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Team Building

The Next Chapter of Airpower Command and Control in Afghanistan

Maj Gen Tod D. Wolters, USAF

Lt Col Joseph L. Campo, USAF



On 22 May 2011, command of the 9th Air and Space Expeditionary Task Force–Afghanistan (9 AETF-A) shifted from Maj Gen Charles Lyon’s team to ours, and almost immediately we went to work writing the next chapter of airpower support to counterinsurgency operations. As we began our new roles, the 9 AETF-A staff and subordinate commanders were keenly aware of the recent changes to the command and control (C2) architecture of US Air Forces Central (AFCENT) that occurred in November 2010, thus establishing the sub-theater C2.¹ Major General Lyon’s tenure in Afghanistan included significant organizational change, and his team did an outstanding job of laying the foundation. By the time our team took the reins, everything was in place and running smoothly. Assuming the transformation



complete and the major changes behind us, we discovered, however, that the stark situation on the ground made those expectations a far cry from reality.

Specifically, the 9 AETF-A underwent a second major C2 transformation between December 2011 and May 2012 when the 9 AETF-A commander was appointed the International Security Assistance Force (ISAF) Joint Command's deputy chief of staff for air (IJC DCOS AIR).² This change significantly affected how the Air Force conducts airpower C2 in Afghanistan. Given this relatively new organizational change and the major events that unfolded during the past year, this article seeks to (1) describe in detail the airpower C2 transition that occurred as a result of assuming the IJC DCOS AIR position in December 2011, and (2) present observations and lessons learned from our team's tenure in Afghanistan, especially with regard to airpower C2 and the AETF-A structure.

Our Goal: Make the ISAF Commander Successful

Unity of command ensures concentration of effort for every objective under one responsible commander.

—Air Force Doctrine Document 1

Air Force Basic Doctrine, Organization, and Command

14 October 2011

As the 9 AETF-A staff and subordinate commanders entered Afghanistan in the spring and summer of 2011, the AFCENT subtheater C2 construct was well established and running under both 9 AETF-A and 9 AETF-Iraq. Because discussion and debates regarding the utility of a subtheater C2 had passed, we could immediately focus on the mission, taking full advantage of the responsibilities and authorities established seven months prior.

As the 9 AETF-A, we recognized our most important priority: *Support the commander of ISAF (COMISAF), and help him succeed by his*



*measures of effectiveness.*³ Everything that our team executed in Afghanistan reflected this short yet clear requirement, which provided straightforward guidance to the staff and subordinate commanders in terms of directing their efforts and resources. We often referred to this priority statement as a reminder of why and how we should operate as an organization.

In May 2011, the 9 AETF-A commander filled three roles simultaneously (commander, 9 AETF-A; director, Air Component Coordination Element–Afghanistan [ACCE-A]; and deputy commander for air, US Forces–Afghanistan [USFOR-A]), later filling a fourth role as IJC DCOS AIR. As 9 AETF-A, we conducted Air Force forces duties at the combined/joint operating area level while serving as the connective tissue between the AFCENT staff and the groups and wings of combined/joint operating area–Afghanistan. This construct allowed the groups and wings to have a voice and advocate for their positions and requirements while ensuring that the AFCENT staff had a senior Air Force commander pushing its theater priorities down to wing and group level.

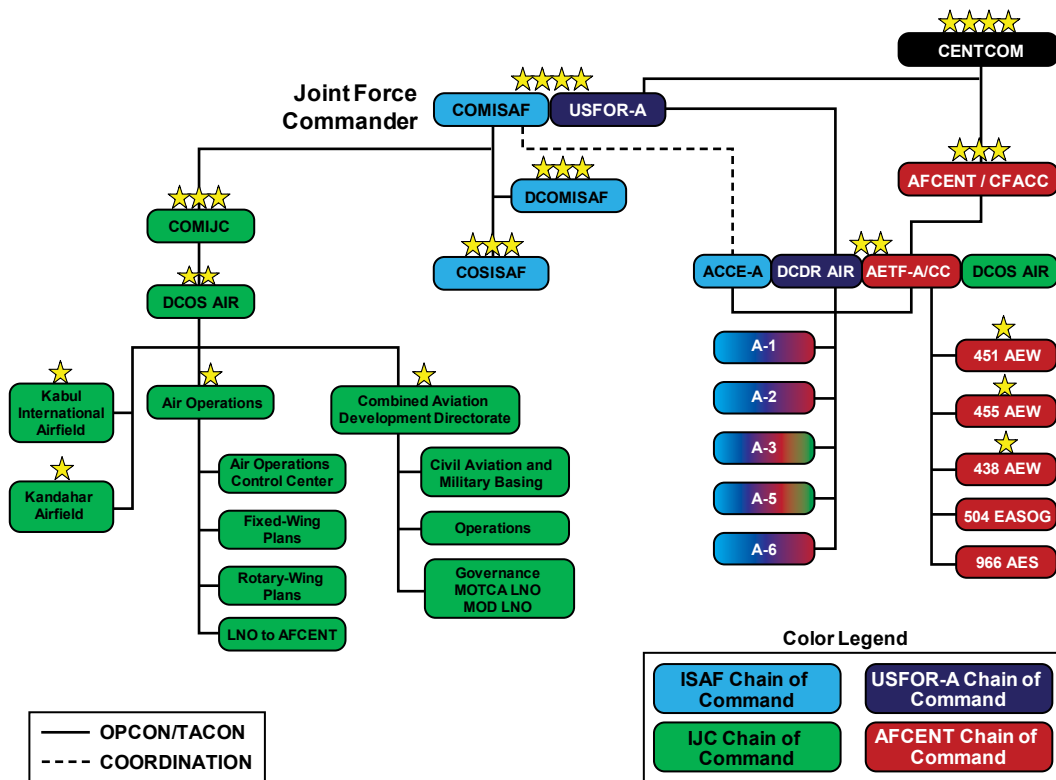
A year's experience operating under the AETF-A convinced us that selecting this construct was the correct decision for the air component. As an airpower team, we found that having a single Air Force Airman leading from the front but living alongside subordinate commanders and coalition partners represented a highly effective design for conditions on the ground in Afghanistan. Perhaps more importantly, the commander of 9 AETF-A and its approximately 10,000 US Airmen serving in Afghanistan afforded the air component a seat at the table for every major strategic and operational discussion that occurred throughout the past year. Personal and professional relationships remained critical to sustaining effective airpower advocacy and moving forward, but our joint and coalition counterparts were more receptive to a commander than a senior liaison.

The ACCE-A fills the doctrinal role established by the Air Force for liaison and coordination between the air component and the joint force commander.⁴ Although the 9 AETF-A commander began the tour



with three distinct roles and picked up a fourth in December 2011, mentioned above, we actually found that the requirement for the second role, that of ACCE director, increased in proportion to the span of control exercised through the other three roles. The chain of command for the 9 AETF-A commander runs directly to the combined force air component commander, with no direct linkages to the joint force commander (see the figure on the next page).⁵ However, the role of director, ACCE-A, allows the air component unencumbered access to the joint force commander, permitting an Airman to articulate key issues directly to the highest levels of the coalition command structure while continuing to serve as the combined force air component commander's direct and personal representative to the COMISAF. Additionally, as ACCE-A members and liaison officers to the combined force air component commander, we could plug in directly with the tactical-, operational-, and strategic-level planning efforts at the ISAF, ISAF Joint Command (IJC), and regional commands. Two of the most notable of these efforts included the ISAF revision to Operation Plan 38302 (the strategic-level operation plan) and its operational-level counterpart, Op Naweed 1391, written by the Afghans ("Naweed" means "good news" in Dari).⁶ In the coalition's counterinsurgency model of Afghanistan, the ACCE-A construct continues to offer access and liaison opportunities across all levels of the staff and command headquarters.

Under the third role, deputy commander for air, USFOR-A, our staff expended considerable effort on a myriad of issues such as the bed-down of US forces, logistics, retrograde operations and redeployment of forces, force-management-level accounting, and US-only planning and operations. The deputy commander for air, USFOR-A, reports directly to Gen John Allen in his capacity as commander, USFOR-A (see figure). This position and its accompanying staff remain a critical element to US-specific functions in Afghanistan.



- A-1 – Personnel Directorate
- A-2 – Intelligence Directorate
- A-3 – Operations Directorate
- A-5 – Plans Directorate
- A-6 – Communications Directorate
- ACCE-A – Air Component Coordination Element–Afghanistan
- AES – Air Expeditionary Squadron
- AETF-A/CC – Commander, Air and Space Expeditionary Task Force–Afghanistan
- AEW – Air Expeditionary Wing
- AFCENT – US Air Forces Central
- CENTCOM – US Central Command
- CFACC – Combined Force Air Component Commander
- COMIJC – Commander, International Security Assistance Force Joint Command
- COMISAF – Commander, International Security Assistance Force

- COSISAF – Chief of Staff, International Security Assistance Force
- DCDR AIR – Deputy Commander for Air
- DCOMISAF – Deputy Commander, International Security Assistance Force
- DCOS AIR – Deputy Chief of Staff for Air
- EASOG – Expeditionary Air Support Operations Group
- JC – International Security Assistance Force Joint Command
- ISAF – International Security Assistance Force
- LNO – Liaison Officer
- MOD – Ministry of Defense
- MOTCA – Ministry of Transport and Civil Aviation
- OPCON – Operational Control
- TACON – Tactical Control
- USFOR-A – US Forces–Afghanistan

Figure. Airpower command and control in Afghanistan



Unexpected Challenge Equals Opportunity

Coordination may be achieved by cooperation; it is, however, best achieved by vesting a single commander with the authority and the capability to direct all force employment in pursuit of a common objective.

—Air Force Doctrine Document 1

Air Force Basic Doctrine, Organization, and Command

14 October 2011

The IJC DCOS AIR position, the fourth role, has authority over the Kabul and Kandahar airfields, oversight of all conventional North Atlantic Treaty Organization (NATO) fixed- and rotary-wing assets in combined/joint operating area–Afghanistan, a robust planning staff of approximately 20 personnel (mixture of NATO and US), and several key positions on the IJC operations floor within the air operations control center. The left side of the figure depicts the IJC DCOS AIR's span of control. Within IJC, the DCOS AIR staff works closely with IJC Future Plans and IJC Future Operations to integrate airpower into operational- and tactical-level planning. Additionally, the staff of the air operations control center (currently led by an Air Force colonel) works closely with the combined force air component commander's air operations center during execution of air tasking orders to ensure the delivery of airpower effects where and when needed in support of the COMISAF's objectives. Unexpectedly, in December 2011, Germany chose to cease filling the IJC DCOS AIR position.

Following approval from the chief of staff of the Air Force and the supreme allied commander, Europe, the 9 AETF-A commander also became the IJC DCOS AIR, a role that has proven instrumental in aligning *unity of effort* under *unity of command*. Whereas the air component previously relied upon personal relationships and tight coordination to align the efforts of AFCENT and NATO airpower, the new structure provides a unity of command that streamlines decisions at all levels. One can find a clear example of the alignment benefits at Kandahar Airfield, a NATO air base. The commander of this airfield, who



reports directly to the IJC DCOS AIR, runs many of the base facilities. Conversely, the 451st Air Expeditionary Wing, AFCENT's resident wing at Kandahar, reports directly to the 9 AETF-A commander (see the figure). Under the old construct, the two chains of command *never* met, resulting in friction and time delays whenever a contentious issue such as force protection or base support demanded attention from a senior officer. Under the new construct, the two chains of command technically still never meet, but they both reach the same senior officer in their chain, ensuring accelerated decision making with a much reduced potential for friction between the AFCENT and NATO chains of command.

Under the IJC DCOS AIR role, we implemented the additional measure of combining some of the 9 AETF-A/A3 and A5 staff with the IJC DCOS AIR staff, resulting in an increased level of interaction that did not occur under the previous unity-of-effort model. Operational- and tactical-level planning now occurs with the AFCENT and NATO planners sitting side by side—and they both have the same boss who gives them the same guidance. During the past year, we continued to develop some of these positions, but every adjustment thus far has produced gains in combat effectiveness and coalition cohesion.

