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Great Leaders Follow First

Nine Rules for Dynamic Followership

Maj Gen Michael D. Rothstein, USAF*

As military professionals, we love to talk about leadership. This focus on leadership, however, may induce a blind spot: every single one of us is first and always a follower. We all have a boss. We all report to someone. Our senior leaders remind us—and rightfully so—that our Airmen deserve great leaders. But if we want to have truly effective teams, our leaders need great followers too.

It's hard to find a flight, squadron, directorate, or team that excels without having a combination of great leaders and great followers. We know this intuitively, but we spend much more time thinking about leadership than we do followership. A simple Google search of the word *leadership* yields 3.8 billion hits while searching *followership* brings up only a mere 1.1 million hits. Even as im-

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perfect as this metric is, the almost 4,000-percent difference in those results underscores the relative importance we tend to put on the two topics. This article's central idea is that being a great follower is every bit as important to a team's success as being a great leader, and every single one of us can be an even better follower than we are today.

This article offers nine consistent practices of great followers. Nothing described below is likely to tell you anything you don't already know. However, I hope to *remind and reinforce* a few things that you may have forgotten or to perhaps provide a perspective you may not have considered. Great followers don't have some special insight about "the secrets" of being a great subordinate; they are just uncommonly good at the execution of common sense. Not surprisingly, modeling these nine behaviors will not only help you become a great follower, but they will also improve your leadership.

1. Think Two Levels Up

Leaders value subordinates who consistently and effectively think two echelons above their own. What does this mean? In the Air Force, it means a flight commander can think through the lens of his group commander, a first sergeant through the lens of her wing command chief, and perhaps an action officer on a numbered air force staff can accurately consider a major command commander's perspective.

This kind of vertical empathy is important for two reasons. First, it keeps the follower from being parochial in his approach to the decision at hand. If the flight commander only thinks about what is best for his flight and not what is best at the squadron or group level, he risks being out of alignment with his leaders' intent and priorities. Second, thinking two levels up helps followers broaden their perspectives on variables to consider in a decision so they can bring better recommendations to their bosses.

When I was a brand-new squadron commander at Nellis AFB, Nevada, I approached my boss with a recommendation to change the traffic pattern for the B-1 bombers that regularly flew at Nellis. The visiting B-1 squadrons had requested the change, and our air traffic control team worked hard to devise procedures that would be safe and effective within Nellis's complicated air traffic pattern. My operations group commander listened as we used a large map to detail the proposed routing, sequencing options, and radio calls. It was a good plan, and I was proud of how well the team had thought it through and pitched it to the boss! When we were done, he turned to me and said, "I appreciate the effort on this, but we're not going to do it. Why would we want to fly the loudest aircraft in the inventory right over the top of base housing?"

I had failed to think two levels up. My boss was thinking like a wing commander who understood the need to balance the needs of the flying operations with the potential community impact. Had I been better at thinking two levels up that day, I might have anticipated those concerns and approached the problem in a better way. Thinking two levels up is not always easy, and you don't necessarily get it right all the time, but like all things, the more you practice, the better you get and the more valuable you become to your boss and the team.

2. Speak Truth to Power

The great follower is particularly effective at telling the boss what he needs to hear, even if it may not be what he wants to hear. She is willing to disagree, to provide constructive criticism, and to provide alternative perspectives. This candor is incredibly valuable because we all know that the boss is not always right, nor does the boss always have an accurate sense of what may be happening in the lower levels of the organization. Good leaders value subordinates who will talk straight with them as they are humble enough to recognize that they are not infallible. So how do you get better at speaking truth to power? Followers who do this really well tend to have four things in common:

- They clarify expectations ahead of time with their boss about the underlying importance of professional candor both up and down the chain of command. They then practice this candor and make it a habitual part of the relationship. But they also let their boss know, in both word and deed, that they will support and execute decisions loyally even if they've advocated for another pathway.
- They learn their particular boss's style and personality to know how best to disagree or present those "inconvenient truths." Some leaders are far more receptive in private than public, some prefer to hash things out at the time versus revisiting discussions later, and some prefer verbal dialogues while others might be more receptive with a written argument. Study your boss's style and be smart about your approach.
- The really good followers have learned to disagree without being disagreeable. They remain mindful that their underlying goal is not to tell the boss that he is wrong but rather to influence the boss in a positive direction. They remain polite and respectful and are aware of not only their words but also their tone and body language. They project confidence and avoid hesitancy but allow for the fact that they, too, may be wrong.

- They don't allow a lack of courage to be their reason for silence. Let's face it: speaking up can be hard. It is often easier to "go along to get along." However, great subordinates care more about mission success and what's best for the team than their personal promotion. They don't necessarily speak up every single time they have a different viewpoint—they are wise enough not to fight every battle. But they do not shirk from ensuring that the boss hears the important things that need to be heard.

3. Don't Bring the Boss a Problem—Bring Proposed Solutions

A great subordinate values his boss's time and works hard to bring his boss problems only after he has first tried to resolve them for himself. If he can't solve the problem, or if the decision properly belongs to the boss, then the shrewd subordinate comes armed to the conversation with having thought through considerations, options, and recommendations ahead of time.

Anticipate that every time you bring a problem to your boss, she is going to ask, "Okay, I hear your problem. What are my options for dealing with this, what do you recommend I should do, and why?" If time permits, don't bring up the problem until you have some answers to those questions. Notably, the boss is not asking what should be done from the subordinate's perspective but rather what should the boss do. This difference in perspective is subtle but important and relates directly back to "thinking two levels up." What are the equities from the leader's perspective? Does the boss have the authority or resources to solve the problem, or will he need to go to higher levels in the organization? Who might the boss need to engage to address the issue, and what would be the most effective way to do that? It comes down to helping your boss with the appropriate contextual thinking and doing the necessary staff work ahead of time.

Do not underestimate the number of opportunities to improve your performance as a follower by slowing down to think through proposed solutions before bringing the boss a problem. This approach may require a more initial investment in time but routinely results in better decisions and not only protects the boss's valuable time but saves time overall in the long run. Here are a few examples to underscore the difference between bringing mere problems versus bringing proposed solutions:

- Consider "Boss, when do you want to have the next meeting?" versus "Boss, reference the timing of the next meeting, the Thursday after next will give the team time to get the data compiled. The Monday before that would also work per your schedule if you are willing to accept a bit rougher product. I

recommend Monday so the team can get your feedback sooner and make adjustments."

- Consider "Boss, what do you want to do to meet the commander's objective of improving internal training?" versus "Boss, to meet the commander's objective of improving training, we looked at several options. To ensure we get everyone on the same sheet and get this accomplished quickly, we thought you'd agree that doing it in one day was better than a piecemeal approach. If so, the 15th makes the best sense as it minimizes impact to the rest of the wing, and there is time to advertise the closure. If not, then the next best option would be to send two people at a time over the next several months."
- Consider "Boss, if we don't get the replacement part in by Wednesday, we won't be able to meet the schedule" versus, "Boss, to get the part by Wednesday, I recommend you call headquarters now to convince them to spend the extra money to expedite shipping. I tried already at my level, but they tell me only the supervisor can approve that, and frankly, you will have more sway than I will. I think the key to convincing him is to highlight our need to stay ahead of the timeline for our upcoming deployment."

Sometimes, you will want to bring the problem to the boss even though you have not determined the proposed solutions. If the problem is big, or if it is time-critical, you typically want to inform your boss sooner rather than later. You don't wait to tell the ship's captain there is a hole in the hull until after you've figured out how to possibly fix it. Another reason to consider involving the boss early is to promote transparency, build awareness, and provide a coaching opportunity while the subordinate continues to work the problem. Finally, there will be times when as a subordinate, you just don't have any great ideas on how to solve a problem—don't let that stop you from alerting the boss to problems she needs to know about.

4. Internalize and Work the Boss's Priorities

Here is a quick exercise I'd invite you to do. Take a short break from this article and write down your boss's priorities in two areas—first for the organization overall, and second for your particular part of it. If you can do this, great! If you struggled with that exercise, then I'd encourage you to have a discussion with your boss because you can't be a great follower if you don't clearly understand what is important to the leader. Ideally, the leader concisely communicates his broad and specific priorities regularly, and everything is nicely spelled out for the organization, but we all know that's frequently not the case. So, the great follower takes

ownership to ensure he knows his boss's priorities. If it is not clearly spelled out already, then one effective approach is for the follower to write down what he thinks the priorities should be from the boss's perspective and then take it to him for his edits, intent, and guidance.

Knowing the priorities is the first part; next comes internalizing them. I use the term *internalize* because there often needs to be considerable mental translation done between how the boss may have articulated her priorities and what that implies you should focus on in your particular corner of the organization. This mental translation may be especially needed in larger organizations when we are trying to align priorities with not only our immediate supervisor but also with a boss or commander two or more levels up. In this internalization process, the great follower also uses their bosses' priorities to help determine what not to do and where to accept risk so they can focus on what's most critical.

Finally, the great follower works his bosses' priorities and areas of emphasis. The *good* follower works his assigned tasks. The *great* follower goes beyond working his assigned tasks to align effort and resources into working his bosses' priorities and achieving the intent. Bosses appreciate subordinates who ask, "Boss this is what I think you are trying to accomplish, and this is how I, or my part of the organization, can support that goal." The key difference, of course, is a *proactive* versus a *reactive* mindset. More often than we think, the areas that the leader is trying to emphasize don't come wrapped in specific tasks and deadlines. Maybe they should, but the reality is that they often don't.

Here is one simple example. During my first tour as a wing commander, I routinely shared my intent with group and squadron commanders to make unit-level physical fitness an emphasis area. I never assigned them a specific task, nor set any formal feedback loops or reporting criteria. (In retrospect, had I done that, I would have certainly driven more tangible results.) A good number of the squadron commanders, though, took my intent and moved out to make it a priority for their units. I respected and appreciated their great followership in this area. Others did not make it a priority for their units, and without dissecting the underlying reasons, I'd argue that they missed an opportunity to work one of their boss's priorities.

5. Give Good Readbacks

In the flying environment, when air traffic control issues navigation instructions over the radio, the pilot repeats those instructions back to the controller. This procedure, called a readback, confirms that the pilot actually received and understood the controller's instructions and is an important feedback loop that ensures the plane is going in the right direction at the right altitude. In a similar vein, a

leader needs regular readbacks from his subordinates to ensure that the organization is going in the right direction and in accordance with the leader's intent.

The savvy subordinate knows that the boss has many plates spinning in the air and that keeping track of their status takes significant time and energy. They appreciate that from the boss's perspective, an order given does not always result in an order that was received and understood as it was intended, or that is was carried out effectively.

So, the great subordinate is especially good at using readbacks and periodic updates to close feedback loops with the boss. These periodic feedback loops increase confidence that the boss's direction and guidance were actually received and implemented in the organization's lower levels. The great subordinate asks himself key questions such as what information does my boss need from me and how often does he need it so that he can be confident that my part of the mission is on track? He then builds his own plan to provide that information in the most appropriate format—a quick verbal update, an email, or something more formal. Regardless, the great subordinate is actively looking to regularly keep his boss informed of progress.

One of my subordinates was truly outstanding at giving good readbacks. First, if she had any doubt about what I wanted, she immediately sought to clarify my intent and expectations. This practice not only sharpened my thinking but also saved her from a lot of work in those times when my direction and guidance were unclear. She was also disciplined about acknowledging emails from me that contained any tasking or important information, so I knew that she had received and read the message. Next, she kept a really good list of the different things that I had asked her to work on or track. Finally, she would periodically get with me for 5–10 minutes to give me quick status updates. She succinctly told me what was tracking, what was not, and where she might need help, advice, or guidance. We all occasionally give our boss good readbacks. This particular subordinate's superpower as a follower was her uncommonly consistent and effective execution, and I've always admired her for it.

6. Hold Yourself Accountable for Your Performance

Leadership literature often highlights the importance of holding subordinates accountable. Great followers, however, don't need to be held accountable by their boss—they hold themselves accountable for their own performance. Additionally, great followers think not only in terms of being accountable for their own performance but also more broadly about the performance of the entire team.

Great followers ensure they are clear about what is expected of them and then take pride and ownership in meeting and exceeding those expectations. They self-

assess and are transparent with their boss about the areas in which they are doing well and those that need improvement. They also understand that they likely have blind spots and so they value an on-going performance dialogue with their boss. Great followers are secure enough to walk into their boss's office and readily admit when they have fallen short on something, though they also come armed with a plan on how they are going to fix it.

One way to work on being an accountable subordinate is through your approach to feedback sessions. Instead of the traditional mentality where it is the supervisor's responsibility to schedule a session, prepare for it, and have the subordinate show up to receive feedback, I suggest flipping the approach to have the subordinate schedule, prepare, and lead the session to self-assess his performance. Of course, the supervisor actively participates by providing additional feedback, alternative perspectives, guidance, and coaching. Great subordinates gravitate toward this "inverted" approach to feedback because they want to hold themselves accountable for their performance. In the Air Force, the relatively new Airman Comprehensive Assessment feedback process begins with a self-assessment as the Air Force has started to recognize its value. Many other forward-thinking companies and businesses are also adopting this inverted approach, not only because it helps develop more accountable subordinates but also because it fosters a much more productive feedback session for both parties.

7. Don't Pass the Buck

President Harry Truman famously had a sign on his desk saying, "The buck stops here!" In doing so, he acknowledged his responsibility to make the hard decisions that rose to his level, and that—particularly in his case—he didn't have anyone else to pass the decision on to. The rest of us clearly have more opportunities to pass the buck and avoid making the hard decisions. I know I've certainly done that on occasion. Great followers are especially good at knowing when to stop the buck at their level and just make the hard call and when to elevate the decision to their boss.

Subordinates who pass the buck tend to do so for three primary reasons. They are uncomfortable with shouldering responsibility in general, they are not confident in their ability to make a particular decision, or they want to avoid blame for an unpopular or incorrect decision. While the easier path may be to push hard decisions up to higher levels in the organization, it is probably not the best path for the organization. Great followers are attuned to their own tendency to avoid the hard choices, and before every single decision they pass to their boss to make, they deliberately check themselves to ensure they are not just passing the buck. The great follower appreciates the importance of protecting the leader's time and

not bothering his boss with decisions that he can (and should) make at his level. Additionally, he understands that making decisions at the lowest practical level fosters an organizational culture that values agility, responsiveness, buy-in, and accountability.

So, what are some rules of thumb to help triage whether the decision is best made by the subordinate or more appropriately passed up the chain of command?

Get to know which kinds of decisions your boss wants to make and which ones she is willing to have made at lower levels. Continue to fine-tune this over time. If you need additional resources (money, time, personnel, policy approval, and so forth) to execute the decision, then it might be appropriate to take it further up the chain. But if you don't need those, and you can make a decision that is aligned with your boss's intent, then you should probably make the call at your level.

It's entirely appropriate to go to your boss occasionally to ask for advice or mentoring on how they might go about making particular decisions. This is a subtle, but important, difference than taking the decision to your boss. If you find yourself quietly wanting "top cover" for a decision but don't want to readily admit that out loud, then you might just be passing the buck.

8. Demonstrate Professional Loyalty

Over the years, I have informally polled many different audiences on variations of this question: "Should you give your new boss your loyalty immediately when he steps in, or does he have to earn it?" My unscientific survey results show a couple of stable trends. First, the general majority has leaned in the direction that "they have to earn it." The second trend has been that the more senior the audience, the more responses tilt toward "give it immediately." A room full of Airmen first class or lieutenants typically leans far harder toward "earn it" while a room full of chief master sergeants or colonels are either more balanced or poll a bit more toward "give it immediately." Clearly, the question is a bit unfair in that it demands a binary answer that oversimplifies a complicated and nuanced subject. However, it has jump-started many terrific conversations about how we perceive the concept of loyalty and our obligations and duties as a military member.

Great followers give their immediate loyalty to their new boss, and they continue to demonstrate that loyalty day in and day out. They understand that a hierarchical organization cannot work effectively if subordinates do not demonstrate loyalty up the chain of command. When a new boss comes in, the organization cannot go on pause while the new boss earns enough credibility to be worthy of the followers' loyalty. The underlying basis of that loyalty is not a personal loyalty to the new boss, but rather a professional loyalty to the role that the new leader serves within the organization. Importantly, that professional loyalty also has to

nest upward through the chain of command to the unit commander, to echelons above the unit, eventually to the Air Force, and finally to the nation. Great followers recognize that if something is good for their immediate boss but is not good for the unit or good for the Air Force, then their overriding loyalty has to be to the unit and the Air Force. Notably, when I would recast the discussion through the lens of professional versus personal loyalty, the vast majority of the people I surveyed would then be willing to "give it immediately."

In discussions on demonstrating loyalty, people often talk about the importance of not talking poorly about your boss in public. That is certainly sage advice, and the *good* follower never gets sucked into a game of Bash the Boss or allows others to play that game. But I would contend that the *great* follower goes the extra mile to find ways to proactively support her boss's policies, priorities, and areas of emphasis. Consider the subtle difference in loyalty a follower demonstrates between, "The boss says this has to be done tonight, so we're all going to have to stay late. Sorry." Versus, "It's really important to the mission that we finish this project tonight. Not only is the boss counting on us, but this is also about the reputation of our unit. So, we are going to stay late to get this finished tonight." In the first context, the follower is not speaking poorly of the boss in any direct manner, but she's subtly casting the boss as the bad guy. In the second scenario, she demonstrates much better loyalty by actually lending support to the decision that has already been made.

The great followers demonstrate outstanding loyalty well beyond just how they talk about their bosses. They ensure their body language communicates that they are supportive and engaged—in other words, they fly in good formation. They prioritize supporting social events where the boss is trying to develop relationships and foster esprit de corps. They sit toward the front of the room (especially if it is half empty) because they recognize that sitting in the back tends to express a lack of buy-in and support. If the boss wears the unit T-shirt on Fridays, so do they. When talking to their own people, they echo the boss's key themes and messages so that those messages penetrate more fully across the organization. They generally check the boss's six and look for ways to make him successful.

9. Excel at Your Job

Admittedly, this last rule of great followership is arguably even more common sense than all the rest. But its importance demands that it not go unsaid. Great followers are great at their jobs. Your leaders are counting on you to play your position and to play it extremely well. You can't get from good to great if you don't have the fundamentals covered so excelling at your assigned job should always stay in the forefront of your mind as a follower.

Over the years many Airmen have sought my advice about what more they can be doing to make themselves valuable to their organization or what the next move should be in their development. Their motives are typically well-intentioned as they look to be successful and stand out among their peers. Frequently, my advice has been short and direct—be better at your primary job. Be the best flight commander or flight chief, the best aviator, the best maintainer, the best engineer, or the best nurse in your unit. Avoid the pitfall of thinking too much about the next job at the expense of the one you already have. Excel at your job, and you will be more valuable to your boss and the organization.

Conclusion

I have been a follower every day of the 35 years I have spent as an Airman. As I reflect on my experience across multiple commands and staffs in the Air Force and in the joint, international and interagency environments, I believe that practicing these nine behaviors will make you a better follower and consequently a more valuable part of the team. Success for any organization is a team sport requiring significant parts of both leadership and followership. We ignore the followership side of the equation to our peril. So, ask yourself if you are a great follower and commit to building your own followership skills. Invest time with the people you lead to clarify your expectations of what it means to be a great follower and coach them along the way. I also encourage you to write these nine rules on the inside cover of your notebook (Hint: Professionals keep a notebook handy.) and refer to them occasionally to remind yourself of areas to continue to improve upon. We will be a better Air Force if we reclaim the dignity and the art of followership: if all of us must follow, let's strive to follow well. ✪

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FEATURE

A Commander's First Challenge

Building Trust

Lt Col Jesper R. Stubbendorff, USAF
Robert E. Overstreet, PhD

Trust is "the vital bond that unifies leaders with their followers and commanders with their units."[1] Not only is trust vital for an effective leader, it should also be established quickly based on the nature of the military. While trust is important for a successful leader, it may be even more important for a commander whose responsibilities include sending Airmen into harm's way.[2]

Research has shown that trust is about relationships. Commanders need a relationship with their followers to have influence over them.[3] If commanders were better equipped to quickly build genuine trust with their followers, there would likely be a significant increase in effectiveness and efficiency. Thus, the purpose of this study is to identify actions and tasks that USAF leaders, particularly squadron commanders, can use to quickly and effectively build trust within their units.

Defining Trust

Trust can be a difficult concept to describe exactly; therefore, for many, it is easier to describe what trust is not. That is why trust is commonly referred to as "being broken" and rarely referred to as "being kept, built, or strengthened."[4] Herein, *trust* is defined as a "psychological state comprising willingness to accept vulnerability based on positive expectations of a specific other or others."[5] Although there are different definitions of trust, most of the definitions include a willingness to accept vulnerability along with the positive expectations of others.

Trust is vital to leadership because the level of trust that followers have in their leader directly impacts their willingness to accept that leader's influence.[6] At the same time, a leader's trust in followers makes the leader more open to their influence.[7] A leader–follower relationship built on trust facilitates open communication, mutual cooperation, mutual dependence, and empowerment, all of which greatly enhance both individual and group effectiveness.[8]

Traditionally, the most widely accepted understanding of trust has been that it is something that takes time to develop, build, and strengthen.[9] However, research into temporary groups and systems has identified that a large degree of trust is established early in relationships.[10] *Swift trust* is a unique form of trust that occurs between groups or individuals brought together in temporary groups or teams to accomplish specific tasks, often under certain time constraints.[11] Swift trust, as described by Debra Meyerson, Karl E. Weick, and Roderick M. Kramer, has become increasingly popular as a research topic in recent years.[12] Swift trust implies that trust can be presupposed in certain environments and organizations. That is, swift trust is formed quickly out of necessity to manage the issues of uncertainty, risk, and perceptions between groups or teams. The concept of swift trust takes trust out of the personal form and instead focuses trust based on actions and tasks. Thus, swift trust becomes a strategy for groups or individuals as a means to manage vulnerability based on their roles rather than focusing on interpersonal relationships that may not yet have had time to form.[13]

With the current environment in the USAF where squadron commanders typically serve for only two years or less, swift trust may provide an excellent starting point from which to build genuine trust. Deployed commanders must build trust within their units even more quickly than a commander in a traditional unit given the compressed timelines of downrange command tours. Typically, deployments are between 4–12 months with a mix of personnel from different units around the world. In a deployed environment, the unit is in a heightened readiness state and usually closer to a combat zone. In this type of environment, unit members typically show up prepared for combat on Day 1 and have little to no time to

acclimate to their new unit and members of their unit. There is very little time to get to know each other, and in addition to being in a deployed environment, the operational requirements and mission set usually carry greater ramifications.

By building upon swift trust, commanders may focus on actions and tasks that can develop relationships and build genuine trust more quickly.[14] Providing commanders with a clear pathway to building trust may create an avenue for increased operational performance as well as increased employee organizational commitment and job satisfaction.

