for aviation missions, unmanned aerial systems, and airspace planning. The aviation officer also assists in coordination and synchronization with the tactical air control party and the fires cell" (DA, 2020b, p. 358). This statement is certainly accurate, but it fails to describe the expected outputs or the more nuanced role of G3 Aviation, especially when considering such integrative processes as targeting and dynamic airspace management.

OBSERVATIONS. The previously discussed challenges contribute to the following series of observations related to mission planning in WFXs

Division staffs are unsure how to fight the CAB in LSCO. Much like the rest of the Army, division staffs lack LSCO experience, and especially, aviation experience. Division staff officers (G3/G35/G5), like aviation officers, are limited by their own COIN experiences. Division planning in LSCO is also highly degraded due to enemy capabilities and tempo, which naturally affects the CAB. Due to inexperience and increased tempo, it is routine for division orders and missions to the CAB to have very little to no input from the CAB staff, CAB liaison officer (LNO), or even the G3 Aviation cell. It is also routine for these missions to be doctrinally incorrect or inappropriate for a CAB. When the CAB receives these orders, there is little to no accompanying context, critical information, or commander's intent. For example, for an attack out of contact of friendly forces, CABs require destruction criteria, and for a zone reconnaissance, the CAB requires division priority intelligence requirements. More often than not, this and similar critical information is absent in division orders. Likewise, many CAB missions in LSCO require the synchronization of multiple brigades and are beyond the scope of the CAB for command and control. This routinely results in multiple requests for information (RFIs), further unstructured discussion, clarification that fails to generate understanding or set necessary conditions, and elevates unmitigated risk for execution.

CAB staffs do not, or are not able to, influence division headquarters. Combat aviation brigade staffs must find ways to build professional relationships and processes that make communication more timely and informative. Combat aviation brigade staffs consist of much less experienced personnel than a division staff. Majors lead CAB staffs, which consist of captains, lieutenants, warrant officers, and noncommissioned officers. Many of them have never served above the company or battalion level, and communication is limited by significant rank/grade differences, which can be as extreme as a first lieutenant to a lieutenant colonel. Thus, less

An AH-64D Apache Longbow helicopter gunship from the 3rd Battalion, 159th Attack Reconnaissance Battalion, 12th Combat Aviation Brigade, prepare for refueling operations during a training exercises at the forward arming and refueling point at the Oberdachstetten Local Training Area, Ansbach, Germany, April 22, 2013. U.S. Army photo by Georgios Moumoulidis/ Released

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A U.S. Army AH-64 Apache attack helicopter from Task Force Wolfpack, 1st Attack Battalion, 82nd Combat Aviation Brigade, flies over northern Iraq. Wolfpack's highly lethal Apaches serve as air weapons teams on 24-hour alert. They also provide overwatch during ground operations, convoy escort, and reconnaissance in support of base defense. U.S. Army photo by MAJ Jason Sweeney

experienced CAB planners inadvertently make certain assumptions that division planners know what is required to synchronize and plan aviation operations. As a result, CAB staffs are hesitant to push back and have a dialogue with division planners. This quickly becomes clear when the CAB receives a task or mission that is not doctrinally correct or receives an inappropriate or illogical command/support relationship from the division. The authors routinely see this frustrate the CAB staff, and when the CAB attempts to gather more information or context, they find the division staff does not have the required information. This wastes valuable time and forces the CAB to make bold assumptions to begin planning. Assumptions in LSCO are unavoidable, but the CAB must find a way to influence the division to ensure proper integration and synchronization with the entire division scheme of maneuver and streamline planning in LSCO.

CABs do not prepare themselves to meet the demands of planning in LSCO. Although there are certain external factors, the CAB must address specific internal issues with mission planning. It is routine that CABs struggle to keep up with planning multiple complex operations. The authors routinely observe undermanned and under-resourced plans cells in the command post. A typical CAB planning cell at a WFX consists of no more than two to three personnel. This is often an indication that mission planning is not a priority relative to other competing functions. Combat aviation brigades do not clearly identify who belongs on the plans team. Likewise, the battle rhythm often reveals there are no plans working groups with clearly defined inputs and outputs. The critical outputs of intelligence preparation of the battlefield (IPB) (situational template, event template, modified combined obstacle overlays, enemy courses of action [COAs]) are notably absent from mission planning in many cases. Finally, CABs do not specify and communicate the minimum required information they need from the division to support mission planning. These factors generate a number of unfavorable outcomes that cause the CAB to 'punt' their planning requirements down to the battalion level, and battalions execute missions with undue risk.

SOLUTIONS. Fortunately, there are relatively simple solutions for the CAB staff that will dramatically improve planning in LSCO.

Relationships. The CAB S3 and executive officer (XO), as the leaders of the CAB staff, must prioritize relationships across all warfighting functions (including noncommissioned officers) and adopt a team-building approach between themselves, the division staff, division artillery, and division sustainment brigades. The CAB command chief warrant officer is also a very powerful force for building relationships across the division staff. Positive and habitual relationships are extremely powerful and allow the CAB to expand its influence within the division in LSCO. Field Manual 6-0 states, "Staff effectiveness depends in part on relationships of the staff with commanders and other staff. Collaboration and dialogue aids in developing shared understanding and visualization among staffs at different echelons" (DA, 2014, p. 2-3). Furthermore, "teamwork within a staff and between staffs produces the staff integration essential to synchronized operations" (DA, 2014, p. 2-3). By developing better relationships with key division and other brigade staffs, it will allow the CAB to better educate those other staff officers about the employment of Army aviation in LSCO and reduce the coordination time for planning missions. This is not an easy task, and it takes a significant investment of time, but it is well worth the effort. From a planning perspective, the authors highly recommend cementing a strong relationship between the CAB S3 (and other CAB planners) and the division G3, G35, and G5; the CAB fire support officer and division artillery staff and division fire support element; and the CAB S-2 with the division collections manager and analysis and control element chief. The authors further recommend that the CAB staff con-

duct a leadership professional development session with the division staff to facilitate introductions and understand the duties, roles, and responsibilities of the division staff. Furthermore, the CAB staff can also conduct battlefield circulation with the division staff. Simple visits to the division staff, instead of relying on emails and phone calls, will build good habits that transfer over to tactical or field environments. Taking this step on a routine basis shows a strong commitment to helping the division staff and will exponentially increase CAB influence in the division headquarters. Last, the CAB should conduct division staff capabilities briefings to educate the division staff. These capabilities briefings should focus less on the technical data of Army aviation and focus much more on **how the CAB can provide aviation solutions to division problems in LSCO** across all warfighting functions.

Identify and resource the CAB plans cell. Army Techniques Publication 6-0.5, "Command Post Organization and Operations," defines the integrating cells of a brigade-level command post as plans (long-range planning) and current operations (short-range planning and execution) (DA, 2017, p. 2-6). The authors routinely observe that while the current operations integration cell (COIC) is well-defined and well-resourced with personnel, systems, and equipment. The plans cell is very often manned by, at best, two to three designated personnel from the movement and maneuver warfighting function. These personnel usually have the unenviable task of writing orders for the CAB. The authors assert that CAB staff leadership must prioritize the manning and resourcing of their plans cells, and carefully identify, resource, and place their LNOs across the division in order to keep up with the planning requirements in LSCO. This is critical because at routine plans update briefings, the CAB commander frequently does not receive enough detailed information, which then supports a well-informed dialogue with the division commander or deputy commanding generals. The CAB staff must rapidly generate multiple well-developed plans and orders to support battalion-level refinement and execution. This is a critical CAB responsibility because the battalions must remain focused on detailed planning and other critical preparation activities. This should guide the CAB S3 and XO on where to place their most critical resource (their personnel), to achieve success in LSCO. Combat aviation brigades can improve in this area by clearly defining which personnel belong to the CAB plans team, CAB LNO teams, and expected outputs by warfighting function. It is unrealistic that every single staff section will have someone permanently sitting in the plans tent, but those personnel must clearly understand how they contribute to the plans team. Combat aviation brigades can also dramatically enhance their plans cell by pulling LNOs from the flight battalions (or mission design series) to integrate and be a part of the CAB plans cell. Finally, many CAB plans cells do not have a clearly designated 'chief of plans.' The authors highly recommend that the CAB S3 take on this role, while the CAB XO focuses efforts in the COIC.

Develop a plans working group. Army Techniques Publication 6-0.5 describes a plans synchronization board for a division staff, chaired by the division commander (DA, 2017, p. A-21). The plans working group, however, is not where the staff performs individual work; rather, collaborates, answers RFIs, raises issues, reviews due outs, and provides updates to stay on track and synchronize all warfighting functions. Often, CAB staffs receive a mission and then retreat into their individual work areas, not coming back together until after a large amount of time has passed. The plans working group must be a regular part of the battle rhythm and should meet as often as necessary to stay on track and conduct continuous planning. It must have a clear agenda, inputs, and outputs. The outputs are of critical importance because these should culminate with the published operation orders, fragmentary orders, and other 'fighting documents' that support refined planning with the battalions. The staff carefully synchronizes the plans working group with the division battle rhythm but especially the division (and CAB) targeting cycle.

Focus the staff on IPB to maximize outputs and achieve shared understanding. Combat aviation brigade staffs often struggle with achieving sufficient shared understanding of the enemy and the terrain, which should provide the foundation for all mission planning. Similar to all units, CABs place the lion's share of IPB on their S-2 with little to no staff support. Many staffs do this due to insufficient time for exclusive focus on IPB. While time is always a concern, and this approach saves time initially, it delays future planning due to insufficient intelligence products. Army Techniques Publication 5-0.2-1 states, "total staff integration reduces the initial time required for IPB development, assists the commander in timely decision making, improves the quality and accuracy of IPB products, and creates a better understanding of how threats may execute certain COAs [courses of action] and how friendly forces can counter threat actions" (DA, 2020b, p. 76).
Warfighter exercises reveal that CABs consistently struggle to complete all of the required outputs of IPB, most notably, fully developed threat COAs that are required for friendly COA development. Focusing the entire staff on IPB will certainly help with this process.

Furthermore, CAB staffs must also maximize outputs of terrain analysis to better support anticipated operations. For example, even if not specified, CABs can anticipate conducting attacks out of contact of friendly forces in LSCO. Therefore, the CAB can conduct terrain analysis and identify all possible AH-64 engagement areas during IPB. With the help of the entire staff, the avia-

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tion mission survivability officers, and the LNOs, this is not an impossible task. Once identified, the CAB S-2 can further refine the engagement areas. When the CAB receives this mission, the staff can quickly pass the possible engagement areas to the battalion for further refinement and parallel planning. Combat aviation brigades can do the same for forward area rearm/refuel point position areas, tactical assembly areas, the brigade support area, and landing zones for air assaults. This also provides critical flexibility when considering the immense challenges of land management when the CAB competes with many other units for limited terrain (position areas for artillery).

To help with focusing the staff on IPB, leaders should consider conducting a separate IPB briefing from the mission analysis brief, if time allows. The rest of the staff should conduct reverse IPB analysis, and assign briefing roles for the primary staff as part of the IPB briefing. This serves as a forcing function for the staff to invest personally in better understanding the enemy and terrain. Army Techniques Publication 5-0.2-1 provides examples of how the staff can accomplish this (DA, 2020b). This will dramatically improve shared understanding of the enemy and the terrain across the staff, which will significantly streamline planning for future missions.

Identify the required inputs for typical CAB missions in LSCO from the division staff. A quick examination of our doctrine and mission-essential task list reveals typical CAB missions in LSCO. Through simple discussion, CAB planners can easily identify the minimum essential information that is required from division planners to plan these missions. Planners can list these critical pieces of information in checklist form, and include them in the CAB and division tactical standard operating procedure (TACSOP). An updated, functional, and nested TACSOP is critical to building the shared understanding necessary to help the staff streamline mission planning. This creates shared understanding and enhances coordination when planning aviation missions. Division planners will welcome the input, and this checklist approach is very well suited to Army aviation.

An AH-64 Apache Attack helicopter sitting on the helipad at PTA Hawaii during Aerial Gunnery
U.S. Army photo by CPT Jermaine Branch

CONCLUSION

In conclusion, CAB staffs must improve their planning capacity and outputs in order to bridge the doctrinal gray zone that currently exists between the conceptual planning in a division staff, and the detailed planning at the battalion and company level. By analyzing this issue within the staff, CAB leaders can clearly articulate the mission planning role of the CAB staff in the CAB and division TACSOP. Positive and habitual relationships with the division staff will go a long way to capturing this information, building a cohesive team, and educating the staff on how the CAB fights and provides aviation solutions to division problems in LSCO. Likewise, the CAB staff must be proactive and communicate to their division counterparts the required information that is essential for planning aviation operations, place greater emphasis on IPB, and prioritize their own plans cell in order to complement these relationships and produce better outputs. By combining these factors, the CAB will better understand its own role in mission planning for LSCO, streamline planning, and achieve mission success.

Biographies:

LTC Steve Sevigny is currently the Senior Aviation trainer for Operations Group Bravo, Mission Command Training Program (MCTP). He has a total of 3 years as an OC/T with MCTP. He served as the S3 and XO of 4-3 Assault Helicopter Battalion, and served in the G35 and G5 of 3rd Infantry Division. He will assume command of the 404th Aviation Support Battalion at Fort Carson, Colorado in early 2022.

MG Jeff Colt (Ret.) is currently a Movement and Maneuver Senior Mentor with the Mission Command Training Program, where he trains and mentors Combat Aviation Brigade Commanders and their staffs at Corps and Division Warfighter exercises. He commanded 1/17 Cavalry Squadron, 82d Airborne Division; 1st Battalion, 160th SOAR(A); 159th CAB, 101st Airborne Division (ASLT); the Joint Unmanned Aircraft Center of Excellence. He retired in 2018, following command of 1st Army Division West, Fort Hood, Texas.

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Servant Leadership: Exceeding the Standard

By CPT Erin Hannigan

WAATS UH-60 Black Hawk taxis into parking at Silverbell Army Heliport in Red Rock, Arizona. U.S. Army photo courtesy of CPT Erin Hannigan

The Western Army National Guard Aviation Training Site (WAATS) was established in 1986 with the intent to train professional Army Aviators. This mission adjusted through the years and enhanced into what it is today; a schoolhouse dedicated to the further development of basic and graduate-level aviation training, to include noncommissioned officer (NCO) professional development and military occupational specialty qualifications. Since its development, the WAATS has graduated thousands of students from all backgrounds and components. What do these graduates have in common? The ability to lead. In enlisted training alone, the WAATS was responsible for developing more than 1,600 NCOs from the start of Fiscal Year (FY) 20 through FY21. Noncommissioned officer professional development and other enlisted courses offered at the WAATS include: Aviation

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SFC David Sanders instructs a 15P Re-class. U.S. Army photo courtesy of SGT Jozy Smith

Operations Advance Leader Course (ALC), Aviation Operations Senior Leader Course (SLC), Aviation Maintenance Advance Leader Course (AV ALC), Aviation Maintenance Senior Leader Course (AV SLC), Aviation Operations Specialist Course (Re-class), UH-60 Non-Rated Crewmember Enlisted Flight/Standardization Instructor Course, or ASIN1, UH-72 Enlisted Flight Instructor Course (EFIC), and Airframe and Power Plant Federal Aviation Administration Certification.

Staff Sergeant Douglas, an ALC and EFIC instructor for the WAATS, prides herself in the quality of students she graduates from each course, "I really do think we produce the best graduates, we treat them as a person—not just a number" (personal communication, August 11, 2021). Douglas attributes this development of quality NCOs to the teaching and application of servant leadership.

Servant leadership, coined by Robert K. Greenleaf in 1970, focuses on the growth and well-being of an individual and the community or organization they belong to. The desire to develop others and to perform as best as possible is a priority of a servant leader. These leaders are characterized by the following 10 traits: empathy, listening, awareness, healing, conceptualization, persuasion, stewardship, foresight, community building, and commitment to growth of others.[1]

Empathy is the ability to recognize and understand the feelings of another. Leaders who connect through being empathetic not only express their understanding, but act on the genuine desire to help others.

Listening actively is an important trait of a servant leader. Paying attention to what is being said assists these leaders in resolving conflicts, counseling, and in communicating training effectively. Ultimately, being an active listener can build trust with those being led.

Awareness for a servant leader is being conscious of personal strengths, weaknesses, values, emotions, and feelings to better serve those they lead. This characteristic assists in leaders making nonbiased decisions.

Healing builds trust within the ranks. Leaders show that they care about their subordinates by being attentive to their emotional and physical health, not just the mission or tasks required.

Conceptualization from a servant leader allows them to visualize the steps needed to meet the intent of higher headquarters, training requirements, or other needs of the organization.

Persuasive skills come easy to servant leaders who desire the best for their subordinates. These leaders work to influence stakeholders,

[1] **You can read more about Robert Greenleaf and his ideas on servant leadership at https://www.greenleaf.org/what-is-servant-leadership**

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Across the hanger, WAATS Maintenance Battalion Soldiers diligently conduct phase level maintenance on the UH-60 Black Hawk. U.S. Army photo courtesy of SGT Jozy Smith

which in turn, can lead to positively impacting their team and organization.

Stewardship of the organization lies with the servant leader. These leaders effectively manage resources for the benefit of their organization.

Foresight allows for servant leaders to effectively plan. Analyzing past, present, and future information provides the ability to make decisions that will best support the organization.

Community building is achieved by a servant leader because of his ability to effectively create an environment of growth and acceptance. Servant leaders foster esprit de corps and create a strong sense of belonging within an organization.

Commitment to the growth of others is one of the strongest characteristics a servant leader processes. These leaders desire to develop and improve the organization in which they serve, leaving it better than before. Servant leadership is not new to the military; leaders such as retired General, Colin Powell, have been characterized with this type of leadership style. Described as an active listener and person-centered, GEN Powell was known to put the team first and work to develop the organization. He valued listening and learning and knowing by doing, so he could make sound decisions in any situation and build trust within his ranks.