Furthermore, the IJC DCOS AIR realignment presented an opportunity to reorganize the development of civil aviation in Afghanistan. The 9 AETF-A had a joint air traffic management cell that worked airspace issues and aviation development while the ISAF deputy chief of staff for stability maintained an aviation development branch that had similar and sometimes overlapping functions. During the winter, we realigned all of these functions under the IJC DCOS AIR as the Combined Aviation Development Directorate. By doing so, we brought together air traffic, airfield management/development, civil air control, international donor coordination, and the long-term plan for transfer of airspace control under a single commander; moreover, this realignment effectively merged the AETF-A and NATO staffs working these



projects—another example of going beyond unity of effort and achieving unity of command.

Observations and Lessons

The AETF concept is working well in Afghanistan. Having an in-theater commander has both clarified the lines of authority and ensured that the air component retains a seat at the table for key operational- and strategic-level decisions. No example more clearly paints this picture than the US force-reduction decision briefs that occurred between the commander, USFOR-A, and his subordinate commanders in the fall of 2011. US force reduction is a complex, tough, and sometimes emotional topic as the entire combined/joint operating area—Afghanistan team works to reduce the US footprint while retaining the right capability to continue meeting the COMISAF's objectives. The 9 AETF-A commander, with tactical control of nearly 5,000 Airmen and operational control of an additional 5,000, received a seat at the table for these discussions. More importantly, from an Airman's perspective, the air component was given a voice to advocate the value of airpower and had the opportunity to hear and understand other subordinate commanders' points of view. Most significantly, from the perspective of the commander, USFOR-A, the room included an Airman who not only could articulate a position but also, without hesitation, agree to execute a course of action once the commander, USFOR-A, made a decision.

Having the senior Airman in Afghanistan simultaneously fill four roles works well in the current environment, but we should not automatically consider this either the standard or template for future operations. The character of counterinsurgency operations, the coalition, the geography, and the unique C2 structure of ISAF all played a part in morphing the ACCE into the multifaceted organization that exists today. Serving multiple roles simultaneously and AETF activation should be considered a part of the Air Force's tool kit for C2 in future operations, but we should not blindly turn away from more than 50 years of airpower C2 based upon our experiences in Iraq and Afghani-



stan. The latest edition of Air Force Doctrine Document 1, *Air Force Basic Doctrine, Organization, and Command*, does a good job of laying out the multiple options available for theater C2.⁷

Finally, change is inevitable. Our experiences in Afghanistan demonstrated the importance of embracing change as an opportunity rather than viewing it as a challenge. We had minimal warning about the change in IJC command structure that took place in December 2011, but the result took the form of a more effective fighting force that combined unity of effort under unity of command. With the approach of the 2014–15 transition, organizational realignment looms on the horizon; indeed, change is around every corner in Afghanistan. The specifics, timing, and players remain a mystery, but it will happen—change is inevitable.

Looking Forward

Our team in Afghanistan tackled many more issues than simply organizational and C2 realignment during the past year. Oversight of force-management levels, implementation of air support to the Security Force Assistance Model, planning for the post-2014 transition, and the drawdown of US forces to 68,000 by 1 October 2012 as directed by the president of the United States represented just a few of the major items worked by the AETF-A and its subordinate commanders. Additionally, the airpower we supplied to the coalition team every day across the spectrum of Air Force capabilities was a monumental accomplishment, and I am extremely grateful to the Airmen serving inside and outside Afghanistan who morphed the air tasking order's direction into tangible airpower every single day; they truly make it look easy.

Further, the 438th Air Expeditionary Wing, charged with supporting development of the Afghan air force (AAF) within NATO Training Mission–Afghanistan, continues to press forward steadfastly with AAF development and training. The 9 AETF-A commander's opportunity to take a seat at the table has enhanced our understanding of the connection be-



tween NATO Training Mission–Afghanistan and the 438th, as our Air Force brethren working alongside the AAF play a critical role within the COMISAF's campaign plan. The 438th Air Expeditionary Wing now stands as an equal partner in the cross-check of the multirole 9 AETF-A commander, making certain that he receives the appropriate level of support from the entire air component. This cross-check and support will continue to grow in importance as the AAF reaches greater operational capability and independence.

Looking forward to the 2013 and 2014 fighting seasons, US Airmen serving in Afghanistan have both challenges and opportunities awaiting them. We must continue working with our Afghan partners to develop their air force and its sorely needed capabilities while finding creative solutions that maximize the amount of joint and coalition airpower we provide to the increasingly independent Afghan security forces. Mitigation of civilian casualties also will remain a critical area as we move forward. Our air component has performed very well in this area, but we must continue looking for opportunities to improve. Finally, as Airmen, we must remain focused on the COMISAF's objectives. The character of the Afghanistan counterinsurgency continues to evolve—this dynamic fight demands constant reassessment of objectives, apportionment priorities, and weight of effort. But if the air component continues to retain the joint force commander's objectives as our top priority, we stand a very good chance of delivering the right effects on the battlefield.

Closing Thoughts

According to Air Force Doctrine Document 1, "Airpower results from the effective integration of capabilities, people, weapons, bases, logistics, and all supporting infrastructure."⁸ One could replace the word *airpower* in that sentence with *a successful military force* and apply the same concept to our coalition in the combined/joint operating area–Afghanistan. In Afghanistan, our Airmen work side by side with joint and coalition partners (including Afghans) to integrate the many



pieces of our team and form a successful military force. During the past year, our air component solidified the AETF-A construct and strengthened unity of command under the NATO and AFCENT banner. At the end of the day, however, the personal relationships and trust that Airmen build throughout all levels of war still matter more. Whether it's an Airman working alongside an AAF partner, an Air Force MC-12 crew passing threat data to our ground brethren, or a group of senior officers deciding on the new phase of the campaign plan, the foundation begins with personal relationships and trust. ★

Notes

1. See Maj Gen Charles W. Lyon and Lt Col Andrew B. Stone, "Right-Sizing Airpower Command and Control for the Afghanistan Counterinsurgency," *Air and Space Power Journal* 25, no. 2 (Summer 2011): 5–11.
2. The ISAF, part of the North Atlantic Treaty Organization, has responsibility for executing operations in Afghanistan. We commonly refer to the ISAF commander and his staff as the strategic headquarters and to the commander of the ISAF Joint Command and his staff as the operational headquarters.
3. Major General Lyon initiated this important priority: "Support the commander of ISAF. . . . Help him succeed . . . by his measures of success." See Lyon and Stone, "Right-Sizing Airpower Command and Control," 6. We altered the wording slightly in 2011, but the intent remained exactly the same. In the Afghanistan area of responsibility, the *COMISAF/com-mander of US Forces–Afghanistan* is the *joint force commander*. We use these terms interchangeably throughout the article but distinguish between the two when necessary for the sake of clarity.
4. See Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine, Organization, and Command*, 14 October 2011, 99, <http://www.e-publishing.af.mil/shared/media/epubs/AFDD1.pdf>.
5. Although the chain of command went directly to the combined force air component commander, we worked very closely with the deputy combined force air component commander every day for both planning and execution.
6. See Department of Defense news briefing, Lt Gen Curtis Scaparrotti, ISAF commander, 8 February 2012, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4973>.
7. AFDD 1, *Air Force Basic Doctrine*, 94–98.
8. *Ibid.*, 20.



Maj Gen Tod D. Wolters, USAF

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<http://www.airpower.au.af.mil>



Thinking about Air and Space Power in 2025

Five Guiding Principles

Lt Gen Denis Mercier, French Air Force*



The year 2025 is not far away. However, the coming years will doubtless surprise us since geostrategic or technological developments are so unpredictable. The air and space environment will certainly feature major breakthroughs that we must be ready to face. This article does not claim to treat this topic comprehensively; rather, it suggests a few principles that one can apply to support a view of the stakes for tomorrow's airpower.

Preparing for the future is difficult. One must select the time frame in order to build an innovative but realistic and reachable vision. Economist

*This article is a revised version of the author's postscript to *Envol vers 2025. Réflexions prospectives sur la puissance aérospatiale* (Takeoff for 2025: Thinking about the future of air and space power), *Stratégie aérospatiale* series, ed. Grégory Boutherein and Camille Grand (Paris: La Documentation Française, 2011).



Peter Drucker used to argue that “the essence of planning is to make present decisions with knowledge of their futurity.”¹ Indeed, the years between now and 2025 have already been defined by a program of orders and deliveries that scales the format of military forces until 2020, within a given financial framework influenced by military forces. Consequently, any modification remains subject to the law of interconnectedness, whereby a new program must replace another one, or several, in order to avoid budgetary problems. Because such planning freezes capabilities until 2020, it takes on a budgetary character and limits strategic thinking to the time frame in question. Consequently, if we wish to go outside this framework, we must look beyond. The 2025 time frame is significant because it gives strategic thinking a renewed scope, keeping in mind the objective of shedding light on the future so we can better assess today’s decisions.

Various approaches present themselves and numerous parameters require assessment as we seek to plan air and space power for the year 2025. Given the difficulty of creating a definite vision of the future that will not be misunderstood, this article offers five principles that allow us to avoid the dual pitfalls of a vision that is too futuristic and disconnected from reality, or an approach that lacks innovativeness because of constraints imposed by current projects and studies.

First Principle: Overcoming Current Thinking, Which Can Bind Future Ideas

Although we must open up our thinking in a spirit of operational and technical innovation, Air Marshal Sir John C. Slessor reminds us that the lessons of the past still represent a tremendous source of data and experiments that we can revisit in anticipation of tomorrow’s stakes.² Neither the visions of the future nor the lessons of the past, but the tyranny of today’s commitments imposes constraints on our thinking. It is very tempting to scrutinize operations in Afghanistan as a



way of imagining models of future forces, but the present is hazardous in that it has a strong legitimacy in countries where the news and coverage by the media exert much influence on public opinion. Airpower plays a significant role in Afghanistan but remains insufficiently promoted. On the one hand, its appreciation comes from successes that were as continuous as discreet; on the other hand, the visibility of its action is reflected in the land engagement. Airpower thus provides continuous surveillance, makes possible the stealthy designation of targets in a country with a number of natural or man-made vertical obstacles, offers a wide range of kinetic or nonkinetic effects, and frees itself from land constraints for the transportation of personnel and equipment, all the while minimizing losses among both allied troops and civilians.

Several incorrect lessons drawn from that engagement involved airpower. Given the very nature of the operation and fighting, we employed airpower in a wide range of missions, leveraging its variety of networked, interacting capabilities that combine their effects to benefit the tactical level. This situation reflects both the magic and perversity of networked operations. That is, integrating ever more versatile capabilities that cooperate in open operating modes, regardless of the level of use to which they belong, increases the effectiveness of tactical actions conducted in the field. However, we forget that under other circumstances, some of the capabilities offer courses of action that produce a substantial range of effects at the strategic level.

Thus, using a new-generation reconnaissance pod on a modern platform such as the Rafale or F-22 will supply the theater commander with highly significant images, but it raises the question of whether employing such platforms for this task constitutes overkill. However, these platforms equipped with that sensor, having taken off from the homeland and operating stealthily thousands of kilometers from their base, will give decision makers essential information on very short notice—a major strategic role.



The relevance of strategic platforms does not necessarily lie in high-intensity operations. The termination of the Mirage IV in 2005 after 41 years of service made France neglect, for a while, long-range missions, whether reconnaissance or stealthy strikes against highly valued targets. Recent operations, including the conflict in Afghanistan, generated tactical lessons that ignored this ability—important for any powerful nation—to take advantage of airspace fluidity to conduct strategic missions against distant targets. The lack of such capabilities may have led us to consider them useless. In such instances, past engagements can enlighten us. The pre-positioning of forces has hidden the benefits of immediate projection. However, more distant, new areas of interest—along with the need for certain stealthy missions—renew the relevance of capabilities whose ubiquity allows them to gather intelligence or strike with very short notice, including targets at great distances.

Operations in Libya offer a good illustration. Falling within the framework of Resolution 1973, passed on 17 March 2011 by the United Nations Security Council following a Franco-British initiative, the engagement of air forces (first from France as early as 19 March [Operation Harmattan] and then from the North Atlantic Treaty Organization, starting on 24 March [Operation Unified Protector]) demonstrated the strategic advantages provided by the air arm in terms of reach, adaptability, or long-distance strikes. The first bombs dropped during those air operations came from French Air Force Rafales and Mirage 2000Ds that had taken off a few hours earlier from their bases (Saint Dizier and Nancy), located more than 3,000 kilometers from the intervention area. The interdiction, reconnaissance, and ground attack operations conducted in Libya's airspace also show the diversity of missions in which air forces can participate, including those in an environment less permissive than a theater such as Afghanistan due to the existence, admittedly limited, of surface-to-air threats. Those operations over Libya, which officially ended on 31 October 2011, remind us of the importance of not focusing our thinking only on counterinsurgency operations even though the latter seem to characterize the modern era.