Methodology

We collected data from focus groups and individual one-on-one interviews. Focus groups are typically composed of 6–10 people with similar backgrounds who participate in the interview together for approximately 1-2 hours. These participants can make additional comments beyond their own original responses as they hear what other participants have to say. The advantages of focus groups include enriched data quality because of the participant interactions, enhanced cost-effectiveness because more people can participate in the same time period used for a one-on-one interview, and improved data analysis because the researcher can quickly identify consistent or shared views as well as the extreme and diverse opinions.[15]

Focus group participants are generally selected based on their relevance and relationship to the topic of study. Typically, focus group participants are not chosen in an attempt to statistically represent a meaningful population.[16] However, for this research, we felt it important to capture a representative sample of the various Air Force Specialty Codes (AFSC) and the different squadron mission sets in the USAF. Focus group participants were randomly selected with consideration to ensure that multiple AFSCs were represented. It is hoped that the concepts derived from the focus groups and interviews will generalize to all types of units, regardless of their mission sets.

Three focus groups were conducted. The first focus group consisted of eight senior noncommissioned officers (SNCO). They offer a unique perspective as to what the enlisted force sees from their commander and have been in the USAF between 8–30 years. The second focus group consisted of eight company-grade officers (CGO). These CGOs provide the unique perspective of having been in the USAF typically between 1–10 years and are the backbone of the officer corps. The final focus group was conducted with field-grade officers (FGO). Six of the seven FGOs in the focus group were already squadron commanders, and the seventh was selected for command.

We conducted five individual interviews following the focus groups. These interviews helped us to better understand the feelings, thoughts, and intentions of the focus group members. The interviews also allowed us to gather anecdotal and historical data, which added more context to the data gathered during the focus group sessions.

Analysis and Results

Data were collected from the focus groups, individual interviews, and a detailed literature review. More than seven hours of interviews with 28 individuals equaling 130 pages of transcripts and 2,100 pages of reviewed literature have gone into this research. The data collected from the focus groups and interviews were so dense and rich that the researchers decided to "winnow" it, which is a process of focusing in on some of the data and disregarding other parts of it.[17] Specifically, this research focused on the most pertinent and relevant information directly applicable to the research questions. The most common themes and ideas that kept reappearing in the three different focus groups and interviews were the foundation of our analysis.

We aggregated the data collected from the focus groups into four main themes. These themes emerged from the data collected during the focus groups and interviews and were validated by the in-depth literature review. The data revealed four prevalent themes that a commander needs to work through to build trust: Engage, Connect, Serve, and Lead. These four themes provide a framework (see fig. 1) for the actions and tasks that a commander can do to build genuine trust with their Airmen.

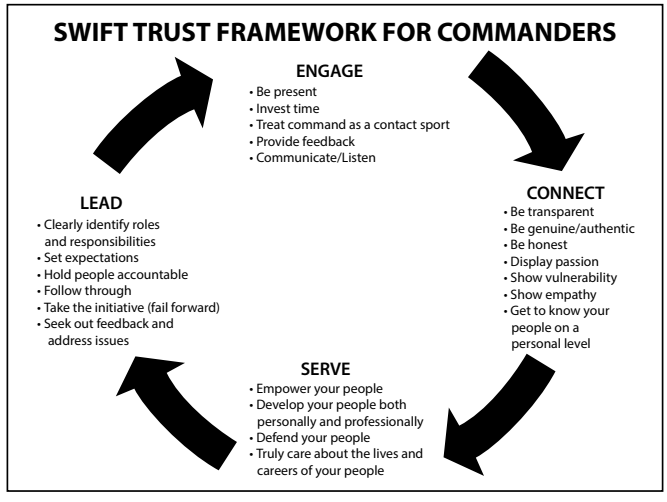

Figure. Trust-building framework

Engage

To build trust, leaders should meet with their people and communicate regularly and consistently.[18] The same sentiments were shared by all three of the focus groups. A squadron commander in the FGO focus group stated that "leadership is a contact sport." A commander cannot lead without getting out with their troops and doing the job with them. Time spent with an Airman on the job shows that the commander values the Airman individually and what that Airman is doing. In fact, members of the focus group stated that sometimes the most important thing that a commander can do is to "simply show up." One FGO who recently returned from the Air Mobility Command (AMC) Commander's Course said that the four-star general in charge of AMC was present for almost the entire week-long course. The FGO stated, "His presence alone, his just showing up, was enough. He did not have to say it was important, we knew it was important to him because he was there." Here, the AMC commander's actions helped to build trust because he showed that he valued the training the new squadron commanders were receiving and that it was important and significant for him to be there.

When commanders are present with their Airmen, it provides the opportunity for communication to take place and is an opportunity to provide feedback to an individual. Members of all three focus groups mentioned communication and feedback multiple times as being highly significant to a commander's ability to build trust. In an interview, one squadron commander stated that being "consistent with your communication and then following through with the message that you communicated is a demonstration of your trust." Additionally, this communication should happen sooner rather than later. A commander or leader cannot afford to waste a single opportunity to communicate with their people or delay getting to know their unit. Peder Hyllengren has shown that leaders who meet regularly and communicate consistently have a more positive impact on trust than those leaders who fail to do so.[19]

Members of all three focus groups mentioned that feedback was virtually nonexistent, specifically constructive feedback (i.e., identifying areas that need improvement). Feedback is important because it is intended to improve the individual receiving the feedback, and it shows that the commander cares about making them better. One first sergeant from the SNCO focus groups stated, "most Airmen don't trust their supervisors, I guarantee it, I have seen it." Supervisors "don't tell their people when they are doing good or when they are doing bad," thus, "their people think that they do not care," and trust is diminished. The USAF struggles with providing real, constructive feedback and holding individuals accountable when they make a mistake. Not holding people accountable shows in-

consistency and also diminishes trust. Correcting a mistake can provide an incredible opportunity to hold someone accountable, which can build trust.

Connect

The most commonly mentioned factor that a commander needs to build trust was transparency. Members of every focus group repeatedly mentioned the commander's need to be transparent. Transparency implies openness, communication, and accountability. This means that a commander cannot have hidden agendas, they need to be thorough in all that they do, and they need to explain their decision-making process whenever possible. Some people may argue that a commander does not need to explain their decision-making process or why and how they came to a certain decision. There are times when this may be true—when a decision requires immediate action, and there is no time for an explanation or when discipline is involved.

When commanders are not transparent, they need to know that Airmen will talk and reach their own conclusions as to why a certain decision was made. At the same time, the more trust that commanders have built with their Airmen, the more benefit of the doubt their Airmen will provide to the commander. A squadron commander stated that ". . . explaining why we didn't go where I thought we were going to go. For example, I know that I said X is going to happen, X is not going to happen, and this is why," is one of the most important things that he has to do as a commander. He continued, saying that as a commander you need to be ". . . frank, open and honest. That is what engenders trust."

The need to be vulnerable and show vulnerability was also mentioned by members in every single focus group, including every squadron commander in the FGO focus group. This is extremely telling and important to note. Virtually all the literature that discussed building trust, mentioned that a leader needs to be vulnerable to build trust.[20] Specifically, Zand stated that commanders and leaders must be vulnerable if they want to build trust with others.[21] A maintenance squadron commander stated, "Vulnerability must be shown as a commander. Showing your own vulnerability and imperfections is really important as is admitting when you make mistakes openly."

There can be some resistance and hesitance to the idea of a commander being vulnerable. Some people relate being vulnerable to having a weakness, being susceptible to something, or having a flaw. What vulnerability means, in this case, is that the commander needs to build a relationship with their Airmen, and by so doing the commander potentially opens himself or herself up to criticism. However, this vulnerability shows that the commander is a real person who is not perfect. They are essentially humanizing themselves, which is both respected and

appreciated by subordinates. Vulnerability is necessary to build trust. It creates the authenticity and genuineness needed to inspire and lead.

If commanders open up and truly get to know their Airmen, trust can be built quickly and more effectively than when they do not. To do this, commanders need to take every opportunity to communicate with their people and build a rapport. As one squadron commander mentioned, "You cannot lead from your office." Commanders cannot afford to sit in their office and keep their distance; they cannot afford to waste one day not communicating with their Airmen. A key here is to get to know your Airmen on a personal level and not just a professional level. A commander should know about subordinates' families, where they are from, what motivates them, and so forth. As one squadron commander stated, "trust is earned, and it starts with sponsorship or your first interaction with an individual in your organization. Your people need to know who you are, what you stand for, and what you are about. Once this connection and relationships are established, your trust is being earned."

Serve

The key for a commander to serve their Airmen is to empower them. Empowerment was an especially passionate theme among the SNCOs and the CGOs. This again is telling; they were essentially saying that their commanders are not empowering them or their subordinates enough. The ability to empower individuals can at times be difficult. To empower someone means that you are entrusting them to carry out a task and giving them the power to make the required decisions while accomplishing that task. Across all the focus groups, it was clear that commanders need to turn over more control to their Airmen and then back them up and defend them when they are going about accomplishing the task. As one CGO mentioned, "All Airmen have competencies, and you need to empower them to carry those out. This allows them to go to the next level and then you can turn up the intensity." Empowering an Airman improves performance, builds confidence, and perhaps most importantly, builds trust.[22]

To properly empower Airmen, commanders should have done their jobs to know and train them individually so that they can rely on them to effectively carry out the task. If the commander micromanages this process, the commander will lose the trust that they were trying to build. A commander can (and must) direct and follow-up with the individual they empowered, but they need to be careful to not take back the power or authority that they have delegated. If a commander takes back the authority that they delegated to the individual (and this take back of authority and power was unwarranted), then the Airman will feel betrayed, and

trust will be diminished. The entire squadron will see how the commander treated the Airman and will lose some degree of trust in the commander.

The commander is still in charge and responsible for the task. If the commander sees the situation taking a turn for the worse, then he or she needs to take action. If possible, this action should be taken privately, so as not to embarrass and humiliate the Airman they have empowered. Give that Airman an opportunity to correct and heed advice (if time and conditions permit). These situations are essential to building trust, and the more that a commander empowers an individual to accomplish a task, the quicker trust will be built. Empowerment and task accomplishment are key components and essential to establishing trust.

Another component to building trust is to develop your Airman both personally and professionally. Building trust shows that you care about your Airman as individuals, and you do not just care about them because they are essential to mission accomplishment. Airmen need advice on multiple aspects of life (e.g., marriage, finances, education, future job opportunities, and so forth). They need to know that their commander cares about them as an individual. If their goals do not necessarily fall in line with the goals of the Air Force or the unit, then the commander has an opportunity to influence Airmen or to help guide them to make the best decision for themselves, their family, the unit, and the USAF. An operational support squadron commander stated, "The only thing I really care about is. . . [for] the people in my squadron to become better people and to be doing great things wherever [that may be] and for them to say that I made myself a better person."

Lead

Naturally, a commander always needs to lead, and their leadership is always on display. The key to the trust-building framework is to take action. Commanders should act on everything that they say and emphasize to their Airmen. If a commander does not act on what they say, trust is diminished or lost completely. If a commander says that something is important, they need to show that it is important through their actions.

A key element to action is to clearly identify roles and responsibilities and to set expectations. Every Airman needs to understand what is expected of them. Therefore, it is crucial that commanders clearly communicate their expectations. A logistics readiness officer in the CGO focus group stated that Airmen "need to know what your expectations are, otherwise they cannot meet your expectations." Once expectations are laid out, the commander should then hold people accountable and provide feedback.

The idea of failing forward was also a key concept from the focus groups. A squadron commander stated that "as a leader, if you instill a culture where failing forward is okay and allow people to learn from and make mistakes, then they will be more prone to trust leadership, understanding that it is okay to take risks." Commanders should encourage their Airmen to take the initiative and to be creative and think outside the box. To do this, commanders should allow their Airmen to take risks. These risks must be smart and calculated with the permission of and in communication with the commander. If an Airman will be punished for a simple mistake or for taking a smart, calculated risk, they will not innovate. As was mentioned several times in the focus groups and the individual interviews, what is important here is that the commander needs to encourage critical thinking and some degree of risk-taking to become more effective.[23]

Another key to leading is to seek out feedback and address issues as they arise. The commander should be open to new ideas and needs to know the "pulse of the squadron." Great ideas can come from a young Airman or a new lieutenant. Rank does not equate to an individual's ability to think critically or have great and creative ideas.

Discussion

The USAF values trust and acknowledges its importance. For example, Air Force Doctrine Document 1-1 specifically states, "Trust is the vital bond that unifies leaders with their followers and commanders with their units. Trust makes leaders effective."[24] Additionally, the USAF has taken several steps to address this issue. In March 2015, Gen Mark Welsh, the Chief of Staff of the Air Force (CSAF), directed the activation of the Profession of Arms Center of Excellence (PACE). "PACE is tasked as the USAF champion laser focused on infusing Air Force Core Values within the Profession of Arms." PACE is "committed to developing Air Force personnel with a professionalism mindset, character, and core values required to succeed today and well into the future." PACE teaches a course entitled "Professionalism: Enhancing Human Capital." PACE staff travel throughout the USAF and teach about the importance of commitment, loyalty, and trust.[25]

In December 2015, the CSAF stated that almost every mission area faces critical manning shortages. The CSAF continued, "we have got to figure out different ways of using our people in a more efficient way or we will wear them out. And if we lose them, we lose everything."[26] The USAF is, in fact, losing many qualified and exceptional individuals due to their lack of faith and trust in their leaders and, by extension, the USAF.[27] The CSAF also stated that for the USAF to operate in the future, we need "[A]irmen who are ready and responsive, and demonstrate

general qualities such as critical thinking, adaptive behaviors, innovation, creativity, collaboration, social networking skills, emotional and cognitive intelligence, initiative, and resilience."[28] These are the exact qualities that Stephen Covey describes as being the products of trust.[29] Essentially, today's Airmen need trust.

Conclusion

This research identified how commanders can build genuine trust with their Airmen based on relevant literature and primary data obtained from focus groups and individual interviews. As a result, specific actions and tasks were presented to aid commanders in building trust. Four themes—Engage, Connect, Serve, and Lead—provide a framework for what commanders can do to build trust with their Airmen. Research has validated that trust is about relationships.[30] Our proposed framework facilitates building trust through relationships.

The participants in our study represent a cross-section of the USAF by AFSC, rank, and age that enhances the generalizability of our findings. While our relatively small sample is a limitation, the fact that every focus group and individual interviewed stated that the lack of trust in the USAF is a big problem that is inhibiting effectiveness provides credibility to our findings. ✪

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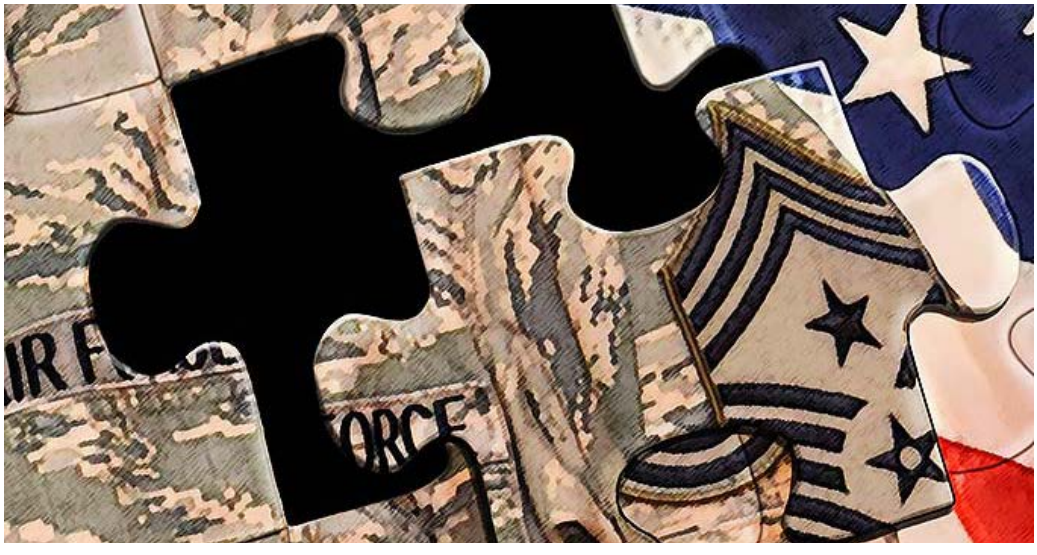
FEATURE

Aligning Air Force Leadership Roles

The Limitations of Enlisted Empowerment

SMSgt Ryan T. McClary, USAF*



In 1958, the *Military Pay Act* created two new US Air Force senior enlisted "super grades" of senior master sergeant and chief master sergeant to sanction higher levels of empowerment to the enlisted force.[1] This allowed the assignment of roles "once reserved for the commissioned officer corps" that included tasks "where authority falls just short of. . . officers or warrants."[2] It was at this point in Air Force history where the formalization of enlisted force empower-

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ment began and created a "trend of channeling airmen with fewer [technical], but broader [management] skills" into these new top grades. [3] This path left the two most senior enlisted ranks with a doctrinally undefined amount of organizational power and created positions with greater flexibility across Air Force organizational design. This was an outcome of great operational benefit. However, despite a change in roles, the traditional strict hierarchal organizational design remained and left a clear divide between the officer corps (both commissioned and warrant) and enlisted members. This left those empowered enlisted leaders in roles without the organizational power to fulfill all tasks assigned (e.g., the power to implement or affect key strategic-level decisions).

Shortly after the creation of the super grades, the Air Force divested the warrant officer ranks for two primary reasons: redundancy and fiscal savings. The two new enlisted super grades created technical expert redundancy while the reduction of warrant officer authorizations allowed fiscal savings as both warrant and commissioned officers are parts of total officer authorizations allowed per service;[4] thus, the removal of the warrant officer corps led to a direct increase in the number of authorized commissioned officers. Additionally, the warrant officer corps' removal left a leadership dichotomy between commissioned officers and noncommissioned officers (NCO) of the enlisted force, a binary choice that led to future increases in enlisted force empowerment. Moving forward to the 1970s, the Air Force was facing significant force reductions and adopted the unofficial motto: "Do more with less."[5] This strategy sought to increase productivity despite decreasing resources, the retention of all assigned missions, the sustainment of performance expectations, and required empowered enlisted leaders, a strategy that remains to date.[6]

Since its birth in 1947, the Air Force has focused on creating technically-proficient enlisted Airmen, and as such, enlisted education levels have slowly risen through the decades.[7] This created an enlisted force inspired by doing more with less to seek higher education levels while attaining a traditional depth of experience, which in turn provided a more capable enlisted component ready and able to receive even higher levels of enlisted empowerment. This perpetuated a self-sustaining cycle of steadily increasing enlisted empowerment, an effect most evident in smaller, highly technical, and emergent career fields.[8] Fast forward 70 years to 2017 when the Air Force Personnel Center reported a total force, decade-long exponential rise in enlisted education levels (see fig. 1),[9] and enlisted leaders are provided an ever-increasing list of career-broadening opportunities. . . so the cycle continues. Today's highly capable enlisted Airmen are even more adept at filling organizational roles left vacant by commissioned officers—not a bad situation to be in as an Air Force.

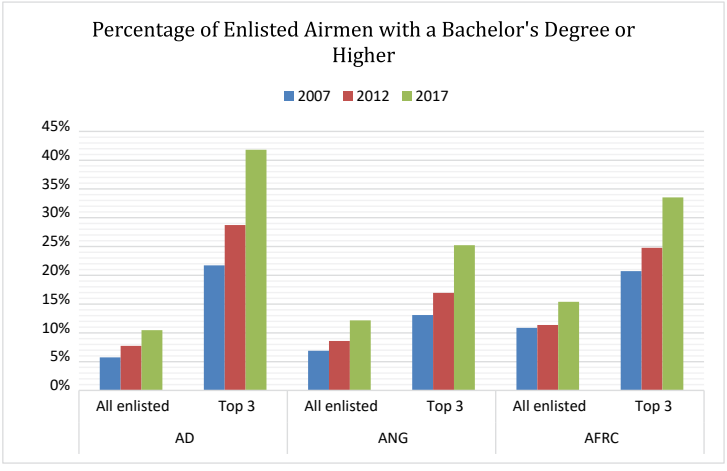

Figure 1. Enlisted education levels from 2007–17

Despite these ever-evolving enlisted roles and regardless of individual competency or an assigned role, an essential military organizational design places significant limitations on both power and responsibility available to enlisted leaders.[10] Fundamentally, both enlisted and officer members must master leadership, and the enlisted Airman is no less of a leader than an officer. However, doctrinally both leaders are two sides of the same coin; officers lead force guidance and direction while enlisted lead decision advisement and mission execution. Accordingly, this investigation seeks to explore how fundamental military form limits enlisted empowerment function due to existing military organizational design, a complex endeavor best explored via theoretical contextualization framed on a vignette provided by the explosive ordnance disposal (EOD) career field.[11] As a small, highly technical career field heavily reliant upon emergent technology and empowered enlisted leaders, EOD offers an opportunity to connect theory with application.

Enlisted Empowerment in Application

In military organizational design, enlisted members of the NCO ranks fulfill two key roles: they "complement the officer [and] enable the force" by bridging the gap between "command guidance and mission execution."[12] To this end, enlisted empowerment "allow[s] officers to better function in leadership positions [to] develop and lead strategic vision while the enlisted Airmen carry out those visions."[13] In this context, *empowerment* rightfully infers organizational power and authority are not inherent to enlisted leaders as military organizational design defaults both power and authority to the commissioned officer.[14] In this manner,

empowered enlisted leaders are delegated control of task inside of mission (content) while control of the larger function (context) is reserved for the commissioned officer corps. Current Air Force guidance only provides a clear separation of empowerment content and context as it pertains to direct combat authority succession.[15] However, due to the Air Force's over the horizon force projection, the vast majority of enlisted Airmen will not encounter this situation throughout their entire careers. This leaves a vaguely articulated boundary between content and context for the vast majority of empowered enlisted leaders assigned indirect combat roles—roles that can, and do, include strategic control over the efforts of individual members, teams, units, and career fields.[16]

Of the three successive levels of warfare and leadership; tactical, operational, and strategic,[17] strategic efforts have the greatest need for a singular vision and voice. This vision and voice must derive from a set of well-developed leadership skills and combine with a comprehensive understanding of the broad interorganizational ties between subordinate, peer, and parent organizations.[18] To this end, broadening, developing, and enhancing strategic inter- and intraorganizational leadership is the primary developmental goal of the commissioned officer corps.[19] To complement the officer's breadth, enlisted members maintain a significant depth of experience and serve as the technical experts and advisors in their assigned arena with a primary developmental goal of creating technically proficient subject matter experts.[20] These complimentary developmental goals create strong leadership teams but do not create individuals with interchangeable roles. Officers are trained to maintain organizational stability and visionary leadership, whereas enlisted are trained to find technical solutions to desired future states with planning granularity to account for all associated tasks. The difference in viewpoint becomes readily apparent when enlisted leaders must rise to fill role gaps in strategic leadership as seen in small career fields without holistic officer representation.