"Leadership is all about people. It is not about organizations. It is not about plans. It is not about strategies. It is all about people –motivating people to get the job done. **You have to be people-centered."**

–GEN Colin Powell, ***Why Leadership Matters*** (Department of State Lecture, 2003)

Being a servant leader is what instructors at the WAATS not only strive to be but teach their students to carry back to their own units. These instructors want to build an effective fighting force, and that doesn't stop at just teaching. Douglas emphasized how instructors

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WAATS Maintenance Battalion Soldiers conduct phase maintenance on a UH-60 Black Hawk. U.S. Army photo courtesy of SGT Jozy Smith

don't end at teaching the standard, she explained, "the standard is the baseline, it is not where we stop growing" (personal communication, August 11, 2021).

The drive of a servant leader is evident in the work WAATS instructors put into their students. Common at the schoolhouse, instructors do not base their day's work on time but to the standard and need of the student's growth. Students can be observed reviewing material with instructors past work hours and soaking up every opportunity to develop. Douglas describes the passion of instructors, stating everyone has the desire to make training realistic and useful in all environments. Instructors ensure introduction to scenarios in training that reflect all different extremes, in order to better test students on a range of situations they could encounter. They want graduates to return to their units with something to make it better and continue to enhance the military enterprise.

"Leadership and learning are indispensable to each other."

–John F. Kennedy, 35th President of the United States, undelivered speech to Trade Mart, Dallas, Texas, 1963

This type of leadership thinking doesn't end with Douglas; WAATS-enlisted instructors across the organization value the development of their pupils. Master Sergeant Cochran has grown up within the schoolhouse—not only as an instructor—but a former student. Now, he is the NCO in-charge of the schoolhouse operations section. He reiterated Douglas' comments, "We don't want to just check off the block of training to-dos. We want to develop these leaders into Soldiers who are committed to growth and never stop trying to do better. That's what I learned while training, and that is what I will continue to strive for" (personal communication, August 11, 2021).

Upon completion of all classes, instructors take time to listen to their students who detail their opinions on the execution of the course. Actively listening, instructors are eager to improve so future students will be prepared for anything to come.

"I've had students come back and express they've never had more caring and helpful instructors before," Douglas said grinning ear to ear, "All of our instructors have a passionand make training the most realistic and useful so these students can return to their units better than before" (personal communication, August 11, 2021).

The WAATS is bound to change as aviation evolves and modernizes, but one thing will stay the same—its dedication to leadership development. It doesn't stop at just meeting the standard. The WAATS possesses strong and devoted instructors who are steadfast in their desire to grow competent and capable Soldiers. This schoolhouse takes its motto to the next level when it states, We Train All.

Biography:

CPT Erin Hannigan has been in the Army for 7 years, qualified in the UH-60A/M Black Hawk and UH-72A Lakota. She is currently stationed in Red Rock, Arizona with the Western Army Aviation Training Site as the Assistant Operations Officer (S3).

Combined Resolve XV: Innovation at the Joint Multinational Readiness Center

By MAJ Lindsay Heisler, MAJ Cody Hill, and MAJ Chris Wardlaw

AH-64 Apache attack helicopters of the 12th Combat Aviation Brigade, prepare to launch from Katterbach Army Airfield for a battalion attack training mission during Operation Eminent Strike on Mar. 17, 2021. U.S. Army photo by MAJ Robert Fellingham

Over the last year, the Joint Multinational Readiness Center (JMRC) implemented exercise scenarios designed to train multinational divisions, combat aviation brigades (CABs), and its subordinate battalions in division shaping operations in the deep fight. The new scenario design focuses on multiechelon and complex decision making in order to train echelons above brigade (EAB) and integrate Army aviation into the modern battlespace, while maximizing aviation lethality and survivability. The scenario draws on current doctrine, and Army initiatives such as the Joint Firepower Course, Air Cavalry Leaders Course, and the new long-range standoff munition, Spike Non-Line-of-Sight, or Spike NLOS,™ to train air mission commanders on understanding the enemy order of battle and EAB assets to achieve overmatch by massing lethal and non-lethal fires and effects to win. The most recent rotation at JMRC provided ample opportunity for units to train in these scenarios.

In February 2021, the JMRC executed Combined Resolve XV, a rotation that consisted of 4,700 Soldiers from 10 different North Atlantic Treaty Organization, or NATO, nations. The 1st Armored Brigade Combat Team (ABCT) from 1st Cavalry Division and 101st CAB both participated as brigade headquarters (HQ). Unsurprisingly, the invisible enemy of COVID-19 heavily affected the design of the rotation and the task organization under which the units operated. When the virus infiltrated the Brigade Combat Team (BCT) HQ, the 101 CAB HQ stepped in to fill the capacity of the BCT in order to preserve the training environment. While executing Combined Resolve XV in a COVID-19 environment that significantly changed the structure of the exercise might seem like a considerable challenge, it actually presented a series of opportunities for innovation; creativity; and experimentation with task organizations, scenario designs, and training opportunities that a typical rotation does not provide. **This article attempts to share the lessons**

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observed during this unique rotation, which include the impacts of a CAB's participation in combat training center (CTC) rotations; innovative tactics, techniques, and procedures (TTPs); and operating across brigade boundaries within a division's area of operation (AO).

101 Combat Aviation Brigade Headquarters at Combined Resolve XV

Rather than execute the rotation with separate battalions operating independently of each other without a higher HQ, the 101st CAB stepped in to fill the role of the BCT HQ. This opportunity allowed, for the first time, the 101st CAB to fight large-scale combat operations (LSCO) and division shaping operations during a CTC rotation. Not only did they operate at the brigade level at a CTC rotation, but they also task organized in such a manner never seen before. Filling the role of a BCT HQ, the 101 CAB received under their command the Brigade Intelligence Support Element, or BISE, 1-82 Field Artillery, virtual Shadow unmanned aircraft systems from the 91st Brigade Engineer Battalion, or BEB, and virtual Sentinel aerial surveillance radars from the 5-4 air defense artillery (ADA).

This task organization that COVID-19 forced the units to construct provided opportunities and scenarios that any normal training environment would not provide. For example, JMRC observer coach/trainers (OCTs) observed the 101 CAB driving the targeting process and the processing; exploitation; and dissemination of intelligence, surveillance, and reconnaissance assets. While CABs are not as equipped or trained in these processes to completely fill the role of a BCT, Destiny Brigade was able to preserve the training environment for its subordinate battalions in this unique situation.

Most importantly, the 101 CAB successfully integrated its aviation assets into division shaping operations during Combined Resolve XV. What the aviation OCTs observed was ample opportunity for competitive training and several repetitions of multiechelon and complex decision making in the deep area. This rotation demonstrated the value of having a CAB participate in a CTC rather than just a multifunctional aviation task force. It also made the case for CAB HQ to participate in CTC rotations as often as possible in the future to facilitate this essential training at echelon.

A Black Hawk crew chief uses a wired headset to communicate with a pilot at Forward Operating Base Kalsu on May 9. U.S. Army photo by SPC Creighton Holub, Combat Aviation Brigade PAO, 4th Infantry Division

Opportunities for Innovative Tactics, Techniques, and Procedures

Additionally, this rotation provided opportunities to train new, innovative TTPs for division shaping operations. It was the first JMRC rotation that allowed for employment of Spike NLOS missiles and air-launched effects unmanned aerial systems in the constructive simulation. Because the current Army aviation munitions are often insufficient to provide enough standoff against a near-peer threat, the 101st CAB capitalized on this opportunity to employ its 2-17 Air Cavalry Squadron (ACS) as a constructive unit in the simulation to train and develop TTPs utilizing the Spike NLOS missile and unmanned aerial system. The 2-17 ACS AH-64Es engaged targets at ranges of 32 kilometers utilizing the Spike NLOS missile, which significantly increased the aircraft survivability, while operating in a decisive action environment against a near-peer threat (Lockheed Martin, 2020). Over the course of Combined Resolve, this munition proved the significant value and immediate impact it can bring to the future of Army aviation and ground force commanders.

Another opportunity that Combined Resolve presented the 101st CAB was assuming tactical control of the BCT's virtual Shadow platoon. The 101st CAB placed this Shadow platoon directly under its attack battalion, the 1-101st Aviation Regiment 'Expect No Mercy.' What emerged from this relationship was a TTP never observed before at JMRC: a lethal kill chain utilizing manned-unmanned teaming (MUM-T) between Apaches and Shadows that started

within the 1-101st main command post (MCP). The 1-101 staffed its current operations (CUOPs) floor sufficiently during every mission with the S2, fire support officer, battle captain, and radio telephone operator (RTO). The RQ-7B Shadows on station would consistently pass targets to the CUOPs floor that had a thorough understanding of the high-value target list and high-payoff target list to decipher which targets should get passed to the Apaches. One after the other, the battalion S2 and battle captain received target handovers from the One System Remote Video Terminal displaying the Shadow's video feed, accurately prioritized the targets, and quickly relayed calls for remote Hellfire missile engagements through the RTO to the Apache helicopters. What ensued throughout Combined Resolve was a series of targeting missions between division fires assets and the Apaches on station. By the end of the rotation, the RTOs in the MCP were extremely proficient in conducting remote Hellfire engagements with the Apaches. Although MUM-T isn't a new concept, what was unique in this instance was the level of situational awareness within the 1-101st staff and CUOPs floor to connect the dots between capabilities within the current footprint and information to increase the survivability and lethality of the Apache aircrews. It was the first time at JMRC that OC/Ts observed an MCP operating at this level of lethality. Had the Shadows remained under the umbrella of the BCT HQs, it is unlikely that this kill chain would have ever materialized.

Operating Across Brigade Boundaries in the Brigade's Deep Area

Last, because there was no BCT HQ during Combined Resolve, the rotation provided ample opportunity to design and develop division-level missions in the deep area in which aviation was used across both brigade and division boundaries. Utilizing the Grafenwoehr Training Area to provide a target set at a greater distance and new terrain, aviation OC/Ts generated a mission in which a team of forward observers assigned to the 3rd Squadron, the 2nd Cavalry Regiment (CR), provided laser designation for the Apaches utilizing their Lightweight Laser Designator Rangefinders (LLDRs).

Additionally, to stimulate the coordination for operating across boundaries, this mission incorporated the use of the 2nd CR's Shadow platoon in Grafenwoehr Training Area operating beyond the division's northern boundary, as well as the 1BCT's virtual Shadow platoon operating within the brigade's AO at Hohenfels Training Area. This unique opportunity was the first time a CTC has operated with two Shadow platoons across a division boundary.

Overall, Combined Resolve XV proved itself a fantastic training opportunity for the 101st CAB at every echelon. While one could argue that the opportunity for great training is present at every CTC rotation, this one was unique because impacts from COVID-19 forced a rare instance in which an exercise encourages innovation, imagination, and ingenuity. We observed units finishing the rotation better than they started, with new ideas and TTPs to carry forward and implement in the future. From the proper utilization of Spike NLOS to the most lethal kill chain inside a battalion MCP, units learned and improved in competitive environments.

Biographies:

MAJ Lindsay Heisler currently serves as the senior aviation TAF at the Joint Multinational Readiness Center. She previously served as an attack aviation OC/T at the JMRC and as the C/1-82 and D/1-82 Company Commander in the 82nd Combat Aviation Brigade. She is qualified on AH-64D/E helicopters.

MAJ Cody Hill is currently a student at CGSC attending the Resident ILE course. His previous assignments include OC/T at the JMRC, and the Company Commander of C/1-229th Attack Battalion at Joint-Base Lewis McCord. He is qualified on AH-64D/E and UH-72 helicopters.

MAJ Chris Wardlaw currently serves as the Deputy Senior Aviation Trainer for the JMRC. He previously served as the G3 Aviation Officer for the 3rd Infantry Division, as well as the Operations and Executive Officer for 3-17 Air Cavalry Squadron. He is qualified on OH-58D, AH-64D, and UH-72A helicopters.

Reference:

Lockheed Martin. (2020). *Spike NLOS* (Fast Facts). https://www.lockheedmartin.com/content/dam/lockheed-martin/mfc/documents/business-area-landing/MFC-TSM-Spike-NLOS-Fast-Facts.pdf

An Apache attack helicopter assigned to the 3rd Battalion, 501st Aviation Regiment, 1st AD Combat Aviation Brigade also known as 'Task Force Apocalypse,' flies over a training area September 11, 2014, in Fort Irwin, California. Task Force Apocalypse is participating in 4th Armored Brigade Combat Team 1st Armored Division's National Training Center rotation '14-10.' U.S. Army photo by SGT Aaron R. Braddy

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A UH-60 Black Hawk helicopter, operated by Soldiers with Alpha Company, 2-104th General Support Aviation Battalion, 28th Expeditionary Combat Aviation Brigade, flies over the 28th ECAB's area of operations in the Middle East. U.S. Army photo by SGT Andrew Johnson

Army Aviation Soars with Sage Eagle

By Mr. Timmothy Smario and CPT Alejandro Cespedes

Sage Eagle (SE) is the U.S. Army Special Operations Command's (USASOC) primary pre-mission training (PMT) exercise. Sage Eagle is a special operations command, joint national training capability exercise credited by the Joint Staff. Five times a year, SE exercise participants converge with USASOC's deploying units at Fort Bliss, Texas and White Sands, New Mexico, to train, prepare, and test themselves against the emerging strategic security problem sets America faces. The SE mission is: to provide a joint environment for Army special operations forces (ARSOF) to certify and test Army capabilities at the special operations force–training center (SOF-TC) in support of geographic combatant commands' campaign plans. The SE joint architecture shapes each exercise's training objectives to create several touchpoints for its primary ARSOF training audience and other training participants, to include Army aviation in an equitable atmosphere.

Integration of Aviation Operations

Sage Eagle provides a unique venue for joint air and ground planning during each rotation. This allows aviation commanders to design training specific to their formations, permitting them to exercise mission command of full-spectrum aviation operations to include: attack, security, reconnaissance, air assault, air movement, and casualty evacuation (CASEVAC). Sage Eagle allows for the execution of day, night, and limited visibility operations in various environments, to include urban, mountainous, and desert. This training enables Army aviation to shape and influence the replicated battlespace, while providing the ground force commander with the ability to rapidly employ both conventional and SOF maneuver elements to seize and maintain key terrain from enemy forces. Distinct from other training centers across the Army, SOF-TC allows for integrating an aviation battalion task force (ABTF) as a special operations task force asset. September marks the last of the five training year SE iterations in 2021 that have incorporated Army aviation formations across active duty and reserve components. The following are key advantages and highlights provided by SOF-TC when incorporating Army aviation into SE events.

Incorporation of Fort Bliss' Large Training Area

It's no secret that Fort Bliss is one of the largest Army installations, due to the size of its training area. Understandably, this area is ideal for Army aviation units to plan, practice, and execute large-scale combat operations (LSCO), supporting both the deep and close fights. Army aviation units participating in SE rotations can test their capabilities working in distinct SOF-replicated environments. Sage Eagle looks to replicate Surface to Air (SA) live systems located throughout the replicated battlespace that aviation task force participants work through to these threats. Aviation force participants will have to master the tactical planning to remain undetected and conduct evasive maneuvers that defeat the SA threat systems and accomplish the mission. The spacious training areas surrounding Fort Bliss allow Army aviation units to practice a complete profile of high-altitude operations, degraded visibility operations (dust landings), and urban operations with a comprehensive menu of military operations in urban terrain sites.

Synchronization of Ground and Air Fires on the Modern Battlefield

Since its conception, the growth and notoriety of the SE and SOF-TF relationship continue to expand. Sage Eagle is becoming the premier training area for both the Army and Air Force. During SE rotations,

we see the integration of both conventional Army and Air Force units with SOF to reproduce the denied environment for the emerging new generation of combined arms. Sage Eagle specifically includes training of live-fire ranges allowing for an integrated arms synchronization of fires that incorporate several air and ground assets and the domains of cyber, electronic warfare, and space. Of particular note, the unique benefit offered by the training areas in which SE operates is the approved weapons danger zone for the employment of the air-to ground missile, or AGM-114 Hellfire missile. Only a handful of locations throughout the United States can be used as a live-fire range for the Hellfire missile. Moreover, the training location is ideal for the tactical employment of attack aviation, while including the detailed planning needed to operate in a degraded, denied, and disrupted space operational environment (D3SOE). Sage Eagle intends to have at least three live air assets helping shape the battlespace. Every day, an air tasking order is published highlighting key intelligence, surveillance, and reconnaissance (ISR) and close air support (CAS) platforms that are operationally employed. The use of ISR platforms, including the MQ-1B Predator, MQ-9 Reaper, C-208 CASEVAC, MC-12 Liberty, and U-28 Draco, drives the operational intelligence cycle with full mission video in real time. In addition, SE welcomes the inclusion of myriad of small unmanned aircraft systems that units can bring and deploy onto the replicated battlespace. While live ISR assets collect the information needed to plan upcoming missions, the usage of live CAS assets can be expected to help execute and accomplish these missions. One can expect the platform support of F-16 Fighting Falcons, F-18 (aviation ground support equipment), A-10 Warthogs, AC-130 gunship, and EC-130 Hercules. The integration of live air assets helps to enhance the training value for both the ground force and the ABTF. Joint tactical air controllers are responsible for employing all air assets supporting ongoing ground operations. These conditions are very similar to what can be expected in either an LSCO or counterinsurgency environment.