Using lessons from current operations is easy and free of risk because they give legitimacy to investments. As far as airpower is concerned, if the last decade involved tactical operations, everything suggests that the future will entail strategic actions or a combination of both—the first aspect influencing quantities and the second, clarity and identity. Ultimately, strategic missions—as illustrated by the operations over Libya, among others—differentiate pure airpower from an air force that operates for the sole benefit of ground forces. As a matter of fact, these missions might represent a kind of transition between this tactical decade and the future that airpower will have to confront. We might as well consider them a warning about the potential risk of reducing airpower to a tactical dimension. To think of the air arm this way would strain its capabilities and harm the know-how that shapes its engagement.

Second Principle:

Distinguishing among Effectors, Systems, and Platforms

Tomorrow's airpower probably will rely less on complete platform-based systems, as is the case today. A platform is nothing in itself. Distinguishing among effectors, systems, and platforms allows greater flexibility and certainly better adaptability.

Effectors Produce Effects

The mission's effectiveness depends on the effectors (e.g., air-to-air or air-to-ground weapons, cameras, data-collection pods, cannons, or other devices). Different platforms can use the same effector. The effectors will become more varied in order to adapt to the power, lethality, use, and accuracy of the force. The credibility of airpower will rest on the most complete mix of effectors handling all types of missions. By 2025 new effectors that enable better control of force and engagement of stealthier targets will join the mix. Later on, new effectors will appear as we develop nonkinetic effects, smart weapons, and directed-



energy weapons. Furthermore, a combination of sensors able to collect information in a wide range of frequencies will enhance the accuracy of intelligence and surveillance.

Systems Provide Interoperability and Determine the Level of Network Integration

The system makes an effector more or less effective. Technology permits a sophisticated system to adapt to unsophisticated platforms—take, for instance, the Americans' use of older aircraft such as the A-10 in Afghanistan. Having proven its survivability, this aircraft carries out its air support missions perfectly, certainly better in this environment than would a new-generation platform. The A-10's system underwent complete updating to take into account the complexity of engagements, but its effectors remained very similar to those of the most modern aircraft. The system's open architecture and capacity to communicate with other systems determine integration into complex operations. The worldwide proliferation of airpower largely depends upon the integration of systems into a vast range of platforms.

The system causes effectors and platforms to cooperate. By 2025 we may begin to conduct continuous area surveillance with great accuracy and a proper refresh rate from satellites. If the accuracy of intelligence obtained through satellites becomes widespread, transmitting from space in real time over a given area would represent a true breakthrough in terms of surveillance capabilities.

Lastly, systems are associated with norms on which interoperability depends. Those norms will continue to lie at the center of major issues in the future. Given the development of networks and cooperative capabilities, systems will become the object of power struggles that weigh as much on industry as on the ability to operate within a coalition.



Platforms Determine Missions

Very long range strategic platforms offer reach and omnipresence, whether for strikes, reconnaissance, or transport missions. The United States divides its platforms, distinguishing between strategic and tactical. For a country such as France, which has chosen versatility, the lessons from recent conflicts show the need for thinking about this principle in the design as well as the use of platforms. Any such analysis necessitates drawing on all lessons learned from the operational use of the Rafale, the A400M transport aircraft, and the multirole tanker and transport aircraft. The flexibility of certain capabilities and the integration of a substantial range of equipment and effectors (so long as they have an interoperable architecture) allow us to contemplate true operational advancements. However, even if the versatility of platforms permits multiple uses at different levels, this feature may create redundancy issues at the tactical level. As such, excessive versatility may hinder the understanding and visibility of a capability's strategic character.

Recognizing that their fleets could become one of a kind and continue to operate for the next 30 to 40 years, most countries have engaged in a modernization process. Air forces must be able to react to the speed and unpredictability of strategic and technological developments that emerge in 2025 and beyond. Although current capabilities are intended to be evolutionary, one should nevertheless pursue the analysis of operational interest of new platforms, such as long-range heavy airlifters, possibly combining combat and support functions; manned, remotely piloted, or even optionally manned delivery systems; airships; and miniature systems able to operate in swarms.

In preparing airpower for its flight toward 2025, one must do more than remove concerns about preserving the necessary flexibility to migrate toward innovative capabilities while avoiding unique fleet pitfalls. More than likely, budgets and maintenance costs will not allow significant fleet enlargement, but keeping certain fleets in service beyond 2025 may create a new window of modernization different than



the midlife updates of platforms designed to last for 30 or 40 years, which hinders innovation.

This situation applies to combat as well as transport capabilities. That is, transported resources, covered distances, and deployment bases may favor the development of platforms with more or less tactical capabilities that can operate from various environments. Aircraft capable of conducting operations from makeshift airfields (e.g., heavy or light air-mobility vehicles) will complement transport fleets, and new platforms such as heavy or fast helicopters—even airships—may appear.

Wherever possible, one must emphasize simplicity through solutions that are pragmatic, affordable, and appropriate to the operational context and geographic environment. The year 2025 and beyond will feature many dual platforms whose onboard systems will differentiate their military capability.

Surveillance depends upon the sensor, which guides thinking and provides broad or narrow coverage as well as accuracy. The system creates interoperability, integration, and data transmission within the required time frame. The platform, which determines use, compromising among vulnerability, speed, and persistence, may function in different environments and may be interchangeable.

A primitive platform dedicated to a specific environment and possibly derived from existing equipment will carry out targeted tasks better than a multipurpose generic delivery system. A good-quality electro-optical turret installed on a tactical transport or light aircraft may prove quite effective in certain environments and conditions of use. A drone will offer persistence, a transport aircraft interchangeability and horizontal reach, and a satellite near invulnerability and vertical extension. Combat aircraft would prove more suitable for reconnaissance.

Surveillance and reconnaissance missions become more effective through a broad combination of platforms such as manned or remotely piloted aircraft, drones, and satellites, each complementing the others. An important differentiation lies in the ability to operate



inside or outside sovereign spaces. However, these considerations must not make us forget that platforms give airpower its identity and that they remain the most important element of missions executed in the core of the air and space power domain.

Globalization extends the area of strategic interest worldwide, making air and space power all the more relevant. The ability to reach any point in the world through the air and outer space heightens the importance of commanding the endo- and exoatmospheric spaces. This struggle for command of airspaces involves open confrontation between opponents, unlike the situation in land or ocean spaces, where asymmetric courses of action undermine the equilibrium. In the realm of air and space power, however, the strongest prevails. Confrontations on land may combine primitive and modern capabilities effectively, but air war requires force and domination since the opponent is never asymmetric. (Granted, a number of nonstate actors [e.g., the Liberation Tigers of Tamil Eelam (Tamil Tigers) and Hezbollah] operate in the third dimension either by engaging platforms, including remotely controlled ones, or by trying to challenge traditional air and space powers for use of the third dimension.) The current air arms race and the proliferation of sophisticated combat aircraft or surface-to-air systems offer the best illustration of the force and domination that air war demands. A platform is a most important and obvious component of domination.

Long-range conventional or unconventional strategic missions also rely on platforms. These missions, along with airspace control, will characterize tomorrow's airpower. However, combat support, reconnaissance, in-theater air mobility, or ground attack—all of them less strategic in nature, depending on the level of space control—can make do with primitive platforms.

Air and space capabilities often attract criticism because they are expensive. Thus, more flexible capabilities would better meet our needs while keeping costs under control. This approach must guide air and space power as it adjusts to future circumstances and resists over-reliance on versatile effectors, systems, and platforms. Although they



do not determine quantities, platforms related to space control and strategic missions will give airpower its clarity and condition its identity, as they did in the past. By this logic, distinguishing among effectors, systems, and platforms will shape the development of tomorrow's industrial landscape as well as national or international cooperation.

Third Principle: Discriminating Personnel for Future Systems

A capability consists of effectors, a system, and a platform. The operator, the most important link, whether inside or outside the platform, produces the effect. With new delivery systems such as drones, the main operator controls the sensor since all or part of the flying can be automated. This arrangement closely links the operator to the effector, whereas the mission's success previously depended more on flying the platform. This new role for operators leads to a thorough rethinking of their skills and training.

Airpower will become more dependent upon the cooperation of several capabilities. Air refueling, for example, strengthens the strategic nature of a delivery system by giving it extra reach. The same tanker can act as a picture- or video-transmission relay, thus offering real-time operation. Data links increase mission effectiveness, whether by controlling spaces or cooperating with ground or naval forces. Surveillance systems feed combat capabilities, providing them with updated situations.

These examples will only multiply, allowing any air capability to fit better in more environments, to manage its data, and to create the appropriate effect with the right pacing. This cooperation among capabilities, the result of networking actors who operate in all environments, will have no bounds, as satellites explode the boundaries of visual range. Limitations will become increasingly human; for instance, airpower's handling of information will depend on the ability of men and women to do so. In 2025 and beyond, the coexistence of different platforms



and their communication capabilities both in-theater and worldwide will multiply their effectiveness tenfold. Technology makes that possible.

Although today's technology levels the playing field—unlike the situation during previous generations, when pilots' combat skills differentiated between them—the ability to integrate and fit into complex networks will likely become defining. Airmen will not have an equal understanding of complex systems. Some will have the capacity and training to devise networks and understand their place in uncertain environments in which they can determine their perimeter of responsibility; others will be destined to act only in a limited number of bounded networks. These differences will prove fundamental in planning as well as in command and control and operations, inevitably creating expansive disparities. We must prepare for this eventuality, analyze the related skills, and fit them into training. Thus, the current military reform in France may produce a beneficial side effect. That is, by understanding their place in the new complex organizations and networks involving many actors, individuals will have indirectly prepared themselves for future operational environments.

Fourth Principle: Acknowledging Joint Integration's Dependence upon Airpower

The airspace is a shared environment. All of the world's forces include airmen who contribute to airpower development. Airmen will continue their association with all types of engagement, one way or the other, through transport, strike, ground attack, support, surveillance, or intelligence missions.

The airman will become indispensable. The infantryman in Afghanistan does not see the airman, yet the latter is present everywhere—flying drones remotely; embedding with commandos; controlling close air support missions; flying combat or transport aircraft; or operating



in command and control structures, merging information and providing updated data to in-theater commanders. By having airmen operate in any environment, we guarantee freedom of movement. The networking and coordinating of all air capabilities will allow airmen to fit even better into operations in their entirety.

Even though joint work within staffs has existed for a long time, we need improvements in the field. Understanding airpower's role in all aspects of an operation's execution will facilitate true joint integration, permitting more integrated courses of action. We can do this only if all airpower components interconnect in common networks that are not partitioned into environmental segments, such as air-land or air-sea segments. The full integration of air capabilities of different environments and services will enhance joint cooperation at the tactical level.

Fifth Principle: Airpower Will Move Higher and Drive Future Industrial Challenges

The year 2025 will likely see such innovations as the more flexible use of outer space and the commonplace employment of medium- and high-altitude drones. The self-deployment of drones and their integration into air traffic will give these platforms a strategic character, putting them at the core of airpower and allowing more interdepartmental use. In the more distant future, technical advances will lead to the development of stratospheric drones (high-altitude platforms), adding the benefits of increased persistence and space observation without suffering the drawbacks of the air and space environments. When the technology becomes available, the use of the stratosphere—a space still free today—will become an important issue for civil and military traffic. The first vehicles to use it will likely be long-endurance drones. Once access to this realm becomes widespread, the nature of its first use, civilian or military, will determine the weight in the development of future regulations.



By 2025 we may witness such space missions as satellite de-orbiting as well as the interception or destruction of space vehicles. Clearly some countries are positioning themselves for these developments, having learned that investing in this field is not as costly as commonly thought. Any country that wishes to become a major actor in space must find a strategy which encourages evolution of the requisite know-how and technologies. For example, launching a supply module to the international space station and then controlling it from the ground demonstrates real skills in this field. Despite budgetary constraints, the continuation of studies such as those designed to develop reactive space interception modules will prove essential to controlling freedom of action in space during the future.