To frame the Air Force EOD vignette from its 1947 beginnings, the predominant source of strategic vision and voice collectively stemmed from 15–20 EOD chief master sergeants and retired chiefs filling government service civilian leadership roles. In just the past 17 years, this lack of organizationally-aligned leaders (officers) resulted in the floundering, hindrance, and deferral of several strategic change initiatives including, the fielding of an Air Force EOD-led joint task force intermediate combat headquarters element, the creation of an initial skills training pipeline, a formalized integration with Special Operations Forces, the realignment of personnel basing locations, and the creation of distinctive uniform items. Although, these outcomes cannot be completely attributed to poorly aligned empowered enlisted leaders, the fact that not one major change occurred creates doubt if enlisted leaders are even capable of sponsoring these kinds of organization-

wide changes. Although this use of empowered enlisted leaders to fulfill strategic leadership roles in small career fields does not directly create issues of great concern when several minor issues are layered together from a historical perspective, an abstract enterprise-wide theme worthy of discussion emerges.[21] Accordingly, this work ties four minor themes together: the assignment of career-field officers, force management and leadership development at the career-field level, alignment of leadership roles with individuals assigned, and cultural alignment of leader types across organizational levels. This discussion aims to illuminate an abstract mismatch between the organizational form and function of empowered enlisted leaders.

In the first two areas, the discussion of officer career field assignment and force management at the career field level involves management of career-field families and requires two distinct skill sets, "substantive knowledge of the career field and the knowledge of how to manage a dynamic, closed, hierarchical personnel system. The latter management skill, generic across career fields, is generally missing in operational level management."[22] This finding resulted in the creation of developmental teams with a focus on functionally similar clusters of career fields.[23] However, in implementation, this solution did little to aid highly specialized, low-density, high-demand career fields with limited access to qualified officers beholden to a larger suborganization officer corps. Once again, EOD offers a unique opportunity for study as they currently are not assigned a dedicated officer corps with holistic functionality throughout the career field; a fact that leaves Air Force EOD heavily reliant upon empowered enlisted leaders. This limitation is not new, as several previous authors have indicated a lack of holistic officer leadership results in long-term impacts to Air Force EOD command structure,[24] missed opportunities to strengthen officer presence in the Air Force EOD career field,[25] and the operational-level benefits of growing an EOD qualified general officer in any branch,[26] a group of proposals that to date has not generated any consequential changes to the Air Force EOD organizational structure.

Unlike the first two, the next two areas—the alignment of leadership roles with individuals assigned and cultural alignment of leader types across organizational levels—are more closely aligned and are the substance of this investigation. Holistically, organizational design benefits from an authentic alignment between leadership role and the individual assigned to fill that role. This alignment creates positive impacts despite cultural differences between micro-organizations and suborganizations to create significant beneficial outcomes in command and authority relationships between micro-, sub-, and parent organizations.[27] In the Air Force EOD vignette, I propose the current limited use of organizationally aligned officers, in both the quantity and roles of assignment throughout the career-field

organizational structure, creates a value and culture mismatch resulting in a significant amount of strife, frustration, and ineffective action (including change sponsorship, future-based influence, and strategic alignment of efforts).

In pursuit of this proposal, this work leveraged purposeful sampling[28] of two National Defense University (NDU) books, *The Noncommissioned Officer and Petty Officer* and *The Armed Forces Officer* organized inside a Competing Values Framework to provide a pragmatic, yet doctrinally sound perspective; a combination that adds both credibility and viability to potential findings as related to a single main question with two supporting research questions (RQ).[29]

- **Main Question:** Are there organizational form factors that limit empowered enlisted leaders from completing the functions associated with assigned roles?
- **RQ1:** What management skill values prevail for enlisted and officer leaders?
- **RQ2:** In what culture archetypes do officer and enlisted leaders most align?

Consequently, the author humbly aims to stir Air Force policymaker thought and spur action to align small, critical career fields with holistic commissioned officer representation while returning high levels of effectiveness to enlisted leaders assigned empowered roles.

Definition of Terms

Form, function, culture, climate, and empowerment are fundamental components of organizational design; *function* includes "the factors, benefits, characteristics, and features that are combined to provide utility," whereas, *form* describes the structural "characteristics that provide the architecture through which functional [utility is] delivered."[30] *Culture* is, "the foundation of the social order that we live in and the rules we abide by" or more simply "the way things are."[31] Culture is split into three organizational levels: macroculture, subculture, and microculture; *macroculture* is a national culture with "occupations that exist globally" whereas *subcultures* are "occupations, such as medicine, law, and engineering, [that] transcend organizations" and create distinct cultural impacts within parent organizations and finally *microcultures* include "small coherent units within organizations, units such as surgical teams or task forces that cut across occupational groups and are, therefore, different from occupational subcultures."[32] In the Air Force context, *culture* is the foundation for both enlisted and officer values and is grounded in three Air Force Core Values: Integrity First, Service before Self, and Excellence in All We Do.[33] Of note, there is a distinct difference between culture and climate; culture refers to "the way things are" whereas *climate* refers to "indi-

vidual transitory attitudes about" culture.[34] Finally, although e*mpowerment* is not officially defined by the Department of Defense or the Air Force, the National Defense University offers, "encouraged to think, behave, decide, and action on their own;" a definition in close alignment with the *Merriam-Webster Dictionary* offering, "to give official authority or legal power to; enable; to promote the self-actualization or influence."[35]

Each military department defines enlisted members and commissioned officers slightly differently. [The] *Air Force Commissioned Officer* is a "warrior, a leader of character, an unwavering defender of the Constitution, a servant of the Nation, and an exemplar and champion of its ideals."[36] Moreover, Air Force officers are charged to align "technical skills, dedication, and energy of hundreds of Airmen. . . to create a team with a singular purpose."[37] The pinnacle of military officer leadership is the role of *commander*; a role that "within the Air Force, only an officer" can fulfill.[38] To complement, *Air Force Enlisted Members* are technical experts with functional and operational specialties who primarily hold leadership roles at the tactical (unit of action) level.[39] As enlisted leaders increase in rank, they increase in leadership role. Enlisted members who rise to the highest rank of chief master sergeant are provided as senior enlisted advisors to commanding officers to provide them advice on behalf of the enlisted force; however, even the most influential enlisted leader in the Air Force, Chief Master Sergeant of the Air Force, who holds "the highest enlisted level of leadership" remains only an advisor to the commissioned officer serving as the Chief of Staff of the Air Force.[40] Finally, Air Force *core doctrine: Volume 2 – Leadership* states, "the Air Force's enlisted members provide the Service with the highest degree of technical expertise within their respective functional areas. . . [and] are bound to the ideal of followership."[41]

Both officers and enlisted members execute tasks, functions, and missions at three levels: tactical, operational, and strategic. A military *task* is, "a clearly defined action or activity assigned to an individual or organization,"[42] which is commonly assigned to a military *function* with a "broad, general, and enduring role for which an organization is designed, equipped, and trained" with a goal to complete the military *mission* that "entails the task, together with the purpose, that clearly indicates the action to be taken and the reason therefore" and always consists of who, what, when, where, and why.[43] Execution at the *tactical* level includes individual battles, enemy engagements, and small-unit or crew actions; specifically, "tactics is the employment and ordered arrangement of forces in relation to each other."[44] A definition that infers organizations at this level will have "strict guidelines, procedures and processes to perform their tasks. . . [which] are routine and common like training and exercises and they execute them in the strict chain of command."[45]

At the *operational* level, tasks, functions, and missions include military campaigns and major operations by linking strategy and tactics "to achieve the military end states and strategic objectives."[46] Operational missions and tasks have a "high initiative level in choosing their strategy, their planning, their budget, choosing their technology, and using their resources."[47] Finally, at the *strategic* level, tasks, functions, and missions include the application of national policy and development of theater strategies "in support of strategic end states and develops and uses national resources to achieve them," while focusing on establishing "plans, policy, doctrine, or concept development, experimentation and analysis" to guide the operational and tactical levels.[48]

Empowerment as it Relates to Air Force Organizational Form

Within the context of the DOD, the Air Force is more "future-oriented and technology-focused" than in any other branch of the military;[49] as such, Airmen are trained to be early adopters of ideas and change, a circumstance that offers a unique opportunity to study what roles are best suited for enlisted leaders to effectively hold and which roles are better suited for a commissioned officer. Understanding the current culture or "the way things are"[50] of any organization provides an objective picture to define problems, identify gaps in performance, and create effective goals to assess postchange impacts. In organizational design, the current state of an organization can be expressed as a combination of customer type [military employees], size, location, services offered, and financial health.[51]

Types of Customers. According to a 2010 RAND Corporation report, five types of employees occupy leadership positions in military organizations: commissioned officers, warrant officers, limited-duty officers, civilians, and enlisted members.[52] There is a sixth type of military employee—the contractor. However, this type is omitted from this project as they are not a part of the formal military chain of authority or command; as such, contractors are forbidden from holding positions of leadership.[53] Additionally, this project omitted warrant and limited-duty officer leader types as both are excluded from current Air Force organizational design.[54] This leaves only three options available to fill Air Force leadership roles—commissioned officers, civilians, or enlisted—a determination based upon nature of task assigned (inherently military) and responsibility (authority) required to complete assigned function, mission, and tasks. In order of military preference, this process defaults to officer leadership, the selection of civilian leadership, converting enlisted positions into officer positions, or as the last option empowering enlisted leaders [organizational role change].[55]

Size. The past 63 years have seen a sharp decline in the number of Air Force personnel. Figure 2 consists of Defense Manpower Data Center that indicates this decline and calls attention to the disproportionate reduction of the enlisted force as compared to the commissioned officer ranks.[56] For perspective, in 1954 there were 6.24 enlisted per every commissioned officer, a number that has significantly decreased to 4.25 enlisted per commissioned officer by 2017.[57] Compounding the disproportionate reduction, the vast majority of Air Force officers serve as rated [flying] officers with extremely limited leadership roles until reaching a career midpoint at approximately 10–12 years of service.[58]

Location. Location refers both to geophysical and organizational design. Geographic locations are fairly simple as the Air Force currently operates 66 steady-state installations in the continental United States, two in Alaska, one in Hawaii, six in Europe, five in the Asia region, and temporary/expeditionary bases located on every continent of the world.[59] Whereas, organizational design location is based upon member type and grade.

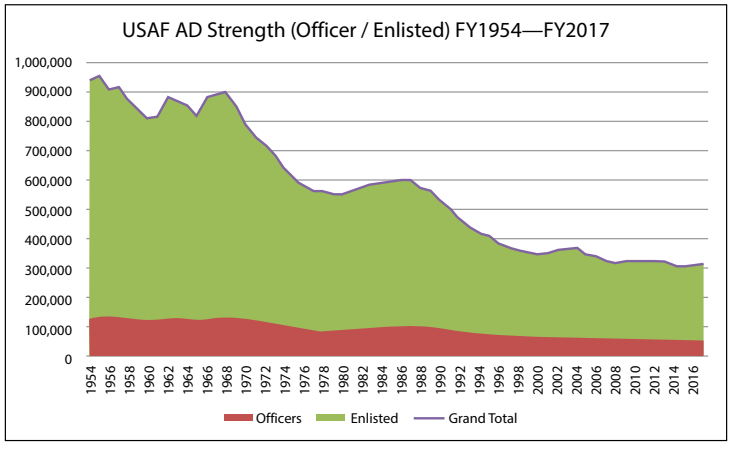

Figure 2. USAF strength from 1954–2017

Services offered. In the early twentieth century, the British Army Gen Sir John Winthrop Hackett stated, "the function of the profession of arms is the ordered application of force in the resolution of a social problem."[60] This definition remains true to the nature of the military force, the execution of the national political will. As previously mentioned, military-centric roles are divided between commissioned officers and enlisted members. Enlisted members are expected to have significant depth of experience and be the technical experts in their arena; conversely, officers are expected to have a broad set of leadership skills combined

with a comprehensive understanding of the broad interorganizational ties between subordinate, peer, and parent organizations.[61] The leadership role by default belongs to the officer; however, "in the absence of a commissioned officer in charge, the experienced (empowered enlisted leader) is assumed to possess the positional authority, qualifications, and ability to step in and lead the mission."[62] The substitution of "empowered leaders" infers organizational power can be temporarily transferred to enlisted leaders.[63] However, authority and accountability remain inherent to, and the sole responsibility of, the commissioned officer corps.

Financial Health. Since 1948, DOD spending has increased in constant dollars while steadily decreasing as related to US gross domestic product;[64] in simple terms, shy of a major theater war, a reasonable expectation would be the sustainment or reduction of current congressional funding levels. This basic understanding of Air Force organizational design allows the overlay of form and function as related to member type.

The Importance of Aligning Organizational Form and Function

Enlisted members and commissioned officers, although differing in both traditional form and current function, combine to create the military leadership system. According to the National Defense University, traditional NCO/petty officer (PO) roles are grounded in complementing the officer corps and enabling the enlisted force. However, due to a "stringent selection process" based upon time in service, expertise, and experience, the most senior NCOs/POs are afforded leadership-role leeway and a function that blurs the officer/enlisted functional divide.[65] Moreover, enlisted members are cautioned that despite an expectation to increase both "civilian and professional education levels. . . (it does not) privilege NCOs/POs beyond their station or position in the organization" leaving these highly educated leaders the delicate function to not disturb "proven organizational integrity or dilute the status of either officers or enlisted personnel;"[66] an organizational design grey area that grows in use with each passing year, yet continues to lack application guidance as to the left and right lateral limits.

For example, a 200-page commanding officer's primer, titled *Commanding an Air Force Squadron in the 21st Century*, only discussed the topic of officer and enlisted leadership role relationships twice: a 15-page section pertaining to the first sergeant role and a single indirect paragraph referring to trusting NCOs "by giving mission-type orders" and a warning to "listen carefully to your senior enlisted personnel."[67] As an offering to junior officers, new commanders, and officers in general, this primer sorely lacked even a general conversation about the relationship between empowered enlisted leaders and the officer corps, the importance of empowering enlisted leaders, or the appropriateness of transitioning organiza-

tional authority via empowerment to enlisted members. Of note, early in the primer the author appropriately notes the vast majority of Air Force officers are rated flyers who spend the formative first years of their career stovepiped in "flying operations and not given a great deal of experience" leading enlisted personnel.[68]

As a combination of officer and enlisted leaders, the military leadership system is formed by, and heavily reliant on, a strong connection between the two across a broad spectrum of values. On one end of that spectrum, the value of "I look the same as you and thus am a part of you" steers the officer's choice of uniform (flight suit vice Airman Battle Uniform) to create a positive impact on the enlisted view of the commanding officer; whereas, on the other end of the values spectrum "I am one of you by similar feat of skill and intelligence and thus am a part of you" can only be replicated by mutually rigorous attainment of matching qualifications.[69] Of the two ends on the spectrum, the former carries little actual connection between officers and enlisted Airmen while the latter contains deep bonds forged from a mutual struggle toward a difficult goal that a relatively small number will ever reach.[70] Applying this logic to the EOD vignette, EOD-qualified officers fall on the rigorous end of the leader/follower alignment spectrum, officers and enlisted alike attend a 32-week, high-attrition rate initial EOD qualification course with a strong emphasis on teamwork,[71] and is the crucible where both officers and enlisted earn a deep-seated trust well beyond "I look the same as you" could ever hope to reach. Accordingly, enlisted members remain guarded in their trust of non-EOD-qualified Civil Engineer (CE) officer leaders when debates and decisions require delineation between CE and EOD roles. To use an often-cited proverbial military question, if there remained one dollar left to spend, would an EOD-qualified officer and a traditional CE officer see the same priority for the EOD career field? Should they; and would the suborganization (CE) or the parent-organization (the Air Force) want them to?

Relevant theory. The military is a mechanistic organization, operating with a clear set of regulations, rules, and guidelines to direct operational outcomes with clearly defined roles and responsibilities for each organizational position;[72] chiefly, authorities are solely retained by the officer corps. This creates a consistent distribution of authority with the associated distribution of power to maintain both continuity and consistency throughout the entire organizational structure. Additionally, although "individuals at any level of a human organization can, in principle, be assigned the final decision-making authority,"[73] if the parent organization retains authority and subsequent power at too high an organizational level, it will hobble advantages gained from creating a separate suborganizational structure.[74] Finally, as empowered leaders the enlisted force is outside the chain of authority and thus lacks organizational influence via leadership; a situation that

is both disheartening and discouraging for subgroup members.[75] The application of this theory speaks to the "why" there must be limits to enlisted empowerment; enlisted members cannot transition authority, at any level, let alone at the strategic level of leadership.

The consistent distribution of authority and power via organizationally sanctioned channels (officers) to the lowest organizational level will ensure suborganizational leaders are a product of their subculture; a genesis that creates the benefit of sound, informed decision making via the direct connection between leadership, task, and values.[76] This theory strikes at why there are different officer subtypes, and why using a rated flying officer to lead every suborganizational level is not wise as it creates a disassociated leadership hierarchy. Disassociated higher-level managers cannot benefit from the joint learning environment created with a diverse set of subcultural leaders and thus lose the associated increased "ability to pass judgement [aka, decision-making];"[77] the key role of any leader/manager.

Investigating the Problem

Organizational design is based on form and function; thus, the exploration of empowerment must remain rooted in these qualitative terms. Organizations with strong cultures provide for both social and emotional member needs. However, "emphasizing subunit cultural differences. . . can foster alienation and conflict"; conversely, the cultural alignment of leadership within an organization is vital to smooth operations and the key conduit of change.[78]

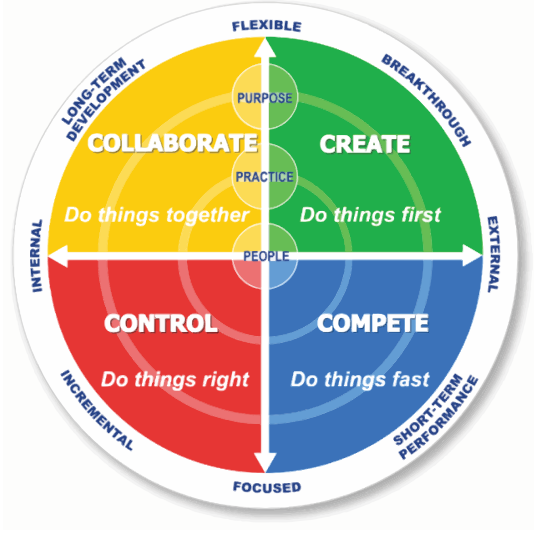

Figure 3. Values overview from Cameron and Quinn (2011) online content

The use of an existing value-based assessment tool to organize officer and enlisted leader data inside an established value framework will enable comparison, discussion, and future study (see fig. 3). Officer and enlisted leader data was organized and collected from two National Defense University books, *The Noncommissioned Officer and Petty Officer* and *The Armed Forces Officer* using a qualitative research methodology.[79] This data was depicted on Cameron and Quinn's Competing Values Framework Management Skills Assessment Instrument (MSAI)[80] radar chart (see fig. 4) to enable a thematic comparative analysis to delineate behavior (what you do) vice style (what you think you should do) and assess importance and value of leader skill alignment inside 12 broad management activities.[81] This process identified areas of skill differences (see fig. 5) between officer and enlisted leaders and offers insight into leadership capabilities best-suited for cultivation in each leader type.

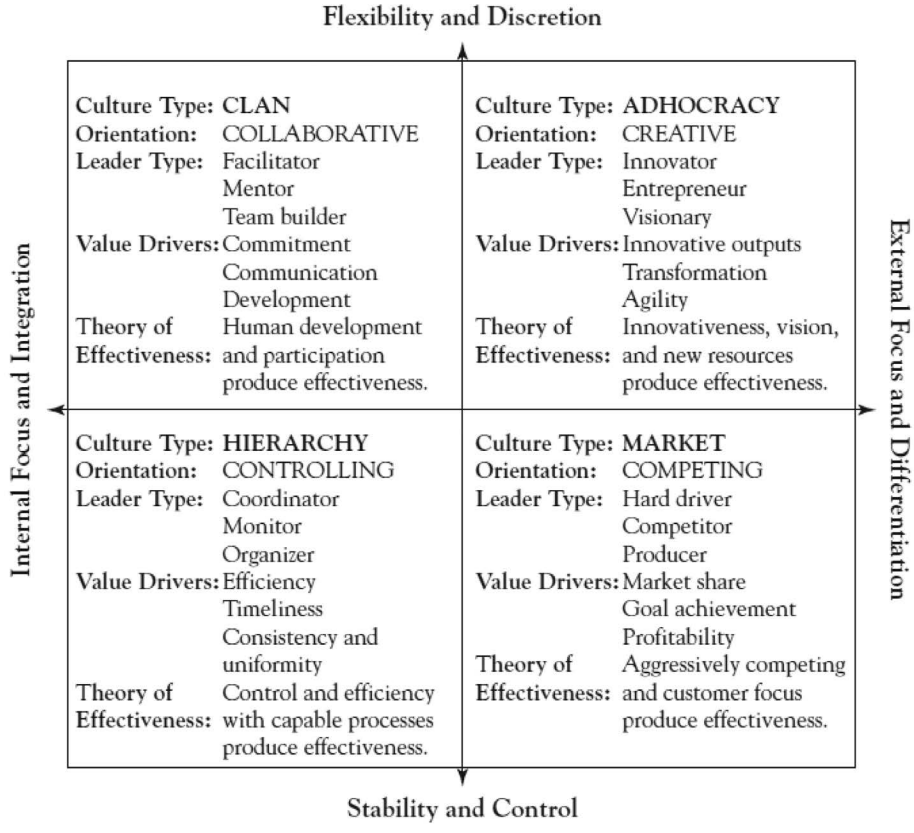

Figure 4. Cameron and Quinn's competing value archetypes

Assumptions and Biases

Two assumptions were required to align the civilian organization framework within the military organizational structure. First, for the *managing teams* skill set, the author included management and leadership skills, attributes, and traits. Managing and leading are two sides to the same coin;[82] however, military leadership books tend to favor writing about more action-oriented leadership vice coordinating and controlling-oriented management and combining the ideologies allowed a more comprehensive assessment of both leading and managing. Second, as the US Constitution charged the military to provide a "common defense" of the nation,[83] the author associated the term *customer* in the *managing customer service* skill set, to refer to the American population. Finally, the entire data set contains the potential for bias stemming from the author's perspective as a 17-year enlisted EOD Airmen with multiple personal experiences of empowered enlisted leaders unable to accomplish organizational function due to an inability to cross the organizational role divide between enlisted and officer leader types.

Investigation Findings

From the beginning, both officer and enlisted leaders are indoctrinated to uphold the same set of Air Force core values. However, as these leaders are complimentary in design, each archetype is taught to value different individual manager (leader) traits.[84] Therefore, a sound understanding of management skill values specific to both officer and enlisted leaders will help determine the best-suited role in organizational design.