The Future of SE and SOF-TC

The SE exercise director, CSM (R) Kimmich, expressed his long-term vision for partnership between SE and Army aviation, "The future of Sage Eagle does not just intend to meet the ARSOF unit's PMT certification requirements but looks to layer in today's relevant great power competition capabilities. Army special operations forces and Army aviation need to be prepared to conduct missions in many phases and fight together across multiple domains. Army aviation is an inherent and necessary component of ARSOF's future. It is my responsibility to provide the best possible venue that fosters that relationship" (personal communication, August 9–16, 2021). Sage Eagle is a joint environment that doesn't limit its program to the Army's rotary-wing platforms. This exercise focuses forward and wants to allow aviation units to certify in an environment that supports emerging Army concepts like multidomain operations and shaping for LSCO. Sage Eagle works with SOF-TC to develop enduring relationships with other exercise participants, to include Army aviation. The SE site lead, COL (R) Roberts, is not surprised that SE is quickly becoming the Army aviation training hotbed. He states, "Yes, my main focus is the ARSOF unit's PMT, but this means it's essential my exercise planners provide a well-resourced life support and exercise design for active duty, Army reserve, and Army National Guard units that come here so we can develop training relationships CONUS [continental United States], which reflect the relevant operational environments OCONUS [outside the continental United States]" (personal communication, August 9–16, 2021). For Roberts and Kimmich, it is not enough to provide Army aviation commanders the opportunity to participate in an SE iteration and meet the unit's mission essential tasks, but to also allow commanders to participate as repeat customers over an extended period to become the best version of the guidon they represent.

How to Get Involved

Interested in participating in an SE iteration or becoming an enduring partner? Contact SE's air officer, CW2 (P) Hinesley, an aviation mission survivability officer (AMSO) and Instructor Pilot for the Army Reserve Aviation Command assigned to 1st Special Forces Command's G37. Chief Hinesley expressed, "I can't begin to tell you how important the 2-4 week training blocks are for the Army Reserve and National Guard Aviation units' annual training time constraints. This exercise is also fantastic for active duty's operational tempo. For example, the scenarios are already in place, so AMSOs and standardized pilots don't have to focus on scripting; the SE staff supports a lot of tedious logistics so commanders and their subordinates can focus on arriving and training" (personal communication, August 9–16, 2021).

Biographies:

Mr. Smario works as an exercise design planner for 1st Special Forces Command's (Airborne) Sage Eagle Program. After 21 years of active service, Mr. Smario retired in 2018 as a Special Forces Warrant Officer. His deployments include Iraq, Afghanistan, Africa, and Latin America. A recipient of the Purple Heart, and X3 Bronze Star Medals, he now enjoys sharing his military experience as a government contractor. Mr. Smario is currently pursuing a Doctorate in Strategic Intelligence.

CPT Alex Cespedes is currently serving as the 2nd Battalion, 5th Special Group (Airborne) Aviation Officer. CPT Cespedes previously served as a Brigade Deliberate Operations Planner, Flight Platoon Leader with Alpha "Warlords" Company, 6-101 Aviation Regiment, and as the Brigade S3 Air for the 101st Combat Aviation Brigade. CPT Cespedes deployed twice while serving with the 101st CAB; supporting both Operation Freedom's Sentinel and Operation Atlantic Resolve.

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On May 6, 2018, an AH-64 Apache helicopter from Task Force Ragnar comes in to land at the tactical assembly area established in the National Training Center in Fort Irwin, California. U.S. Army photo by CPT Katherine Zins

This is the final article in a series

Developing the Situation, Developing the Aeroscout Mindset, Part II

By CW3 Andrew Maney

Previously, I explored one of the major consequences of the Aviation Restructuring Initiative; specifically, the retirement of the OH-58D Kiowa warrior, along with many of its pilots and the bulk of reconnaissance experience in our branch. After making the case for a renewed appreciation of reconnaissance with respect to combined arms maneuver, I concluded with a quote taken from the pages of historical Army doctrine: "See First, Understand First, Act First, and Finish Decisively" (Department of the Army [DA], 2003). The "Quality of Firsts" approach to combat is not new to the Army, but it does illustrate the linkage between information and victory in large-scale combat that I believe has been obscured by 2 decades of counterinsurgency. In the paragraphs that follow I'll explain how one of the fundamentals of reconnaissance—develop the situation rapidly—represents a functional competency that warrant officers in the AH-64 community can and must leverage to achieve decisive results in multidomain operations (MDO).

"The principal limiting factor for any effects-based strategy, and hence decision dominance, is intelligence—but it is also the principal enabler."

—LTC Merrick Krause (USAF), Decision Dominance: ExploitingTransformational Asymmetries, 2003

The drive to field a lethal web of networked sensors and shooters across the force to accelerate the tempo of operations—using information itself as the key weapon with which to get inside an enemy's decision cycle—is once again on display at events like Project Convergence. Sponsored by the Army Futures Command, Project Convergence is an annual technology showcase and campaign of learning begun in 2020 that seeks to field, among other things, new combat systems linked to a revolutionary command and control/intelligence, surveillance, and reconnaissance, or C2/ISR, network (McConville & McCarthy, n.d., p. 2). Previous efforts to develop similar capabilities (such as the Future Combat System in the early 00s) were unsuccessful for a variety of reasons, but the specter of Great Power conflict has revived incentives to modernize information and intelligence-gathering systems and practices.

Decision dominance, as it is known to MDO strategists, is the desired state (Army Futures Command, 2021). The earliest mention I've found of "decision dominance" is a 2003 article by LTC Merrill Krause published in *Defense Horizons*, but it has started to gain traction recently as the joint force grapples with peer threat capabilities that—if deployed—will require our forces to act and respond with a speed and tempo previously unimaginable (Krause, 2003). Army Chief of Staff GEN James McConville recently wrote, "The Army is boldly transforming to provide the Joint Force with the speed, range and convergence of cutting-edge technologies that will be needed to provide future decision dominance and overmatch for great power competition" (U.S. Army Public Affairs, 2021). Speaking to the Association of the United States Army, or AUSA, Global Force Next virtual conference in March 2021, the Chief of Army Futures Command, (Figure 1), GEN. John "Mike" Murray, describes decision dominance as "'the ability for a commander to sense,

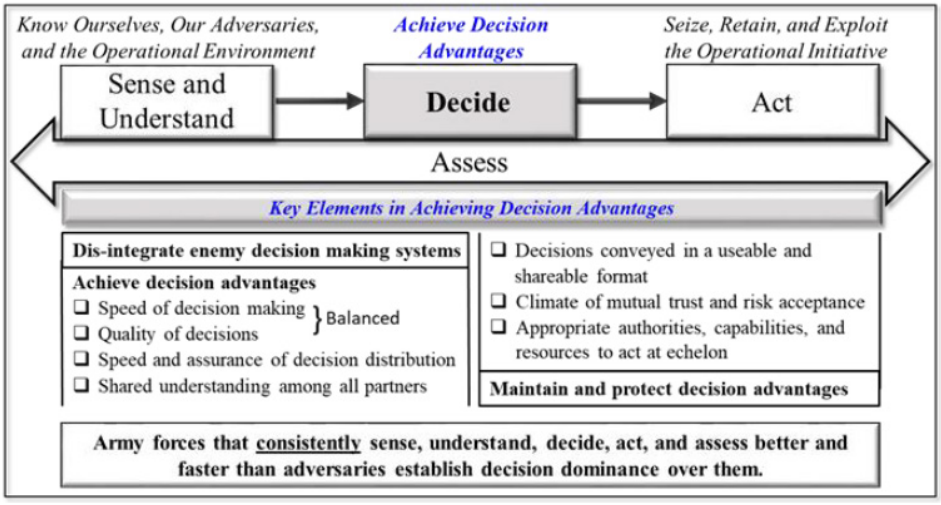

Figure 1. **Army Futures Command concept for command and control (AFCC-C2) 2028: Pursuing decision Dominance, (AFCC-C2) logic map (Army Futures Command, 2021).**

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understand, decide, act, and assess faster and more effectively than any adversary'" (Freedberg, 2021).

The description bears a striking resemblance to the theories of Air Force officer and military strategist John Boyd, who famously captured the idea that decision-making occurs in cycles of Observe-Orient-Decide-Act–"the "OODA loop." The key to victory, he argued, lies in an antagonist's ability to consistently execute high-quality decisions more rapidly than his opponent, leading to decisive advantages over time as the cycle repeats itself. The slower adversary is unable to cope with a progressively deteriorating situation and eventually collapses (Boyd, 1986). Scaled up to echelons above brigade and incorporating all the instruments of national power, decision dominance is COL Boyd's OODA loop reimagined and applied to all three levels of war in MDO (Army Futures Command, 2021).

The comments by our senior leaders regarding decision dominance underscores a simple, yet widely accepted tenet of warfare: a commander's capacity to make decisions that seize, retain, and exploit the initiative—whether a combatant commander or an air mission commander—is a combat variable reliant on two things: 1) accurate situational understanding, and 2) the ability to mass (or converge) combat systems to produce an appropriate effect in time and space.

CREATING DECISION ADVANTAGES

"It is said that mission command is the art and science of decision making. In the case of multi-domain operations, more science will demand more art."

–GEN William S. Wallace (Ret.),
2020 Former TRADOC Commander
(2005 to 2008)

For good reason, today's leaders continue to stress the value of high-quality decision-making. More than ever before, future Army forces require commanders and subordinate leaders who are able to make rapid, quality decisions in conditions of relative ambiguity and who thrive in fast-paced, data-driven operations (Army Futures Command, 2021). Quality decisions, by definition, are those which are logical, pragmatic, ethical, and justified by the information and intelligence available at the time of the decision. Quality decisions are also easily explained in terms of how they accomplish the higher commander's intent and assigned mission (Ancker, 2013). The question for commanders at all levels is how to attain the highest quality information to make the highest quality decision in the shortest amount of time. The answer is the same as it has always been: through reconnaissance. Someone tasked to collect relevant information that fulfills a commander's critical information requirement should report his observations to a command post by the quickest means available. Sounds simple enough.

Leaders today are simultaneously seeking better knowledge management practices through efforts like the Future Command and Control Information System (FC2IS) (Figure 2) that work to develop innovative tools designed to provide leaders with the right information, at the right time, and in usable format to make the right decisions. Artificial Intelligence and Machine Learning (AI/ML) are leading candidates to help process and combine the enormous amount of combat data streaming into command posts, easing the battle staff's cognitive load and thus reducing the proverbial *friction* of war—those unpredictable impediments to action which add up to make the simplest tasks difficult (von Clausewitz, 1832). Reducing friction in our own intelligence operations is one method to create decision advantages.

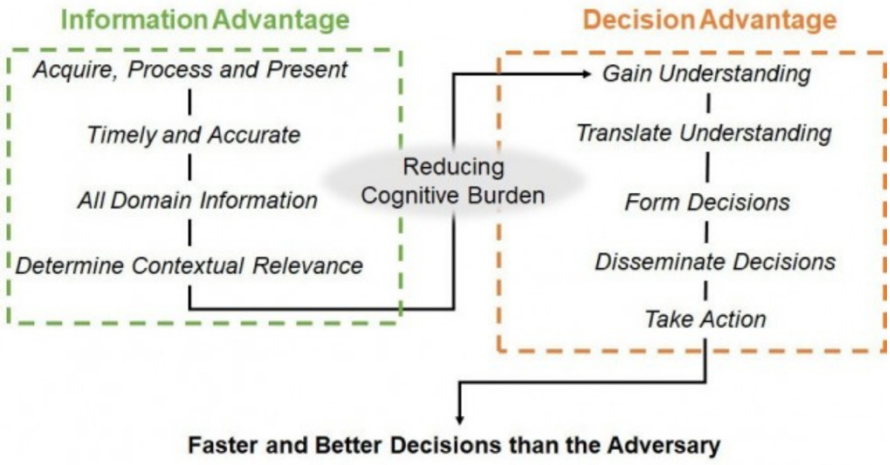

Figure 2. **As part of FC2IS, Mission Command Battle Lab (MCBL) hopes to better understand how the Army of 2035 will outthink the enemy (MCLB, 2021).**

The challenge for the aviation branch as we transition away from counterinsurgency toward large-scale combat operations (LSCO)—where dispersed formations must function in a hyperactive environment—is determining the best approach to teaching; training; and validating renewed tactics, techniques and procedures (TTPs) that enable us to better synchronize with the combined arms team. Put another way, how will our branch create cross-domain decision advantages?

For starters, winning solutions executed inside the enemy's decision cycle first require decision-quality information reported by Soldiers and sensors at the tactical edge of the battlefield. Field Manual 3-98

"Reconnaissance and Security Operations," explicitly identifies cavalry assets as the primary tool to develop the situation and *"provide the combat information that will ultimately refine subsequent courses of action for the BCT's [brigade combat team's] decisive operations"* (Department of the Army, 2015, p. 4-3). Attack battalions and Air Cavalry Squadrons (ACS) deploying the AH-64 Apache are one of the best options currently available to provide "edge" reporting. The copilot-gunner in an AH-64 communicating directly with ground forces and operating the target acquisition & designation system will have a front row seat to the action, no matter where or when it occurs. With some exceptions, that person will usually be a warrant officer whom the commander relies upon as a tactical subject matter expert.

A veteran instructor once told me, half-joking: "study everything, know everything." That prescription seems impractical for most of us, but he makes a compelling case about the method through which many warrant officers have historically acquired their expertise: namely, self-study and on-the-job-training. While both methods are critical to generating expertise, they're not efficient or standardized.

Until very recently, the Warrant Officer Basic Course (WOBC) and Basic Officer Leaders Course (BOLC) were the only venues providing base-level tactical instruction and planning to a flight school graduate. My student pilots, both commissioned and warrant officers, will often ask me which aspects of their professional self-development should be emphasized when arriving to their first unit. The question has generated a fair amount of debate from all quarters, especially as the operational environment (OE) evolves.

There are a litany of valid opinions on this topic, but in my experience as both an instructor at Fort Rucker and a crewmember in combat, junior aviators (WO1-CW2, 2LT-1LT) have difficulty during combined arms scenarios that require them to 1) perform aerial observation, 2) execute actions on contact, and 3) transmit tactical reports. As a qualification course—not a tactics school—the AH-64E program of instruction (POI) for initial entry rotary wing introduces the first and the third, but not the second. Crucially, too many pilots graduating today lack experience and operational context permitting them to *develop the situation rapidly*—in effect, the combined activities of all three tasks performed near simultaneously (DA, 2019). These issues are compounded by a reliance on self-study with vague connections to academic instruction, which does little to build a sound tactical framework and will only get worse as our forces withdraw from recent theaters of operations.

After flight school, the current training paradigm requires instructor pilots (IPs) in the operational force to assume responsibility for training and evaluating the remaining mission tasks during readiness-level progression and beyond. For many years, that has meant that tactically oriented professional military education (PME) has essentially remained *optional* for the warrant officer. Tactical courses such as the Aviation Mission Survivability Course and the Air Cavalry Leaders Course (ACLC) usually require a specific request by the officer. Command support for warrant officer PME varies from unit to unit, and many tracked IPs opt for the instrument examiner course or master gunner course when the opportunity arises. The only course that warrant officers are expected to attend is the Aviation Warrant Officer Advanced Course (AWOAC), a school whose POI has been light on tactics until receiving an overhaul this past summer.

Given the wide range of missions and scenarios in which contact is likely—to include disrupted communications environments where receipt of further orders may be doubtful—squadron and troop commanders must have confidence in their pilots' abilities to develop a combat situation (through action, as necessary) and achieve a desired end-state. The National Training Center recently published a guide to prepare units for LSCO, available through the Center for Army Lessons Learned (CALL) web site. In the guide, it states: "The greater lethality of peer and near-peer threats demands our units win at initial contact. This further increases the importance of intelligence analysis, to include *understanding* [emphasis added] key high-threat weapons systems and the probable line of contact (PLC). Leaders from the small-unit level to the BCT headquarters (HQ) must understand the PLC, and **set conditions for combat before they cross it** [emphasis added]" (CALL, 2021, p. 34).

Recent personal experience reveals that when a flight of AH-64s makes contact with the enemy they instinctively enter the engagement process (Detect, Identify, Decide, Engage, Assess),[1] focusing primarily on developing and executing a direct fire plan. These actions may be completely justified, but only if they are in accordance with engagement criteria. During LSCO, such criteria will not necessarily be more permissive than counterinsurgency: It will depend entirely on the commander's concept of the operation and the unit's mission. As the saying goes, if all you have is a hammer, everything looks like a nail.

Army doctrine emphasizes that "No matter how the [friendly] force makes contact, seizing the initiative is the overriding imperative" (DA, 2019, p. 2-14). True, but seizing tactical initiative should support the BCT's operations, not impede them by introducing unapproved risk. One of my favorite passages from CPT Allan Newman's article in the Octo-

[1] More information about the Direct Fire Engagement Process, or DIDEA, may be found in Training Circular 3-20.31-4 via Enterprise Access Management Service-Army with a valid common access card.

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ber–December 2020 issue of *Aviation Digest* about Scout integration into AH-64 formations, is his comment about a solely attack-focused pilot executing a mission where the information [gathered from reconnaissance] is more valuable to the ground force commander than an enemy vehicle destroyed. Newman stated, "It may be more important to develop the situation, transmit the information to higher headquarters, and retain[the] freedom to maneuver rather than to destroy tanks, get decisively engaged, and spoil a friendly maneuver plan that required information no longer possible to gather" (Newman, 2020, p. 45).

DEVELOPING THE SITUATION

"Situation development is the common-sense approach to dealing with complexity. Both a method and a mind-set, it uses time and our minds to actively build context, so that we can recognize patterns, discover options, and master the future as it unfolds in front of us"

-LTC Pete Blaber, The Mission, The Men and Me, 2010

To weaponize combat information, it's important to understand the characteristics of *actionable*, decision-quality information. The more accurate, timely, usable, complete, precise, and reliable the information, the better. Generally speaking:

—Incomplete or imprecise information is *better than* no information.