The flight toward 2025 also involves industrial stakes. With regard to progressive areas such as space or drones, the armed forces will continue to act as a driving force and partner in industrial development. These stakes will depend upon the military's accommodation of existing or future regulations and its investment in the human and financial resources necessary to guarantee the freedom of use and movement in shared environments.

Conclusion

Only the decisions made in the appropriate window of opportunity will prove correct. To be right too early is as useless as letting opportunities go by. Planning the future involves foreseeing the consequences of today's decisions, taking into consideration lessons from the past. Airpower suffers from a major constraint as it attempts to imagine the future: more than any other force, it is subject to technological developments. Although certain areas draw their inspiration from yesterday's great battles and established principles of war, technological breakthroughs modify the evolution of air strategy. This dimension overlaps the others and complicates thinking.



In 2025 and beyond, a complex reality will combine manned and remotely piloted—or even optionally manned—vehicles. The continuity of endo- and exoatmospheric spaces will become more obvious. More or less sophisticated platforms will operate side by side, overlapping civil and military applications. And the third dimension will witness all manner of confrontations. This complexity will continue to encounter criticism because that which is hard to understand tends to intimidate. A new dimension, communication, will become a priority in order to explain how actors in various environments will benefit from these developments, giving rise to challenges involving training, the integration of air and space power in the future, and, as a consequence, the identity of those who control air and space capabilities.

Air-land operations will remain tied to the land environment, as will air-sea actions to the maritime environment. The full spectrum of strategic missions and air command and control missions lies at the core of the air and space airman's identity, unbounded and encompassing all environments. By 2025 those missions will have regained all of their meaning. The flight toward 2025 will take place in the air and space environment. More than ever, we must shed light on the future in order to make the right decisions today regarding our people and capabilities. ✪

Notes

1. Peter F. Drucker, *Management: Tasks, Responsibilities, Practices* (Oxford, UK: Butterworth-Heinemann, 1974), 121.
2. J. C. Slessor, *Air Power and Armies* (1936; repr., New York: AMS Press, [1982]), x.



Lt Gen Denis Mercier, French Air Force

A graduate of the French Air Force Academy (“Capitaine Caroff de Kervezec,” class of 1979), Lieutenant General Mercier received his commission as a fighter pilot in 1983. He flew Mirage F-1C and 2000C fighters as a squadron member and then leader at Orange Air Base (AB) and Dijon AB (Squadrons 1/5 “Vendée” and 3/2 “Alsace”; and 2/5 “Ile-de-France”). In 1990 he became deputy commanding officer and then commanding officer of Squadron 1/12 “Cambrésis,” flying the Mirage 2000C (Cambrai AB). In 1994 General Mercier became deputy head of the manpower office at the Air Combat Command (Metz). He joined the Collège Interarmées de Défense (Joint Defense College) (Paris) in 1996 before being assigned to the North Atlantic Treaty Organization (NATO) office of the joint operational planning staff (Creil). In 1999 he was appointed deputy head of the combined joint task force department at NATO’s Northern Command (Brunssum, Netherlands) before taking command of AB 112 “Commandant Marin-la-Meslée” in Reims in 2002. In 2004 the general joined the Air Force Staff as deputy chief and then chief of plans. Promoted to brigadier general on 1 December 2007, he became deputy to the assistant chief of staff “Performance-Synthèse” of the Air Force Staff. In 2008 he took command of the Air Force officer schools in Salon de Provence before becoming chief military adviser to the minister of defense and veterans affairs in 2010. He was promoted to lieutenant general on 1 February 2011. An officer of the Legion of Honor and of the National Order of Merit, General Mercier has 3,000 flying hours, including 182 in combat missions.

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Operationalizing Knowledge

A New Chapter in the Saga of
US War Fighting and Cognition

Philip Kao*

War is the unfolding of miscalculations.

—Barbara Tuchman



This article addresses what has changed in the conduct of war, especially with respect to the way intermediate-level leaders—lieutenants to colonels and some noncommissioned officers—experience, talk about, and conduct their business within the context of the operational level of war. In modern military parlance, the United States and many militaries around the world divide warfare into three levels: strategic, operational, and tactical. Most people conceive of the individual military member as simply a tactical entity—

*I presented an earlier draft of this article at *Soldiering: The Afterlife of a Modern Experience*; the Annual Interdisciplinary Humanities Graduate Student Conference, the Humanities Center, Harvard University, 22–23 April 2011.

someone who engages the enemy in close physical proximity, conducting maneuvers within a specific domain such as the battlefield, sea, or air. This article, however, looks at the art of war from the perspective of the operational level: a practice, an outlook, and a set of organizing and planning constructs situated between tactics and strategy.

To some extent, this study deals with and in abstractions. Many of the concepts discussed, tested, and implemented by the US Department of Defense (DOD) appear vague and open-ended. Nevertheless, the article attempts to give the reader an account of some of the debates going on within the military institution—debates not readily found in public culture. As discussed later, the operational level of war is not just an organizational or even a bureaucratic construct. Rather, it is a contested space, a nexus of theory and praxis, where the modeling of enemy networks and the flirting with ideas and frameworks such as complex adaptive systems structure the formation of actual military units and organizations. Debates featured in various blogs catering to “warrior-monk” types of professional soldiers, such as the *Small Wars Journal* blog, are turning the operational level of war into a discourse. Ways of conceiving the enemy and making sense of the political purposes and desired end states of military campaigns are not just policy platitudes left to higher-level and civilian-led strategies. Nor are they ignored or simply forgotten about by the military, as one might assume. These issues are addressed in some ways more intellectually and intensely by service members working at the operational level than by politicians and national civilian leaders.¹

The structure of this article is simple. First, it offers a very brief account of the history of the operational level of war, including a further discussion and refinement of definitions along with a treatment of recent developments in operational thinking, functions, and areas of responsibility. It then proceeds with a case example of an organizational command and control (C2) entity—US Joint Forces Command’s standing joint force headquarters (SJFHQ)—in order to showcase the extent to which campaign design and planning have become epistemological,

bureaucratic, and cognitive at the operational level. A few points regarding how defense and development concerns relate and come into being as a “system of systems,” requiring new models of thinking and adaptation, follow naturally from the case example.

The Operational Level of War

In a broad and limited sense, military strategy concerns itself with the geopolitical outcomes of war or a particular military campaign. A more nuanced way to think about strategy takes into account the ways in which military organizations strategize and implement certain ideas and practices in order to attain specified aims.² Strategy encompasses higher-order agendas such as national security, peacekeeping, and economics (including the economics of conflict).³ Situated between tactics and strategy is the *operational level of war*, a term relatively absent from the history of Anglo-Saxon military terminology and thought.⁴ The operational level endeavors to translate strategic objectives into military campaign plans, focusing on the combination of tactics employed to assert decisive victory over an enemy. Service members and defense contractors in-theater who work at the operational level design campaigns and orchestrate operations (using not only military but also economic and political assets). In 1982 the operational level of war officially appeared for the first time in US military doctrine.⁵ According to a joint doctrine publication, “The operational level links the tactical employment of forces to national and military strategic objectives. The focus at this level is on the design, planning, and execution of operations using *operational art*: the application of creative imagination by commanders and staffs . . . to design strategies, campaigns, and major operations and organize and employ military forces” (emphasis in original).⁶ Although the boundaries among the strategic, operational, and tactical can be quite blurry, operations have come to encompass the bulk of campaign design and planning. Jacques Richardson makes the additional point that “strategy tends thus to be linear and stable, [while] operations [are] linear but often of unpredictable stability.”⁷ The

term *operational art*, then, describes the skills, operating concepts, and “art form” of engineering successful campaigns at the operational level. At this level, military members serve as conduits and translators between strategy and tactics; they are also knowledge organizers, data miners, and process managers. More than anything else, the operational level has shaped the growing bureaucracy of warfare and the expanding military-contractor / knowledge-economy complex.

The appearance of new railroad systems and the growth of modern armies in the latter half of the nineteenth century meant that logistics needed more planning and that the fate of war likely would not depend upon the outcome of any one or two decisive battles, but upon the result of a series of strategic engagements. This prospect gave rise to the notion that a war of annihilation is no longer always tenable or desired. Tactical operations require more medium-term planning and strategic vision. In the early twentieth century, Soviet-era Russian and German war thinkers developed flanking techniques and various styles of attack, including the German blitzkrieg, which constituted early operational planning and coordination. The sequencing of tactical battles over space and time became associated with the operational level of war: a level of “grand tactics” exercising deception, deep attacks, strikes against the center of gravity, and the element of surprise.

The operational level of war has evolved significantly since World War II. War of attrition is no longer the foremost strategy. Instead of pursuing cumulative destruction (and attrition-style warfare), the military utilizes relational maneuver to disrupt an enemy’s system by targeting its weak points. In relational maneuver, avoidance of the enemy’s strength is paramount. Edward Luttwak further explains that although war of attrition depends upon resources, relational maneuver depends upon knowledge.⁸

In today’s context, the operational level has grown in size and scope. Many people believe that discussions at the national strategic level about how and why we go to war are seldom firmly grounded in the unfolding operational nature of war. Rather, the abstract national po-

litical terms used in these discussions shed little light on just what the operations and complexities of war really amount to. Justin Kelly and Mike Brennan observe that our national civilian leaders have become mere sideliners and “strategic” sponsors of war.⁹ War as a national experience and enterprise has become increasingly separated from civilian life and governance. Because contemporary politics demands briefer wars, deployments, and smaller combat footprints, the operational level is left with serious challenges. It has to devise comprehensive campaigns, stretching across a broad range of domains, that involve traditional military objectives, nation building, and development. Refashioned concepts and resurrected “working philosophies” such as the shock-and-awe campaign, as well as winning hearts and minds and systemic operational design, are examples of recent obsessions with operational art. The shift towards viewing and modeling the enemy as a complex adaptive system and the emphasis on devising new processes for decision making based on sensing-deciding-acting-adapting feedback loops continue to inform missions today.

Effects-Based Operations and the Standing Joint Force Headquarters

Recent developments in operational-level thinking have led to new frameworks and organizational constructs—changes fueled by the military’s focus on knowledge and information management. Intelligence no longer involves just revealing secrets and deciphering code; rather, intelligence professionals gather vast information and turn databases into elaborate epistemological networks, maps, and systems. Buzzwords like *transformation* and the *knowledge battlefield* reverberate in meeting rooms and twinkle in the rituals of PowerPoint slide presentations. The immediacy of complexity meets with the engineer’s obsession for planning, and what soon emerges are organizational constructs, touted as planning multipliers, and C2 weapons systems. Development issues are also necessarily brought into the fold, especially in the postconflict phases of war, to deal with stabilization, transition, and reconstruction.