RQ1 Analysis: Management Skill Values Prevalent for Enlisted and Officer Leaders

The alignment of organizational leader value with managerial skill determines the criticality of importance in fulfilling an assigned leadership role. The resulting US Armed Forces Managerial Skill Importance comparison (see fig. 5) offers similarities and differences between enlisted and officer leaders, while a comparison of differences between officer and enlisted scores (see fig. 6) offers insight into areas of strength for both leader archetypes. As a complimentary leadership team, relative gaps in skill importance between the two leader types indicate areas better organizationally aligned and suited for one leader type over another. Accordingly, enlisted leaders display skill strengths in managing interpersonal relationships and managing the development of others; whereas, officer leaders display skill strengths in managing teams, managing acculturation, and managing the future.

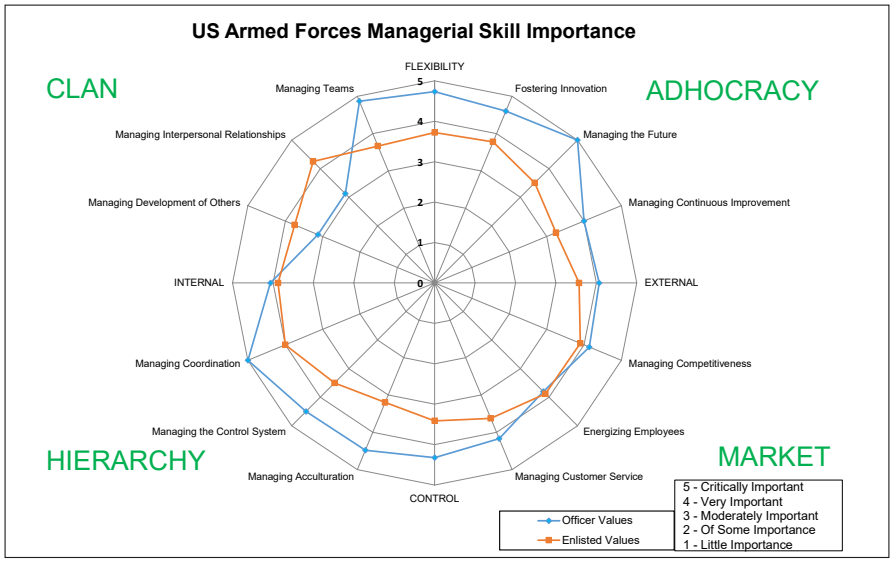

Figure 5. Enlisted and officer management skills (adapted from Cameron and Quinn, 2011)

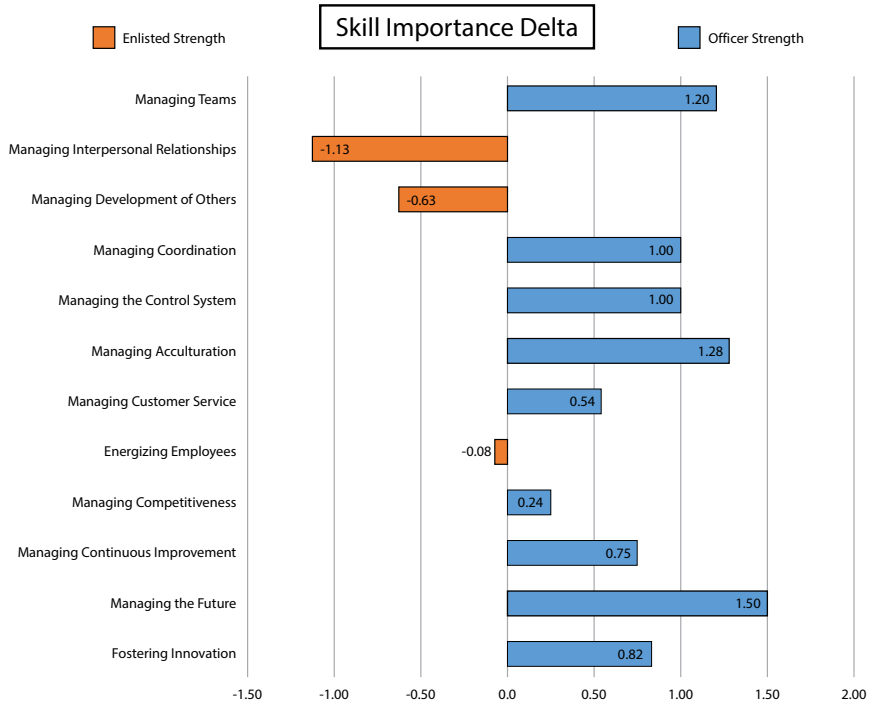

Figure 6. Difference between officer and enlisted scores

RQ2 Analysis: Cultural Archetype Alignment of Officer and Enlisted Leaders

The same MSAI managerial skill data (see fig. 5) allows enlisted and officer alignment with the four organizational culture archetypes (see fig. 7) found in the Competing Values Framework. This metadata indicates officer leaders favor adhocracy and hierarchy archetypes with a focus on creating and controlling respectively.[85] In compliment, enlisted leaders favor the clan and market archetypes with a focus on collaboration and competition.[86] Of note, there is a minimal variation between the four culture areas for both leader archetypes, which is attributed to the commonality of core values between both leader archetypes.

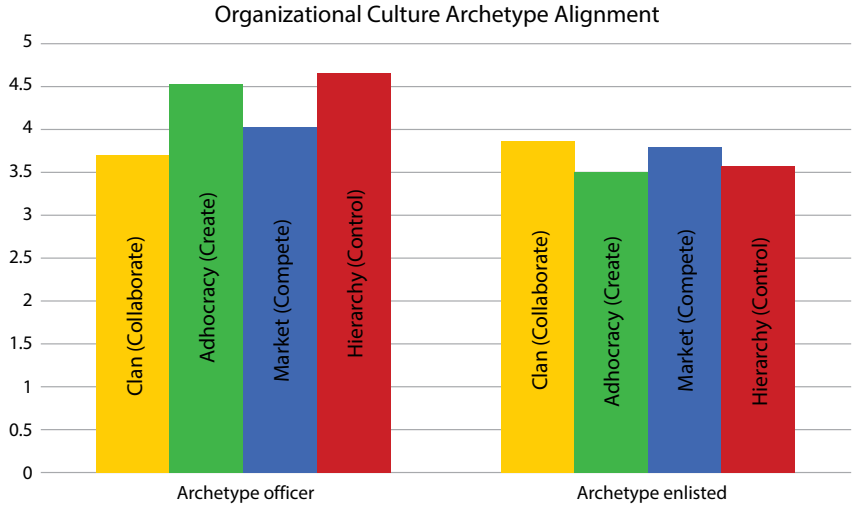

Figure 7. Organizational culture archetype alignment

Organizational Implications

There are three areas of organizational implication that directly impact empowered enlisted leader effectiveness: change management, organizational culture alignment, and leader value congruence with functional value needs. First, the data from this investigation indicates officers are best suited for managing the future, a task that involves leading change. Leaders are key to any change effort; however, successful change requires a thorough understanding of culture, context, issue complexity, and organizational communication factors.[87] Thus, any top-down directed change from an empowered enlisted leader will be rife with change management issues. From the other side, bottom-up driven organizational change

requires support from upper-level change leaders, conscious management in mature organizations, and according to the Lewin's model, must begin by creating a felt need for change to identify and reduce key points of resistance and "build internal support for change."[88] This five-point process requires effective communication to alter the perception of change from a "force to overcome or outlast" to an open search for "improvements to current change implementation plans."[89] To this end, change initiated from the lower ranks of the military hierarchy will reach a point of trade-off and require an organizationally sanctioned change champion to align values, reduce resistance, and build support in both parent and suborganizational members. This leads into the second area of organizational implication, the alignment of organizational culture.

The organizationally sanctioned change champion, the military officer, is uniquely equipped to align suborganizational change efforts with parent-organization desires. Additionally, the power of a trusted officer leader who stands tall and says follow me, "build[s] internal support for change" that includes altering existing cultural norms in both the parent and suborganizational cultures.[90] Moreover, as suborganizational officers are the organizationally sanctioned members to bridge the "power gap" between lower suborganizational levels and upper-level leadership they minimalize value tensions or conflicted feelings of gains and losses between cultural levels.[91] In this manner, officers serve to smooth cultural differences while improving organizational effectiveness and focus.

The third area of organizational implication, leader value congruence with functional value needs, refers to the improvement in leader effectiveness when leader values align within organizational function and form. If the desired function of the leader is change management (adhocracy) and acculturation (hierarchy), then assigning a leader with strengths in managing interpersonal relationships, developing others (both clan) and energizing employees (market) will create a dissonance between leader value and organizational value best suited to accomplish the assigned task. Returning to the Air Force EOD vignette, until 2017 the strategic vision was charged to a steering group comprised of 13–15 EOD chief master sergeants while officers, organizational leaders with strengths aligned with change management, fulfilled a limited oversight role with minimal direct involvement in creating strategic vision and change. In 2017, this construct was restructured with three EOD-qualified Civil Engineer field-grade officers to serve as final recommendation approval authority and fill three primary roles: policy generation, resource control, and program execution.[92] As the EOD strategic decision-making model begins to shift away from a reliance upon empowered enlisted leadership, it makes a step in the right direction; however, due to functional structure, there are no EOD-qualified organizationally aligned leaders (of-

ficers) at the four levels of decision-making panels above the tactical, field-level EOD Strategic Advisory Council. As such, this places a uniquely high-risk, high-demand career field with no direct suborganizational input during successive strategic decision deliberation at the senior leader (O-6) level, or above. This outcome inhibits the transition of expertise to higher levels of leadership while limiting the ability to implement, or even greatly sway, final decision outcomes; a slightly lesser variation of the situation that wholly nullified previous empowered enlisted model strength and in the current construct significantly degrades decision-making.[93] This is a fact that if left unchanged, will remain a detriment to any change effort inside the EOD program, especially any large-scale, evolutionary change efforts with known resistance from parent-organization change sponsors. In these ways, the use of improperly empowered enlisted leaders stemming from a failure to employ organizationally aligned officer leadership roles creates a point of ineffectiveness due to a mismatch between assigned organizational function and overarching organizational form.

Recommendations

This work offers four recommendations to improve the function of empowered enlisted leaders inside Air Force organizational form:

- Ensure officer leader placement in roles requiring alignment with the organizational form.
- Create a leadership development plan to ensure culturally-aligned officer leaders are equipped and directed to fulfill key strategic organizational functions inside small career fields.
- Determine the required leader skill set to best fulfill function inside the Air Force hierarchy.
- Clearly define organizational limits to enlisted empowerment inside the organizational form.

The first two recommendations are pragmatic and aim to improve leader effectiveness by aligning leader archetype strength with leader archetype function assigned, an alignment of particular importance for small career fields without holistically-aligned commissioned officer leadership. Inaction in these two areas will result in the continued hobbling of suborganizational performance with severe detrimental resistance to large-scale, evolutionary change efforts. The last two recommendations are theory and policy shortfalls needed to clarify functional limits of enlisted empowerment. Inaction in these areas will serve to perpetuate

the continued trial-and-error method of enlisted empowerment, a frustrating outcome for extremely competent and capable enlisted leaders who are unable to successfully fulfill assigned functions solely due to misalignment of organizational form. In closing, this study did not establish archetype superiority or compare individual member competency or capability across archetypes. Rather, this study reinforced the vital importance of both leader types to accomplish the common defense of the nation and stressed the importance of mutually-complimentary employment vice assignment of organizational functions at odds with assigned organizational form. ✪

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FEATURE

Rescuing Icarus

The Problems and Possibilities of "Air-Mindedness"

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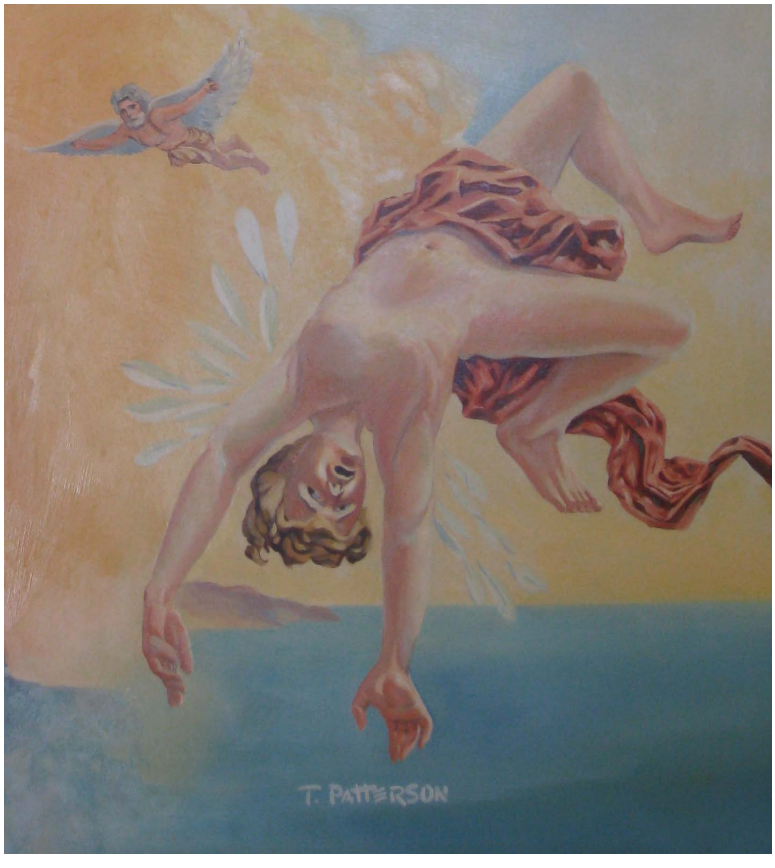

Source: Untitled Painting, USAF Art Program,"Dusty Paintings Make Air Force History,"Peterson AFB, Colorado, 20 June 2011, https://www.afspc.af.mil/

Two groups use the term *air-mindedness*. For scholars studying aviation, the term refers to early twentieth-century attitudes toward flight. For professional air forces, it is about a perspective of warfare. To understand what airmen can learn from academics, it is useful to start with another topic the two have in common: the myth of Daedalus and Icarus.

In the cautionary tale, the young boy abused the power of flight for his own pleasure instead of using it to escape imprisonment as his father intended when he crafted the two sets of wings. One of the earliest known written versions of the tragic story appears in Ovid's *Metamorphoses*.[1] Only four paragraphs long, the poem's central theme clearly contrasts Daedalus' rational calculations and pragmatic motivations with the playfulness and high spirits—literally and metaphorically—that led to Icarus' downfall.

In 1990, Carl H. Builder played upon the contrasting images when Air University (AU) asked the longtime RAND Corporation analyst to write a piece to "remind incoming students of the obligations of the profession of arms, their heritage in history, and where those obligations might carry them with the future of the Air Force."[2] In his final analysis, Builder concluded that the USAF lacked a shared sense of identity. Builder labeled this institutional crisis and titled his book *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* (1994).

Builder's allusion to this myth was not unique. According to one historian, "Of all flying stories of classical antiquity it is this one which has left a lasting impression on future generations and fired the ambition of many imitators; and it is on this point, its moral effect, that the importance of the story rests."[3] Likewise, Builder's interpretation of the myth's moral is not exceptional. Daedalus is often the paragon of a mature craftsman; his son, a passionate, rebellious, self-destructive artist. Writers have variously attributed Icarus' disgrace to hubris, ambition, excessive dreaming, and the lure of instant gratification. His name has been invoked by psychiatrists as a condition characterized by narcissism, isolation, or an imagination that exceeds capabilities, dooming one to failure and mental conflict.[4]

Each time modern authors repeat the story, the father and son are presented as mutually exclusive examples. Furthermore, for Builder and many others, it is clear which model is superior. Daedalus is deified. In fact, Maxwell AFB, Alabama—the home to AU—recently dedicated a bronze sculpture of him.[5] It may seem surprising then, that at the peak of Western society's excitement over aviation, both images were embraced by the so-called "air-minded" public. In fact, a better way to fulfill AU's original request for a manifesto on professional obligations, heritage, and the future of the Air Force is to reconceptualize air-mindedness to hold the ideals of both Daedalus and Icarus in creative tension. To explain what this means, it is important to first understand the genesis of air-mindedness.

The Origins of Air-Mindedness

In the decades after heavier-than-air flight became a reality, flying remained ineffective for many of the practical functions it would eventually perform in

transportation, commerce, and war. Indeed, decades passed before aviation began to influence the way most people lived their daily lives. Its psychological impact, however, registered much sooner. According to historian Robert Wohl, who traced the cultural impact of early aviators, the airplane became a symbol of societal regeneration in Western nations. In America specifically, the sky became the frontier that the wide-open West had once been. Opportunities abounded for the bold individual adventurer and a nation able to continually renew itself through expansion.[6] Even the outbreak of World War I and the associated acceleration of aviation's destructive potential did not tarnish the airplane's reputation.

The 1920s inaugurated the era historians dubbed the "Golden Age of Flight." Many observers believed everyone would soon enjoy an age of "aerial mobility" as "flying would become as common as riding or even walking." Contemporary sources boasted that "democracy would prevail in the sky," and Americans could soon expect an "airplane in every garage."[7] Children and their teachers were also on board. Aviation was the main theme in technologically-oriented series aimed at young Americans such as the "Bill Bruce" books in which the main character claims "nothing that he did gave the zest to life that the thrills of aviation had given him."[8] Advocates urged curriculum changes, and some classrooms even received flight simulators.[9]

This enthusiasm for aviation became known as air-mindedness. According to the *Oxford English Dictionary*, which dates the first appearance to 1927, *air-minded* means to be "interested in or enthusiastic for the use and development of aircraft."[10] The term was widely used during the interwar years.[11] For example, *The Saturday Evening Post* published a short story titled "Air-Minded," which described the "inspiring symbol" of "the steel bird."[12] Multiple jazz musicians, including the former Army Air Corps officer Glenn Miller, recorded their rendition of the song, "The Airminded Executive," who was the "man of the year."

The excitement over human flight was not simply about the practical aspects of flight but also the expectations for advancing the individual's spirit—just as Daedalus' technology enabled Icarus' transcendence. As aviation was imbued with the power of spiritual rebirth, air-mindedness gained a sense of religious fervor. Flyers became "technological knights" powering a "new age of boundless revolutionary potential, moral and civilization-transforming forces."[13]

It was not just the flyers, however. Air-mindedness became a revolutionary imaginative capacity accessible to anyone willing to embrace aviation as a sign of freedom, a literal and symbolic transcendence from the limits of time and space.[14] One modern author describes aviation as the "twentieth-century Enlightenment project."[15] Another writer identifies the view from above as one of the "oldest imaginative resources" in Western intellectual currents.[16] Flight "became a meta-

phor for the transformation of consciousness, its liberation from the constraints of normal day-to-day existence, and the redefinition of time and space."[17] In a study of culture and technology at the end of the twentieth century, one author concluded that flight represented "the one universal directional shift" in humanity's ideas of progress.[18] Echoing those from a century earlier, some recent scholars still claim air-mindedness has altered our capacity to "think, feel, and act," "is central to the modern imagination," or that "aerial imagination" is the world's most transformational force, opening up "new cognitive possibilities." Not surprisingly, flyers themselves often note a broader sense of consciousness.[19]

Because the "past is a foreign country," to which we are strangers, it is difficult to recapture the sense of air-mindedness as a way of thinking about exciting possibilities, as an exhilarating experience of something divine, or as a symbol of humanity's ability to harness technology and re-enchant an industrialized world.[20] Today, we are more familiar with aviation as a field of purposeful activity, defined by poles of constructive or destructive *effects*. We are less likely to perceive it as a sphere of *affects*—the psychological impact. This difference is precisely the distinction one 1920s pilot made between flying and flight. Flying was "factual, often sensuous, tangible." In contrast, flight was "the essence of the spirit. It nurtures the soul. It is awesome. Often ethereal. Glorious. Emotionally wondrous and all-pervading. Intangible." The aviatrix goes on to state, "We knew the ecstasy of discovery. Adventure—a part of every flight—was spine-tingling, inspiring."[21]

Air-Mindedness through World War II

During the first half of the twentieth century, American advocates for military airpower capitalized on an idea that—as demonstrated above—already had high social currency. Even though the word was not yet in use, leaders in the nascent air service demonstrated the enthusiasm that was later termed *air-mindedness*. Consider the examples of Frank P. Lahm and Benjamin D. Foulois, who both become US Army Air Corps generals (Foulois became the future Air Corps chief). Each man helped create the earliest framework of an air-minded culture within the US military.[22] The best examples, however, are three individuals whose own air-mindedness emerged in the same period as the term itself: Maj Alexander P. de Seversky, Gen William "Billy" Mitchell, and General Arnold. Each leader appreciated the potential of aviation for national development and a novel way of approaching the problems of war. At the same time, they realized how aviation necessitated and inspired innovative ways of thinking.