—Untimely or unusable information is *the same as* no information.

—Irrelevant or inaccurate information is *worse than* no information (DA, 2003).

An actionable report stems from an observer's ability to make sense what they're seeing, respond to it, and recommend/execute a course of action. In other words, develop the situation. Some examples of actionable information include terrain effects, enemy composition, enemy disposition, enemy strengths, weaknesses, rate of movement, and intent (their willingness to attack or defend, etc.). The question Scouts must always ask is, "Why is this information important, and who else needs to know?" Consider the following transmissions comparing notional SPOT[2] reports:

1) *"Tally multiple enemy targets, westbound, in vicinity of grid XX XXXX XXXX."*

vs.

2) *"Tally one platoon of enemy armor supported by 6 armored reconnaissance vehicles and at least one surface to air system at NAI* [named area of interest] *1050. Forces are travelling westbound along route copper between phase line red and phase line blue at grid XX XXXX XXXX. Armor is camouflaged, concentrated in the center of the column and flanked by support elements with approximately 200 meter frontage. There is an assailable flank to the north. Recommend flight bypasses and proceeds to NAI 1055 after conducting reconnaissance handover with UAS."*

The value contained in a "word picture" cannot be overstated. Both reports are technically to standard. Each depicts the same activity, but only one of them develops the situation. The first statement does classify the formation as enemy and-while imprecise-gets the information to the user. However, it requires headquarters to plot the grid to ascertain the location—costing valuable minutes in a time-competitive OE. The second version provides the

squadron staff with sufficient composition, disposition, and location data to immediately orient on a map overlay. As the report is passed higher, the S2 and brigade staff apply experience and judgement to further assess the target array as the combat reconnaissance patrol of an enemy's advance guard, located in an NAI that directly informs one of the BCT commander's decision points.

Within that space lies an opportunity to continue reconnaissance or execute a hasty attack. Rather than bypassing, the squadron may have orders to engage the enemy element. Agile air mission commanders—themselves cycling through their own OODA loop at the tactical edge—will quickly develop a plan, select an attack pattern, distribute fires, and maneuver the flight into position.

In either case, when the cavalry squadron cannot fulfill the priority intelligence requirements (PIR) required by the BCT to make a decision—before the information's value has expired—the squadron has failed. During LSCO, entire maneuver plans may well hinge upon early reports from the reconnaissance squadron, dictating where and how the commander will commit combat power (Center for Army Lessons Learned [CALL], 2016). Emphasis on this level of reporting has been rare over the past 20 years, where low tech combatants in Iraq and Afghanistan have operated dispersed in a 360 degree battlefield, not in concentrated mechanized formations along linear fronts whose composition alone can provide clues to the

[2] "A concise narrative report of essential information covering events or conditions that may have an immediate and significant effect on current planning and operations that is afforded the most expeditious means of transmission consistent with requisite security." DOD Dictionary of Military and Associated Terms, 2021, https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/dictionary.pdf

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enemy's intentions. During counterinsurgency, reports were often sent up merely to obtain clearance of fires against pockets of hostile resistance. In LSCO, engagement criteria will be established before rotors even start turning.

PRIMED AND READY

"Rapid, quality decisions, disseminated quickly, accurately, and in a form that is easily understood, creates a decision advantage that enables Army forces to act decisively, outpace, and outmatch adversaries and enemies anywhere along the competition continuum."

-Army Futures Command Concept for Command and Control, 2021

Most people naturally assume that good decisions are the result of careful analysis and a ranking of all available options, leading to selection of the best one. This is a model known as *Rational Choice*, which seeks the optimal course of action, and it occurs during the planning phase of an operation. Conversely, decision-making during execution is less methodical. Arriving at a winning solution while units are engaged in combat—an environment that is time-constrained, ambiguous, and in which the cost of failure is high—rarely affords the decision-maker time to weigh his options.

The alternative to **rational** *choice* is a process known variously as **naturalistic decision-making** or **recognition-primed decision-making,** whereby expert decision-makers draw on their previous knowledge and experience to visualize a plausible end-state and employ the first feasible, suitable, and acceptable option they can formulate (the 80% solution), not necessarily the optimal one (Hastings, 2017).

During aviation missions, the air mission commander (AMC) will make these decisions, a position just as likely to be filled by a seasoned warrant officer as it would the company commander or platoon leader. By extension, the junior warrant officers occupying the front seats in our Apaches are the ones most often supplying the AMC with real-time observations, shaping the flight's orientation toward the tactical situation, and influencing the decision-cycle—or OODA loop—of the AMC.

Developing the situation is akin to developing a roll of film. If we aren't familiar with the enemy's equipment (i.e., recognition of combat vehicles, or ROC-V) or their anticipated order of battle (the enemy situation template), then the process will be slow and the picture obscured through uncertainty. However, by spotting known indicators and connecting them to recognizable patterns, then the process occurs more swiftly and the picture quickly comes into focus, supporting recognition-primed decision-making. It's a progression either way, but the time required is dictated largely by our own preparedness during pre-mission planning.

From this, it is clear that the AMC—and each crewmember in the flight—must comprehend not only the concept of the operation, but also have awareness of the PIR; potential branches and sequels to the operation; and the templated enemy order of battle. Crewmembers must then use all available means to develop an understanding of the force with which they've made contact, visually categorize a vehicle as either friendly or enemy, and classify it according to its function: armor, infantry fighting vehicle, troop carrier, self-propelled artillery, armored reconnaissance vehicle, etc.

Effective reports equal better and faster decisions at echelon, propelling operations at higher tempo and leading to decision advantages that can be exploited. Inaccurate reports must be avoided at all costs, especially those that could lead to fratricide.

SCOUT MINDSET: IS IT REALLY THERE?

"The difficulty of accurate recognition constitutes one of the most serious sources of friction in war. War has a way of masking the stage with scenery crudely daubed with fearsome apparitions."

Karl von Clausewitz, On War, 1832

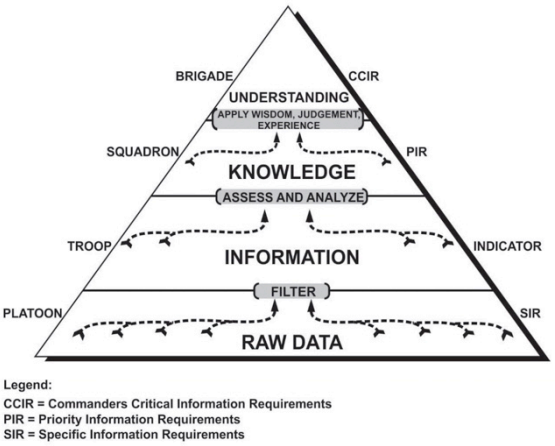

Figure 3. **Development of understanding chart (Department of the Army, 2016, p. 2-10).**

It's been said that a Scout's most deadly weapon is his radio. Figure 3 shows the cognitive hierarchy (Department of the Army, 2016, p. 2-10), illustrating how raw combat data are distilled through successive filters while traveling up the chain of command and culminating with relevant knowledge that the commander uses to synthesize situational understanding and make a decision. While the introduction of AI/ML can augment the cognitive hierarchy, it will never replace a Scout's intuition and curiosity.

There's no question that the "ATTACK!" mindset is alive and well. Anyone who has passed through the halls at Hanchey Army Airfield—home of Attack Aviation and the Firebirds—is familiar with the phrase: *"You Call Firebirds, We Kill."* The phrase sums up the Attack mindset in five short words. "Scouts Out!" from the cavalry community is even more succinct. Both expressions demonstrate how a mindset can influence a unit's orientation toward its perceived mission.

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Like the Attack mindset, Scout mindset isn't just an assortment of skills acquired through training, nor a simplistic orientation toward a mission. It is an explanation of what motivates an individual and how they interpret the world as they interact with it. Julia Galef, author of *Scout Mindset: Why Some People See Things Clearly and Others Don't,* lays out a series of qualities that "Scouts" possess. While her work isn't narrowly focused on military operations, it is nevertheless applicable to what we do. Among the qualities she observed:

•The Scout's primary job is not to attack or defend, but to understand—to go out, map the terrain, discover the truth, and identify potential opportunities.

•Scout's *[sic]* are intrigued (and not defensive) when they encounter information that contradicts their expectations.

•They are more likely to think it's virtuous to test your own beliefs.

•They do not say someone is weak for simply changing their mind.

•They yearn to see the world as clearly as they possibly can.

•Above all, a Scout seeks to know what's really there (Galef, 2021, p.12).

A key takeaway here is that Apache crews should be inquisitive, possessing both aggression and patience, able to quickly oscillate between the two as circumstances dictate. Some situations call for rapid and forceful development, while others require stealth and deliberate movement. By combining firepower and superior sensor packages into one platform, AH-64s are not only equipped to report on battlefield conditions, they are built to fight for information and *create* favorable conditions through decisive action. In warfare, actions determine outcomes. Apache aviators must know when and how to be stealthy, as well as when and how to be forceful. They must possess both the Attack and the Scout mindsets, able to selectively employ either or both through disciplined initiative.

CONCLUSIONS: ACHIEVING DECISION DOMINANCE THROUGH ARMY AVIATION

Decision advantages will result from information advantages. While cavalry squadrons are Army aviation's specially organized and specially equipped information collection assets, aerial reconnaissance is a mission-essential task shared by the ACS and Attack Battalions. With the departure of the OH-58D Kiowa Warrior, the AH-64—possessing several asymmetric advantages—is the Army's lone remaining aeroscout-capable platform, limited only by the proficiency of its crew. Leaders at brigade and below know this, and for several years have aggressively sought opportunities to train their pilots in a decisive action training environment that simulates complex coordinated combined arms maneuver in which operations are heavily reliant on attack aviation's unique contributions. Dozens of crews have flown thousands of hours at combat training centers (CTCs) worldwide, sharpening TTPs that have been idled over the past 20 years. No doubt we have gotten better with more repetition. There is much to gain from learning-by-doing. Yet, shortcomings in doctrinal comprehension and narrow tactical perspectives persist, leading to inappropriate and/or ineffective situation development once contact is made. This, in turn, increases the likelihood of low-quality decisions, impairs convergence, and increases risk to our forces. Large-scale combat operations aren't a pick-up game. Drawing up a play in the dirt and taking low percentage shots won't lead to victory cigars like many veterans of Iraq and Afghanistan are accustomed to.

Building the readiness we need requires deliberate crawl/walk/run preparation that reinforces academic instruction and progressively exercises an aviator's judgement, awareness, and execution. It is important to reiterate that experience serves as the basis for recognition-primed decision-making, regardless of the quality of information being acted upon. Without consistent exposure to patterns likely to exist on the modern battlefield, use of 'expert intuition' is likely to prove problematic as crewmembers have little to fall back on when plans fall apart. Professional military education is the cognitive foundation where officer-aviators are taught the doctrinal fundamentals that underpin aviation tactical employment once the pilot is qualified to fly the aircraft and operate its individual subsystems. Thus, effective PME must tie academic concepts in doctrinal literature to application through either practical exercises, simulation, or both.

As the last touch-point before leaving Fort Rucker, The aviation WOBC (A-WOBC) and BOLC offer graduating students the opportunity to apply what they've learned in a capstone mission-planning exercise culminating with a multiship execution in the aviation combined arms tactical trainer. The capstone event was not in effect when I graduated flight school in 2013, though I wish it had been.

Undeniably, simulations, terrain walks, and tactical decision exercises are building blocks, not a substitute, for aerial maneuver against an adaptive, thinking opponent. That doesn't mean we should to conduct multiple CTC rotations per year. Doing so risks consuming readiness, not building it. It means that we should make it count when we do train by investing in warrant officer PME and allocating ample time to master small unit fundamentals at home station.

Sending units to combat training centers involves significant invest-

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ment. With so little LSCO experience circulating in the force, the marginal returns will only improve if tactical performance objectives are buttressed by PME that produces aviation warfighters fluent in large-scale combat and the value of effective reconnaissance. Graduate-level PME must build on the foundations laid by A-WOBC and A-BOLC, focused on the linkages between aviation core competencies and effective cross-domain maneuver, from theory to application. "There is more to sustaining a competitive advantage than acquiring hardware," The Joint Chiefs of Staff has said. "We must gain and sustain an intellectual overmatch as well" (Joint Chiefs of Staff, 2020).

To make quality decisions and gain decision advantages, all Army leaders must be progressively educated and trained to think, plan, and operate simultaneously across all domains. While future technological advancements are crucial, the necessary leap from current combined arms operations to future MDO will not occur without Army leaders who are capable of solving complex problems. Currently, there are very few tactical PME courses available to aviation warrant officers in the rank of CW2-CW3, requiring them to apply lessons learned and confront multiple dilemmas through tactical decision exercises, or even plan for them. The ACLC—a superb example—is the only one that comes to mind, yet it remains optional for most warrants, including IPs. MG David Francis, USAACE Commander, recently said that "Institutionally, we are changing our flight training and our professional military education to build a more tactically focused aviator and leader. Warrant officer education will make tactical employment the centerpiece of aviation instruction, training, and evaluations" (Francis, 2021a, p. 2). With the POI at AWOAC already undergoing tactical revision, I'm confident we will soon deliver MDO competencies to junior and mid-level warrant officers that are appropriate for where they are in space and time.

Successful attack/reconnaissance units are maximizing the tools already available at home station, looking beyond attack aviation staples like direct fire planning, firing techniques, firing position operations, and engagement area development. Those skills alone—while essential—will not be enough to win the next campaign. Nor will they supply the ground force with all of the necessary effects to outmaneuver and defeat the enemy. Elite units are prioritizing tactical PME such as the Air Cavalry Leaders Course for their resident instructors and unit trainer evaluators (UT/Es), who then return to improve the organization as surrogate trainers. MG Francis notes that, "Growing our Unit Training/Evaluators is how we get the reps and sets for advanced tactical skills that are essential for maneuvering in complex environments. The UT/Es will tackle the basic aviator tasks allowing the tactical instructor pilots [T-IPs] [of the future] to focus on the skills necessary for complex coordinated combined arms maneuver" (Francis, 2021b. p. 2).

This concept will work, I believe, but only if the T-IPs have legitimate tactical credentials in the TTPs we expect to train and evaluate. I don't know what shape that will take. If I were a gambler, I'd bet that legacy IPs will be exempt from any changes to the IP curriculum, nor will any of them re-enroll in the updated AWOAC. Personally, I believe tactical schools such as the ACLC should to be mandatory for legacy and future instructors, at least on the AH-64 side. Other airframes may benefit from an Air Assault Leaders Course, or Attack Leaders Course as suggested by MAJ Jeff Hayes, the former course chief at ACLC (Hayes, 2021). Army aviation looks to IPs and T-IPs as the main source of tactical knowledge and should reasonably expect those aviators to demonstrate expertise in the skills necessary to graduate from tactically focused schools. Especially if our tactics are, in fact, changing to meet tomorrow's threats.

Writing for *Armor: the Mounted Maneuver Journal,* July-September 2014, COL William Nuckols, Jr. and Peter Rose, II advocate for a dedicated aeroscout and conclude by stating:

"The aero scouts *[sic]* of the last 50 years brought terrain-independent movement, speed, tactical agility and depth, the means to facilitate higher-tempo operations and of course, elevated observation. Aero

U.S. Army AH-64D Apache Longbow attack helicopter assigned to 1st Battalion, 25th Aviation Regiment Attack Reconnaissance Battalion (ARB) prepares for flight on Fort Wainwright, Alaska, November 28, 2018. Apaches in Alaska require the use of helicopter skis that displace the aircraft weight, preventing the aircraft from rolling over or getting stuck during a muskeg landing. U.S. Army photo by CW2 Cameron Roxberry

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scout aircrews possessed a tactical curiosity honed over time by repetitive reconnaissance and security operations. They grew professionally in a culture that stressed the fact they were scouts who executed their mission in an aerial platform specifically adapted for their mission. This mindset and culture truly set them apart from their attack-helicopter brethren" [emphasis added] (Nuckols & Rose, 2014, p. 52).

The culture and mindset of the aeroscout can no longer be detached from the attack community. Due to the organizational design and doctrinal missions shared by the AB and ACS, it must be intrinsic to the character and competency of every AH-64 crewmember. The former Kiowa scouts still among us—themselves no strangers to direct fire engagements—possess aerial reconnaissance experience and perspectives derived from generations of lessons learned in both the classroom and in combat. Attack battalions and ACSs leveraging these perspectives when planning operations will better recognize when to be a hammer and when to be a radio. Taken together, the cumulative effect of these dynamics point to one simple truth: we still need the aeroscout mindset. Fielding a technologically advanced future reconnaissance helicopter that can operate in a contested OE will mean little if we cannot field aviators who know how to employ it once they arrive there.

Finally, to deliver subject matter expertise warrant officers must broaden and deepen their tactical and operational understanding beyond that required for counterinsurgency. Individual aviators must seek, and leadership must provide, opportunities to attend high quality graduate-level warrant officer PME that incorporates planning, preparation, and tactical decision-making in execution that accelerate situation development at the point of contact. Meaningful repetition in all domains of learning will produce combat aviators who possess both Attack and Scout mindsets, able to see first, understand first, act first, and finish decisively.

Biography:

CW3 Maney entered active service in 2010 as a 13P fire direction specialist for the Multiple Launch Rocket System (MLRS) with 2/4 Field Artillery Regiment (Fort Sill). He has flown the AH-64 D/E since 2013, first with the 12th CAB (Germany), and later the 16th CAB (JBLM), with 3 combat tours. He holds a Bachelor of Science from the University of Florida (2007), and is pursuing a Master of Arts in Foreign Policy and International Relations from the University of Oklahoma (2021). Graduate of the AH-64 D/E Instructor Pilot Course, Air Cavalry Leaders Course, and Aviation Warrant Officer Advanced Course, he is currently an Instructor Pilot with 1-14th Aviation Regiment (Fort Rucker).