In a very telling account of this so-called mission creep, H. R. McMaster in a chapter detailing effective civilian-military planning, asserts that “operational level plans should identify and advance macroeconomic policies that remove obstacles to economic growth (for example, legal impediments to foreign direct investment and subsidies that provide a disincentive to entrepreneurship or incentivize corruption) and provide a stable economic environment (such as low inflation).”¹⁰

My experience working with the SJFHQ at Joint Forces Command in Norfolk, Virginia, in 2007 highlights just how one of these multifaceted planning and information-gathering organizations operates.¹¹ The SJFHQ received official sponsorship back in October 2004 when former secretary of defense Donald Rumsfeld directed that each regional combatant command establish its own SJFHQ as part of a larger transformational push to support the global war on terrorism. The history of the SJFHQ, however, reaches back even further to the military experiments and exercises formulated in the late 1990s. In particular, Millennium Challenge 2002 (MC02), a large-scale military game and exercise costing approximately \$250 million, explored and tested future war-fighting concepts, including the advent of new communication technologies and net-centric warfare. Consisting of live exercises, computer simulations, and role players, MC02 displayed several concepts. Some of them received lukewarm reception while others having to do with knowledge networks and the leveraging of computers to gather and share information received nearly immediate validation.¹² The SJFHQ, one such organizational construct “in play” during MC02, sought to realize an operational concept called effects-based operations (EBO). Maj Craig Barkely defines EBO as

operations that are planned, executed, assessed, and adapted based on a holistic understanding of the operational environment in order to influence or change system behavior or capabilities using the integrated application of selected instruments of power. . . . Effects-based planning integrates diplomatic, informational, military, and economic elements to create the desired condition to meet the national objective. However, it is important to remember, an effect describes the potential or intended con-

dition of the political, military, economic, social, infrastructure, and informational systems not the immediate target effects at the tactical level.¹³

EBO generated a plethora of supporting tools and derivative concepts as well. Conceived of as a holistic approach to understanding the operational environment of the enemy, EBO looked to influence behavior by generating and anticipating the first-, second-, and third-order effects of any given action or inaction across a wide range of domains. The enemy and its networks were converted into an intricate and evolving system of systems, including such categorical divisions as the political, military, economic, and so forth. As an epistemological approach, EBO needed a new language, new measurements, and a matrix of inputs and outputs. Its four operating components consisted of a further breakdown into knowledge-base development as well as effects-based planning, execution, and assessment. The knowledge-base component included formation of the collaborative information environment (CIE), defined as a process and network(ing) tool. The ability of planning officers and military members in the field to share information in real time became formalized. CIE consisted of a virtual configuration of networks and chat rooms that fostered communication between military and civilian governmental organizations. The shared information provided system-of-systems-analysts data that they could interpret in their attempts to locate critical nodes and centers of gravity for planning an array of strikes. Meanwhile, information collected and analyzed fed another concept called the operational net assessment (ONA). This concept functioned as an evolving database, producing information on specific nations and regions as well as various stakeholders and interrelationships between those stakeholders in the context of historical and projected contingencies. In theory, ONA was the SJFHQ's planning touchstone, serving as an integrated and continuous model of institutional memory.

The SJFHQ consisted of 58 core members, with an additional six system-of-system analysts as needed, organized for the purpose of aiding in the rapid establishment of a joint task force (JTF) headquarters. The concern was that past JTFs and JTF headquarters had to pull people

together in an ad hoc fashion in order to respond to a given crisis. These crises often carry normative labels such as humanitarian assistance, disaster recovery, and major combat operations. Having a separate group not tied to a service-specific command or even pulling resources away from a regional combatant command's staff ensured the SJFHQ's ready availability for deployment. Additionally, since SJFHQs trained and worked together on planning and populating the ONA databases, they were already joint, ready to serve as the core around which a JTF headquarters would then coalesce during operations. SJFHQs were created to save time and to introduce flexibility as well as new war-fighting and operational-level concepts while offering the military a "low density, small footprint, but high demand" solution.

The SJFHQ organization included four main areas of working responsibilities: information superiority, planning, operations, and knowledge management. The information superiority group worked with the CIE and contributed much to the ONA, discussed earlier. The planning group consisted of experts, or individuals trained to locate subject-matter experts, in such diverse fields as political-military affairs, service-specific capabilities, special operation forces, and nongovernmental organizations. Additionally, planners doubled themselves into red and blue team counterparts, role-playing how an enemy might plan and conduct operations in the same battlespace. The operation group within the SJFHQ monitored ongoing missions and focused on measuring and tracking the effects of certain actions taken by the JTF. Meanwhile knowledge managers worked on organizing information and provided guidance on where to find relevant and timely information in order to conduct various tasks.

In their relatively short life span, SJFHQs have been deployed to Iraq, Afghanistan, Lebanon, Pakistan, Doha, Japan, and New Orleans. The SJFHQ provided its team members a venue for reflecting on the nature of the civilian interagency as well as the tensions and fissures among strategy, operations, and tactics. EBO called for campaign designers and planners to use and leverage a host of assets, including those residing beyond the DOD. Everyone understood that the phrase

implementing the national instruments of power did not denote a form of collective strategy but an exercise involving intricate operational art. My work and interviews with various SJFHQ members revealed that, from their deployments and training exercises, many of them learned about the uncoordinated nature of civilian-military relations and the impossibility of operationalizing the knowledge and tools theoretically resident within a whole-of-government approach.

Defense and Development

The type of military planning undertaken today at the operational level, especially in places like Iraq and Afghanistan, amounts to what generals and military analysts have called mission creep. Battles are no longer just mechanized outbursts of war or even the advanced coordination of air and land strikes across multiple echelons. Furthermore, US warfare has changed significantly since Vietnam. Operational artists will have us believe that the battlefield stretches across a multitude of domains. Consequently, Soldiers, Sailors, Airmen, and Marines function as multitaskers training on the job, or as my colleagues said, “flying while building the plane at the same time.” Future military members will serve as security advisers, civil protection trainers, economic and development coordinators, and civil/electrical engineers. In the long and short of it, they have become ambidextrous nation builders and consultants.

It is useful to remember that during decolonization, social scientists and political thinkers began treating the newly formed nations as a real-world problem and an academic subject fruitful for social science research and theory making. At the same time, area studies blossomed in conjunction with the Cold War, and development began to take shape as a “New World Order,” promising to deliver modernization and progress to Frantz Fanon’s *The Wretched of the Earth*.¹⁴ During this period, traditions were at once being reinvented by nationalist elites and confronted by processes of modernization. Social theories and concepts engaged with real-world political concerns surrounding the can-do modernization era immediately following the end of World War II. More

often than not, these theories helped reproduce the power structures of Western hegemony in its categorization and treatment of societies as (un)stable, (un)developed, (un)modern, and, ultimately, “things” that could be studied, understood, and controlled.

Foreign policy makers and social scientists were interested in the transition from traditional societies to modern nation-states and in ways to study changes in society. Societies not under the complete control of Western industrialized nations appeared volatile and entropic—in need of development and, hence, security. Development seemed an insurgency prophylaxis that defense had to administer and manage from the beginning. As we fast-forward to the present, this legacy is still with us today: the US military conducts its business from the operational standpoint that it is a force for good.

If war is entering a new period of reenchantment, this reenchantment is not due simply to advances in technology. For Christopher Coker, the modern military can perform surgical strikes and limit the number of casualties because war is much more about gathering and evaluating information.¹⁵ Rather than just redrawing the map, new wars transform the world ideologically. This does not represent anything new in world history, but incorporating development, humanitarian assistance, and postconflict stabilization and nation building into war amounts to a different kind of reenchantment. Things become much more interrelated, and dense networks across space and time challenge the military member’s ability to process information and respond quickly and effectively. As a result, this challenge has come to bear on the theory and praxis of operational art.

Conclusion

According to Peter Paret, “Wars are fought not to be won but to gain an objective beyond war.”¹⁶ This statement captures not only the controversies and ambivalence surrounding the US military’s attitude towards itself and recent missions but also the way it plans and makes

sense of these objectives at the operational level. EBO failed, or is failing, for many reasons. On the one hand, during EBO's concept development and experimentation phase, several senior generals expressed skepticism over the rigid nature of cumbersome networks and systems modeling. They saw EBO as a solution looking for a problem not yet articulated or even well understood. On the other hand, the SJFHQ adopted the EBO framework as an operational design and planning tool. Various members of the SJFHQ acted as representatives of various functionalities—subject-matter experts—and some even stood as proxies for and brokers in civilian-military relations. In the absence of idealized interagency at the national strategic level, the SJFHQ attempted to replicate and erect a simulacrum of various strategic viewpoints and interagency stakeholders.¹⁷ SJFHQs and the US Joint Forces Command no longer exist, but the SJFHQ concept has transitioned into a set of joint enabling capabilities residing within logistics at the Joint Staff level. EBO, however, continues to elicit debate. Critics rightfully ask how we can know for sure that certain actions will lead to certain effects. Others, however, maintain that EBO is useful for specific situations and that nodal and air strikes based on EBO have proved successful in the recent past. These continuing debates resemble and echo a military-science version of the structuralist/poststructuralist practice-theory paradox: when all you have in mind is structure, you end up seeing change; and when you are obsessed with change, you are sure to find structure and patterns.

Operational art will continue to evolve as a consequence of changes in war and vice versa. The pendulum certainly has swung the other way for now. Many military officers are preaching more than ever for a return to a simpler mission and a more restricted notion of the operational. They are clamoring for civilian leaders to issue a trickle-down approach, whereby strategy and bureaucracy pave the way for clear-cut operations and campaigns with tangible and attainable goals. But this is impossible.

The operational level of war standardizes and systematizes the way military members plan and even experience military operations. Air Force and Navy operational artists are busy making their designs and plans interoperable—or “joint,” to use the catch phrase. In peacetime, national militaries train together and adopt terminology; they are exchanging more than just beans and bullets. Even though technologies and processes so vital to the operational level of war are a far cry from the battles of antiquity, the uniformity of experience these servicemen and servicewomen share today continues. They validate new operational concepts and even maintain situational awareness from the comfort of an air-conditioned room before a panel of flat-screen monitors. Some will continue as knowledge and project managers on future teams like the SJFHQ—reservist incarnations of their corporate selves. Meanwhile, troops on the front line are becoming more sophisticated and imbued with a disproportionate sense of incommensurable realities and responsibilities. They will have to cope and interface with the various levels of warfare, for if nothing else, these levels are already ontologically ascribed onto them. In a recent monograph on how operational art devoured strategy, Kelly and Brennan say that “an American soldier on a street corner in Baghdad not only personifies a strategic decision to invade Iraq, but also the entire political, social, diplomatic, cultural, and economic evolution of the United States from before its war for independence. The actions of this [soldier] are fraught with a broad spectrum of implications—military, Iraqi domestic political, U.S. domestic political, and international political implications.”¹⁸ ★

Notes

1. For example, Maj Robert J. Reiss Jr., USAF, says that “the operational chain (combatant command, operational command, tactical command, support) runs from the commander U.S. Strategic Command (Offutt Air Force Base), to Air Force Strategic Command commander JFCC SGS [Joint Forces Command Space and Global Strike] (Barksdale) then commander Joint Service Office (Vandenberg), to the warfighter.” The operational level is very much the business of military planners; civilian leaders and politicians cede this responsibility to the military. See Reiss’s article “The C2 Puzzle: Space Authority and the Operational

Level of War," *Army Space Journal* 5, no. 2 (Summer 2006): 17, http://www.smdc-armyforces.army.mil/Pic_Archive/ASJ_PDFs/ASJ_VOL_5_NO_2_Article_1.pdf.

2. See Scott Sigmund Gartner, *Strategic Assessment in War* (New Haven, CT: Yale University Press, 1997).

3. Michelle R. Garfinkel and Stergios Skaperdas, "Economics of Conflict: An Overview," in *Handbook of Defense Economics*, vol. 2, *Defense in a Globalized World*, ed. Todd Sandler and Keith Hartley (Amsterdam: North Holland, 2007), 649–709.

4. Edward N. Luttwak, "The Operational Level of War," *International Security* 5, no. 3 (Winter 1980–1981): 61–79.

5. Field Manual 100-5, *Operations*, 20 August 1982, 2-3; and *ibid.*, May 1986.

6. Joint Publication 3-0, *Joint Operations*, 11 August 2011, I-13, http://www.dtic.mil/doctrine/new_pubs/jp3_0.pdf.

7. Jacques Richardson, *War, Science and Terrorism: From Laboratory to Open Conflict* (Portland, OR: Frank Cass, 2002), 253.

8. Luttwak, "Operational Level of War."

9. Justin Kelly and Mike Brennan, *Alien: How Operational Art Devoured Strategy* (Ann Arbor, MI: Nimble Books, 2010).

10. H. R. McMaster, "Effective Civilian-Military Planning at the Operational Level: The Foundation of Operational Planning," in *Commanding Heights: Strategic Lessons from Complex Operations*, ed. Michael Miklaucic (Washington, DC: National Defense University Press, 2010), 101.

11. Joint Forces Command was disestablished as of 31 August 2011.

12. See US Joint Forces Command, *Millennium Challenge 2002 Executive Report: Thinking Differently*, March 2003, http://www.ndu.edu/library/docs/MC02Executive_Report.pdf. Specific concepts receiving lukewarm reception included force projection; information operations; joint tactical actions; joint intelligence, surveillance, and reconnaissance; decision superiority; and three initiatives: the Joint National Training Center, Joint Fires Initiative, and Joint Enroute Mission Planning Rehearsal System–Near Term. The other concepts receiving validation included collaborative information element, standing joint force headquarters, joint interagency coordination group, effects-based operations, and operational net assessment.