Following his experiences in World War I, Mitchell was convinced that building a fully developed air force was a national imperative,[23] and the prerequisite for that development was an appreciation of aviation's potential. Of course, to realize

the advantages of aviation in practice, it was important to have leaders who were air-minded—leaders who could think differently about the problems of aviation and the problems aviation could solve. Thus, the foreword to his *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (1925) opened with the claim that "few people outside of the air fraternity itself know or understand the dangers that these men face, the lives that they lead and how they actually act when in the air. . . what they actually do in improving the science and art of flying and how they feel when engaged in combat with enemy aircraft." He went on to exclaim, "no one can explain these things except airmen themselves" and to label Army and Navy leaders as "psychologically unfit to develop this new arm to the fullest extent practicable."[24]

In his 1942 work, *Victory Through Airpower*, which was dedicated to Mitchell, de Seversky showcased his own air-mindedness:

> I want to focus attention on the *new principles of warfare* shaped by the emergence of military aviation . . . a dynamic, expanding force, the growth of which must be anticipated by *courageous minds*. It happens to be a force that *eludes static, orthodox minds* no matter how brilliant they may be. *Air power speaks a strategic language* so new that translation into the hackneyed idiom of the past is impossible. It calls not only for new machines and techniques of warmaking but for *new men unencumbered by routine thinking* [emphasis added][25]

Later in the book, which Walt Disney turned into a World War II propaganda film, de Seversky referred to those who were "aviation-minded" as "emancipated minds." In contrast, those "raised in totally different traditions," that is, those in the Navy or Army, "seem psychologically incapable of recognizing aviation in its primary character as the new military force which. . . dominates the world." Instead, they merely "tolerate [semi-independent military aviation] as a concession to modernity [and] the spirit of the times."[26]

The third example is General Arnold. Along the way to becoming the commanding general of the Army Air Forces, he exemplified both dimensions of air-mindedness. On the practical side, Arnold coupled his organization to the embryonic aerospace industry. On the psychological side, his numerous publications—including the series mentioned earlier, *Bill Bruce and the Pioneer Aviators* (1928)—presented "this new and thrilling game" as the last frontier for adventure for air-minded youth.[27] In giving career advice to Airmen, Arnold highlighted themes of awe, enhanced cognition, novelty, and perspective:

> *Flying offers the greatest recompense to the human being*; it reveals to him beauties and bounties of nature . . . The airman looks down on the earth,

> he sees it in broader outline; he alone can know all the beauties of land and sea, for he alone has seen them. As *his knowledge and his vision is greater*, so also are his responsibilities, the requirements of his profession. No other fighter is so alone as the airman who rides above the clouds in the vastness of the sky . . . He has more duties to perform in any other fighter; they are more complicated and less normal to simple pursuits...The terrific pace and speed of *air combat calls for a mental alertness and muscular reaction wholly foreign to all the other pursuits of man* either military or nonmilitary... The normal rules of human kind are indoctrinated by long practice…Not so with military aviation. Many of the *requirements of the aviator and combat are new, strange and unusual* [emphasis added].[28]

For Mitchell, de Seversky, and Arnold, the US needed to realize the significance of the airplane. Commerce, diplomacy, and defense all required aviation power. In turn, aviation required air-minded individuals who appreciated its capabilities and could approach these issues with new, creative perspectives. Indeed, *Proficimus More Irretenti* was the motto of the Air Corps Tactical School: "We Make Progress Unhindered by Custom."[29]

Air-Mindedness in the USAF

In his capacity as the head of the air service months before his retirement, Arnold delivered the *Third Report of the Commanding General of the Army Air Forces to the Secretary of War*. In the chapter titled "Air Power and the Future," he wrote a line—much quoted in USAF doctrine—that also revealed his grasp of the other dimensions of air-mindedness. "Since military Air Power depends for its existence upon the aviation industry and the air-mindedness of the nation," Arnold wrote, "the Air Force must promote the development of American civil Air Power in all of its forms, both commercial and private."[30] He differentiated capacity ("aviation industry") from society's appreciation of why that capacity is a worthy investment ("air-mindedness of the nation").

Two years after the report, the service earned its organizational autonomy with the National Security Act of 1947. About this time air-mindedness began to fall out of common usage. The American public became disenchanted with aviation. Prophecies of ending warfare, poverty, and inequality waned with the trauma of another global conflict. Once celebrated as the "knights of the air," pilots became less like mythical heroes and more like technicians, operating in an environment striving for safety, reliability, and regulation. Flying was no longer, in the words of one author, a "fusion of sensual and spiritual forces, a tension in which each individual takes part, which is almost invincible."[31] When the term next appeared in

official military discourse, the concept had lost much of its heritage and some of its most important dimensions.

In 1992, the USAF issued a drastic revision of its doctrine, Air Force Manual 1-1, *Basic Aerospace Doctrine*. One of its novel features was the inclusion of *air-mindedness*, which it defined as a unique, three-dimensional mindset reflecting the Airman's perspective of warfare. The operating environment of the Air Force, it claimed, naturally confers a global, strategic perspective upon the Airman, even when airpower is used to support limited operational objectives.[32] Interestingly, the doctrine explicitly links the concept to Arnold, almost implying that he created the term: "The study of aerospace warfare leads to a particular expertise and a distinctive point of view that General Arnold termed *airmindedness*."[33] Not only does this distort the origins of the word, but it also restricts its meaning to a functional paradigm with no sense of creativity.

Future doctrinal references to air-mindedness further solidified the narrower conception: "Airmen must understand the intellectual foundation behind air and space power and articulate its proper application at the strategic, operational, and tactical levels of war; translate the benefits of air and space power into meaningful objectives and desired effects. . . [using] an effects-based approach to operations."[34] Even as airpower become one word in the 2011 version of AFDD 1, *Basic Doctrine, Organization, and Command* to signal the inclusion of space and cyberspace, air-mindedness was still presented as a way of thinking that is oriented to operational effects.

Even when Airmen write about air-mindedness in articles and academic papers, most mirror doctrine's focus on its practical dimension. For example, an Air Command and Staff College student focused on the era before World War I for the origins of an air-minded culture. In professional journals and popular magazines, this first generation of Airmen argued for the unique role aircraft could play on the battlefield. Although the author acknowledged that these Airmen "found a sort of spiritual outlet" among their cohorts, felt "personal fascination with flight" and quotes a primary source extolling the need for "imagination" and "prophecy," the paper instead focused on the operational principles they pioneered. The student noted that "Flying was clearly moving from the realm of fantasy to that of an accepted science, and enthusiasts were likewise becoming true 'airmen,' with a corporate sense of their specialized expertise and the particular body of knowledge that it implied."[35] The author did not consider whether the domains of imagination and science could co-exist.[36]

In summary, to the degree this is about a different way of thinking, it is only thinking as it relates to warfare—it is not the suggestion of earlier writers that flying can ignite passionate creativity. What remains is a more restricted and less

inspirational version of air-mindedness. In this paradigm, there is no resonance with the metaphor of Icarus, and what is left of Daedalus' image is not a project of national import but only a style of warfare.

Rescuing Icarus

While there has been some divergence, air-mindedness has generally been cast in qualities reminiscent of Daedalus, the "archetypical craftsman." As a metaphor for air-mindedness, he represents its practical dimension; the rational pursuit of a mechanical instrument and the pragmatic employment of that technology for political purposes. What is missing from this model—and what is missing from modern Air Force discourse—is the imaginative of his playful son.

On the surface, this may be difficult to accept. The boy perishes of his own imprudence, making him an odd candidate to honor. Imagination and innovation may be popular buzzwords, but artistry and play strike a tone that is easy for defense professionals to disparage given the serious nature of their work.[37] Yet, we rarely account for a more fundamental moral of the myth. Icarus died, yes, and Daedalus survived. But the father became unwilling, unable even, to wield his skills any further. Without his son, the wings become the father's last great invention. Indeed, this is why many value Icarus for his boldness, his creativity, his playfulness, and as Ovid himself put it, his "daring art."[38] The boy variously symbolizes innovation, genius, passion, and even a spiritual savior.[39]

The myth has had a special attraction for twentieth-century writers and artists who recognized its implications in the era of airplane and spaceship travel.[40] Louis Bleriot was "first to claim the legacy of Icarus" when he crossed the English Channel. For the poet Gabriel D'Annunzio, flying's potential for death was the very reason it could produce a sublime experience.[41] He also revised the story, portraying Icarus as the creative genius behind the idea to escape using manufactured wings. Daedalus is still the master craftsman, but his son is the inspiration. Arnold himself, writing in *Winged Warfare* with Ira Eaker, honored Icarus as a pioneer "test pilot." Another coauthored work, this one with a revealing title, *This Flying Game*, begins with "Flying–what dreams it inspires! What ideas and thoughts it excites in boy and man alike!" Later they insisted that the inspiration of myths like Daedalus and Icarus "played no small part" in achieving actual flight.[42]

"The U.S. Air Force," the official USAF song, a project initiated by Arnold, also celebrates the dangerous intensity of flight, virtually written as a soundtrack to the myth. The first verse about the "wild blue yonder" exclaims, "we live in fame or go down in flame!" The second verse, referring to aviation pioneers, states, "how they lived, God only knew!" The third verse, a full quarter of the song, is used as a dirge to those who did *not* live. Finally, the fourth verse issues a self-congratulatory

warning to others: "if you'd live to be a grey-haired wonder / Keep the nose out of the blue!"[43] Icarus also happens to be the name of the US Air Force Academy magazine of creative writing. Furthermore, for years, Academy cadets have memorized another positive treatment of the Icarian symbol, the poem *High Flight.* Composed by American pilot John Gillespie Magee, it reiterates the themes of escape, playfulness, exclusivity, heightened consciousness, and divinity: "slipped the surly bonds of Earth," "danced the skies on laughter-silvered wings," "done a hundred things/You have not dreamed of," and finally, "with silent, lifting mind I've trod/The high untrespassed sanctity of space,/—Put out my hand, and touched the face of God." Poignantly, the 19-year-old writer suffered Icarus' fate in a fatal midair collision only a few months after penning those words.[44]

Still, the point is not to elevate Icarus above his father. Privileging one over the other is not just incomplete, it is fatally flawed. Airmen must tap into the skills of both, and to the degree the same incompatible, they must hold the divergent images together in creative tension: the rational *and* the romantic; the pragmatic *and* the philosophical; the industrious *and* the imaginative. Air-mindedness must be redefined into a way that treats Daedalus and Icarus as complementary instead of mutually exclusive. No longer a syndrome to avoid, Icarus becomes a solution to embrace.

Air-mindedness v3.0

To be air-minded should mean that one understands the value of the following three components and demonstrates them in practice:

1. A passion for cultivating airpower and Airmen to serve our nation
2. An appropriate proficiency in the employment of the unique qualities of high-dimensional operations
3. A strategic perspective for prevailing in complex, competitive environments.

In this triad of air-mindedness, the first leg harkens back to the original idea of enthusiasm for aviation and to Arnold's quote specifically. Modern airpower, like the airpower of the mid-twentieth century, is founded upon the nation's technological capacity and the willingness of its citizens to support such investments. It also requires human capital in the form of Airmen—that is, all members of the USAF team—who are unabashedly enthusiastic about what they can do for airpower and what airpower can do for their country.

The second leg encompasses air-mindedness as the paradigm of aerial warfare. It subsumes Mike Benitez's recent proposal for a new USAF mission statement. In other words, it leverages the unique attributes of the air and space domains, which are literally higher, and the cyberspace domain, which he asserts is cogni-

tively higher: "to provide an agile global force capable of providing prompt, sustained, high-domain superiority to deter aggression and jointly win our nation's wars."[45] The second component also stipulates proficiency at a level appropriate for an Airman's experience and responsibilities.

The third leg is not necessarily about strategy as a comprehensive plan or about the potential range or decisiveness of airpower. In a world that is doubly wicked—that is, both dangerous and disorderly—strategy should never be about victory, as AU Professor Everett Carl Dolman reminds us. Rather, the appropriate goal of strategy—a continuing advantage, according to Dolman[46]—comes from a mindset that can abstract itself from the immediate, close-range problem. Imagining greater horizons, in space and time, allows an air-minded thinker to appreciate novelty and interdependence to go over the inescapable labyrinth, instead of trudging through it.

This proposed definition builds upon the historical and doctrinal foundations of the concept. At the same time, it sheds some of its harmful connotations that have inspired some to suggest the USAF should abandon the term. For example, this new definition must not portray *air-mindedness* as exclusive, automatic, or tautological; it cannot simply be defined by what Airmen do but also how they aspire to do it and why. As an operational paradigm, it is neither hegemonic—airpower is not presumed to be the only way to achieve a war fighter's objective—nor fixated on one particular technology. It strengthens the claim that an Airman's perspective is strategic, since it invokes a sense of intellectual playfulness but does not deny that Sailors, Soldiers, or Marines can also be strategically minded. Furthermore, just as it was used during the interwar period, air-mindedness is only weakly correlated with the ability to fly an aircraft. In other words, aircrew may demonstrate one sense of air-mindedness as they exercise their tactical proficiencies using airborne systems, but all Airmen are involved in some aspect of airpower operations. More importantly, every Airman can exhibit the passion and strategic perspective of air-mindedness, which are fundamentally its more meaningful and dynamic components. Finally, it implicitly pulls together the images of Daedalus and Icarus by acknowledging airpower's effects and affects. Air-mindedness is not solely about the technical achievement of flight that elicits little attention today but about the human aspiration to invent creative ways to prevail.

Conclusion

Once human flight became a reality, the mythological possibilities of flight—particularly its capacity to alter one's perspective and inspire creative thinking—began to decouple from its technological possibilities. Increasingly militarized, regulated, and routinized, postwar flying eventually lost its cultural cachet as a

frontier of human aspiration. It became too mundane and safe to elicit popular excitement or inspire radical creativity. Simultaneously, the threat of airpower-delivered nuclear holocaust made earlier air-minded enthusiasm seem naïve. The twentieth century began an era "when flight has released us into space and yet may kill not only Icarus but everyone else."[47]

Today, the way most Americans interact with aviation is apt to cause only negative emotions such as frustration or fear. Even for the USAF, which "worships at the altar of [airpower] technology," there seems to be little acknowledgment of the inspirational component of flying.[48] Air-mindedness is merely an issue of growing, managing, and employing airpower's capabilities. Furthermore, histories about the USAF and by the USAF project this emphasis on pragmatism back into time, underemphasizing the playfulness and spiritual nature originally inherent in flying. The enthrallment of Icarus is seen as a fatal distraction and relegated to a cautionary tale. Yet, when Icarus and Daedalus are viewed as two interrelated dimensions, and not mutually exclusive options on a single continuum, air-mindedness can be technical, practical, and political as well as inspirational, creative, and playful. The former strengthens the latter just as the son inspired the father, and today's complex world requires Airmen to excel at both. ✪

Notes

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13. Azar Gat, *A History of Military Thought: From the Enlightenment to the Cold War* (Oxford, England: Oxford University Press, 2002), 563.

14. Robert Wohl, *A Passion for Wings: Aviation and the Western Imagination, 1908–1918* (New Haven, CT: Yale University Press, 1996), 257.

15. Jeanne Haffner, *The View from Above: The Science of Social Space* (Cambridge, MA: MIT Press, 2013), 14, 16.

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32. Coates, "Airmindedness," 71; Air Force Manual (AFM) 1-1, Volume II, *Basic Aerospace Doctrine* (March 1992), 210, www.rcaf-arc.forces.gc.ca.

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VIEW

The Potentiality of Space Enterprise Force Reconstitution

Nationalizing Civilian Satellites during Kinetic Conflicts

Sara Schmitt
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"We must expect that war of any kind will extend into space in any future conflict, and we have to change the way we think and prepare for that eventuality," Air Force Chief of Staff Gen David L. Goldfein told the Air Force Association in February 2018.[1] Considering President Trump's recent promotion of a military department specializing in space operations, conflict in outer space is becoming an increasingly concerning possibility for US officials.[2] This conflict could be the result of a number of different scenarios: space war could occur as an isolated incident, a preliminary strike in preparation for a terrestrial conflict, or an escalation of an existing terrestrial conflict. Regardless of the means by which the US arrives at the brink of a space war, the US government (USG) and military must possess the tools necessary to create a successful deterrent against potential adversaries. Should deterrence fail, the US must retain the ability to support ground forces via the exploitation of space—the "ultimate high ground."[3]

With these requirements in place, General Goldfein's statement gains new urgency. Yet, it is possible that changing the way we think about the eventuality of space conflict could mean looking back to heritage processes to ensure military readiness. For instance, if an adversary is prepared to inhibit the functionality of "x" number of US on-orbit systems, could the US deter the adversary from attacking by rapidly doubling or even tripling its available space assets? The difficulty of producing and launching space assets precludes the possibility of rapid acquisition; however, the temporary nationalization of existing civilian-owned assets in space for governmental and military purposes could abridge an otherwise lengthy space acquisitions process. Although the duration of nationalization may span weeks to months—even years—an accurate assessment of the "temporary" nature of such a program is dependent on several factors. These factors include the continued presence of an adversary counterspace threat during a space war must be considered, preconflict contractual agreements, and the schedule for formal reconstitution of key on-orbit systems at the completion of a space war. The formal

reconstitution may be on the order of years based on the current space acquisitions process that typically takes 5–10 years to replace a given space system.[4] This timeline may be shortened, though, with rapid-acquisitions solutions focused on commercial-off-the-shelf components and systems within a wider "responsive space" acquisitions architecture seeking to deliver stop-gap systems to mitigate short-term capability gaps. The use of the descriptor *temporary* hereafter is meant to capture the finite nature of the program but is intentionally vague due to the scope of the present analysis.

This article will discuss the possibility of employing a policy of civilian satellite nationalization during a space war as a means of US Space Enterprise force reconstitution to ensure continued access to space capabilities necessary for the execution of the national strategy, as well as deterring potential adversaries from initiating counterspace hostilities. In terms of structure, the authors will examine the thesis by answering these questions. First, what historical precedent exists for the rapid military acquisition of civilian assets via nationalization? Second (given the unique nature of space as an operational environment), can that historical precedent be applied to space acquisitions? And, finally, could the nationalization of civilian space assets be used as a deterrent against potential adversaries? This article will answer these questions by utilizing a combination of historical investigation, space environment analysis, and scenario-driven deterrence theory.

Nationalization Historical and Legal Precedent

To discuss whether the nationalization of civilian space assets is a practical option for the USG, one should first ascertain whether a precedent exists for such an endeavor. Adapting earlier contracts or systems within the USG is considerably easier than building a new program with no existing foundation. To discuss this precedent fully, the authors will analyze two existing programs through which the USG has acquired civilian assets in the past. The first of these is the Civil Reserve Air Fleet (CRAF), managed by the USAF (specifically, Air Mobility Command [AMC]), and the second is the Voluntary Intermodal Sealift Agreement (VISA), managed by the US Navy (specifically, Military Sealift Command). These agreements date back to 1952 and have continued to be beneficial to the US military as recently as Operation Iraqi Freedom (OIF). By discussing the frameworks of these agreements, this article will seek to establish a precedent for nationalizing civilian space assets.

The Civil Reserve Air Fleet. The first of these military-civilian contractual systems—the CRAF—began as a result of a shortfall in military strategic transports during World War II. Due to the military's shortage in aircraft, the USG sought to use commercial airlines to transport troops and materiel to Europe. The

problem occurred once more in the Korean War when the USAF lacked the transport capabilities to relocate sufficient troops to the front lines. After the military experienced the same problem in two different wars, President Harry S. Truman issued an executive order in 1951 that led to the creation of the CRAF under the departments of Commerce and Defense. In 1952, the Secretary of the Air Force released a memorandum to top airline executives outlining the new program.[5]

Today, the program exists under the Department of Transportation (DOT) and the DOD. To ensure that the US military retains the ability to rapidly move troops and their equipment, the CRAF is renewed every year. Initially, a carrier signs a one-year contract with the CRAF program stating that the government is entitled to use a certain number of its aircraft if the CRAF program is activated. Then, the AMC assigns the enlisted aircraft to a stage within the CRAF. Stage One implies partial mobilization and entitles the airline to a share of the DOD's peacetime airlift business. Stage two involves more aircraft than stage one and places an emphasis on long-range airframes. Stage three involves full aircraft mobilization in case of a national emergency, including ground support at selected commercial airports. After each aircraft is assigned a stage, the airline is eligible to be activated should the CRAF be put into action. The activation of the CRAF allows the DOD (via the AMC) to assume mission control, including the ability to plan the mission, determine the type of aircraft required, and set times, locations, and cargoes as needed. Within the CRAF arrangement, the airline retains operational control of the craft and crew.

The CRAF has only been activated twice since its conception in 1952—once during Operations Desert Shield and Desert Storm and once more in OIF. During Desert Shield, commercial airlines flew more than 5,000 military missions and transported more than 60 percent of the troops and 25 percent of the cargo used in the context of the subsequent Desert Storm.[6] In the days following the Iraqi invasion of Kuwait, the former Military Airlift Command sent a message to CRAF carriers indicating the possibility of impending CRAF stage-one or -two activation. Just a few days later, the contracts were put into action, marking the first time the CRAF was activated.

This case study carries particular relevance to the possibility of space asset acquisitions due to the current system in which the USAF supports the majority of space operations. As a result of the existing CRAF program, the Air Force is well-equipped to operate within the framework of a similar arrangement designed for space systems. Should a US Space Force, or a variation thereof, become a reality in the near future, the existing expertise on the acquisition of civilian assets by the USG will be easily transferrable.[7] Thus, the case study of the CRAF holds

special significance for the potential military acquisition of commercial space-based assets in the event of a conflict. In fact, a similar strategy—devised by David Arnold and Peter Hayes in 2012—focused primarily on the budgetary implications of adopting a CRAF-like agreement for space strategies, which the authors found to be an excellent option for rapid asset acquisition.[8]

VISA. VISA is a cooperative program between the DOD and the DOT—Maritime Administration. Founded in February 1997 via the approval of the Maritime Security Program, VISA acts as a mechanism for the rapid deployment of US cargo in the event that cargo shipment requirements outpace the capabilities of the US Merchant Marine. Due to its relatively young status when compared with the CRAF, VISA has yet to be activated in a real-world scenario, although biannual exercises test the program's readiness for activation via simulation.[9]

The DOD-DOT program is based largely on the CRAF agreement discussed above. Participating companies sign annual contracts that entitle them to a certain percentage of all peacetime USG cargo transports while guaranteeing the government rapid access to cargo space on transport craft. Unlike the CRAF, VISA does not seek to acquire full ships. Instead, VISA capitalizes on a recent trend in oceanic transport: the increasing vertical integration of shipping companies via expansion into road transport, as well as short-length air transport. Some companies guarantee the rapid delivery of products and seek to ensure customer demands are met by occasionally utilizing cargo space on competitors' vessels. Formulated to be capacity-oriented instead of asset-oriented, VISA avoids complications in mission planning and staffing often associated with CRAF programs while still fulfilling mission goals. By operating in this way, the normal operation of participating organizations is not severely altered in the event of program activation.

Due to the international nature of long-distance shipping, the comprehensive delivery structure that is an essential component of VISA often involves collaboration with non-US flagships. When such collaboration is necessary, US flagship carriers require government approval and must maintain adequate control of all government cargo while it is in transit.[10] This structure indicates that international cooperation is possible within the government-commercial collaborative structure provided that sufficient observatory mechanisms are in place. Additionally, looking at maritime collaboration is particularly useful when considering potential space-based programs due to the commonalities between outer space and international waters as internationally shared spaces.

Application to Space Systems

With the historical precedent for government acquisition of civilian assets established, one must consider the possibility of creating a new framework for the

necessary procedures by which to acquire space-based assets. Given the existence of broad and generally successful programs such as the CRAF and VISA, the creation of a new framework could be augmented largely through the adaptation of existing programmatic structures. In this manner, problems left unsolved in the CRAF and VISA operating structures could be avoided from the beginning of the space acquisitions process—a helpful precaution given the increased level of difficulty inherent in operating in the space environment. Thus, this article will discuss several key issues from earlier frameworks, as well as some critical differences between the space domain as compared to those of air and sea to ascertain if these existing frameworks contain applicable components.

Following its inception, the CRAF program experienced several key difficulties as listed by researcher Mary Chenoweth. Of these identified difficulties, the two most critical were gaps in government-sponsored liability insurance covering military missions carried out via the CRAF and the difficulties involved in CRAF assets transporting hazardous materials as occasionally necessitated by mission requirements.