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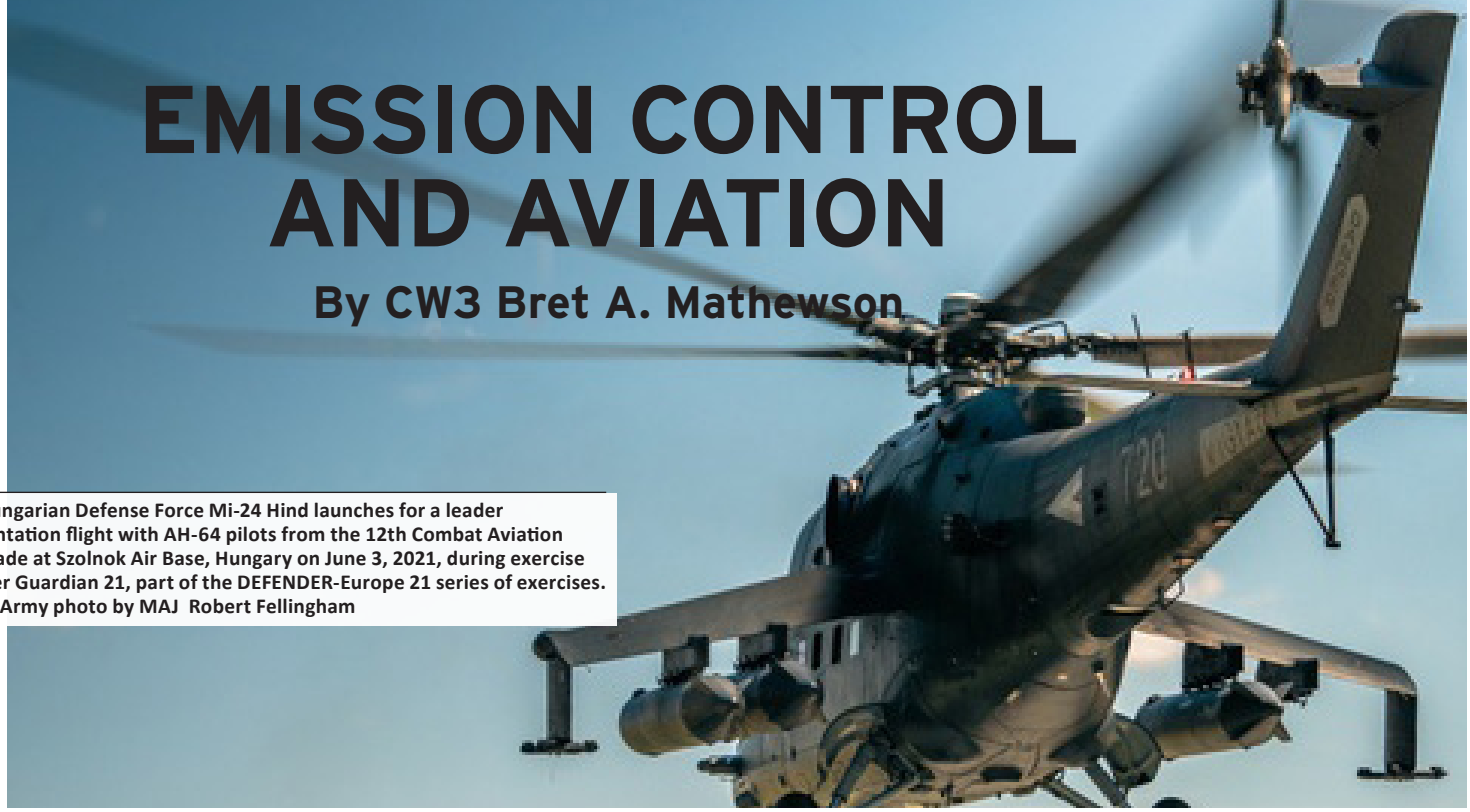
EMISSION CONTROL AND AVIATION

By CW3 Bret A. Mathewson



A Hungarian Defense Force Mi-24 Hind launches for a leader orientation flight with AH-64 pilots from the 12th Combat Aviation Brigade at Szolnok Air Base, Hungary on June 3, 2021, during exercise Saber Guardian 21, part of the DEFENDER-Europe 21 series of exercises. U.S. Army photo by MAJ Robert Fellingham

Radio frequency (RF) propagation from aircraft can be detected by adversaries in a peer/near-peer conflict. Enemy radio direction finders, or RDFs, can effectively detect an aircraft's RF signals to determine its position. Radio direction finder operators are capable of using geolocation information for fire direction or Integrated Air Defense System (IADS) early warning indication. Advanced mission planning and common emission control practices can aid in avoiding detection.

In large-scale combat operations (LSCO), the enemy will integrate electronic warfare (EW) into its scheme of maneuver. The conflict in eastern Ukraine demonstrated the lethal effectiveness of EW where electronic signal interception has led to highly accurate indirect fire employment. While this is a singular example, multiple U.S adversaries continue to invest and expand their EW capabilities.

The challenge for aviation is that aircraft cast a large electronic emission footprint. From frequency modulated (FM) radios to Doppler radars, aviation's employment is highly dependent on RF systems. Our adversaries understand our reliance on such systems and are using this vulnerability to level the playing field and gain a comparative advantage. Our adversaries possess EW systems that can detect RF energy radiated from an aircraft's antenna from far-off ranges, usually greater than would be functional for intended use. Some EW systems are so advanced that they can determine the type of aircraft based on the detected signal.

After an EW system detects a signal from an emitting source, and when using multiple direction finding signal detectors, the enemy can triangulate the aircraft's position. This triangulation and geolocation can be used to target the aircraft with indirect fires or, at a minimum, contribute to the enemy's assessment of the aircraft's position and future location. An example EW platform is the Russian-developed R-330B Automated VHF (very high frequency) Jamming System. The R-330B system provides detection, direction finding, and jamming of VHF communications (Bartles & Grau, 2016). The operating frequency range of this system is from 30 to 100 megahertz (MHz), a range that covers many standard communication radios (Air Power Australia, 2014).

In order to avoid detection from an R-330B, aircrews must transmit at a distance where their signal will not be detected. Another method is to avoid using systems that transmit a signal within the R-330B's operating frequency range. Unfortunately, a limit on a system will incur a limit on an aircrew's operational capability. Leaders must strive not to limit the capabilities of aircrews unless absolutely necessary. The dynamic nature of LCSO will require aircrews to be flexible and possess as many tools available as possible. Through signal analysis, mission planners can determine when aircrews should not use specific onboard systems to avoid detection.

This management of electromagnetic and acoustic emissions to prevent an enemy from detecting, identifying, and locating friendly forces is called emission control (Joint Chiefs of Staff, 2020, p. GL-9). Emission control is a form of electronic protection (EP) and is a command responsibility, per Army Techniques Publication 3-12.3, "Electronic Warfare Techniques," Chapter 7 (Department of the Army [DA], 2019). To assist with EP, combat aviation brigades (CABs) are allocated Cyber Electromagnetic Activity (CEMA) personnel in their modified table

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of equipment. These personnel can provide the expertise for signal analysis and help develop tactics, techniques, and procedures (TTPs) for EP.

Below the CAB level, there are no cyber branch positions. Personnel in these organizations need to be identified to receive EP training, especially if they anticipate operations separated from CAB CEMA support. At the battalion/squadron level, this involves training the aviation mission survivability officer and intelligence personnel on enemy EW capabilities. In addition, signal corps personnel assigned to S6 should be trained to operate signal modeling software. At the company/troop level, personnel must understand how to configure their aircraft to employ emissions control and how to interpret products derived from modeling software. Radio frequency signal strength can be analyzed and visualized using modeling software, such as Builder.[1] This software can analyze an antenna's RF signal propagation while actively transmitting with specific onboard systems. Builder, as well as other software (Improved Many-On-Many [IMOM], Modern Air Combat Environment [MACE], etc.), models a signal based on the antenna's effective radiated power, aircraft altitude, terrain, signal attenuation, and other factors.

Figure 1, created by this author, shows a notional numeric depiction of a communication radio's signal strength as it propagates away from the aircraft.

Radio frequency modeling software can also help planners and aircrews visualize their RF signal properties. Using the same notional antenna data from Figure 1, Figure 2 shows graphic displays of the antenna's signal propagation. The visual "heat map" is color coded to show decreasing strength levels as the signal propagates from the aircraft. As mentioned, terrain and altitude will also affect propagation and can be analyzed using DTED.

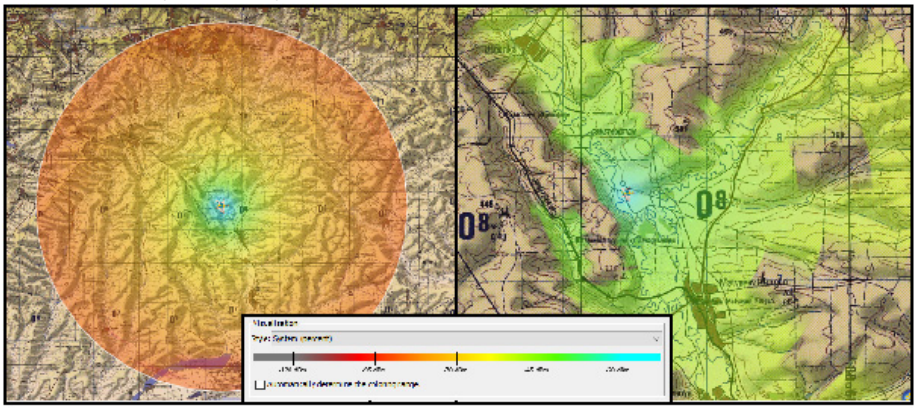

Figure 2. Visualization of RF signal properties using Builder. Analysis with the Digital Terrain Elevation Data (DTED) displayed on the right (Masterson, 2021b).

Radio direction finders have performance limitations. If a signal is too weak, the RDF receiver will not detect it. This signal threshold is called the minimum sensitivity level and can be measured in decibel-milliwatts (dBm). Technical data, like minimum sensitivity level, are vital but they are difficult to obtain. Efforts need to be made to compile these data into an accessible and usable format, similar to the Air Force TTPS (AFTTP) 3-1 series (Department of the Air Force, n.d.). If we know a system's minimum sensitivity level, we can analyze an aircraft's vulnerability to detection. If the location of enemy RDF systems is known or suspected, analysts can use modeling software to graphically and numerically display an aircraft's RF signature during a mission to estimate vulnerability. The modeling should be based off of the strongest emitter that is within the enemy system's operating frequency range, for example, any emitter that transmits within 30–100 MHz for the R-330B (Air Power Australia, 2014). If the modeling shows that the aircraft can be detected, analysts can identify when and how the aircraft needs to exercise emission control. Aviation needs to create standardized emission control procedures. In order to develop a procedure, each airframe needs to analyze its RF emitters and construct procedures that progressively decrease the aircraft's signal detectability. The Table is a template chart.

The Table, as created by this author, is based off of a notional aircraft's transmitting antennas. This Table progresses from emission control level 1 (unrestricted and the largest

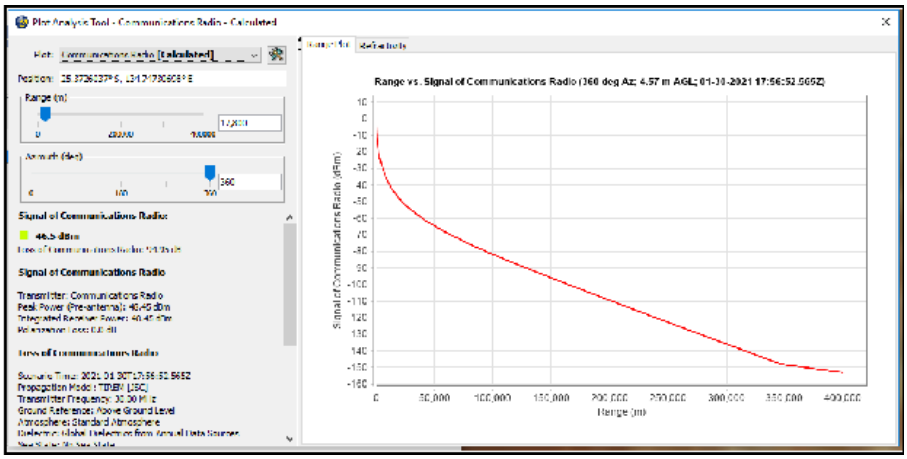

Figure 1. The plot analysis tool demonstrates radio frequency signal strength at different ranges (Mathewson, 2021c).

[1] **Builder was developed by the Naval Research Laboratory and is available for free to U.S. Department of Defense employees and contractors with a valid common access card. Builder can be downloaded from https://builder.nrl.navy.mil**

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EMISSION CONTROL LEVEL CHART					
EMITTER	1	2	3	4	5
VHF	ON	ON	RECEIVE ONLY	RECEIVE ONLY	RECEIVE ONLY
UHF	ON	ON	RECEIVE ONLY	RECEIVE ONLY	RECEIVE ONLY
FM1	ON	ON	ON[1]	ON[1,2]	RECEIVE ONLY
FM2	ON	ON	RECEIVE ONLY	RECEIVE ONLY	RECEIVE ONLY
SATCOM	ON	ON	RECEIVE ONLY	RECEIVE ONLY	RECEIVE ONLY
BFT	ON	ON	OFF	OFF	OFF
XPNDR	ON	STANDBY	STANDBY	STANDBY	STANDBY
RADAR ALT	ON	ON	ON	ON	ON[3]
DOPPLER	ON	ON	ON	ON	OFF[3]
NOTES		[1]FM1 POWER SETTING TO LOW.			
		[2]FM1 TRANSMITS ONLY DIGITAL MESSAGES.			
		[3]COMMANDERS MUST ASSESS THE INCURRED RISK AND REGULATORY REQUIREMENTS.			

Table. **Emission control level chart (Mathewson, 2021a).**

RF signature) to emission control level 5 (most restrictive and smallest RF signature). Through mission and signal analysis, planners can advise crews where they are vulnerable to detection and which emission control level configuration will provide the necessary electronic protection.

A standardized emission control chart is a starting point for coordination and mission planning, but mission-specific details need to be considered. Some examples follow: some RDF systems have varying minimum sensitivity levels for different frequencies; a system may be able to detect an FM frequency at a significantly lower dBm than a radar altimeter, meaning the FM radio would be detected at further ranges than the radar altimeter; the RDF system may not even have the capability to detect the radar altimeter's frequency because it is outside of its operating frequency range. All of these mission details must be analyzed and considered while using an emission control chart as a beginning to electronic protection mission planning.

For quick mission planning, an emission control level chart should be paired with a signal strength table. This table should show how far each transmitter can be detected at varying dBm levels (examples using general signal levels are: -80 dBm; -120 dBm; -150 dBm). This table should show the effects of altitude; as an aircraft decreases altitude, the signal propagation distance also decreases. Additionally, this table should show the effect of the operator changing the power level of different systems.

Specific aircraft technical data are needed in order to perform this kind of analysis. To build a usable table, analysts need information about an emitting system's frequency range, bandwidth, antenna type, power, antenna gain, antenna orientation, and beam shaping. These data are required for accurate modeling and should be provided by the system's manufacturer or requested through each airframe's capability manager.

Electronic warfare is one more layer in an enemy's IADS. Signal detection is a critical part of EW and will be integrated into offensive and defensive operations. However, the presence of these detectors doesn't have to be mission-abort criteria. Through analysis, we can identify detection risk during the mission. We can advise crews to exercise standardized and trained emission control levels that are based on signal analysis. Understanding and applying emission control is a key step toward mission success and survivability in an LSCO conflict.

Biography:

CW3 Bret A. Mathewson is an IP/AMSO and the outgoing 1-14th Aviation Regiment AMSO.

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1st Combat Aviation Brigade CH-47 Chinook helicopters from 2-1 General Support Aviation Battalion take off from a forward refuel site at Etain, France on Mar. 15, 2021. U.S. Army photo by CPT Billy Lacroix

Army Aviators in the Next Generation Air Transport System

By CW2 Nolan J. McKusick

Many Army aviators may have missed when the Federal Aviation Administration (FAA) began publishing "MON" designators on instrument flight rules (IFR) enroute charts and in the chart supplements in 2019. These markings refer to the Minimum Operational Network (MON) and are an indication of the FAA's major ongoing changes to the National Airspace System and IFR navigation. The network of very high frequency omnidirectional range (VOR) navigational aids (NAVAIDS) and Victor, or low altitude, airways that supported the bulk of IFR traffic since the mid-1940s will soon be reduced to a MON, while pilots and controllers rely primarily on performance-based navigation (PBN) (FAA, 2020).

The FAA calls its "comprehensive overhaul" the Next Generation Air Transport System (NextGen), and it expects the end result to come with a host of benefits for Army aviators, with a few caveats. By transitioning away from ground-based systems to satellite-based systems, NextGen will "safely allow aircraft to fly more closely together on more direct routes, reducing delays, and providing unprecedented benefits for the environment and the economy through reductions in carbon emissions, fuel consumption, and noise" (FAA, 2017, p. 5-2). NextGen's implementation will occur between 2021 and 2025, and one of its core systems is already online. As of January 1, 2020, the FAA requires automatic dependent surveillance-broadcast (ADS-B) "out" for any aircraft operating in most controlled airspace in the lower 48. Automatic dependent surveillance-broadcast automatically provides an aircraft's global positioning system (GPS) position, altitude, groundspeed, and other critical information to air traffic control (ATC) and aircraft equipped with ADS-B "in." This ultimately allows controllers to safely increase air traffic capacity by reducing separation minima (FAA, 2017).