13. Maj Craig A. Barkley, *The Standing Joint Force Headquarters: A Planning Multiplier?* (Fort Leavenworth, KS: School of Advanced Military Studies, US Army Command and General Staff College, 2006), 15, <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA449950&Location=U2&doc=GetTRDoc.pdf>.

14. For more information about area studies, see Pinar Bilgin and Adam David Morton, "Historicising Representations of 'Failed States': Beyond the Cold-War Annexation of the Social Sciences?," *Third World Quarterly* 23, no. 1 (February 2002): 55–80; David A. Hounshell, "Epilogue: Rethinking the Cold War; Rethinking Science and Technology in the Cold War; Rethinking the Social Study of Science and Technology," *Social Studies of Science* 31, no. 2 (April 2001): 289–97; Christopher Simpson, ed., *Universities and Empire: Money and Politics in the Social Sciences during the Cold War* (New York: New Press, 1998); and David Szanton, ed., *The Politics of Knowledge: Area Studies and the Disciplines* (Berkeley: University of California Press, 2004).

15. Christopher Coker, *The Future of War: The Re-enchantment of War in the Twenty-First Century* (Oxford, UK: Blackwell, 2004), 35.

16. Peter Paret, *The Cognitive Challenge of War: Prussia 1806* (Princeton, NJ: Princeton University Press, 2009), 3.

17. Anyone who has worked in the DOD and/or the State Department can attest that military strategy and operations are not synched up in reality with the rest of the inter-agency. The National Security Council does deliberate on matters of national security, but even this body is at the mercy of politics. Some members are more powerful than others. See David J. Rothkopf, *Running the World: The Inside Story of the National Security Council and the Architects of American Power* (New York: PublicAffairs, 2005).

18. Kelly and Brennan, *Alien*, 68.



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Airpower in the Interagency

Success in the Dominican Republic

Lt Col S. Edward Boxx, USAF

Harnessing the power of disparate organizations with different priorities and procedures is a daunting task.

—Joint Publication 3-08
Interorganizational Coordination during Joint Operations
24 June 2011



Although the role of airpower in the interagency presents Airmen with unique challenges, it allows creative and innovative solutions for many of the problems facing joint task force (JTF) and combatant commanders. For many of today's officers who find themselves comfortable within their own service or joint military environment, the term *interagency* conjures images of working with reticent civilians within cumbersome command and control (C2) structures and ill-defined relationships. In fact, Joint Publication (JP)

3-08, *Interorganizational Coordination during Joint Operations* warns that “military policies, processes, and procedures are very different from those of civilian organizations. These differences may present significant challenges to interorganizational coordination. The various USG [US government] agencies often have different, and sometimes conflicting, goals, policies, procedures, and decision-making techniques, which make unified action a challenge.”¹ The fact that the military works within the interagency is not new, but as problems facing the United States become more complex, international, and multifaceted, we can expect the pressure on the interagency process to increase. Consequently, the Air Force must be able to employ airpower effectively during such operations. This article explores the best way to ensure Airmen’s effectiveness in the interagency by proposing the joint air component coordination element (JACCE) as a possible solution.

Dominican Sovereign Skies: A Counter–Transnational Organized Crime Initiative

Transnational organized crime and illicit trafficking in US Southern Command’s (USSOUTHCOM) area of responsibility represents one such interagency issue. The command deems illicit trafficking “a significant threat to security and stability in the Western Hemisphere.”² How can airpower fit effectively into this process, especially in light of the daunting, nontraditional objectives blended within an interagency? For an answer, we need only look to Dominican Sovereign Skies, a counter–transnational organized crime (C-TOC) initiative that illustrates the JACCE’s role within the interagency task force.

The C-TOC mission in USSOUTHCOM’s area of responsibility offers just one example of the unconventional threats (e.g., illicit drugs, illegal weapons, threat finance, and human smuggling) that confront the United States.³ Organizations such as Customs and Border Protection, the Drug Enforcement Administration, and the US Coast Guard are well versed in this mission; traditionally, however, the Air Force does

not include C-TOC among its core competencies or mission sets. The Joint Interagency Task Force South (JIATFS), the organization within USSOUTHCOM responsible for the C-TOC mission, “conducts inter-agency and international Detection & Monitoring operations, and facilitates the interdiction of illicit trafficking and other narco-terrorist threats in support of national and partner nation security.”⁴ Controlling a joint operating area of 42 million square miles and primarily focused on the Western Hemisphere Transit Zone, the JIATFS includes a JACCE from the supporting air component. Before proceeding, this article now turns to the JACCE’s origins and its original *raison d’être*.

Development of the Joint Air Component Coordination Element

First implemented during Operation Iraqi Freedom in 2003, the JACCE concept met the need for close coordination and support for ground forces after leadership decided that a ground campaign would initiate removal of the Iraqi regime.⁵ Moreover, the specter of an unsuccessful operation still haunted Air Force planners. A year earlier during the ill-fated Operation Anaconda in March 2002, air and ground components failed to coordinate effectively. By introducing the JACCE concept, the Air Force sought to correct such air and ground planning problems. Since then, JP 3-30, *Command and Control for Joint Air Operations*, has defined the JACCE as a facilitator that integrates “joint air power by exchanging current intelligence, operational data, support requirements, and by coordinating the integration of [the joint force air component commander’s] requirements for [airspace coordinating measures], fire support coordination measures, [personnel recovery], and [close air support]. JACCE expertise should include plans, operations, [intelligence, surveillance, and reconnaissance], space, airspace management, air mobility, and administrative and communications support.”⁶ JP 3-30’s inclusion of the JACCE in greater detail is to be commended, but the definition remains slanted towards conventional C2 structures rather than the expansive, complex, and unique inter-

agency mission. The JACCE concept not only has enabled effective airpower in the traditional task force structure but also has the potential to make an effects-based impact in the interagency.

An insightful review by the Air Force Inspection Agency in 2010 captured lessons learned from the JACCE in US Central Command's (CENTCOM) area of responsibility. Revealing the JACCE's potential for enhancing its capabilities, the study observed that

the current command structure in the CENTCOM [area of responsibility] creates seams that challenge the integration of airpower and place increased emphasis on the role of the [J]ACCE. . . . [Furthermore,] the effectiveness of . . . [J]ACCE teams has consistently improved with time. . . . [J]ACCE directors have been empowered with increased decision making authority . . . and have also been encouraged to accommodate supported commander requests, even if it means sacrificing airpower efficiency to do so.⁷

The Air Force can transfer these lessons learned to the interagency for the following reasons.

During either a homeland defense crisis or a humanitarian assistance / disaster relief scenario, the interagency will experience "seams" in its C2 structure. If CENTCOM, which has perfected its craft during more than 10 years of constantly using kinetic (traditional) airpower, still experiences C2 seams that warrant a JACCE, then imagine the seams created when an interagency task force stands up with little warning in a time of crisis. Most air components tasked to support an interagency task force or operation will not be colocated. In the case of the JACCE director at JIATFS, located in Florida, the supporting air component is Headquarters Air Forces Southern (AFSOUTH), thousands of miles and multiple time zones away in Arizona. The supported commander or interagency organization must be able to reach out to the JACCE team to integrate airpower solutions quickly and consistently. According to Gen Mike Hostage, former combined force air component commander in CENTCOM, C2 "in multiple joint operating areas does not allow the theater [combined force air component com-

mander] to stand side by side with each ground commander—a fact that has hampered discourse and cooperation with our joint partners.”⁸ In the case of the joint interagency, the problem may not involve multiple geographical locations but the mission set. For example, when the JIATFS executes a singular C-TOC mission, the fact that it has a mission-focused JACCE allows the air component to effectively meet the demands of the supported task force commander. Not all task forces require a JACCE, but the air component must address whether or not such a need exists. Would a JACCE increase airpower effectiveness at the JTF or interagency headquarters?

A recent study of what made the JIATFS the “crown jewel” of the interagency noted that “liaisons from partner agencies are empowered by their parent organizations to make decisions that commit their agencies to action.”⁹ In this Dominican example, the JACCE—armed with an understanding of commander’s guidance, intent, priorities, and acceptable risk—integrated airpower within the interagency. In other words, because the JACCE could make decisions and had in-depth understanding of the supported commander’s needs, it applied airpower effectively. Further, the JACCE construct suits the demands of the interagency model/culture because, regardless of the importance of airpower’s efficiency, it is not the overriding mantra for the JACCE’s director. Neither the interagency nor the supported task force commander wants to hear a rigid airpower response or dissertation on the proper use of airpower; rather, they want a capability matched to a requirement and a problem solved. It is paramount that the JACCE director be trained and have the experience to make those sorts of decisions. The director should also be familiar with the broad expanse of potential JACCE roles outlined in the latest version of JP 3-30, mentioned above. As the Air Force Inspection Agency observes, “[J]ACCE teams span the spectrum of operations from major combat to humanitarian relief,” perhaps making them the ideal airpower construct for integration within the interagency.¹⁰

Case Study: The Use of Airpower in the Dominican Republic

Airmen readily comprehend the concept of air sovereignty and can apply it to great effect, as the ensuing case study of air success in the Dominican Republic makes evident. All interagency success stories begin with a combined effort involving diverse organizations. This particular joint interagency team effort included the US Department of State, the Dominican Air Force Mission, the JIATFS Dominican country liaison officer and a core of action officers, Air Force reserve instructor pilots, Drug Enforcement Administration agents, and USSOUTHCOM leadership.¹¹ Ultimately the Dominicans themselves deserve credit for eradicating illegal flights into their country, but the air component's role demonstrates the critical part that the JACCE can and should play within an interagency task force. The Dominican Republic's virtual elimination of illicit air trafficking and protection of its air sovereignty stand as prime examples of successful airpower application within the interagency.

In 2003 the Dominican Republic experienced a rise in illicit drug movements by air, culminating with a peak of 119 events in 2007 (fig. 1). Aircraft taking off from South America would simply fly the few hours to the Dominican Republic, air-drop packages of cocaine, and then return to their point of origin. Almost 20 percent of this drug flows through the Western Hemisphere Transit Zone via air, and at one time nearly half of that air flow was destined for the Dominican Republic (fig. 2). Like traditional shipping companies, drug traffickers embrace the air conveyance because of its speed and control, versus the slower maritime mode, which could take up to weeks along a more circuitous and perhaps "unsupervised" route. The Dominican Republic's geographical position (near the US and European markets), political stability, and low cost of living make it a favored location not only for tourists but also for business-savvy criminal organizations. These factors help explain the crescendo of illicit air activity into the Dominican Republic until implementation of the Sovereign Skies initiative. Undoubtedly we

can point to the first intercept of an air track of interest by a Dominican A-29 Super Tucano (directed by an E-3 Airborne Warning and Control System [AWACS]) on 23 October 2010 as the watershed event of this initiative. No other aircraft has attempted to enter sovereign Dominican airspace from South America following that event (fig. 3). The drop-off of air activity has been nothing short of amazing.

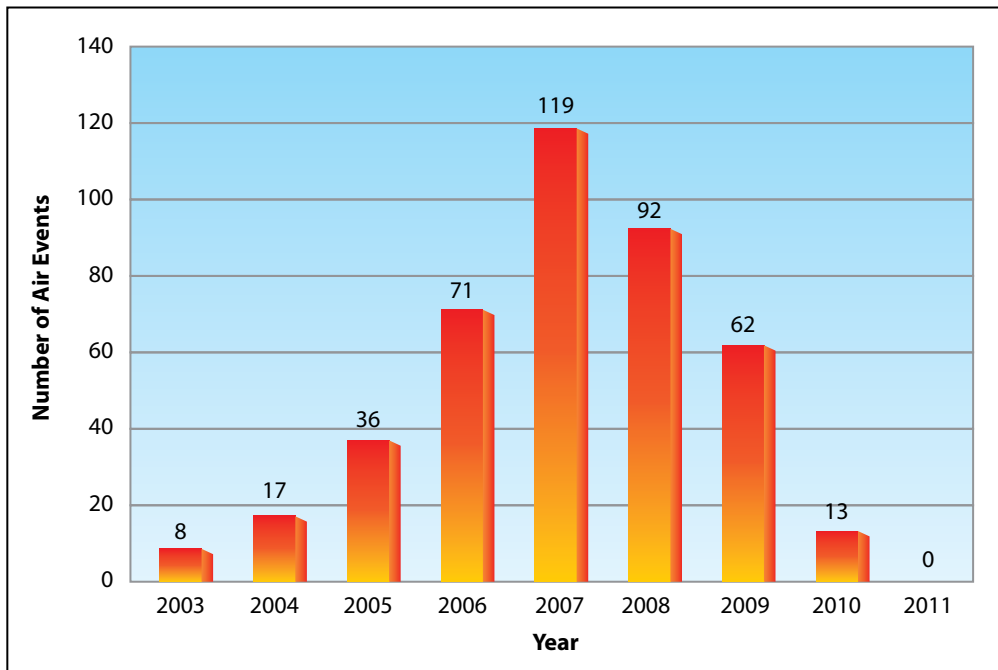


Figure 1. Illicit air events into the Dominican Republic, 2003–11. (Courtesy of Mr. Leif Konrad, operations analyst, JIATFS Analysis and Research Group, Key West, FL, 1 December 2011.)