The first of these issues was likely one of poor foresight in the CRAF's inception that can be easily rectified in the language of future programs. Insurance is an inherently vital aspect of satellite systems given the high costs associated with development and utilization; therefore, adapting existing insurance programs and supplementing them with additional government insurance is well within the realm of possibility. Due to the limited number and high initial investment cost of civilian space systems, an expansion of insurance programs must be combined with recompense provisions to account for loss of satellite lifespan due to on-orbit maneuvering, damage incurred during government operation, replacement of satellite(s) resulting from adversary counterspace operations, the preclusion of the satellite from conducting its civilian/commercial mission, and any potential loss of revenue due to temporary nationalization.

The second issue experienced by the CRAF, the transportation of hazardous materials, will not have a direct correlation with any program for nationalizing civilian satellites. Although these nationalized satellites will not be transporting hazardous materials, the systems will participate in a contested environment—one that will be hazardous to the longevity of the system to perform, not only its nationalized mission but also its original civilian mission following the conclusion of the conflict. One option to reduce the risks of operating in a contested environment is to perform maneuvers. However, there are limited options to reposition civilian satellites and/or constellations due to propellant costs: the expenditure of propellant for orbital maneuvers will decrease the overall lifespan of the systems. While satellites recently injected into orbit have the most propellant potential for

orbit changes, this potentiality decreases with satellite age due to a greater depletion of propellant prior to nationalization. Also, repositioning may not be an option due to payload and ground station constraints. For example, the design of an imagery payload will limit the orbital altitude while satellites must have communication access to and be visible by program-specific ground stations to maintain mission control.

Another marked difference between the CRAF program and a potential program for space-based assets concerns the political atmosphere of its inception. The CRAF was instituted during a time when declining military budgets made maintaining an expansive transportation fleet difficult. Although current trends show increasing budgets for—and a governmental emphasis on—space system acquisition, these do not preclude the institution of a program similar to the CRAF—or VISA—for civilian satellites.[11] The existing space acquisitions framework is an iterative process involving system and subsystem design, component fabrication, and system testing, including both functional and environmental aspects. The overall design must satisfy stakeholder requirements while meeting safety and functionality guidelines imposed by several governmental agencies, as well as the launch vehicle provider. Even with the completion of the satellite acquisitions process, a space launch may be delayed due to the availability of launch vehicles capable of reaching specified mission orbits. Over the past few decades, the cost and schedule for space acquisition programs within the DOD have experienced substantial increases, thus delaying both the reconstitution of aging systems and the delivery of new capabilities.[12] A framework for the temporary nationalization of civilian satellites during a space war will represent a temporary measure for satellite reconstitution until the formal space acquisitions process can replace lost assets. The current space acquisitions timeline, even accelerated, will create a gap in space-based capabilities likely measured in months and years, not days. Such a gap will inhibit the national security posture of a nation that is becoming increasingly reliant on space. Although the longest activation period among previous frameworks is just a few months, any revised agreements pertaining to space systems may require a longer retention rate in which commercial assets are repurposed by the government. These thresholds for mission diversion would be a part of each contract on a case-by-case basis.

From a technical perspective, the use of civilian satellites to augment and/or replace governmental or military space systems will introduce a series of challenges ranging from technological compatibility between civilian/commercial systems and the government/military end-users to the ability to pass classified data over civilian/commercial networks and of sharing classified information for mission planning purposes. To mitigate such challenges, preconflict programs

would be necessary to ensure compatibility of both the hardware and software components of government/military end-users who are intended to operate the nationalized space systems. As for matters of data classification, specific provisions in the nationalization agreement will be required mapping out "need-to-know" requirements of associated personnel, as well as the execution and maintenance of network system upgrades at civilian/commercial facilities for the transmission and storage of classified data.

The potentiality of nationalizing civilian assets is contrary to many core values of the US. However, a voluntary program built on the precedence of the CRAF and VISA represents a viable measure to promote force reconstitution and rapid reconstitution—albeit temporarily—during a space war. Framing an agreement for satellite nationalization will require command, control, and personnel planning, in addition to the obvious legal agreements between the involved government and civilian entities. Due to the specialized design of space systems, the effective use of nationalized civilian satellites in the event of a space war may occur with one of three options. First, government and/or military personnel could be permanently embedded at satellite ground stations of participating civilian entities to assume control of satellites in the event of conflict. Although permitting a seamless transition from civilian to nationalized use, this option will not only require a continuous governmental/military personnel presence and attendant system training but also remove such personnel from duties elsewhere within the US Space Enterprise. Second, existing civilian personnel would maintain operational control of satellite assets with limited governmental oversight. In the event of a conflict, the civilian personnel would then follow new mission directives as dictated by the preconflict nationalization agreement. Finally, government and/or military personnel could be deployed to designated satellite ground stations to augment and/or supervise the operation of nationalized systems upon activation.

Nationalization as a Counter-Counterspace Strategy

As demonstrated during World War II and conflicts in the Persian Gulf and wider Middle East, examples of commercial asset nationalization, such as cargo ships or passenger aircraft, served to facilitate the timely and continuous transportation of personnel and materiel to theaters of conflict. By comparison, satellite nationalization has possible farther-reaching ramifications beyond the factors of force reconstitution and sustainment. Extending into the arena of strategy, a policy of satellite nationalization will likely alter a potential adversary's planning for and execution of a space war. Consequently, the postulated effects on an adversary's counterspace strategic outlook must be examined from the two available

methods for promulgating the enactment of a policy of satellite nationalization: full disclosure and nondisclosure.

Full disclosure to the public (and potential adversaries) of governmental intentions for satellite nationalization, specifically the temporary and exclusive operation of civilian on-orbit assets by the government and military during a space war, will reinforce deterrence as part of the US's space control posture and emerging counter-counterspace strategy. For an adversary, the prospect of conducting armed hostilities in space to further terrestrial strategic objectives demands three fundamental questions: (1) Will counterspace operations deliver the requisite effects to decisively prevent the opposing force from leveraging space and effectively counter terrestrial military operations?, (2) what satellites and/or constellations must be targeted to either deny, disrupt, degrade, or destroy the opposing force's ability to leverage space?, and (3) what is the projected success rate of the current counterspace arsenal?

Once potential adversaries are aware, via full public disclosure that the opposing force will nationalize civilian satellites during a space war, they will be forced to re-evaluate the value of existing counterspace strategies and arsenals. If a counterspace strategy was deemed advantageous and critical to the successful conclusion of terrestrial military operations, then an adversary would produce weapons to eliminate identified on-orbit targets based on a perceived level of weapon effectiveness. With satellite nationalization multiplying the list of possible on-orbit targets, an adversary is now operating with a counterspace arsenal that will be unable to deliver decisive effects, thus jeopardizing terrestrial military success. The adversary must then evaluate whether existing financial and technical resources are capable of revitalizing existing counterspace strategies to overcome imbalances between targets and arsenal type and size. While an adversary may deem the continued pursuit of a decisive counterspace strategy as untenable, the opposite may also be possible with the acceleration of counterspace system procurement, thereby escalating the future space war via a "counterspace arms race." Alternatively, an adversary may pursue a decisive counterspace strategy where arsenal numerical parity is not required. In this instance, an adversary may embrace the use of a high-altitude nuclear detonation (HAND) to deliver the same intended negation of an opposing force's space enterprise. Despite being a force multiplier in itself, the use of HAND requires extensive analysis of the postconflict costs in terms of debris and geopolitical tensions from the degradation and destruction of not only the target but also indigenous and third-party, nonaligned satellites in the targeted orbital regime.

The second method of promulgation—nondisclosure—intends to keep the policy of satellite nationalization secret from the public and, by extension, from

potential adversaries. In the event of a preemptive counterspace strike by an adversary as a prelude to terrestrial military operations, satellite nationalization would enable the prompt reconstitution of degraded or destroyed on-orbit capabilities such as communication or imagery satellites. This replacement of governmental and military satellites with civilian systems will promote operational surprise and a likely decline in adversary offensive tempo during the initial phases of a space war. In terms of the former, the continued action of space-dependent air, ground, and naval assets by an opposing force—despite counterspace operations to prevent such action—will introduce operational fog into an adversary's campaign execution. Force reconstitution will hinder the adversary's observe, orient, decide, and act loop at the "decision" phase due to incomplete space situational awareness. This will then force the adversary's space object surveillance and identification network to obtain new targetable orbit position data for now-nationalized assets during the "orient" phase.[13] This requirement to obtain new target data is contingent on the visibility of satellites by ground-based sensors. Without a globally distributed sensor network, updates to target data must be initiated during satellite overflight of the adversary's territory, which will add at minimum hours—if not weeks—onto the adversary's ability to engage the new target list due to requirements for data processing and orbit determination.

An added complication to the task of acquiring a new satellite target list is the availability of intelligence regarding which civilian satellites and/or constellations are being leveraged by the opposing force.[14] Without robust networks to provide timely and accurate communications and signals intelligence, adversary targeting decisions must be made based on assumptions of likely civilian satellite/constellation use. Incorrect assumptions, however, will lead to either the disruption, degradation, or destruction of noncombatant satellites and the potential legal challenges of such engagements at the conclusion of the conflict. If an adversary is capable of correctly identifying which civilian satellites/constellations have been nationalized, then the newly expanded satellite target list will dilute the target space, thus degrading an adversary's a priori notions of counterspace economy of force. In a similar vein, the international nature of the commercial space market presents a unique challenge; previous research posits that a single commercial entity entering into similar contracts with multiple states may serve as a further deterrent by increasing the likelihood that an aggressor strikes the contracted satellite of a state not yet involved in the conflict. Despite this possibility, this research finds that the use of civilian satellites that serve multiple states—or contracts with entities serving multiple states—may introduce a conflict of interest. If the non-US entities do not wish to participate in the emerging conflict, they may financially pressure the corporation not to participate as outlined in the contrac-

tual agreement. Additionally, inclusion and reliance on satellites serving multiple states may jeopardize any nondisclosure agreements due to legal requirements that the corporation discloses such activities with its customers. Thus, this research finds that any government-civilian contracts must be carried out with companies foregoing such involvement with other states.

In the spectrum of counterspace capabilities, kinetic weapon systems—such as ground-based direct-ascent antisatellite missiles—are finite in number. Assuming the number of kinetic systems procured and fielded reflects the anticipated target space before the initiation of hostilities, then any substantial increase in the number of target satellites will change the engagement decision calculus. Unable to either rapidly reconstitute expended kinetic weapon systems or expand magazines via system acquisition, an adversary is faced with the continuation of a space war without the ability to secure decisive on-orbit victory as a result of target space dilution. While remaining kinetic systems could reduce a fraction of nationalized satellites, such engagements would create a counterspace strategy of attrition. Despite the possible benefits of hampering an opposing force's continued use of space, attrition would ultimately ensure only the creation of more debris rather than the realization of specific strategic objectives in support of terrestrial operations. The application of electronic warfare counterspace systems, such as signal jammers, could provide an adversary the ability to disrupt and deny the use of a segment of nationalized satellites; however, such capabilities are temporary in effect and local to the immediate battle space if ground-based in design.

A potential middle ground may exist between full and nondisclosure options that may retain the benefits of both extremes while mitigating many of the risks. Partial disclosure could make public the agreements that exist between the USG and commercial satellite operators, thereby affording the US the benefit of deterrence by informing potential aggressors that the true number of mission-ready space assets could change rapidly in the face of a threat. These public agreements could also serve as incentives for corporate participants while promoting the program's continuation by exhibiting the number of industry-leaders participating. The key benefit to nondisclosure—a mitigated risk of an adversary simply acquiring enough ASAT weapons systems to overcome any rapidly-acquired space assets—could be maintained in a partially disclosed agreement by withholding critical components of each contract. Such components could include the number and capabilities of assets promised by each participant, the nature of ground-control arrangements, and any other details deemed sensitive or critical to mission success.

Conclusion

The acquisition of new space systems requires the execution of an iterative system design, test, and subsystem integration process. The result of this process—an operational satellite—must satisfy user needs while meeting requirements imposed by the prospective launch vehicle provider. With individual satellites' largely unique systems, or as part of a limited variant block within an overall program, the reinitiating of the space acquisitions process to reconstitute disabled or destroyed assets will likely create a multiple-year delay in achieving a fraction of preconflict space capabilities. The difficulties in rapid reconstitution require an alternative, yet temporary, approach to enable continued operation of at least key facets of the US Space Enterprise. The pursuance of civilian agreements for the nationalization of satellites in the event of a space war permits such an immediate adjunct to reconstitution and is recommended for preventing a protracted loss of the "ultimate high ground" of space. Given the difficulties of crafting an entirely new nationalization process framework, this effort could find a foundation in the existing structures of the CRAF and VISA, two programs instituted for the air and sea domains, respectively.

Satellite nationalization represents a stop-gap capability that satisfies immediate space system requirements in the short-term until the formal space acquisitions process can replace space systems in the long-term. From a planning perspective, a cost-benefit evaluation of the level of public disclosure for instituting a policy of civilian satellite nationalization is required. While full disclosure of the policy could garner a position of strategic deterrence to space warfare by reducing the effect of limited counterspace arsenals and capabilities, the opposite may be true with full disclosure precipitating an expansion of counterspace system procurement by potential adversaries. Independent of its potential geopolitical and strategic ramifications, satellite nationalization will require robust preconflict planning to enable the exploitation of civilian satellites for achieving US Space Enterprise requirements, as well as the integration of civilian space capabilities into existing US governmental space system architectures. ✪

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Fortifying Remote Warriors

Addressing Wellness Issues among Intelligence Airmen

Capt Tyler Tennies, USAF

Advancing technology has allowed for the birth of a new generation of war fighters. These war fighters conduct remote operations (also known as telewarfare) that include the operation of remotely piloted aircraft (RPA), processing intelligence within the distributed common ground system (DCGS), and cyber operations. Many people assumed that physically removing these "remote warriors" from the battlefield would prevent incidents of mental health problems.[1] However, research and first-hand accounts are painting a different picture. In an interview with the *New York Times*, an RPA operator shared a haunting memory of a past strike operation. The operation targeted a terrorist facilitator and was carried out with the terrorist's child nearby. The deadly strike spared the child, but following, "the child walked back to the pieces of his father and began to place the pieces back into a human shape."[2]

The impact of these types of operations is having a resounding effect on the force. Airmen assigned to support the RPA and DCGS missions are showing signs of occupational burnout, psychological distress, and post-traumatic stress disorder (PTSD). A 2014 study of USAF intelligence analysts working in the DCGS found that approximately 20 percent have symptoms of distress that is 13 percent higher than their nonintelligence peers within the same organization.[3] There is no doubt that these remote warriors are suffering from preventable psychological injuries. Leaders can fortify intelligence Airmen conducting remote operations through mental preparation, tailored residency training, and optimizing their work environment.

Situation

Intelligence Air Force specialties executing remote operations commonly include operations intelligence analysts (1N0X1), geospatial-intelligence analysts (1N1X1), and intelligence officers (14N). Studies conducted from 2009–15 have found that Airmen supporting DCGS and RPA operations have a large population suffering from occupational burnout, distress, and PTSD. These injuries reduce combat effectiveness and increase the need for medical intervention. Proper preparation and care can mitigate the effects, but first, let's look at each injury in more detail.

USAF Photo by SSgt Vernon Young Jr.

Figure 1. Remote warriors operate the MQ-1 Predator & MQ-9 Reaper.

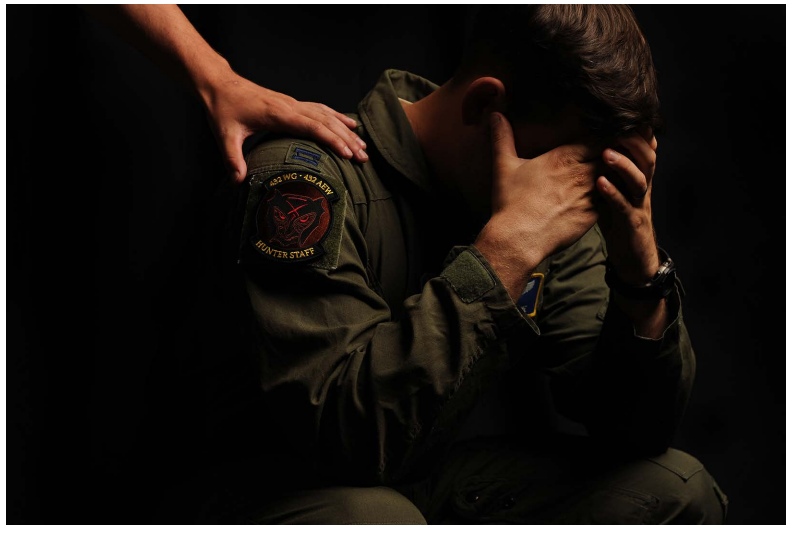
Occupational Burnout and Psychological Distress

Symptoms of occupational burnout vary across a continuum that encompasses three dimensions: emotional exhaustion, cynicism, and professional efficacy.[4] Individuals considered "burned-out" on the continuum would feel emotionally drained, callous toward their duties, and contribute little to their organization. In contrast, engaged individuals strive for excellence and are confident in their contribution to the unit's mission.[5] Individuals who are experiencing occupational burnout will degrade mission effectiveness through complacency or reduced attention on the job. Similar to burnout, distress affects an analyst's cognitive performance. The characteristics of psychological distress are negative emotional, behavioral, physical, and cognitive symptoms such as anger, poor sleep, or difficulty concentrating.[6] Remote warriors within the DCGS and RPA communities are vital to proper weapons employment, protecting manned aircraft, and overwatching ground forces. Combat duties demand an analyst's undivided attention, which occupational burnout and distress prevents. Furthermore, the high-pressure demands of combat duties amplify the risk of depression, anger, and suicidal ideation. Later, we will review a firsthand account of the pressure placed on intelligence Airmen during weapons employment and how it affected their well-being. The demands of combat operations, combined with a lack of necessary life skills, are contributing to the effects of distress, and proactive measures are needed.

Post-Traumatic Stress Disorder

In addition to burnout and distress, remote warriors are showing signs of PTSD. One study found that 2–5 percent of Airmen are suffering PTSD symptoms, which may include memory loss, detachment from others, outbursts of anger, and hypervigilance.[7] Albeit, this is lower than the high average of 17 percent found in returning veterans of Iraq and Afghanistan, it is still alarming.[8] It is normal for individuals who have witnessed horrible events to have painful memories, anxiety, guilt, or unpleasant dreams.[9] However, these normal responses can transition into PTSD symptoms if not correctly managed by the individual. Sometimes this requires assistance from peers or professionals to process the experience. If not properly managed, an Airman may be removed from operational teams to receive necessary medical care and reduce mission readiness.

Additionally, Airmen may suffer symptoms of PTSD long after they separate from active duty, stressing personal relationships, and further taxing medical care through the Veteran's Administration. For instance, analysts assigned to the DCGS were at a higher risk of substance abuse and some reported symptoms of insomnia, depression, or nightmares up to three years after separating from the military.[10] So, what is causing almost a quarter of the intelligence analysts supporting remote operations to suffer from mental health injuries?



USAF Photo by TSgt Nadine Barclay

Figure 2. Many Airmen supporting remote combat operations are suffering from distress and post-traumatic stress disorder.

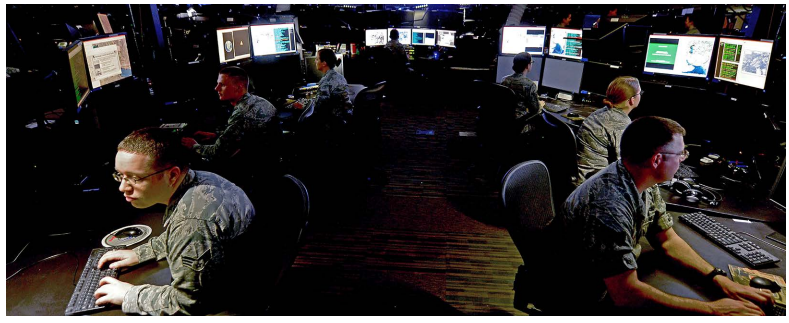
Contributing Factors

Nature of Remote Combat. Airmen conducting remote operations experience combat differently than any generation before. Historically, warriors would be separated from society when they left for war. Battles would end at nightfall, and warriors would sit around the campfire to debrief the day as they prepared for the next morning's battle. As technology advanced, battles became continuous fights that lasted for days and gave rise to increasing rates of psychological trauma. This trauma has gone by many names such as "shell shock" or "Gulf War syndrome."[11] Remote warriors now face continuous combat from the home front. In the words of Lieutenant Colonel Ogal, a military psychologist supporting the DCGS, "They are literally from combat to cul-de-sac in a short drive."[12] For example, DCGS analysts processing full-motion video (FMV) must stay "eyes-on," or they may miss a critical detail. Even in cases of violent rape, beheading, or torture, they watch every second in high-definition.[13] Then, they review the feed in detail and write what occurred in an intelligence report.

In addition to viewing the graphic realities of war, young Airmen are also under pressure to make life or death decisions. FMV analysts are trained to understand how the video may trick their minds into seeing something that is not there. Due to this, they are the members of the FMV team who can officially make determinations of what is happening. An example of this would be identifying if a person is holding a rifle or a broomstick. With this responsibility, analysts often initiate the use of deadly force by establishing if the activity meets the strike criteria prescribed in the rules of engagement. They play a vital role in deciding who is on the receiving end of a kinetic strike or not. During an interview, Staff Sergeant Kimi (pseudo name) working in the 480th Intelligence, Surveillance, and Reconnaissance Wing (ISRW) relates how this pressure affected her and prompted her to reach out for medical support:

"To this day I still think about it, but it's been a couple of years," she said with a heavy sigh. "I made the correct decision but knowing that I could have made the wrong one, and a lot of people could have died because of a wrong decision—I just could not stop thinking about it."[14]

Even with making the right decision, Staff Sergeant Kimi had reoccurring memories of the event due to combat stress. With this in mind, it's fair to assume that Airmen who made the wrong call are also having difficulty processing these stressful life experiences. Both the violent nature of remote combat and high-pressure decisions place analysts in positions ripe for psychological injuries. Operational stress exacerbates the situation by making individuals more susceptible to burnout, distress, and PTSD.



USAF photo

Figure 3. Intelligence Airmen at a distributed ground site remotely conduct combat operations.