Performance-based navigation is another core element of NextGen that allows pilots and dispatchers to select more direct flight routes. The two categories of PBN are area navigation (RNAV) and required navigation performance (RNP). Area navigation is the form of PBN with which most Army aviators are familiar. It is typically enabled by its space-based NAVAIDS but can also be accomplished using ground-based systems. The space-based system in view is the Global Navigation Satellite System (GNSS) and consists of GPS with augmentation capabilities. Required navigation performance is RNAV with an aircraft's added ability to self-monitor its navigation performance and determine if the requirements are being met (FAA, 2021). The acronyms can become burdensome, but PBN (RNAV and RNP) ultimately makes aviation

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safer and more efficient. The benefits of space-based navigation are impressive, but there will always exist the potential for an interruption or degradation in service. That risk is the motivation for the VOR MON, which provides a safety net for PBN. In the event of a GNSS disruption, an aircraft in the contiguous United States will always be within 100 nautical miles of a MON airport, like Montgomery Regional in Alabama. Pilots will not be guaranteed to reach their original destination, but they will be able to navigate and land safely. Minimum operational network airports possess an instrument landing system (ILS), localizer (LOC), and/or VOR approaches that do not require GPS, distance measuring equipment (DME), automatic direction finder, or radar (FAA, 2021).

Navigation to a MON airport will also be different from the Victor airway network with which most Army pilots are accustomed. Very high frequency VOR MON navigation will not require airways, but the MON will provide near-continuous coverage above 5,000 feet above ground level (AGL). This will not require the full network of legacy NAVAIDS that once existed. When the FAA proposed NextGen in 2011, they noted that VORs are old, expensive, and enable neither ADS-B nor PBN. Eighty percent of the 2011 network of 967 VORs were past their economic service life and altogether cost $110 million to maintain per year. Replacing them outright would have cost over $1 billion (Proposed Provision of Navigation Services, 2011). As a result and after engaging stakeholders, the FAA announced plans to discontinue 308 VORs in 2016.[1] The FAA retained VORs largely on the following criteria: VORs that support ILS, LOC, or VOR approaches at MON airports, VORs that anchor international oceanic arrival routes, VORs necessary to provide near-continuous coverage at and above 5,000 feet AGL, and most VORs in the Western U.S. Mountainous Area (Proposed Provision of Navigation Services, 2016).

Some of the retained VORs will also receive new standard service volumes (SSV) to enable coverage at and above 5,000 feet AGL (Figure 1).

The current service volumes or radio class codes, as described in the Airfield/Facility Directory Legend of the U.S. IFR Supplement, will not necessarily be able to provide coverage in the MON (National Geospatial-Intelligence Agency, 2021, p. A-29). Accordingly, the FAA introduced two new SSVs, VOR Low (VL) and VOR High (VH). The key difference is the range of both the VL and VH will increase to 70 nautical miles at 5,000 feet above transmit-

[1]**Updated lists of discontinued, targeted discontinuance, and retained VORS available at the FAA Navigation Programs—VOR MON website.**

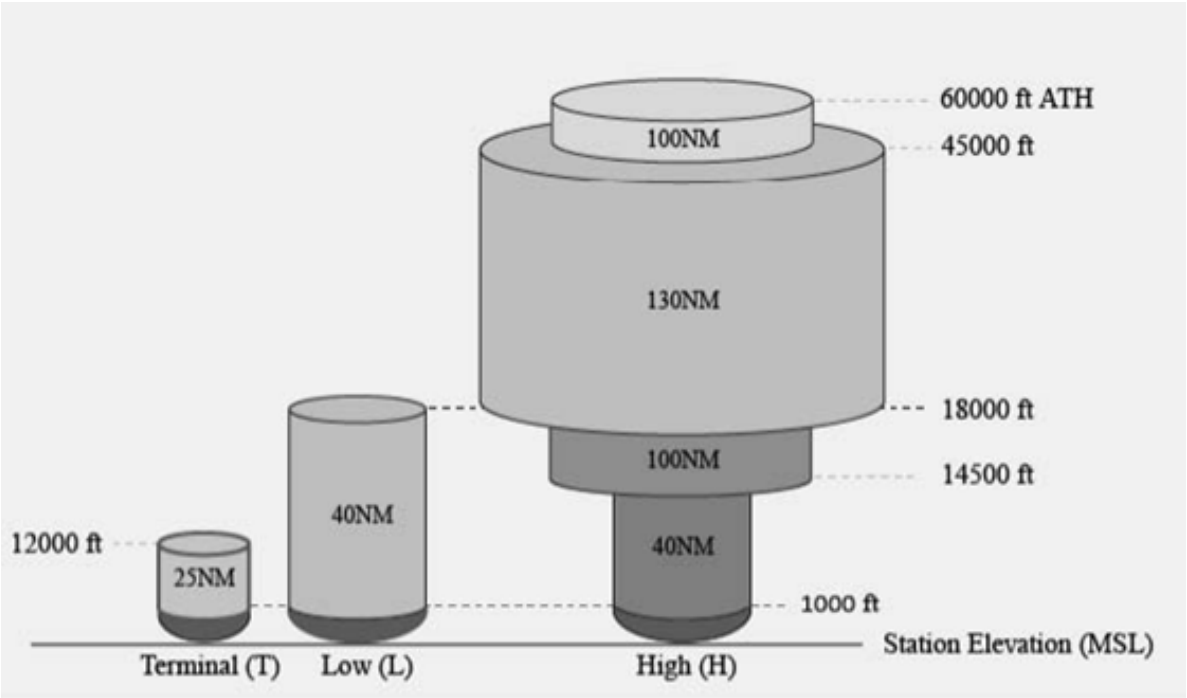

Figure 1. Original standard service volumes (FAA, 2021, p. 1-1-6).

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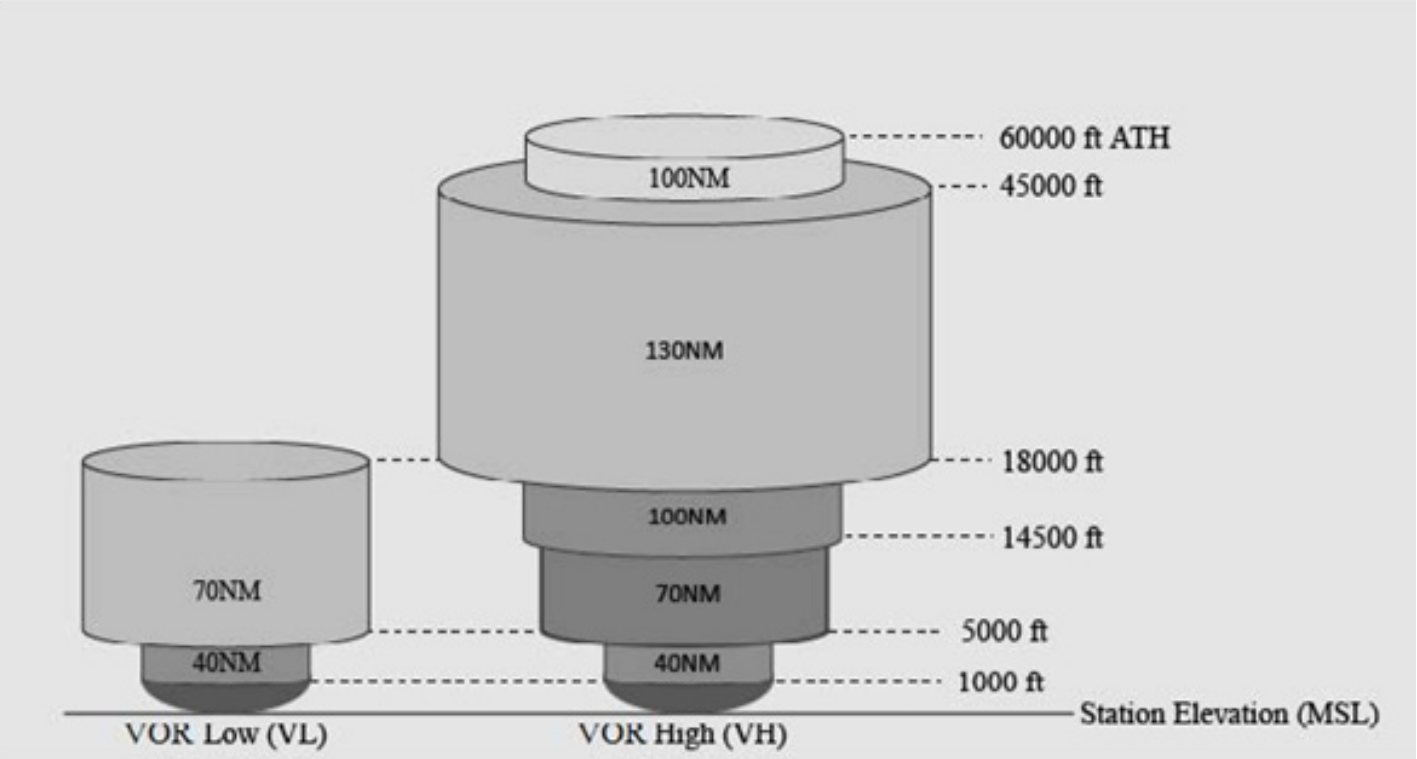

Figure 2. New VOR service volumes (FAA, 2021, p. 1-1-8).

ter height (*Figure 2*). The VOR MON reductions only apply to NAVAIDs operated and maintained by the FAA, so NAVAIDs on most Army airfields, like Cairns VOR/DME (OZR), are not considered for discontinuance in this process. However, Army installations will also begin to divest redundant ground-based NAVAIDs and instrument approach procedures. Most non-directional beacon facilities are already being divested, and most fixed base precision approach radars will eventually be replaced with modernized ILS (with DME) facilities to provide a resilient ground-based back-up to GNSS (U.S. Army Air Traffic Services Command, 2018). The number of Army-owned VORs required to support this, similar to the VOR MON, will be determined in the near future.

The VOR MON is a great reversionary safety net for Army aviators in the event of PBN non-availability. However, it is only a reversionary capability if an aircraft is equipped with PBN equipment. Otherwise, it will become the only way to conduct IFR navigation for aircraft without-GPS. During the transition, IFR navigation will become increasingly inefficient as VORs, and the Victor airways they anchor, disappear. When responding to comments on NextGen and the VOR MON from stakeholders in 2012, the FAA noted, "more than 72% of aircraft that filed at least two IFR flight plans in 2011 filed with an equipment code indicating they had IFR GPS receivers on board. Of aircraft that filed more than 100 IFR flight plans in a year the rate was above 97%." They also expected IFR GPS capability to be near 100% as the 2020 ADS-B mandate neared (Proposed Provision of Navigation Services, 2012, p. 9).

The rate of IFR GPS capability in Army aircraft varies among the different airframes and is constantly changing with upgrade programs, but aircraft fall into one of three broad categories: unable to use GPS for IFR navigation, capable of un-augmented GPS IFR navigation, or capable of augmented GPS IFR navigation. If your aircraft cannot use GPS for IFR navigation, the VOR MON will eventually become your only option. As the FAA discontinues more VORs, IFR navigation will become less direct for non-GPS users, while civil airports without legacy NAVAID approaches will be more difficult to access in instrument meteorological conditions (IMC), and alternate airports will be fewer and farther away when required, due to IMC.

Effects of reducing legacy NAVAID availability become more nuanced for aircraft equipped with an IFR GPS. Un-augmented IFR GPS navigation systems meet the requirements of Technical Standard Order (TSO)-C129(), "Airborne Supplemental Navigation Equipment Using The Global Positioning System (Gps)," or TSO-C196(), "Airborne Supplemental Navigation Sensors for Global Positioning System Equipment Using Aircraft-Based Augmentation," and might enable an aircraft to fly lateral navigation (LNAV) minima. Additionally, un-augmented GPS users must confirm GPS receiver au-

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tonomous integrity monitoring, or RAIM, availability. An augmented GPS uses space- or ground-based systems to improve accuracy and integrity of signals (i.e., wide-area augmentation system, WAAS). Augmented systems meet the requirements of TSO-C145, "Airborne Navigation Sensors Using the GPS Augmented by the Satellite-Based Augmentation System," or C-146, "Stand-Alone Airborne Navigation Equipment Using the GPS System Augmented by the Satellite-Based Augmentation System" and might enable an aircraft to fly localizer performance with vertical guidance approach minima, for example (FAA, 2021, sections 1-1-17; 1-1-18).[2]

Both TSO-C129/196 and TSO-C145/146 systems enable IFR GPS, but the differences in the capabilities and limitations are significant. Consider, for example, the two platforms with which I am most familiar, the C-12U and the RC-12X. The RC-12X is capable of augmented IFR GPS navigation and has relatively few IFR limitations (Stevens Aviation, 2020, p. 2). The C-12U, however, is only capable of un-augmented IFR GPS navigation.[3] This means that the C-12U "must be equipped with an alternate approved and operational means of navigation suitable for navigating the proposed route of flight" (FAA, 2021, p. 1-1-22). C-12U pilots, therefore, must file for routes that follow ground-based NAVAIDS (i.e., Victor airways or Jet routes). Historically, that is not a significant limitation, but as VORs and their associated airways become scarcer, Army aircraft that use an un-augmented IFR GPS will be able to access airfields with GPS approaches; however, they will be restricted to filing routes that are subject to the same inefficiencies as aircraft without an IFR GPS at all.

With Army aircraft representing the full spectrum of IFR GPS capabilities, there are several ways the community can continue to excel as instrument aviators. Individual pilots should be familiar with their aircraft's IFR GPS capabilities and limitations and should also heed the sound advice in the Aeronautical Information Manual: "Pilots flying GPS- or WAAS-equipped aircraft that also have VOR/ILS avionics should be diligent to maintain proficiency in VOR and ILS approaches in the event of a GPS outage" (FAA, 2021, p. 1-1-3). Second, Army aviators should be aware that the 2018 publication of Army Regulation 95-1, "Flight Regulations," does not distinguish between augmented and un-augmented IFR GPS when it requires that aircraft have "installed and operational navigational aid (NAVAID) receiver(s) that can receive available ground based NAVAID signals for the route of flight" (Department of the Army, 2018, p. 35). This is a significant restriction and should be considered for removal or rewording to match the language in the Aeronautical Information Manual, as it subjects pilots of aircraft using augmented IFR GPS, to the same limitations of un-augmented systems. Lastly, commanders and those in positions to influence upgrades to fleets without IFR GPS or with un-augmented IFR GPS should make those upgrades a priority, when possible, or assume the inefficiencies that will continue to arise in VOR MON-exclusive IFR navigation. NextGen presents an exciting opportunity for a new era of aviation and hopefully, Army aviators will be able to take full advantage of the benefits.

[2]Each of these TSOs may be found by using the search feature at the FAA website: https://rgl.faa.gov/Regulatory_and_Guidance_Library/rgTSO.nsf/MainFrame?OpenFrameSet

[3]Users can find more information on this statement by accessing the logistics data analysis center upon approval of a system access request.

Biography:

CW2 Nolan McKusick is an instructor pilot and instrument flight examiner with the Special Electronic Mission Aircraft (SEMA) qualification course at Fort Huachuca, Arizona.

Pilots in Brigade Headquarters and Headquarters Company, and crew chiefs from Company C, 7th Battalion, 158th Aviation Regiment, 11th Expeditionary Combat Aviation Brigade, conducted an air movement mission with two UH-60 Black Hawk helicopters on Fort Carson, Colorado, and at the Pinon Canyon Maneuver Site, Colorado, June 25, 2021. Soldiers from 1st Battalion, 12th Infantry Regiment and 2nd Battalion, 12th Field Artillery Regiment, 4th Infantry Division, were transported back to home station after a field training exercise U.S. Army photo by SGT Alexander Morgan

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U.S. Army crew member, from Task Force Aviation, Kosovo Force Regional Command East, waits to hook up a sling load to a UH-60 Black Hawk April 14, 2020, at Camp Bondsteel, Kosovo. TF-AVN has increased operations due to the increased preventative measures and decrease in ground transportation to minimize the spread of COVID-19. U.S. Army National Guard photo by WO1 Shaun Morey

An Army helicopter prepares for flight at the Colorado Tribute to Aviation event on 19 Sept., 2021. U.S. Army photo by Megan Hackett

Letter to the Editor

I appreciate CPT Jaksha's enthusiasm in caring for Army equipment, as shown in *Disappearing Dollars*, April–June 2021. However, I believe the article confuses maintenance policy, property accountability policy, and the technical procedures published for certain types of equipment. It is important to distinguish between all three.

I can support CPT Jaksha's article from my experience in repairing fire control radars (FCRs). In my case, a series of incidents caused corrosion damage to three FCRs. That cost taxpayers about $4 million and impacted the efficiency of unit training for more than a year. The problem then was very much caused by confusion between property book inventories, Department of the Army Form 2408-17 (Aircraft Inventory Record), aircraft inventories, corrosion prevention program inspections, and equipment readiness requirements—all of which were being performed incorrectly.

In my opinion, there is nothing particularly wrong with the Army's maintenance policy. Army Regulation (AR) 750-1, "Army Materiel Maintenance Policy," tells us that fire control systems cannot be considered low-use equipment. As such, all FCRs should be installed and operational. The policy in AR 735-5, "Property Accountability Policies," also works well. It covers the bases up-front by stating that all persons entrusted with government property are responsible, and all property must be accounted for.