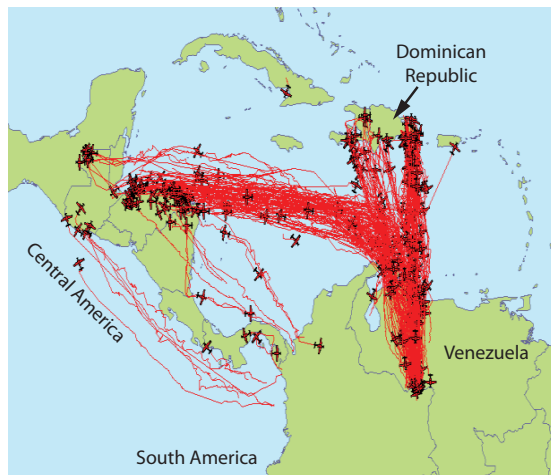


Figure 2. Illicit air events in 2009.
(Courtesy of Mr. Leif Konrad, operations analyst, JIATFS Analysis and Research Group, Key West, FL, 1 December 2011.)

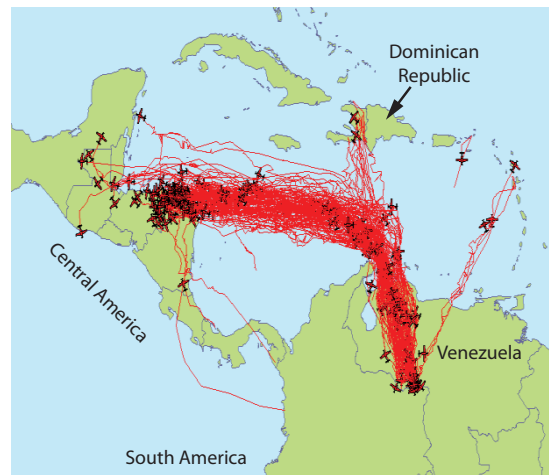


Figure 3. Illicit air events in 2011.
(Courtesy of Mr. Leif Konrad, operations analyst, JIATFS Analysis and Research Group, Key West, FL, 1 December 2011.)

The Sovereign Skies initiative began in 2009 as a three-tiered approach. That year, the Dominican Republic's air force (DRAF) purchased eight A-29 Super Tucanos from Brazil in order to stem the shipments of cocaine flown into the country. In parallel, the US Department of State explored the procurement of night-capable helicopters while the Dominicans themselves purchased Israeli-made radars and started building a new air C2 facility. Later in 2009, USSOUTHCOM tasked AFSOUTH "to develop an aerial training program for Dominican Republic Air Force A-29 pilots . . . to achieve air sovereignty within the Dominican airspace."¹² By any measure, this represented a daunting task: creating a tactical air force and establishing air sovereignty in a country that receives half of the illegal flow of drugs—and doing so with no identified funds or budget. But the JACCE within the interagency task force proved itself the ideal construct for enabling the air component to meet the challenge.

The DRAF—the last air force to fly the P-51 Mustang—has a proud tactical tradition, but because of an aircraft accident in 2000, it stopped

flying tactical aircraft (AT-37s) for nine years.¹³ Understandably, as noted in figure 1, illicit flights increased during this time. Although the DRAF found itself flush with experienced pilots in 2009, they no longer possessed the tactical skills necessary to intercept a noncooperative small target at night. Although JP 3-30 does not include creation of tactical air forces for a partner nation or building partnership capacity as JACCE tasks, this vignette clearly demonstrates the impact of airpower within an interagency JTF.

Organization and Structure

The air component commander at the time, Lt Gen Glenn Spears, identified the JACCE as the mechanism to tackle air sovereignty in the Dominican Republic, an observation that made airpower sense for a number of reasons. The JACCE comprehended the challenges of airborne illicit trafficking and understood the contributions airpower could provide to the supported JIATFS commander. The DRAF had just sent its first liaison officer to the JIATFS, thus colocating that officer, the JACCE, and the JIATFS staff. Moreover, the JACCE enjoyed correct staffing, including officers experienced in radar, C2, and tactical aircraft; enlisted C2 specialists; civilian radar analysts; and the ability to reach back for expertise from fighter instructor pilots. Clearly the JACCE was well suited to tackle Sovereign Skies. Additionally the use of terms like *air sovereignty* and *A-29 fighters* gave the JACCE what General Hostage refers to as “a seat at the table.”¹⁴ According to JP 3-08, “The focal point for operational- and tactical-level coordination with civilian agencies may occur at the JTF HQ, the joint field office, the civil military operations center . . . or the humanitarian operations center”; in this case, the focal point resided at the JIATFS—the location of the JACCE.¹⁵

As reinforced in JP 3-08, “successful interorganizational coordination enables the USG to build international and domestic support, conserve resources, and conduct coherent operations that more effectively and efficiently achieve common objectives.”¹⁶ The Sovereign Skies interagency team knew that any initiative presented to USSOUTHCOM

needed be lean and innovative—one that would yield results almost immediately.¹⁷ The JACCE harnessed the diverse airpower resources necessary to implement an effects-based Sovereign Skies program and at the same time satisfy interagency concerns. Solutions included an A-29 fighter syllabus authored by US Air Force personnel and taught in Colombia where eight Dominican pilots learned the use of night vision goggles, formation flying, and intercept procedures with dissimilar aircraft such as the Colombian air force's C-560 tracker platforms. Creation of a career field in ground control intercept for the DRAF addressed the fact that its A-29s had no air intercept radar. Subsequent development of a syllabus for a course taught in Colombia produced five controller graduates who have returned to the Dominican Republic. At the same time, exchanges of numerous C2 subject-matter experts, radar site surveys, and integration visits to air operations centers took place. AWACS and A-29 aircraft conducted quarterly interoperability missions and crew certifications, resulting in more than 100 successful A-29 close-control intercepts directed by the E-3. Accompanied by the JACCE, DRAF leadership visited US fighter bases, witnessing air control and fighter operations and flying in F-16 intercept missions conducted by US Air Force ground control intercept. A DRAF A-29 cadre flew aboard an AWACS during actual C-TOC missions, observing firsthand the communications and coordination required for successful aircraft intercepts. Finally the JACCE displayed the enhanced Air Force–DRAF cooperation by coordinating an AWACS flyby during the 2010 International Caribbean Air Show held in the Dominican Republic.¹⁸ Because of the number of agencies involved and the focus on overall air interdiction, the JACCE took the lead in planning and executing the Sovereign Skies initiative. As JP 3-08 points out, “Within the USG, military and civilian agencies perform in both supported and supporting roles. However, this is not the support command relationship described in Joint Publication 1, *Doctrine for the Armed Forces of the United States*. Relationships between military and civilian agencies cannot be equated to military command authorities.”¹⁹ This observation proved especially true in the Dominican case study in that none of the

interagency organizations worked for each other; nevertheless, a JACCE is exceptionally capable of bridging those gaps between military and civilian agencies with regard to effective airpower.

Results of Integrating the Joint Air Component Coordination Element

Did airpower alone solve the problem of illicit flights into the Dominican Republic? Absolutely not. However, even though the exact calculus for success is not entirely clear, the air component had a profound effect. Substantial operations against networks of drug trafficking organizations (DTO) and increased anticorruption measures by Dominican authorities occurred simultaneously, but analysts highlight the incident of 23 October 2010 as a turning point for illicit air trafficking in the Dominican Republic. Furthermore, DRAF officers are convinced that Sovereign Skies' use of airpower made a definitive impact: "You only have to look in the skies of Santo Domingo, and you will see and hear our Super Tucanos on patrol. Every day *El Diario* [Dominican newspaper] publishes articles about training with the Colombians and the USAF. The DTOs know the Colombian Air Force A-29 pilots are some of the best in the world and USAF AWACS patrol the skies between Hispaniola and South America, and they are providing intercept control to our A-29s."²⁰ The benefits of a trained tactical air force have also increased cooperation within the Dominican counterdrug interagency. For example, Dominican patrol boats request air support through a simple text message that produces a DRAF A-29 on scene in a matter of minutes. On multiple occasions, based on interagency intelligence, A-29s have launched and intercepted maritime targets, subsequently vectoring nearby patrol boats for cocaine seizures and arrests.

No doubt the DTOs recognized the formidable task of flying cocaine into a country with an air force trained, equipped, and determined to preserve its air sovereignty. William Brownfield, US assistant secretary of state for the Bureau of International Narcotics and Law Enforcement Affairs, notes that "our measure of success will always be a couple of

years behind the reality on the ground . . . because drug traffickers and criminal organizations do not report their figures and statistics to government institutions.”²¹ Consensus within the JIATFS, however, held that the environment for the DTOs simply became too difficult to fly cocaine into the Dominican Republic; the cost-benefit analysis of this particular business model revealed that flying to other locations, such as Central America, would be cheaper and easier. Moreover, Sovereign Skies made the DTOs change their conveyance from air to maritime—now targeted by the JIATFS and the Dominicans. As for the air component, it learned that pairing a highly capable C2 asset such as the E-3 AWACS with a partner nation’s air force can yield impressive results.

Admittedly, the precise effect of airpower in this scenario remains unknown. To ensure that the Dominican Republic does not revert to a destination of choice for DTOs, the JACCE continues to assist in C2 integration and oversees regular AWACS and A-29 crew certifications. Today every Dominican A-29 pilot sitting alert has been certified with AWACS-directed intercept control. As Rear Adm Charles Michel, the JIATFS director, declared, “Once the aircraft stopped flying into the Dominican Republic, I didn’t want them going back.”²² One must note that illicit drug trafficking in this country has not diminished—just use of the conveyance. Drugs continue to enter the Dominican Republic, albeit either by “legal” commercial airline flights or by maritime trafficking, and the price of drugs on the streets of Santo Domingo has not significantly changed. Regardless, Sovereign Skies has effectively denied unrestricted access through the air domain.