Operational Stress

Long Hours. Remote warriors consistently reported long hours, shift work, sustained vigilance, and processing FMV as their highest stressors.[15] The ever-increasing demand for intelligence support, combined with a lack of trained Airmen, is putting a huge burden on the remote force. From 2003–09, RPA sorties increased 10-fold and then rose again from 2013–17 while the workforce largely stayed consistent in size.[16] The 480th ISRW Surgeon General put it this way: "You've got the same number of Airmen doing the same number of mission hours but with a 1,000-percent increase in those life-and-death decisions, so of course their job is going to get significantly more difficult."[17] In many squadrons, commanders have put their Airmen into 12-hour shifts. This often creates a 14-hour workday when accounting for premission planning, briefings, training, and other necessary tasks. However, these demands are putting our Airmen at risk of psychological injuries. Research shows that 1-in-10 Airmen working more than 51 hours a week had symptoms of distress and were four times as likely to suffer symptoms of PTSD.[18]

Rotating Shifts. In addition to analysts working long hours, most of the force is young and has never experienced shift work. They do not have the necessary life skills or training to understand their circadian rhythm, nor how to adjust it in a healthy manner. Many analysts are using excessive amounts of caffeine, over-the-counter medications, or alcohol to adjust their sleep cycles. This agitates the problem since caffeine and alcohol both lower the quality of sleep.[19] The use of such drugs can easily become a negative cycle, where an individual uses caffeine to stay awake and alcohol to fall asleep. From 2017–18, the author observed the effects of shift work firsthand in an RPA Operations Center. During this period, he worked with several of his Airmen who suffered from insomnia and difficulty focusing. Most Airmen had difficulty sleeping due to inexperience with shift work. They

did not understand the effects of sunlight, artificial light, and caffeine on their bodies' sleep rhythms. Additionally, many Airmen attempted to switch their sleep schedules on their days off, preventing adjustment to their circadian rhythms and increasing fatigue. It's also concerning that many Airmen were averaging only three to four hours of sleep a night. After five or more days of only four hours of sleep, mental performance is the same as having stayed awake for 24 hours, which is the equivalent of being legally drunk.[20] This is an unacceptable level of performance for Airmen engaged in combat operations. It's also a real danger while deployed-in-place. In the US, lack of sleep is a leading cause of vehicle accidents. In 2015, approximately 90,000 accidents were linked to drowsiness with 33,000 injuries and 736 fatalities. [21] Poor sleep and fatigue are lowering our Airmen's combat performance and leaving them at a higher risk of a severe accident.

Fitness. Airmen within the DCGS are more likely to not conduct personal physical training, have poor nutrition, and are at higher risk of obesity.[22] A lack of exercise and poor nutrition further degrade mission effectiveness through decreased alertness and concentration. They also increase the risk of chronic disease and illness. The long hours, rotating shifts, and everyday demands of life leave many too drained to hit the gym. Conversely, Airmen who find the time to maintain an active lifestyle have increased productivity, improved health, and miss fewer days of work.[23] It is also well understood that exercise releases stress-reducing chemicals into the blood that have the potential to improve mental well-being. However, operational stress and the accompanying fatigue discourage Airmen from taking proactive steps leaving them at higher risk.[24]

Fortifying Airmen. In 2007, the DOD Task Force on Mental Health established four goals to combat the effects of sustained combat operations on the force. These goals include a culture of support for psychological health, a continuum of excellent care, sufficient and appropriate resources, and empowered leaders who advocate mental resilience.[25] Within the US Special Operations Command, the Preservation of the Force and Family (POTFF) program is working to address many of the goals.[26] Within the DCGS, Airmen resiliency teams (ART) have been established to address the needs of intelligence analysts conducting remote operations.[27] Both the POTFF and ARTs consist of psychologists, social workers, chaplains, and medical specialists embedded within operational units. These teams provide support, training, and counseling services to our Airmen on the front line. The POTFF and ART members often have the same security clearance as the members they support. This access is useful because it allows the "docs" to understand the mission and work environment first-hand. It also allows Airmen a way to disclose the events that may be bothering them without the fear of compromising classified information.

USAF Photo by SrA Kristoffer Kaubisch

Figure 4. Fatigued Airmen decrease combat effectiveness and are at a higher risk of off-duty accidents.

However, this support is in operational units. This is too late as proactive steps need to be taken early in the training pipeline. The 17th Training Group (TRG) at Goodfellow AFB, Texas has taken a step in the right direction by incorporating chaplains into intelligence training classrooms. These chaplains advise instructors and address student issues early.[28] This is undoubtedly a positive measure, but it should be a part of a layered approach that starts by mentally preparing Airmen.

Mental Preparation

According to the Diagnostic and Statistical Manual of Mental Disorders, intense fear, helplessness, or horror are causes of PTSD.[29] Stress inoculation can reduce the effects of traumatic events by preparing people for what they will be exposed to.[30] Currently, the geospatial and intelligence analysts are the only Airmen with AFSCs listed who receive tailored resiliency training during their apprentice course. This is laudable, but we are missing a large population of analysts supporting the remote fight. Operations intelligence analysts and intelligence officers work alongside our geospatial analysts but receive no tailored resiliency training to prepare them for assignments in the remote mission. For example, a survey in 2017 found that one in five DCGS analysts witnessed a rape while on the job.[31] Witnessing a rape with an inability to stop the violent act may cause feelings of intense helplessness. However, with proper mental preparation, we can reduce the effects associated with witnessing violence. Similarly, to how vaccination works, we can expose Airmen to the realities of their future work in a con-

trolled and supportive manner. By doing so, they will be better prepared for combat and reduce the chances of feeling the intense emotions listed as PTSD triggers.

Additionally, we need to ask direct questions about the nature of combat operations. Many Airmen are not prepared to be a part of the kill chain and did not understand that they would be actively involved in combat. When Staff Sergeant Kimi talked with her recruiter before joining the Air Force, she expressed an interest in art and photography. With this in mind, her recruiter encouraged her to enlist as a geospatial analyst and said it was "like working with photography."[32] However, her work as an FMV analyst supporting weapons employment was far from a college art class. A survey of three intelligence units found that one of every five Airmen felt directly responsible for the death of an enemy combatant on more than 10 occasions.[33] Airmen should consider if they are comfortable executing the kill chain, and they need a chance to reflect on the seriousness of the duty. Our Airmen come from a society in which the violence of taking human life is prohibited and unacceptable.[34] As an organization, we need to walk new Airmen through the moral implications of the kill chain. This will allow analysts to effectively participate in the realities of their new profession and ensure members arrive at their squadrons prepared.

In addition to mental preparation, the intelligence career field should incorporate tailored resiliency education beyond baseline USAF Comprehensive Airmen Fitness. In 2012, the Air Force Security Forces Center instituted the Defender's Edge program that incorporated training on fatigue countermeasures, adrenaline management, mental preparation, and killing.[35] Defender's Edge was created to fill a void in training and meet the unique needs of security forces members. A similar program, tailored to the needs of intelligence professionals, may be developed to teach members and leaders the necessary skills to thrive in demanding operational environments. Programs like Defender's Edge teach Airmen necessary life skills and continue to build an understanding of the ethical issues surrounding the application of deadly force. Topics such as sleep hygiene, the proper use of caffeine, circadian rhythm, fitness, and ethics must be covered during apprentice courses and built upon in operational units. Furthermore, our supervisors should be taught how to coach their Airmen through the demands of remote combat. Frontline supervisors are in the best position to identify and deal with problems early. Career field education and training plans (CFETP) should be revised to identify new skills for five-level and seven-level analysts. In addition to CFETPs, local training plans may be developed to fill necessary knowledge gaps. The table presents training items that may be integrated into a CFETP or a local master training plan.[36]

Table. Sample AF Form 797, Job Qualification Standard

Intelligence Operator Basic Skills						
Task No.	**Task, knowledge, and technical reference**	**Start date**	**Completion date**	**Trainer's initials**	**Trainee's initials**	**Certifier's initials**
1	**Fatigue management**					
1.1	Describe the cognitive effects of 18 hours without sleep.					
1.2	Identify signs of fatigue in others.					
1.3	Describe the effects of light on sleep quality.					
1.4	Understand the effects of caffeine on sleep quality.					
1.5	Identify the proper amount of caffeine to mitigate fatigue and maximize alertness.					
1.6	Describe the effect of proper nutrition and exercise on mental alertness.					
2	**Stress response**					
2.1	Understand the effects of the sympathetic nervous system.					
2.2	Describe the physical effects of adrenaline.					
2.3	Understand the connection between the sympathetic and autonomic nervous systems.					
2.4	Identify the proper use of combat/tactical breathing.					
2.5	Identify the positive result of physical exercise on adrenaline management.					
3	**Mental preparation**					
3.1	Describe how the warrior mindset ties to the Oath of Enlistment and Airmen's Creed.					
3.2	Identify personal beliefs in regard to combat operations and the profession of arms.					
4	**Use of deadly force**					
4.1	Understand the difference between killing and murder.					
4.2	Understand the sources of military authority, use of force, and rules of engagement.					
4.3	Understand the possible emotions that may arise following violent events.					
4.4	List resources available for help.					

Work Environment

Remote combat dictates day and night operations, but the USAF should review how it structures RPA and intelligence units to ensure ideal shifts. Airmen working more than 51 hours a week are four times more likely to suffer PTSD symptoms.[37] With proper manning, commanders can ensure reasonable eight-hour work days and less than 50-hour work weeks. Additionally, the distributed aspect of remote warfare allows for the same mission to be operated within multiple locations and time zones. Intelligence leaders and mission planners should maximize opportunities to keep Airmen's circadian rhythms as natural as possible. Moving missions between organizations in sync with daylight hours can minimize the number of people working night shifts. This is currently in practice to a limited extent within the DCGS but has applications across the remote force.

Moreover, Airmen executing the remote operations mission for more than two years are at a higher risk of distress.[38] Ideally, a two-year controlled tour would be implemented, to reduce the incidents of distress while bringing in a fresh set of analysts, similarly to how the USAF addresses dwell time between traditional expeditionary deployments. However, controlled tours may not be practical for all organizations. In September 2017, the 480th ISRW instituted the Combat Readiness Sustainment Program (CRSP) to address this very issue. The CRSP provides intelligence Airmen the opportunity to step out of shift work and focus on readiness training, resiliency, and relevancy.[39] The 480th ISRW has yet to realize the results of CRSP, but it may have broad lessons for the remote warrior community.

USAF Photo by TSgt Samuel King Jr.

Figure 5. Airmen who maintain a physically active lifestyle have increased productivity and improved health.

Conclusion

Recent studies have shown that almost a quarter of the Air Force's remote warriors are suffering from occupational burnout, psychological distress, or PTSD. After 17 years of continuous combat operations, USAF intelligence professionals need to mentally prepare Airmen for the realities of combat, provide tailored training in resilience to meet their needs, and structure units to maximize their combat performance. Changes to the operating environment, such as sun-synchronous operations, have the potential to increase our Airmen's combat effectiveness and well-being. These operational changes will take time, but we can change training today. The 17th TRG can incorporate mental preparation and discuss the ethical use of deadly force in the classroom while career field managers work to incorporate resiliency skills into enlisted CFETPs. Squadron commanders can work with their training teams and wing support agencies to develop localized training meeting their Airmen's needs today. Over time, this layered approach will yield a new generation of fortified and more capable intelligence professionals that thrive while conducting remote combat operations. ✪

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33. Press, "Wounds of the Drone."
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COMMENTARY

Insider Attack, Strategic Impact

Kabul, 27 April 2011

Forrest L. Marion, PhD*

Despite a vastly reduced US military presence in Afghanistan since the withdrawal of combat forces in 2014, by the end of 2018 insider attacks (also known as green-on-blue) continue to take the lives of unsuspecting American service members, usually in advisory settings with Afghan security forces members. While each incident brings fresh agony for one or more families, military units, and communities back home, as well as temporarily affecting the advisory situation while an investigation is conducted and perhaps new force protection measures are enacted, the phenomenon of such attacks usually is dealt with as a tactical matter rather than something with consequences at a higher level of warfare. In some cases, however, insider attacks may have effects at the operational or strategic level.

On 27 April 2011, an insider attack took place at the Afghan Air Force (AAF) base on the Kabul International Airport complex when an AAF officer shot eight US Air Force members and one American contractor, and all nine victims were air advisors. The details of the attack have never been explained adequately, perhaps in part because the initial US Army-led investigation in 2011 became the victim of inappropriate command pressure at the US three-star level. As documented in *Flight Risk: The Coalition's Air Advisory Mission in Afghanistan, 2005–2015*, the commanding general of the US-led Combined Security Transition Command-Afghanistan pressured the *Army Regulation 15-6* investigating officer regarding certain lines of inquiry that might have led to the conclusion that institutional corruption was responsible for the attack. Moreover, the act of treachery that day constituted the worst insider attack on US forces, in terms of American loss of life, since 2001 and most likely well before that.[1]

But aside from those disturbing aspects, the attack itself produced operational-strategic outcomes with respect to the AAF's command and control (C2) of its aircraft. In 2001, following the capture of Kabul by Afghan Northern Alliance and US coalition forces as part of Operation Enduring Freedom, the US-coalition

*The author gratefully acknowledges the helpful review of an earlier draft by Suzanna Ausborn, whose husband Jeff was one of the NATC-A Nine.

partners were slow to develop a plan for the rebuilding of an Afghan air arm. A handful of Afghan aircraft remained intact and flyable, but none were deemed safe by Western standards. Beginning in 2007, a US-led coalition force began training and advising the AAF on various functional areas required by a professional air force, but the single most important capability focused on the Afghans' employment of their Russian-built Mi-17 helicopters that the air force operated for decades under Soviet and Czech tutelage.[2] In the decade and a half since the Soviet Union's dissolution in 1991, the Kabul-based government or the Taliban from 1996–2001, as well as several competing warlords' air militias, were left mainly on their own to continue flying a decreasing number of available Mi-17s for airlift, resupply, and the transport of deceased and wounded soldiers. As cell phone technology became available in Afghanistan, the Afghans came to rely on its use for the assigning of Mi-17 missions.[3]

At least through 2015, the foremost air advisory objective was to enable a *professional* Afghan Air Force, for which a rational C2 system was a prerequisite. As the advisory mission became institutionalized between 2007–10, the AAF received more Mi-17s, the mainstay of its inventory.[4]

By 2010, if not before, the AAF used cell phones to task some, if not most, aircraft sorties. Air advisors noted the tendency for Afghan aircraft to be retasked from training or resupply missions, often mysteriously and at the last minute, and they used the term *cell phone command and control* to describe the Afghans' system. One lieutenant colonel air advisor reported on "a distinct lack of transparency in the way the Afghan Ministry of Defense . . . & AAF like to schedule and fly their missions. The [Afghans] don't like to plan ahead, [or] use a printed schedule. . . They prefer to use the cell phone to task aircraft for short notice 'emergency' missions." In many cases, Afghan senior leaders called a subordinate somewhere in the flying unit's chain of command—sometimes calling the aircraft commander directly—to request, or direct, a change in the mission. The cell phone taskings constituted a C2 system that meshed well with traditional Afghan culture: it was *personal*-, not *procedural*-based, and it allowed for senior leaders, mostly army generals who in some cases bore a resemblance to warlords, to exercise their considerable influence, clout, or *wasta* (in Dari) among their extended family or ethnic group by sending a helicopter to land at their own village, in direct response to their phone call, transporting whatever items and/or individuals the senior leader wanted delivered or picked up.[5]

The system worked, but it was wasteful and inefficient, and it was not professional. In late 2010 and early 2011, US air advisors led by a highly accomplished F-16 pilot, Lt Col Frank D. Bryant, who as a volunteer in the Joint Chiefs of Staff-sponsored Afghanistan-Pakistan (AFPAK) Hands program had learned

Dari and spent many off-duty hours practicing it with the Afghans on the Kabul base, drafted a C2 directive which, if implemented, was to rationalize the AAF's C2 system, changing it from personal- to procedural-based. What followed was five months of socializing the C2 "narrative," as it was called among Afghan senior leaders—some of whom, including AAF leaders, were known to disapprove of it. Finally, the Afghan chief of the General Staff, Gen Sher Mohammad Karimi, signed the directive and implemented it in mid-to-late April 2011.[6]

During March–April 2011, air advisors helped the Afghans to introduce gradual changes to AAF scheduling, mission tasking, and C2, all of which facilitated a more professional employment of its roughly 55 aircraft, including about 35 Mi-17 helicopters. Later, a number of air advisors attested to *Army Regulation 15-6* investigators the considerable improvements observed during that period. General Karimi's signature on the C2 document turned the narrative into a directive. The Air Command and Control Center (ACCC) on the AAF base at the Kabul airport was intended—at least by the US, coalition, and General Karimi—to become the nerve center of the Afghan Air Force, with clear oversight of all Afghan aircraft under the Ministry of Defense. A rational system for overseeing AAF missions in support of Afghan army corps battling insurgent forces throughout the country held operational-strategic import.[7]

Days later, on 27 April 2011, during a scheduling meeting in the ACCC, an Afghan pilot killed nine US air advisors, who became known affectionately as the NATC-A Nine (North Atlantic Treaty Organization Air Training Command-Afghanistan). Among them were Lieutenant Colonel Bryant and another stellar officer slated to succeed him in advising the ACCC, fellow F-16 pilot Maj David L. Brodeur. From that day through 2015—if not beyond—the AAF's C2 system largely reverted to the way it had functioned prior to March–April 2011. The most important features of General Karimi's C2 directive, namely, removing the opaqueness of what the various AAF aircraft were doing, where they flew, with whom, and what they were carrying, went by the wayside. And with it, the cautious optimism on the part of US-coalition air advisor leadership that the AAF might be moving toward a professional air force went by the wayside as well. Instead of a single nerve center for the AAF, there remained a number of nerve centers, housed in the brains of the Afghan senior leaders in Kabul who retained the ultimate aircraft tasking authority.[8]

Whether it had been intended that way remained a highly debatable and open question, but, regardless, the insider attack of 27 April had operational-strategic impacts. The Afghans' traditional, personal-based C2 system managed to survive, especially regarding Mi-17 helicopter operations. Perhaps a professional Afghan Air Force might develop someday; if so, it had been indefinitely delayed. ✪

Notes

1. Forrest L. Marion, *Flight Risk: The Coalition's Air Advisory Mission in Afghanistan, 2005–2015* (Annapolis, MD.: Naval Institute Press, 2018), 101–20, 213; Capt Christopher M. Mills USN, oral history interview (OHI) by the author, 27 April 2016 (audio-only, Air Force Historical Research Agency [AFHRA], Maxwell AFB, AL, call no. K239.0512-2751); Capt George H. Slook USN, statement, ca. 2011; Capt George H. Slook, USN, retired, OHI by the author, 26 April 2016 (audio-only, AFHRA, call no. K239.0512-2749); Capt Christopher M. Mills, USN, telephone conversation with the author, 7 March 2017; Col Dale R. Buckner, USA, Army Report (*AR) 15-6 Investigating Officer Report Regarding Green-on-Blue Incident at North Kabul International Airport* Research Report AR 15-6 (original AR 15-6), 8 September 2011; and Sara Carter, "'For the Record' Investigation: It Was the Deadliest Insider Attack During the War in Afghanistan. Who Paid the Man Who Pulled the Trigger?," *The Blaze*, 15 April 2015, www.theblaze.com.

2. Marion, *Flight Risk*, 44–55; and Ludwig W. Adamec, *Historical Dictionary of Afghan Wars, Revolutions, and Insurgencies* (Lanham, MD: Scarecrow Press, Inc., 2nd ed., 2005), xxxii, xxxvi–xxxvii, xliv.

3. Marion, *Flight Risk*, 37–44; Maj Gen Mohammad Dawran, Afghan National Army Air Corps (ANAAC), OHI by the author, 20 April 2009, Kabul, Afghanistan (audio-only, AFHRA, call no. K-WG-438-SU-PE DVD, 8-20 April 2009); General Dawran, discussion with the author, 5 May 2009, Kabul, Afghanistan; case file (CF) 02, Briefing, (air campaign plan) "Afghan National Army Air Corps, Combined Air Power Transition Force (CAPTF), Brig Gen Walter D. Givhan, USAF CAPTF CG," 9 October 2008, slide 6; Maj Gen Walter D. Givhan USAF, OHI by the author, 21 October 2013 (audio/transcript, AFHRA, call no. K239.0512-2708); and Forrest L. Marion, "The Destruction and Rebuilding of the Afghan Air Force, 1989–2009," *Air Power History* 57, no. 2 (Summer 2010), www.afhistory.org.

4. Marion, *Flight Risk*, 52–70, 200, 204–10, appendix 1. By December 2009, the 438th AEW/CAPTF mission was: "Set the conditions for a *professional*, fully *independent* and *operationally capable* Afghan 'air force' that meets the security requirements of Afghanistan today. . . and tomorrow"; see 438th AEW, History, January 2010, briefing, ANAAC/CAPTF Command Structure & Relationships, filed as "0419_20091213_(U)_ANAAC_Command_StructureV4," slide 10 (emphasis in original) (AFHRA, call no. K-WG-438-HI (AEW) CD, January 2010). By March 2011 (if not earlier), the mission statement remained the same except for a change from "Afghan air force" to "Afghan Air Force" that reflected the redesignation of the Afghan air arm in June 2010; see 438th AEW, CFs, March 2011, narrative, 1 (AFHRA, 533.82, selected historical files). In September 2014, the wing's mission was changed to "Train, advise and assist our Afghan partners to develop a *professional*, *capable* and *sustainable* Air Force"; see 438th AEW, History, September 2014, chronology, 19 September 2014 [emphasis added].

5. Marion, *Flight Risk*, 60–61, 80, 103, 145–46, 161, 182–83, 205–09; Lt Col John P. Conmy, USAF, OHI by the author, Fort Belvoir, VA, 22 September 2014 (audio-only, AFHRA, call no. K239.0512-2726); Col Rhude Cherry III, USAF, OHI by the author, Shaw AFB, SC, 8 June 2017 (audio-only, AFHRA, call no. K239.0512-2762); Maj Gen Michael D. Rothstein, USAF, OHI by the author, 18 January 2018 (audio-only, AFHRA, call no. K239.0512-2771); and Air Force Office of Special Investigations (AFOSI), *Report of Investigation*, AFOSI report, 4 September 2011, 67, 331, PDF version under AFD-120111-051 report of investigation. Brig Gen Walter D. Givhan, USAF, used the term, *cell phone command and control*; see 438th AEW, History, May 2009, Chronology, 23 May 2009. An article in *Jane's International Defence Review* in 2010 used the term *cellphone C2* as well; see Rupert Pengelley, "Waiting in the Wings: ANAAC Growth Advances Afghan Air Independence," *Jane's International Defence Review*, 9 June 10. Another term, *Roshan taskings*, named for the cell phone provider, also was used to describe the Afghans' opaque command and control system.

6. Marion, *Flight Risk*, 81–83, 87–89, 115, 144; Lt Col Frank D. Bryant, USAF, OHI by the author, Kabul, Afghanistan Air Base, 22 April 2011 (audio/transcript, AFHRA, call number K239.0512-2681); 438th AEW, History, January–February 2011, Chronology/Narrative, "438 AEW Commander's Priorities"; and 438th AEW, March 2011, CF 03, slide 5 (see note at bottom of slide), C2 VTC briefing (slides attached

to email, Lt Col Frank D. Bryant, USAF, to various NATC-A/438AEW personnel), Subject: "Today's 1500 C2 VTC"), 7 March 2011 (AFHRA, 533.82, Selected Historical Files).