I think the main problem lies with publishing technical manuals and with the aviation-equipment idiosyncrasies that are injected in pamphlets subordinate to ARs. To put it more simply than CPT Jaksha, we should account for secondary items on a vehicle inventory exactly the same way the whole Department of Defense accounts for them. The requirement for providing technical data to equipment users is published in military standard (MIL-STD) 40051-1C/2C and military performance specification (MIL-PRF)-63029G. The technical data in this example are called an aircraft-inventory-master-guide or inventory-work-package. A work package should be published in the technical manuals for each of our aircraft to describe how to inventory the equipment on the aircraft. Alternatively, an inventory work package could be published in a separate technical manual for more complex mission equipment with its own subcomponents (like an FCR).

On a related note, significant problems with technical manuals were highlighted in an exercise to evaluate aviation sustainment in 2018–2019. The example CPT Jaksha makes should be added to that list of problems. Our aircraft operator manuals are being published with more and more focus on flight-centric information. As a result, we are losing some of the technical information that supports everyone else trying to maintain equipment at the crew level. That includes accounting for Army property.

Respectfully,

Dustin Case

CW4, AV

A U.S. Army UH-60 Black Hawk helicopter crew chief assigned to 16th Combat Aviation Brigade scans below during a training flight at Orchard Combat Training Center, Idaho, Oct. 3, 2016. Over 1,000 Soldiers from 7th Infantry Division are participating in Raptor Fury, an exercise to validate 16th CAB's mission readiness. U.S. Army photo by CPT Brian Harris

Making the Most of Training and Skills Through the USAACE Credentialing Program

By SFC Paul DeFeo

"What are your plans when you get out?" This is a common question that many Soldiers are asked.

Because successfully transitioning to the civilian workforce can be challenging for some, Soldiers should use experiences gained in their highly technical fields as leverage for obtaining a job as a civilian.

Recognizing the need to increase Soldiers' skill proficiencies, the Aviation Branch offers many training opportunities that make Soldiers even more proficient in executing their daily duties. The United States Army Aviation Center of Excellence (USAACE) Credentialing Program and Credentialing Assistance provides a practical opportunity for Soldiers to turn the background and training they've worked for into nationally recognized credentials. Credentials validate Soldiers' skills and make them more marketable, long after their service to our nation is complete. This is not a new concept, as the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (2015) enabled military branches to provide professional credentialing related to military occupation skills.

WHAT IS CREDENTIALING?

The USAACE Credentialing Program is unique, as the funds are provided to the Soldier through reimbursement, and it does not affect the Soldier's Tuition Assistance funds. Soldiers that apply must be in good standing with the Army (i.e., not flagged for any reason, and Active Duty Soldiers must have at least 1 year Time in Service [TIS] remaining on their contract). Reserve and National Guard Soldiers must have at least 2 years TIS remaining on their contract. The USAACE Credentialing Program was designed using guidance from Training and Doctrine Command (TRADOC) to each branch through a TRADOC Tasking Order. The U.S. Army Aviation Center of Excellence Pamphlet (USAACE PAM) 600-4, "USAACE Credentialing Program," was then developed to provide guidance on how the program should be managed and how funds would be reimbursed to the individual Soldier for completing credentials (USAACE, 2017). The USAACE Credentialing Program authorizes Soldiers $800 each fiscal year, and specific programs like the Airframe & Powerplant (A&P) are authorized additional funding by USAACE policy memorandum 20-93, "Waiver Provision to the Credentialing Program Funding Limitations" (USAACE, 2020).

A credential becomes proponent funded and sponsored by the Aviation Branch through the following process. Instructor Writers and

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Portfolio Managers at the institutional level align credentials directly associated with a military occupational specialty (MOS) based on blocks of instruction a Soldier receives while attending courses owned and operated by USAACE. These individuals make the correlation between Army Training Programs of Instruction and core competencies for each credential that is aviation based. A crosswalk[1] is completed for each credential, and the credential is then approved by USAACE. The result is reviewed by Army University, the Army's governing body that aligns and streamlines educational programs, and then is added to the Army Credentialing Opportunities On-Line (Army COOL) web page.[2] Soldiers have the opportunity to view credentials aligned with their MOS on the Army COOL web page. Credentials that directly align with a Soldier's MOS are also added to their Career Maps on the Army Career Tracker (ACT).[3] The ACT promotes a Soldier's leadership development by mapping out MOS-specific Army education and training for the duration of a Soldier's Army career. Viewing the ACT gives a Soldier insight on specific credentials important to Army aviation, as those are labeled with a star. Credentials that are sponsored by the Branch are also worth 10 promotion points for Soldiers working to achieve the ranks of Sergeant and Staff Sergeant.

EXAMPLES OF CREDENTIALS

Every Soldier in Army aviation has the ability to take the National Center for Aerospace & Transportation Technologies' Foreign Object Elimination (FOE) certification. Foreign Object Elimination certification focuses on identifying and eliminating alien substances that could potentially damage or degrade the safety of aircraft equipment. This certification is offered to all students who attend the Noncommissioned Officer Academies governed by USAACE. Reimbursed by the USAACE Credentialing Program, the FOE credential is an entry-level credential and breaks the ice for many Soldiers. Noncommissioned Officers who are given this opportunity take this knowledge back to their unit and share this information with other Soldiers.

An Aircraft Electrician can explore options like Electrical Power Testing Level 1 & 2, or the Aircraft Electronics Technician credential. Powertrain Repairers can pursue Nondestructive Inspection credentials, and Unmanned Aerial Systems Operators can pursue their Remote Pilot license through the Federal Aviation Administration (FAA) (FAA, 2020a).

Many aviation maintainers are interested in the FAA's A&P license. This credential is available to maintainers holding a related MOS and meeting the requirements established by the FAA. These requirements include 18 months of practical experience with the procedures, practices, materials, tools, machines, and equipment generally used in constructing, maintaining, or altering an airframe or powerplant, appropriate to the rating sought; or 30 months of practical experience concurrently performing the duties appropriate to both the A&P ratings (FAA, 2020b).

Soldiers serving in Career Management Field (CMF) 15 can also apply for Air University through the 128th Aviation Brigade at Fort Eustis, Virginia. This is a great option for Soldiers in Army aviation to help bridge the gap between rotary- and fixed-wing maintenance, as most A&P exam questions are based on fixed-wing maintenance. After completing the three online classes and the On-the-Job Training packet provided, Soldiers receive graduation certificates from the course and FAA form 8610-2(s), "Airman Certificate &/Or Rating Application," which is required by the FAA to initiate A&P testing (FAA, 2020a). Soldiers have the unique opportunity at Fort Eustis to take the three exams: general, airframe, and powerplant, for free in the 128th Aviation Brigade's testing facility. There is also a free testing facility at the Fort Rucker, Alabama, Education Center. Soldiers can also test at any approved FAA testing facility and receive reimbursement through the USAACE Credentialing Program. This excellent resource only leaves the Soldier with the task of testing with a Designated Maintenance Examiner (DME), which can be located using the FAA's search site at https://designee.faa.gov/#/designeeLocator.

There is a credentialing opportunity available for every enlisted MOS in Army aviation. Soldiers are encouraged to review the Army COOL page and explore their options.

HOW A SOLDIER CAN USE CREDENTIALING ASSISTANCE

How does the USAACE credentialing program work? Let's say SGT Snuffy, with an MOS 15T (UH-60 Black Hawk Helicopter Repairer), is looking for a way to improve his skills.

•SGT Snuffy visits the Army COOL OSD website at: https://www.cool.osd.mil/army/index.htm and selects his MOS using the search tools. SGT Snuffy reviews all credentials that directly align with his MOS under the Proponent Funded icon[4] and determines which one fits his needs and skill set.

[1]This course assists with identifying skills and demonstrates how to translate skills, training, and experience into civilian credentialing appropriate for civilian jobs (https://www.tapevents.org/courses/75).

[2]Army Credentialing Opportunities On-Line can be accessed by visiting https://www.cool.osd.mil/army/ and can be accessed without a common access card.

[3]The Army Career Tracker can be accessed by visiting https://actnow.army.mil/ and can be accessed with a valid common access card.

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•After deciding on the FAA's A&P license, SGT Snuffy fills out a USAACE Form 10-E (USAACE, 2021), "USAACE Certification Funding Request," which he receives by contacting the USAACE Credentialing inbox at usarmy.rucker.avncoe.mbx.atzq-td-credentialing@army.mil. SGT Snuffy then fills out the 10-E and signs the document with his Commander or First Sergeant as annotated on the document. Leadership involvement and support is a very important aspect of the credentialing program to ensure the Soldier has a plan and support while pursuing credentialing opportunities.

•SGT Snuffy emails that signed 10-E to the USAACE Credentialing inbox and is approved or disapproved via email. Once approved, the Soldier is sent an email granting him approval to pursue the credential and purchase the preparatory course, study materials, and exam fees. A detailed email is sent to SGT Snuffy explaining all aspects of the reimbursement process, once approved.

•SGT Snuffy studies until he knows he is ready to ace the three written exams and his oral practical exams with the DME, so he can ultimately earn the A&P license.

•After passing his exams, SGT Snuffy submits for reimbursement through the USAACE Credentialing inbox, where he previously submitted his Funding Request Form. He provides receipts for each written exam, the cost of the DME, and all study materials. If SGT Snuffy utilized a preparatory course, he would need to provide an invoice that itemizes the expenses and displays a zero balance due.

•SGT Snuffy would also need to provide the USAACE Form 16-E, "USAACE Certification Reimbursement Claim" (USAACE, 2017), a vendor ID, test results, a completed FAA Form 8610-2 (FAA, 2020a), and his temporary or permanent FAA Airman certificate.

•SGT Snuffy receives a letter of congratulations, and his documents are processed by the Credentialing Program Manager. He receives his reimbursement through Defense Finance Accounting Service, or DFAS, once it is processed by USAACE G-8.

Trained and skilled Soldiers who receive credentials provide viable input when performing tasks within their skill set and add a fresh perspective to their field of expertise. Soldiers who obtain these skills mid-career can provide the Army with years of service and are more marketable when they ETS (expiration-term of service) or retire.

Skilled labor is sought after in today's marketplace, and employers utilize credentials as an evaluation tool when hiring candidates for technical positions. The opportunity to attain a credential by taking a written exam or a practical test and displaying their skills in a field they enjoy, rewards the Soldiers' dedication and expertise.

For additional information, please contact the USAACE Credentialing Office at: usarmy.rucker.avncoe.mbx.atzq-td-credentialing@army.mil or 334-255-1904.

[4]Proponent funds are separate from Credentialing Assistance and are reserved for credentials that align with a Soldier's MOS.

Biography:

SFC Paul DeFeo currently serves as the USAACE Credentialing Program Manager at Fort Rucker, Operations Sergeant, Platoon Sergeant, 615th ASB, 1ACB and Component Repair Supervisor, 2-159th ARB, 12th CAB. He has two deployments to Afghanistan with the 82nd CAB in support of Operation Enduring Freedom.

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[5]This document is available via the Fort Rucker Intranet with a valid common access card.

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A U.S. Army Crew Chief, assigned to the 16th Combat Aviation Brigade, 7th Infantry Division, scans his sector as the sun sets near Joint Base Lewis-McChord, Washington, June 21, 2016. Aircraft from the 16th CAB were supporting day and night air assault training. U.S. Army photo by CPT Brian H. Harris

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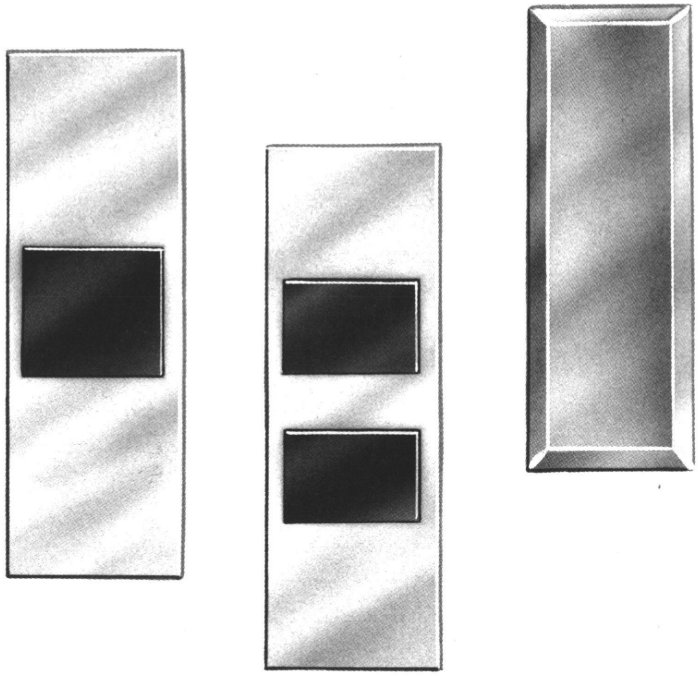
MONTHLY WRITING AWARD

THE AVIATION SOLDIER



Is it the Year of the Soldier and the Year of Positive Leadership in your unit?

HAVING BEEN an avid reader of this distinguished *Digest* since 1962 and, on occasion, a very undistinguished contributor, I have always considered the *Aviation Digest* to be the best of our service magazines for a number of reasons, principally as a result of the monthly articles devoted toward improving aviation training, tactics, techniques, procedures, maintenance, safety, et al. And, the editor welcomes those types of articles regardless of the source or rank of the prospective author.

However, I find the *Aviation Digest*, as well as other service magazines, guilty in two respects when it comes to articles about leadership and soldiers (and I extend this criticism to the readers, writers and all who are involved in Army Aviation). We appear to habitually overlook, in published articles, the single most important and essential ingredient in the Army Aviation team and—the element that really "makes the team go!"

The system can produce and train exceptional commanders and leaders—those who are dynamic, hard chargers; who are successful, produce outstanding words, win unit of the year awards; and who move on to bigger and better things (although one might question whether anything is better than commanding an Army Aviation unit, regardless of size). Decorations are forthcoming; units receive praise and accolades; they have outstanding flying hour programs, exceptional safety records, etc.; and, we write about all of these things in the *Aviation Digest* month after month. However, the bottom line, and one that we must never forget, is that *the soldier* is the key element in making it all happen.

He or she is our most important asset in the detachment, section, platoon, troop, company,

Colonel Eugene H. Grayson Jr.
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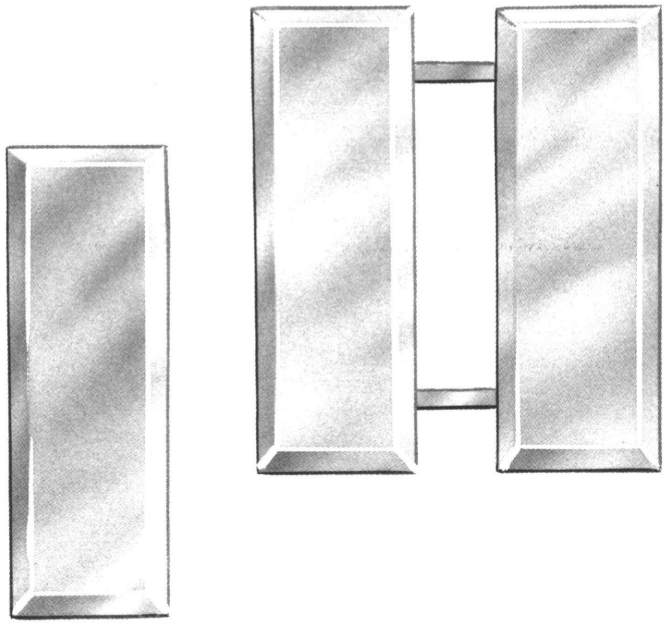

The Key to Your Success!

squadron, battalion, group or brigade. This Army Aviation soldier is the key to all of our successes we have enjoyed throughout our aviation careers and, in reality, is the essential element in most of the interesting monthly articles we read about in this and other service periodicals. Yet, how many of you have ever taken the time to write about exceptional things your soldiers have done, or about successful leadership techniques you may have used that others can benefit from?

You may believe that *it is not* exciting to write about the accomplishments of your soldiers or the leadership principles that make your unit stand out, but that *it is* more exciting to write about aerial gunnery. I argue that this is not the case at all. We write about innovative things that the unit does; however, we don't write about the soldiers who have made innovative things happen in our units.

Thus, this article is for the warrant officers and commissioned officers who are recent flight school graduates, or newly commissioned officers who serve with, supervise and command our Army Aviation soldiers, wherever you may be assigned.

Let me pose some key questions that I hope you have the right answers to:

- How well do you really know the soldiers in your unit?
- How involved are you in their career enhancement or development programs?
- Do you ever take the time to teach, guide and counsel?
- Do you set the right example?
- Is respect a two-way street with you?
- Do your soldiers know they can come to you with their problems?
- Do you take the time to let your soldiers know how much you appreciate their efforts?

While you mull over the above questions, let me say that it may be easy to overlook what the soldier contributes because of mission requirements, day-to-day activities, and in general the rather hectic pace that faces an Army Aviation unit. Yet, in reality, nothing gets done without the soldier; and too often the soldier gets overlooked.

Let's take a brief look across the spectrum of what a typical Army Aviation unit does in the real world and examine the roles your soldiers play in each. We could begin anywhere, but for the purpose of this article, let's start in your motor pool, which often is a dreaded place in an Army Aviation

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unit. Furthermore, let's say you are in a large Army Aviation battalion with more than 250 vehicles, trailers and generators. Now, whether we want to recognize it or not, these are absolutely essential elements in any Army Aviation unit; yet, how many of you ever visit the motor pool (unless you are the motor officer) to check on the wheeled vehicle mechanics in your unit, whether you may be in a detachment up to troop or company level? If you do, what you may find is a junior motor sergeant with an understaffed section of young soldiers working extremely long hours in the dirt and mud, and often in a rather cold environment with insufficient space and too many vehicles to maintain in a green status.