7. Marion, *Flight Risk*, 103–05, 115, appendix 2; email, Brig Gen (David W.) Allvin, USAF, to NATC-A ALL, "Commander's Guidance," email (with attachment, "NATC-A Commander's Guidance.pdf"), 3 April 2011; Col James F. Turner IV, USMC, AR*15-6 Investigation, Green on Blue Incident at Kabul Int'l Airport*, Exhibit 011; *Afghan Airpower for Today . . . & Tomorrow: The Afghan Air Force Master Plan—Our Story 2013–2017* (NATO Air Training Command-Afghanistan, 13 May 2014), 15, 23–25, 62; and Brig Gen John E. Michel, USAF, retired, OHI by the author, 14 April 2016 (audio-only, AFHRA, call no. K239.0512-2748).

8. Marion, *Flight Risk*, 98–101, 204–09, appendix 2; Buckner *AR 15-6,* 3, 26; 438th AEW, History, September 2011, CF10, 438th AEAG (KAIA), 438 AEAG Daily Ops Summary, 8 September 2011, 15 September 2011, and 27 September 2011; 438th AEW, History, June 2013, CF15, Brigadier General Ray, USAF, "End of Tour Report," memo, 15 August 2012; CF02, "Action Air Shura," 7 August 2012, briefing, slide 2; and Col Rhude Cherry III, USAF, telephone discussion with the author, 15 September 2016.

Forrest L. Marion, PhD

Dr. Marion is a staff historian at the Air Force Historical Research Agency, Maxwell AFB, Alabama and a retired colonel in the USAFR. His most recent publication is *Flight Risk: The Coalition's Air Advisory Mission in Afghanistan, 2005-2015,* from Naval Institute Press, 2018.

BOOK REVIEWS

Gear Up, Mishaps Down: The Evolution of Naval Aviation Safety, 1950–2000 by Vice Adm. Robert F. Dunn, USN, Retired. Naval Institute Press, 2017, 204 pp.

Gear Up, Mishaps Down, The Evolution of Naval Aviation Safety is a first-person historical account of the evolution of flight safety for US Navy aviation during the period 1950 to 2000. My initial interest was due in no small part to a personal connection with the subject. My father was a naval aviator and a Naval Air Training and Operations Procedures Standardization (NATOPS) safety officer for several naval air stations where we were assigned while I was growing up. As a youngster, I was keenly aware and very proud of what my father did as a naval officer and an aviator.

My first inkling of his role as a safety officer was an award presented to him by his fellow aviators and maintainers from Naval Air Station Twin Cities (now the Minneapolis-St. Paul Joint Air Reserve Station) in Minneapolis, Minnesota and proudly displayed in our recreation room. The award was a self-made tomahawk, inscribed with the words "NATOPS is a tool, not a weapon." As a boy, I thought the tomahawk was very cool but NATOPS? Not so much.

Later in life, as a US Air Force rated officer I was able to discuss my father's work and experience, comparing to my own, ultimately realizing a better understanding of the meaning of the phrase, "a tool, not a weapon." While my father's knowledge was first-person, specific to his own experience, the big picture of naval aviation flight safety and its evolution was still somewhat nebulous. The why, where, who, and how was still unresolved. Admiral Dunn's book, *Gear Up, Mishaps Down, The Evolution of Naval Aviation Safety,* succinctly answers those questions and more.

As a combat-tested aviator, former commander of the Naval Safety Center and a member of National Aeronautics and Space Administration and Government Services Administration advisory panels on flight safety, certainly qualifies Admiral Dunn as an expert on the subject of flight safety. I'm certain he can quote chapter and verse the various safety programs and regulations that are now deeply interwoven in military and indeed civil aviation. What makes his book different is the author's ability to describe with detail, historical, technological, cultural and political benchmarks and their impact of the development of the US Navy flight safety program.

Those familiar with military aviation know flight safety permeates virtually every aspect of the process, from training to operations to maintenance. Every aspect of aviation is addressed in some way through training and qualification, emergency checklists, and technical orders. Every procedure is approved and documented, from towing an aircraft on the ground to restarting its engine midair to when and how to bail out or crash land when all other options are exhausted. Aviators are constantly subjected to safety training and processes, operational risk assessment, and the maintenance of the equipment required to fly effectively. Over time, these procedures and requirements become second nature, part of the "muscle memory" of aviation operations.

It wasn't always this way. Admiral Dunn's book provides a partial history of post-World War II naval aviation safety, describing a stark and dangerous profession, unforgiving of errors, and without standardized direction and guidance. The "fly by the seat of your pants" and "get the job done" mentality that made US naval aviation a lethal force against adversaries during the war continued killing its own afterward. In the chapter, Difficult Days, the book recounts the loss of an entire squadron of 22 aircraft during one deployment, an unacceptable statistic in aviation today.

As an historical accounting, the book does an admirable job of identifying the technical, cultural, and political issues that drove the need for enhanced and standardized flight safety. The

author addresses the full range of issues affecting the naval aviation from a holistic point of view. The advent of jet-powered aircraft drove the need for improved carrier systems such as catapults, visual aids, and modifications to accept launch and recover more and faster aircraft. As examples, the book recounts the evolution of the steam catapult, the angled deck, and the optimal landing system, sometimes referred to as the meat ball, or ball.

The book further addresses issues related to a cultural shift in the way aviators and maintainers operated. As tradition, the maintenance of the aircraft was assigned to the senior chief. The senior chief ensured the aircraft were ready to fly whenever required. To do this, the senior chiefs maintained their own records, sometimes trading other squadrons and ships for the parts required to keep their aircraft in the air. While this "get the job done" culture was admirable and even necessary, it failed to standardize aircraft maintenance management across the fleet.

Nowhere else was the cultural shift away from individual initiative to higher-level direction and guidance more evident than with the aviators themselves. From the start of *ab-initio* training, aviators are taught to innovate and adapt their tactics and procedures to meet the current situation. The image of the lone aviator, patrolling the skies in search of the adversary, is branded on every military aviator that takes to the sky. As a culture, aviators are individuals who value initiative and chafe at management, especially management sitting safely at a desk thousands of miles away.

Admiral Dunn does an excellent job describing this cultural shift using examples of accident investigations, organizational changes and improved training such as the NATOPS program. The book further describes the political issues that affected naval aviation immediately after the war, continuing up to the next century. While not as visible as technology and culture, shifts in policy have had significant impact on the community and the capability. Among the political issues described was the natural competition between the Navy and the Air Force. Admiral Dunn noted Air Force leadership in the implementation of service-wide flight safety procedures and the Navy's initial resistance to implementation of the same, a result of the "not invented here" culture.

The author further noted the political battle for development carrier aviation during the early 1950s in the face of an Air Force growing in size and influence, especially with regard to nuclear warfare. Matching the strategic Air Force required the fielding of heavier aircraft, capable of carrying the large nuclear weapons of the day from a carrier at sea. Aircraft such as the A-3 Skywarrior and the AJ Savage required larger carriers, equipped with stronger flight decks and more powerful catapults. In many ways, the political issues associated with naval aviation drove flight safely more than technology or culture.

Over the years, I've worked and flown with a multitude of military aviators. Each has their own stories of "that time" when a vital system failed, the weather closed in suddenly, or someone in the air or on the ground made a procedural error. In each case, the aviator recounted the use of established procedures to address and mitigate the problem. These procedures, developed by scientists, engineers, and aviators, were subjected to extensive testing and validation before being promulgated.

One aviator however, said something that sticks with me today; "safety procedures are written in blood." That statement well describes the message of *Gear Up, Mishaps Down, The Evolution of Naval Aviation Safety.* Throughout his book, Admiral Dunn effectively describes the two-decade challenge of US Navy Flight Safety battered by technological, cultural, and political change to become a successful and vital living program.

John L. Mahaffey, PhD

Limiting Risk in America's Wars: Airpower, Asymmetrics, and a New Strategic Paradigm by Phillip S. Meilinger. Naval Institute Press, 2017, 304 pp.

Limiting Risk in America's Wars: Airpower, Asymmetrics, and a New Strategic Paradigm is Phillip Meilinger's argument for an airpower-oriented strategy in modern conflicts. In this book, Meilinger effectively presents a history of limited warfare and the requirement for a deliberate strategy to optimize airpower employment and refine America's approach to military operations. The author employs his background as a 30-year career officer and pilot in the US Air Force alongside his considerable education as the former dean of the School of Advanced Airpower Studies at Air University and his doctorate from the University of Michigan. In this book, Meilinger presents the history of limited warfare through the lenses of various military theorists advocating for a new military strategy oriented around airpower capabilities.

Meilinger's main argument rests upon Liddell Hart's warfare theory of the indirect approach in bypassing an enemy's strengths and striking the enemy's vulnerabilities. Meilinger conducts a thorough analysis of historic, as well as modern, conflicts and effectively frames the relationship between employing the indirect approach and succeeding in limited warfare. Case studies span ancient to modern history, including the Peloponnesian War, Napoleon's Wars, World War II, Korean War, Vietnam War, and modern military operations. Meilinger argues that the twentieth-century phenomenon of airpower provides a unique means to wage warfare by limiting risk, bypassing an enemy's strengths, and achieving political objectives. As he analyzes the conflicts in Vietnam, Iraq, and Afghanistan, Meilinger asserts that the misuse of airpower alongside the overreliance of ground forces directly translated into operational failure as the military means were misaligned with political ends. Meilinger argues that the limited nature of America's conflicts mandates a novel operational approach with airpower as the main effort alongside a limited ground echelon composed of Special Forces to achieve American interests abroad.

While he effectively presents an argument for an airpower-oriented military strategy, the author relies heavily on a false dichotomy for military options. Rather than presenting a scalable joint force leveraging US multidomain capabilities, instead Meilinger argues that America's current terrestrial-oriented strategy is antiquated and requires an airpower solution. This overestimation of airpower capabilities reveals the author's bias in scoping military options to Air Force capabilities. While US airpower provides many opportunities in limited warfare, optimizing operations and balancing risk requires a comprehensive and joint solution. Despite this false dichotomy, Meilinger delivers an honest assessment of military strategy and the requirement for airpower to serve political objectives in limited warfare.

Limiting Risk in America's Wars is an excellent read for military professionals. The author effectively blends ancient and modern warfare history with various military theories to galvanize the argument for an airpower-oriented military strategy. While the author argues for an overreliance on airpower, this book frames the importance of disturbing established ways of warfare to gain asymmetric advantages. By challenging the preconceived paradigm of military capabilities, Meilinger links the concepts of limited risk, indirect approach, and aviation technology to increase America's military effectiveness in future conflicts.

Maj Matthew C. Wunderlich, USAF

Airpower Applied: U.S., NATO, and Israeli Combat Experience edited by John Andreas Olsen. Naval Institute Press, 2017, 432 pp.

Col John Andreas Olsen, Royal Norwegian Air Force, has carved a niche for himself in airpower literature, publishing several volumes on the strategic effects of airpower and airpower

advocates throughout the history of modern warfare. His latest is in the same vein and revisits some of the same ground covered in his *A History of Air Warfare*, albeit in more detail. *Airpower Applied, U.S., NATO, and Israeli Combat Experience* focuses on post-World War II airpower in the US and US-led North Atlantic Treaty Organization (NATO), and the evolution and experience of the Israeli Air Force (IAF) from birth in 1948 through the current day, with each chapter written by experienced airpower historians and analysts.

While exhaustively researched and well-presented, the book suffers somewhat because of a heavy focus on kinetic airpower. This particularly limits the two chapters written by former Air Force historian Dr. Richard P. Hallion, covering US airpower through Operation Desert Storm, and former RAND Corporation analyst Benjamin S. Lambeth, dedicated to post-Desert Storm US and NATO operations. A few pages are devoted to the Berlin Airlift and the development of the airlift force. However, pages of statistics on targets struck and bomb tonnage dropped and the restating of well-worn rebuttals regarding the independent strategic effects of combat airpower obscure the fact that modern US (and NATO) strategic power—land and sea included—is configured around, and completely dependent on, the speed and reach of airpower. This dependence is on not only on the delivery of weapons, but also on enabling strategic movement, knowledge of the operational environment and adversary, and coordinating operations at unmatched pace, distance, and reliability.

The chapters covering the Israeli experience are more interesting. While still emphasizing kinetic operations, historian Dr. Alan Stephens describe the changes to IAF strategic thought and organization as the operational environment and Israeli strategy changed through the end of the 1973 Six Day War. The chapter by Lt Col Rachael Rudnick and Brig Gen Ephraim Segoli, both IAF Reserve, on IAF operations in asymmetric conflicts best delivers on the promised case-study approach, placing IAF plans and actions in the context of overall Israeli strategy, then examining the results against the same measure.

The final chapter, by Col John Warden, USAF, retired, is an interesting missive on the features of airpower and how they relate to the professional airman. Unfortunately, this chapter also confines itself to arguing airpower's ability to wage war independently of armies and navies, rather than exploring the reality that airpower in its larger sense has become indispensable to waging war in any medium. However, his observations on the education of professional Airmen are thought-provoking and worth a read.

For a reader looking for a compendium of major combat air operations since the end of World War II, this volume is an acceptable reference. As a source of insight to the application of airpower, however, it breaks little new ground.

Col Jamie Sculerati, USAF, Retired

Dragon Wings: Chinese Fighter and Bomber Aircraft Development by Andreas Rupprecht. Ian Allan Publishing, 2013, 219 pp.

Dragon Wings: Chinese Fighter and Bomber Aircraft Development is a history of Chinese military aircraft development, acquisition, and modification from the declaration of the People's Republic of China (PRC) in 1949 to the current day. Andreas Rupprecht authored multiple books and articles on Chinese aviation development and is recognized as an expert on the subject. His ability to extract information on China's aviation industry, despite limited resources on the subject, is impressive.

Rupprecht catalogues Chinese aviation history into easily digestible sections beginning with imports and indigenous designs from first-generation to fifth-generation fighters while also detailing bombers, antisubmarine aircraft, and new projects such as the use of unmanned aerial vehicles. He astutely draws connections between aircraft development and political turmoil that

plagued the PRC during the economic and technological downfalls throughout the Great Leap Forward and Cultural Revolutions. Rupprecht also highlights the importance of PRC diplomatic relations with the Soviet Union and Russian Federation and analyzes how those relations impacted PRC acquisition of aviation technology.

This book focuses on aircraft development and not operational successes or failures. This is recommended for someone who is interested in the aerodynamic and engine development of the PRC aviation industry and desires a clear understanding of the differences and similarities of variants between platforms (e.g. J-8H versus J-8F). However, the reader would have a better understanding of the impact of aircraft development if operational performance were discussed. Some mention is made to operational intentions, but lacks a follow-through. For example, the PRC was incapable of successfully intercepting high-altitude US reconnaissance aircraft during the 1960s, and efforts were made to develop an aircraft that could successfully engage aircraft like the U-2. Rupprecht goes on to mention a PRC pilot who attempted to ram the U-2 unsuccessfully, and how ramming was later developed as a tactic, but it does not elaborate on how these tactics were employed—successfully or unsuccessfully.

Finally, the author's intent was to detail how China developed its aviation industry since its inception. One of the biggest surprises in the West has been the development and operational status of the J-20 fifth-generation stealth fighter. It is widely known that the PRC committed industrial espionage against the US and other Western countries to develop the J-20, but the book downplays the importance of how the Chinese acquired information illicitly about the F/A-22 or F-35 to assist in J-20 development.

Dragon Wings is a very thorough and comprehensive catalogue of Chinese military aircraft development and details the challenges, failures, and successes of its aviation industry and is recommended for anyone interested in PRC aircraft development.

1st Lt Christopher A. Sargent, USAF

1001 Aviation Facts edited by Mike Machat. Specialty Press, 2016, 336 pp.

1001 Aviation Facts is an enjoyable, light read that will please any aviation enthusiast. Collectively written by eight aviation buffs, the book reflects the authors' subject matter expertise in military and civilian flying, writing, aviation art, and aircraft modeling. The book is organized categorically into sections, aptly opening with "The Beginning." It then explores military, experimental, commercial, and general aviation. Later, the book switches gears to focus on famed on-screen aircraft, noteworthy personalities in aviation, and concludes by presenting facts on aircraft models.

Readers of this book will immediately discover the honesty of *1001*'s title. The book is, in fact, 1001 numbered facts about aviation, although they are frequently accentuated with enjoyable artistic renderings and illustrative historical photographs. For the most part, each fact serves as a stand-alone paragraph that can be enjoyed individually. At other times, the book strings together stories that benefit from a two- or three-paragraph attention span.

The 1001 presented facts are more or less ordered chronologically in each categorical chapter, although this reviewer noticed a few closely related and seemingly repetitive facts that were separated by a few pages. These occasions activated a mild obsessive compulsion to flip back and confirm the seeming discrepancy. The ensuing fact-checks revealed differences warranting separate facts but suggested a reorganization could have slightly smoothed *1001's* aviation odyssey. Because of these inconsistencies, the reader who chooses to read the book straight through may notice some awkward or nonexistent transitions between some of the related and sequential facts. Conversely, there are many instances when the transitions are pleasing and effortless. Taken as a whole, the fast-paced writing was engaging and well-edited.

Although enjoyable, *1001 Aviation Facts* should not be considered a reference for academics. Before reading, this USAF pilot thought many of the presented facts were pulled from aviation's thick tome of tall tales. While the facts are legitimized by authoritative authors who respectively lend their name to each fact, there are no footnotes or further reading sources mentioned. This is irritating like a fine dining experience might be—the facts are impressive, but they leave you wanting more.

Sections of the book will appeal differently to individual aviation enthusiasts, and any aviatorphile will find something to his or her liking. Without excessively spoiling the book, there are hundreds of "oh, wow" facts in the book. These include the meaning of Fox 4 (Dos Gringos did not cover this one in Military Pilot 101), titanium imports from the Union of Soviet Socialist Republics or USSR, ostensibly for use in "Italian pizza ovens," the ultra-heavy million-pound plane, and many, many more. While seven of the eight chapters were engaging to this reviewer, the section on "Model Airplanes" almost seemed like an afterthought or a way to fill out the requisite number of facts. Nevertheless, the chapter will certainly appeal to collectors and model aficionados.

Ultimately, readers may conclude that *1001* was a less humorous and much more thought-out and aviation-focused version of an *Uncle John's Bathroom Reader*. To its credit, *1001 Aviation Facts* edges out the popular *Bathroom Reader* series as a worthwhile use of free reading time. Exploring its pages is a quick way to learn some amazing things about aviation's history.

Maj Jack Nelson, USAF

Zeppelins Over the Midlands: The Air Raids of 31 January 1916 by Mick Powis. Pen & Sword Aviation, 2016, 206 pp.

Before Guernica, Coventry, and Dresden, there were the Zeppelins. Before Giulio Douhet wrote *The Command of the Air*, there were the Zeppelins. Before Stanley Baldwin's speech ominously promising that the bomber will always get through, there were the Zeppelins. From 1914 to 1918, British civilians were on the receiving end of German bombs from those Zeppelins. Mick Powis' *Zeppelins Over the Midlands* recounts the events and aftermath of the 31 January 1916 bombing raid on the citizens, communities, and the crews. Powis presents a narrative linking the fates of those on the ground with those in the air in an ultimately human telling of the attacks. He also seeks to explain the impact the Zeppelin raid had on British communities and the larger war effort. That effort succeeds, although the book is in need of a stronger organizational structure to make its point more successfully.

The book is divided into 11 chapters with 2 appendices. The first six chapters focus on the individual Zeppelins, their crews, and their actions. Actions in the air and on the ground are covered in engaging detail, bringing to light the human aspect of this story. These chapters are supported by well-drawn, if somewhat small, maps that track the raiders from landfall through departure from British airspace. Where German and British official records are incomplete or contradictory, Powis admits speculation based on available evidence and, given the level of research and detail, his speculations are likely highly accurate.

Chapters seven through eleven, with the exception of chapter eight, focus on the larger context of Zeppelin operations and British response. Powis reminds the reader of Germany's strategic position versus the Allies. After initial successes, Germany found itself surrounded on land and sea, facing enemies with more robust industrial resources and much larger empires. Accordingly, Germany adapted a variety of new weapons and technologies, including the Zeppelin, as a way to offset Allied material advantages. The Zeppelin was an attempted counterbalance to the Royal Navy's blockade and the encirclement on land by the Allied powers. By striking industrial

targets in the United Kingdom, German aircrews extended the battlefield and brought terror bombing to previously untouched civilian populations.

Powis also discusses the significant impact technology and the environment had on the raiders and the raid and civilian population. Zeppelins were susceptible to weather for flight planning, navigation, and visibility over the target areas. Crews were exposed to the elements throughout the flight, which were severe in the European winter. Their communications equipment was primitive at best, further impeding command and control and navigation. Power plants, especially the Maybach HSLu 240-horsepower engines, were unreliable and temperamental, further impacting navigation, airspeed, and altitude. While the German Zeppelin was a crude weapon in January 1916, it faced equally crude British defenses. The author also explains the limitations the British defenders faced, in terms of suitable interceptors, an uncoordinated aerial defense networks, and public safety measures.

Chapter eight is a cumulative narrative of the operations of each Zeppelin, before and after the raid, with attention to the fate of the crew and background on the commanders and executive officers. This information is supplemented by chapter 11 and Appendix B, which lists German Zeppelin crew member graves at Cannock Chase German Military Cemetery.

Unfortunately, the book needed stronger revisions before publication. Rather than framing the Zeppelins in the strategic context, Powis begins with the raid of L.21 on the Black Country instead. As a result, the text frequently repeats itself because there is no introductory framework or explanatory chapter. As an example, separated by seven sentences within the same paragraph, there are two almost identical sentences:

> Zeppelins were fitted with powerful radio transmitters and, in the early days of radio communication, their radio discipline was non-existent. . . Zeppelins were fitted with powerful radio transmitters and, in the early days of radio communication, commanders were probably not aware of the range their signals could be picked up from (130).

These editorial oversights do not detract from Powis' scholarship but does keep the book from having a more cohesive impact on the reader.

Finally, a note about sources and research. Researching formerly classified subjects is a complicated task. Although the raids were witnessed by thousands, media coverage was subject to the Defence of the Realm Act, which severely limited published information on the raids. Official government instruction to police and coroners further reduced the accuracy of official historical record's accuracy by introducing more ambiguity. The author supplements official records with local histories, period newspapers, cemetery records, and inquests in order to flesh out the story. A century after the raids, Powis does an admirable job overcoming these restrictions and using his sources, including a recounting of the raid's impact on the ground.

Although later strategic bombing was much more effective than the Zeppelin bombings of World War I, the origins began with the actions of German raiders in the First World War. *Zeppelins Over the Midlands* is an interesting analysis of the 31 January 1916 raids, which will appeal to those interested in the Great War's impact on the homeland, aerial warfare, and the British Midlands. By linking the events on the ground and identifying the victims with larger concepts, such as aerial defense and strategic bombing, the book expands our understanding of the human costs of the raid.

Maj Timothy Heck, USMCR