However, as long as the vehicles get you and the essentials to the field, what else should you care about? You might consider that it's *your young soldiers* keeping your vehicles in the green and, in all likelihood, also doing one or more other jobs in the unit. Your commanders appreciate the efforts of the wheeled vehicle mechanics because of the myriad of status reports which indicate in very bright colors (red, yellow, green) just how well the unit is doing. Yet, how often have you driven by the motor pool and decided to stop in and check on your mechanics? How many of you drive by on the weekends, when your soldiers are working on your vehicles preparing for an inspection, stop in to let them know you appreciate their efforts and recognize just how important their job is to the unit?

Next, let's look at the barracks, which just happens to be home for most of your young soldiers. How often do you visit the barracks, other than on official business to the orderly or supply room, commander's office, etc.? Do you ever stop by after duty hours and check on your soldiers? Have you ever just sat around and chatted about the Army, their jobs, their families, their problems or their career development? How many of you have ever dropped by the barracks on Thanksgiving, Christmas Eve or Christmas Day, or New Year's Day and talked to your soldiers? Too often, we drive right by the barracks and seldom give a second thought to, "That's where my soldiers live."

Would you be surprised at Christmas time to know that there is a Christmas tree in the dayroom? And on Christmas Day, you might be surprised to know that there will be a consierable number of soldiers close by—because it's home, details must still be performed, or there is just nowhere else to go.

> "Look after the comfort and welfare of the men in every possible way: It is this that builds up and maintains their morale and their confidence in their leaders."
>
> "Winning and Wearing Shoulder Straps"
> *Source Unknown*

How about your Army Aviation refuelers and ammunition handlers? I suspect you will agree that this is a tough, thankless job and particularly so during extended field exercises, gunnery and even during day-to-day activities. Imagine the efforts involved in pumping 35,000 gallons of JP-4 aviation fuel in a single day! Yet, this is not an uncommon amount for an Army Aviation battalion to expend. But, have you ever thought about the long hours and hard work involved? When you zip into a forward arming and refueling point (FARP), refuel and fly away, do you ever think about all the work done by your soldiers to pick the FARP up, move it, set it back up, pump fuel for 24 hours straight; move blivots; and keep up with all of the operational requirements? Do you ever wonder if they are eating as well as you are, or if they are getting their mail like you are? What about their field living conditions? Do they have the same comforts as you do during the field training exercise? Do you ever just stop by and pass on a word of thanks for a job well done?

For those of you in Europe and Korea who probably maintain an ammunition storage area, how often do you visit your soldiers who are working inside the fence all day long and probably even pulling guard details in the ammunition supply point at night? How many of you realize that your ammo soldiers are working long after you have "hit the sack"—during gunnery exercises, breaking down the next day's supply of 2.75 rockets, ball ammunition and TOW missiles? How many of you visited the ammunition supply point (ASP) on Christmas Eve or stopped by there to visit a soldier on his or her birthday? Do you ever just say, "Well, that's the platoon commander's and first sergeant's job?"

What about those soldiers that take care of feeding you? Do you ever wonder about all the work that is required before you go through the chow line, whether in the dining facility, field mess tent, or getting hot chow from mermite cans delivered to a far off laager area? Other than those of you that get appointed as unit mess officer, do you ever think about how early preparation began to ensure that your 0500 hot meal was ready at Grafenwöhr? Your soldiers start working at a rather early hour in order to prepare it, serve it, pack it up, deliver it, etc.—all in time for you to enjoy it. And as you move ahead to the evening meal, those same soldiers are still on duty to ensure you have a hot meal when the last missions are completed, no matter how late in the evening it may be. How many of you take the time to track down the first cook or cook's helper and pass on your sincere thanks for a job well done?

In the communications area, we find that, time and time again, our Army Aviation units consistently maintain the best communications in the division and, on more than one occasion, end up relaying transmissions from the division tactical operations center to other tactical and support units. Additionally, because of the wide dispersal area we must often occupy as a result of tactical and support missions, our communications must be the best. Thus, we have communications officers and outstanding platoon sergeants; but who really makes the tactical communications system work? Take a minute and think about the typical Army Aviation battalion field training exercise (FTX) where units are scattered over a wide area, moving constantly, changing frequencies and call signs, plus performing a myriad of other ongoing activities including operating the division heliport, battalion FARPs, emergency heliport, etc. Well, it's your communications soldiers that make it all work. Why? Because they are professionals and not only do *they know* their jobs, they also *know how* to do their jobs. And, there is too much going on for the officers and even noncommissioned officers to supervise every aspect of aviation communications. Yet, have you ever stopped by the commo shop or the tactical command post and passed on a word of thanks on how well the communications worked that day? Or, have you dropped by the tactical operations center late at night and just chatted with your young soldier who is working the radios during the 2200 to 0600 shift?

> "Afterduty leadership is essential! That's where you really get to know your soldiers."
>
> *Author*

What about your air traffic controllers, who are on duty 7 days a week and on occasion 24 hours a day, and deploy with you wherever you go? When is the last time you stopped in and passed on a word of thanks to that young operator who helped you down during a tough instrument flight rules (IFR) approach? Or the time when you ended up IFR inadvertently and the young controller picked you up; and because of a calm professional approach in talking to you, raised your confidence level

about "10 points" and brought you safely home during absolutely miserable conditions—did you make it a point to stop by and pass on your thanks?

Now, we all will agree that an Army Aviation unit's bread and butter is its maintenance program. How much do you really know about what goes on on the hangar floor; in quality control; in quality assurance; about historical records; about your unit's authorized stockage list (ASL) or prescribed load list (PLL); about how parts are ordered; about flow charts; how much items cost; what your technical inspectors really do; what your armament maintenance really consists of; what's in your technical supply section? Well, spend some time with your soldiers who work in these areas (and many others). Not only will they teach you about things you need to know, but, you also will quickly learn just how good the young soldiers are that do all of these jobs in your unit. The commanders should already know about how good their soldiers are, and unquestionably the maintenance officer does. That leaves lots of room for the rest of you to spend time in the shops and crawling around under the helicopter to see just how professional your soldiers are.

> "Men will follow a leader whom they see close to them."
>
> *Charles Martin*
> *Publication Source Unknown*

All of us can relate back to incidents where a young soldier stood out in some particularly outstanding manner; this is just one of many I can clearly recall. Shortly after taking command of a rather large and still forming combat aviation battalion in Germany, the corps commander "popped in" rather unexpectedly to see how we were getting along. His visit led us to the aircraft maintenance company, and as a result of the normal ongoing events, we were met by a young specialist four who proceeded to take our three star through the ASL and PLL areas. You might be wondering if the battalion commander was looking over his shoulder to see if the senior leadership in the unit was on the way, and you would be dead right if you said yes! However, for this visit, it was the corps commander, the battalion commander (who wasn't up to speed in this area) and the specialist four. Now, this young soldier answered every question with complete directness, took the corps commander through the entire ordering process, showed him the supply bins, matched onhand items in respect to what was authorized, and in general carried on one of the most professional conversations with the corps commander that I had ever seen. This soldier worked for a truly outstanding company commander and the best first sergeant (now command sergeant major) I had ever served with. So, in reality, I didn't have any worries just because the corps commander picked that unit to visit.

The things that I have been asking you if you ever did were a matter of routine in Delta Company; this young soldier was a professional, knew his job and didn't hesitate to let the corps commander know that he was a capable soldier and proud of his unit. The point here is not to amplify this incident, rather, to let you know that you have soldiers just as good as the one in my example; but you need to get down to the hangar, supply, motor pool, etc., and spend time with them. You just might be absolutely amazed at how much you will learn about aviation maintenance—and your soldiers.

How many of you have watched your soldiers in a particularly noteworthy job like changing an AH-1S Cobra engine at night, in December, with a borrowed wrecker and lighting set? Was anyone else there other than the maintenance officer? How about your soldiers who work the night maintenance shifts under sometimes adverse conditions in order

to meet the heavy requirements for the next day?

If you don't already it's time to go out on the line, or to the hangar or other places of duty during afterduty hours (for you), and pass on your personal thanks for the jobs your soldiers are doing.

Write about these things that your soldiers did and are doing in an innovative manner. Let the *Aviation Digest* know how your soldiers set up and run multiple FARPs, how your soldiers maintained a 90 percent availability during a 3-week FTX, or how your motor mechanics implemented a maintenance program that saw your unit pass the dreaded annual general inspection.

Those of you that have successfully passed inspections of all kinds ask yourselves these questions:

- Who got the generators running and in the green?
- Who fixed the continual leaks in the aviation fuel tankers?
- Who stacked and restacked the hundreds of ammo boxes in the ASP?
- Who spent hours and hours going through the historical records to ensure they were straight?
- Who spent the time going through ASL and PLL cards to ensure requests and items on hand were accurate?
- Who spent countless hours in the motor pool working off the discrepancies on too many vehicles for the motor pool to work on?
- Who worked off the first and second echelon discrepancies on your helicopter?
- Who cleaned and recleaned your protective masks, M-16 rifles, etc.?

How many of you have made a special effort to ensure that deserving soldiers' efficiency reports specifically include particularly outstanding jobs done during preparation for tough inspections or during a lengthy FTX? Do you think that just because you might not be in the chain of command, that you cannot pass it on to the immediate supervisor or endorser? Well, if you believe this, you are dead wrong; and you have an obligation to let those in the chain know about your soldiers' significant accomplishments.

This litany could go on but the bottom line is that your soldiers do all of these things and much more. Why do they do it, day after day, from FTX to FTX, working long hours and often times under pretty austere conditions? Well, *they are professionals!* They *are* proud of their Army and their units! They want to succeed and for their units to succeed. Your leadership, of course, is a key to this effort. Spend time with them—see them in their environment, not yours. Make "Footlocker Leadership" an everyday occurrence with you. Make certain you take time to let them know that they are doing a good job. Make certain those that perform are rewarded upon their departure, just like you are. Fight to ensure they get promoted, that their families are looked after; work with them in career development and future assignments. And for all of you, publicize the things they do well, in an unusual way, in service periodicals like this one. After all, what do we really do that our soldiers are not totally involved in?

> "The greatest leader in the world could never win a battle unless he understood the man he had to lead."
>
> *Omar Bradley*

You know, there is nothing as important to the mission we are charged with as are our soldiers. How we guide, counsel, set the example and spend time with them is a vital ingredient to the success of your Army Aviation unit and our Army. So, the next time you are driving by the barracks on a holiday, take some time and stop by. The benefits gained by you, your soldiers and the unit might surprise you.

Leadership in War: Essential Lessons from Those Who Made History

Author: Andrew Roberts; Penguin Books; 2020; 221 pages (239 pages with notes)

A book review by CW4 Leonard S. Momeny

The act of war shapes the world and history. That maxim has outlived some of the most incredible people, rulers, and nations the world has ever seen. Whether good or bad, people are at the center of war, and at the center of people are leaders pushing and pulling others to action. *Leadership in War* is usually studied in the moment of a single individual, and the discussion of their influence lasts for but an instant. Many authors keep their analysis of such people limited in scope and context, save for the occasional biographer, and miss an opportunity to provide key insight on their actions and leadership. Andrew Roberts breaks with this paradigm, having penned an accessible survey of some of the greatest leaders in modern history and their demonstrated leadership in war.

Andrew Roberts' book, *Leadership in War: Essential Lessons from Those Who Made History,* does not just analyze leadership in the context of theory and popular opinion, but instead seeks to understand "how war demands and reveals the best and worst in leadership" (Roberts, 2020, p. xi). To accomplish this, Roberts crafted his book around a series of lectures he gave regarding nine impactful, though not always good, leaders. Every bit of analysis is contextualized around the action, inaction, and behavior of these leaders with respect to their time in war.

It is important to remember that leadership in war does not fit into a neat box. The leaders discussed by Roberts are not necessarily analyzed for their prowess on the battlefield, but instead, their ability to lead scores of people toward sacrifice, victory, and for some, certain defeat. The real point of interest in this book is that Roberts defies conventional logic by remaining "morally neutral" in his discussion on leadership, selecting controversial figures for study alongside well-known upright pillars of history (Roberts, 2020, p. xii). The studied leaders include the following: 1) Napoleon Bonaparte, 2) Horatio Nelson, 3) Winston Churchill, 4) Adolf Hitler, 5) Joseph Stalin, 6) George C. Marshall, 7) Charles De Gaulle, 8) Dwight D. Eisenhower, and 9) Margaret Thatcher. All of these leaders naturally spark the imagination of the reader, as Roberts obviously selected well-known figures across time, utilizing familiarity with popular history as a vehicle to best convey insight regarding their demonstrated leadership.

Every leader analyzed by Roberts is done so via a historical sketch. To the author's credit, every review of the aforementioned leadership personalities are quite efficient. Roberts makes good use of the reader's time by framing individual circumstance, historical moments, and the exact intersection of the individual and the greater narrative of war, all the while avoiding unnecessary historical trivia. Additionally, Roberts creates individualized sketches that offer the benefit of increased relevant historical insight alongside practical leadership considerations. Both of these aspects benefit any reader, regardless of their rank or experience.

The most relevant leadership insights that Roberts frames for the military reader are not limited to any one subject, but instead stretch the breadth of the entire book. Included in these key insights is a discussion on the importance of knowing team members and their contributions. Roberts painstakingly supports this point through analysis of Napoleon's ability to recall the names and actions of even the most common soldier or officer, and to his credit, this endeared the soldiers of his army to the fiercest levels of loyalty. Every leader, regardless of their rank, can benefit much from this particular point that Roberts emphasized about Napoleon, because just knowing, acknowledging, and caring

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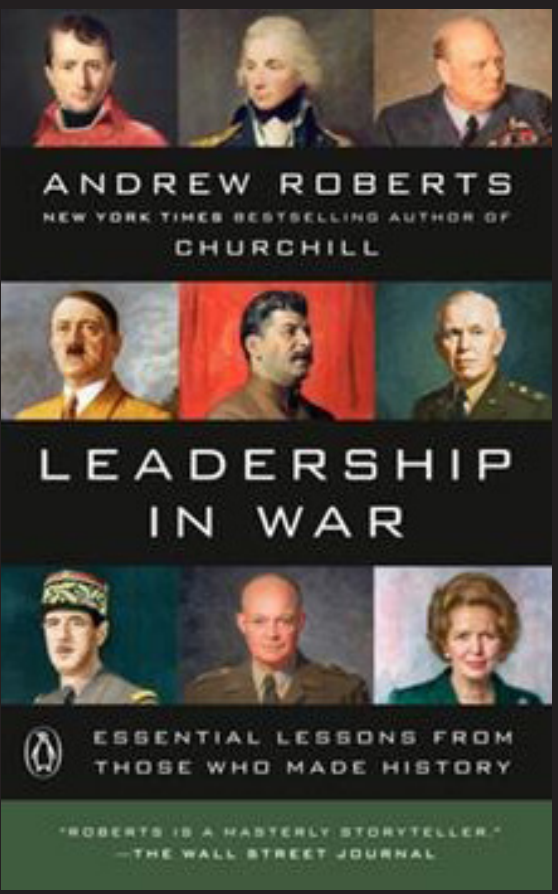
for the members of a team can have resounding impacts upon those who are led.

Another key point by Roberts that would benefit leaders specifically focused on organizational development and leadership, would be the pressure and necessity of strategic leadership in larger organizations. Roberts demonstrates this point through the historical lens of World War II and the lives and shared experiences of Churchill, Marshall, and Eisenhower. All three men were interconnected via the struggle to end fascism, which at the time was ripping through the heart of Europe and parts of Asia in a way that would forever scar the minds of the world to the horrors of war. Their relationship was stressed throughout the entire war, as Churchill wanted Marshall to lead, while Marshall trusted Eisenhower, and Roosevelt (not covered by Roberts) could not see repositioning either of the American generals. The ensuing analysis by Roberts underscores the vital importance of strategic leadership in support of large organizational development and goals. The real understanding for all is that leadership comes in all shapes and sizes, and the administrative leadership of strategic leaders cannot be undervalued.

The last major key insight provided by Roberts concerns the investigation into the leadership of enemy forces and the circumstances that drive their less than savory methods forward. This is such a valuable point of inquiry for military readers, as the discussion of aspects governing enemy forces builds a more holistic perspective for their development as future combat leaders. Whether discussing Hitler's miscalculations with respect to invading the Soviet Union, or Stalin's ruthless approach to overwhelming quantity of force as a meaningful parallel to quality, readers are able to achieve a reasonable grasp of the mind of an enemy leader. That in and of itself is a rare opportunity for an education in the thoughts of an adversary. Roberts makes this book a pleasure to read. His approach is efficient, meaning *Leadership in War* does not unnecessarily drag on, somehow hindering the progression through the book. Next, Roberts' book is exciting, as each historical leader is well-known, and their associated biographical sketches are well-informed and organized, thus keeping the reader's attention. Finally, Roberts provides every reader with key analysis of some of history's greatest personalities in war, conveying accessible and applicable leadership insight to every reader, no matter their experience or current role. All considered, Roberts' *Leadership in War* is a pleasure to read for all, and it should be required reading for all company-grade officers.

Reference:
Roberts, A. (2020). *Leadership in war*: Essential lessons from those who made history. Penguin.



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Look for the January-March 2022 Issue:

Our Featured Focus Will Be

How We Fight

... and More

Write for *Aviation Digest*!

Focus Topic: Aviation Training for Large-scale Combat Operations
April-June 2022 articles due March 1, 2022
(published on or about May 15, 2022)

Focus Topic: Airspace Integration and LSCO
July-September 2022 articles due June 1, 2022
(published on or about August 15, 2022)

Along with articles corresponding to the listed focus topics, the *Digest* is always receptive to letters to the editor, leadership articles, professional book reviews, anything dealing with the aviation 7-core competencies, training center rotation preparation, and other aviation-related articles.

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