Conclusion

What can we learn from the Dominican case study? Answering this question involves addressing two others. Was the supported JTF commander satisfied? Was airpower effective within the interagency? The response to both is an emphatic yes. Rear Admiral Michel commented that “those red lines representing illegal air tracks mean something to me. That’s 20 percent of the cocaine flow and not something JIATFS

can ignore.”²³ Indeed, each of those illegal sorties carried approximately 300 kilograms of cocaine worth \$6 million (US).²⁴ In 2009, for example, these flights accounted for half a billion dollars worth of cocaine. Also from the JIATFS director’s perspective, the current lack of “red lines” or illicit aircraft into the Dominican Republic clearly shows the effect of joint airpower. Although measuring success within the interagency and judging airpower effectiveness is not always easy, the Dominican case demonstrates the dramatic impact of airpower applied correctly. Additionally, it underlines the necessity of placing a JACCE in the interagency, especially at the JTF. General Hostage adeptly relied on the JACCE within a geographical combatant command, but sometimes the task-focused JTF or interagency task force needs a JACCE. Take, for instance, the case of Maj Gen Garry Dean, former commander of Air Forces Northern. On a visit to the JIATFS in 2010, he wanted to better support the needs of the interagency in his area of responsibility (in this case, JTF-North, located in EL Paso, Texas) by using airpower or the air component as effectively as possible.²⁵ When he discussed this matter during a tour of the JIATFS, the JACCE responded unequivocally: “Send a JACCE to El Paso.” Indeed, General Dean subsequently named a JACCE to JTF-North; since then, coordination between the task force and air component has improved, and support for the task force has benefited from greater and more creative airpower support.²⁶

The need for effective airpower at the JTF or within an interagency organization will not diminish but continue to grow and exert pressure on the C2 seams. We should examine existing interagency task forces or traditional task forces as opportunities for JACCE involvement. In the case of unplanned humanitarian assistance / disaster relief events such as earthquakes, tsunamis, and civil defense, we should determine during crisis-action planning whether or not to include a JACCE. For Airmen, the interagency at times conjures a byzantine process far removed from structured military operations, but the Dominican case study demonstrates how airpower can make a difference. The Dominican success illustrates a concept readily understood and studied by

Airmen—air sovereignty. Arguably, however, we can transfer this principle to any joint interagency task force or initiative. It is quite possible, for example, that an interagency cyberspace or counter-nuclear proliferation task force could include a JACCE that would effectively address the naturally occurring seams that impede the successful integration and employment of airpower. In sum, complex challenges to the national security of the United States likely will create greater emphasis on interagency solutions that will include skill sets singularly possessed by an Air Force JACCE. ★

Notes

1. Joint Publication (JP) 3-08, *Interorganizational Coordination during Joint Operations*, 24 June 2011, I-10–I-11, http://www.dtic.mil/doctrine/new_pubs/jp3_08.pdf.
2. “Countering Transnational Organized Crime,” United States Southern Command, accessed 4 April 2012, <http://www.southcom.mil/ourmissions/Pages/Countering%20Transnational%20Organized%20Crime.aspx>.
3. United States Southern Command, *Command Strategy 2020: Partnership for the Americas* ([Miami, FL:] USSOUTHCOM, July 2010), 6, http://www.southcom.mil/aboutus/Documents/Command_Strategy_2020.pdf. The term *threat finance* refers to systems and networks that adversely affect US interests by financially supporting illicit organizations and individuals such as terrorists and traffickers in drugs, weapons, and humans.
4. “Mission,” Joint Interagency Task Force, accessed 4 April 2012, <http://www.jiatfs.southcom.mil/index.aspx>.
5. “The Role of the Air Component Coordination Element,” Air Force Inspection Agency, 21 June 2010, <http://www.afia.af.mil/news/story.asp?id=123210289>.
6. JP 3-30, *Command and Control for Joint Air Operations*, 12 January 2010, II-15, http://www.dtic.mil/doctrine/new_pubs/jp3_30.pdf.
7. “Air Component Coordination Element.”
8. Lt Gen Mike Hostage, “A Seat at the Table: Beyond the Air Component Coordination Element,” *Air and Space Power Journal* 24, no. 4 (Winter 2010): 18–19, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj10/win10/2010_4_05_hostage.pdf.
9. Evan Munsing and Christopher J. Lamb, *Joint Interagency Task Force–South: The Best Known, Least Understood Interagency Success*, Strategic Perspectives no. 5 (Washington, DC: National Defense University Press, June 2011), 40, http://www.ndu.edu/inss/docUploaded/Strat%20Perspectives%205%20_%20Lamb-Munsing.pdf.
10. “Air Component Coordination Element.”
11. Former AFSOUTH commander Lt Gen Glenn Spears and A-3 leadership allowed the JACCE enough latitude to pursue the Sovereign Skies initiative. Col Bruce Danskine and Mr. Ken Popelas, leaders of the 612th Theater Operations Group, encouraged creative use of

AFSOUTH assets and embraced interoperability with partner nations' air forces. Former JACCE directors Lt Col Ronni Orezzaoli and Lt Col Mathew Enenbach assembled the initial stakeholders. Agent Mr. Brian Bonifant; tactical analyst Ms. Christine Mulder-Meira; Maj Eleanor Peredo, USAF; and Mr. Arnie Sierra and Mr. Guillermo Toca of the US Department of State spearheaded the effort within the Dominican Republic. Lt Col Jonas Reynoso of the Dominican Republic's air force; Maj Scott Jendro, USAF; Maj Adam Haughey, USA; and Mr. Richard Silva worked tirelessly from south Florida. F-16 instructor pilots Lt Col Michel Torrealday and Lt Col Eric Perlman at Luke AFB, Arizona, were absolutely critical. Their handcrafted syllabi and professional airmanship with the A-29 cadre helped create a tactical air force and strengthened US-Dominican ties. Mr. Hank Attanasio, Mr. Jim Knoll, and Ms. Linda Helper, along with Mr. Don Kelly from Air Combat Command, provided outstanding US Air Force counterdrug support. The AWACS C2 and close control ("bogey dope") continue as Sovereign Skies enablers.

12. USSOUTHCOM task order, subject: Dominican Republic Aerial Mobile Training Team Deployment, 24 March 2009.

13. Col Hilton Cabral, a friend and classmate in an Air Command and Staff College seminar, flew the last AT-37 mission. He survived an ejection after takeoff at San Isidro Air Base and later became the first A-29 squadron commander and DRAF A-3.

14. Hostage, "Seat at the Table."

15. JP 3-08, *Interorganizational Coordination*, xiv.

16. *Ibid.*, ix.

17. SOUTHCOM spent a total of \$800,000 in two years to gain air sovereignty in the Dominican Republic. Considering that the entire SOUTHCOM budget for fiscal year 2011 came to \$200 million, \$800,000 is a reasonable investment to rid a partner nation of illicit air traffic.

18. The AFSOUTH E-3 executed perhaps its first-ever Latin American flyby for the purpose of demonstrating US Air Force-DRAF cooperation and presenting the United States as a partner of choice. An estimated 2.2 million people watched the air show, making it the largest single event in the Dominican Republic. It even exceeded attendance at past carnivals and independence day celebrations. David Schultz Airshows LLC, air show coordinator, interview with the author, 30 March 2011.

19. JP 3-08, *Interorganizational Coordination*, xi.

20. Briefing, Lt Col Jonas Reynoso, DRAF, subject: Dominican Republic Sovereign Skies Brief to Counter Narcotics Trafficking Planning Conference, JIATFS, 17 November 2010.

21. "U.S. Diplomats, Interagency Officials Discuss Western Hemisphere Security," United States Southern Command, 9 November 2011, <http://www.southcom.mil/newsroom/Pages/U-S--diplomats,-interagency-officials-discuss-Western-Hemisphere-security.aspx>.

22. Briefing, Rear Adm Charles Michel, JIATFS, subject: Air Component Campaign Plan Briefing by Interim AFSOUTH Commander Gen Jon Norman presented to Gen Douglas Fraser, 2 November 2011.

23. *Ibid.*

24. These amounts reflect Miami wholesale cocaine prices (\$20,000 [US] per kilogram).

25. The JIATFS is considered the best example of joint interagency cooperation and, as such, annually hosts more than 10,000 visitors who wish to learn about its successes. For more about the JIATFS as the gold standard for interagency cooperation, see Munsing and Lamb, *Joint Interagency Task Force-South*.

26. Details concerning increased air component support are sensitive, but the JTF-North commander now has US Air Force assets and capabilities he did not possess before inclusion of the JACCE.



Lt Col S. Edward Boxx, USAF

Lieutenant Colonel Boxx (BA, University of Texas–El Paso; MAS, Embry-Riddle Aeronautical University) assumed command of Detachment 2, Headquarters Twelfth Air Force, Naval Air Station Key West, Florida, in October 2009. He serves as director, Air Component Coordination Element–Joint Interagency Task Force South, responsible for integrating Air Force assets in the 42 million square mile joint operations area. A command air battle manager with 3,474 flight hours and an instructor and/or evaluator in the E-8C and E-3B/C aircraft, he has flown in numerous wartime, contingency, counternarcotics, and Joint Staff–directed operations, including Southern Watch, Provide Comfort, Tiger Rescue, Restore Democracy, Iraqi Freedom, Enduring Freedom, and Noble Eagle. Lieutenant Colonel Boxx was selected as an Air Force Fellow for 2012 and will soon join the faculty of the Washington Institute for Near East Policy.

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Ten Thousand Feet and Ten Thousand Miles

Reconciling Our Air Force Culture to Remotely Piloted Aircraft and the New Nature of Aerial Combat

Maj Dave Blair, USAF

We have just won a war with a lot of heroes flying around in planes. The next war may be fought by airplanes with no men in them at all. . . . Take everything you've learned about aviation in war, throw it out the window, and let's go to work on tomorrow's aviation.

—Gen Henry “Hap” Arnold, US Army Air Forces, 1945

Introduction: One Story, Two Complexions

Heavy fire from a DShK .50-caliber machine gun pins down a team of Navy SEALs.¹ Outnumbered and outgunned, the team has one lifeline—the aircraft on the other end of their joint terminal attack controller's radio. The aircraft lies well outside the range of any of the insurgents' weapons, but that thought doesn't cross the mind of the pilot as he focuses solely on his comrades, who do not enjoy the same luxury. Lightning quick, a GBU-12 puts the DShK out of commission.² Two minutes later, missiles from the striker make short work of a group of insurgents trying to flank the team. No longer pinned, the SEALs return fire, and the adversary falls back. Once the dust settles, the friendlies make their way back to the exfiltration site.³ When the tale is told, the actions of the aircrew made the difference between life and death for the brave members of this special operations force.

By far the most important part of this story is the knowledge that the good guys came home safe. Still, we could tell this same story with the

crew of either an F-15E Strike Eagle or an MQ-9 Reaper remotely piloted aircraft (RPA) as the protagonists. In the former case, our institutions would likely herald the crew's heroism with decorations, yet in the latter case, the same institutions would remind the crew that their efforts do not even qualify as "combat time." The urgent needs of combat led to the explosive growth of RPAs, but the people who meet those needs hear that they are not in combat. This contradiction deserves a response.

Because institutional recognition conveys powerful messages about relative valuation, this distinction bears further exploration. The military awards combat medals for combat, but in each new conflict, technology and tactics change our definitions—front lines expand along with the reach of new weapons. This fact certainly applies to current conflicts, initiated by enemies who struck the first blow when they attacked us in our homeland by way of globalized transportation and communications links—connections that now allow our warriors to participate in direct combat from the homeland. Hence, our definitions bear reexamination in the light of this war's globally decentralized battlefield.

Answering the Conventional Wisdom: Combat Risk

We begin with the counterargument that RPA operators aren't in combat because they do not put their lives at risk. At the root of this idea is the concept of "combat risk"—lives at stake in the face of enemy fire qualifies that particular activity as combat. Two major reasons make this notion deeply problematic: (1) we don't differentiate between gradations of technologically mitigated risk in other platforms, and (2) in the case of RPAs, it is simply untrue.

On the first count, what is the differential risk between 10,000 feet and 10,000 miles in current conflicts? When a manned aircraft with two spare engines scrapes the top of a combat zone, well outside the range of any realistic threat, why do we consider that scenario "combat" yet deem a Predator firing a Hellfire in anger "combat support"? Diving to the heart of the issue, we must conclude that technological advances which

reduce combat risk should not lessen the reality of combat. Apologists for the status quo often decry defenses that leverage technology as cowardly, yet those perspectives typically find themselves overrun by individuals able to embrace the changes that technology has wrought. (The examples of firearms in Japan, medieval crossbows, and submarines in World War I all speak to entrenched orders who invoke honor to defend themselves against technological advances.)

Recalling one particularly vociferous (and inebriated) F-22 pilot, who emphatically asserted that “fighting a war via video teleconference isn’t very honorable,” we might say the same for firing a missile beyond visual range from a fighter cloaked with stealth technology. It would be hard to imagine that the same individual would feel compelled to activate his radar transponder upon contact with the enemy, just to restore honor to his kill by mitigating his technological defenses. The decentralized control system of the Predator fits no less well in the category of technological defenses. In other platforms, countermeasures and countertactics do not invalidate the reality of combat, even as they mitigate its risks—to do so introduces a deeply perverse and backward-looking incentive.

As to the second count, I do not believe that RPA operators are in less danger than their manned counterparts. In fact, I assert that it may well be the other way around. Recall that the individuals killed in the terrorist attack of 11 September 2001 on the Pentagon received the Purple Heart, a combat medal. This war is global, and our enemies have global reach as well. If we found ourselves in our enemies’ position, would we spend the time and attract attention attempting to purchase a high-profile missile when a terror attack on RPA operators in the continental United States would produce better results? God forbid that scenario comes to pass, but I argue strongly that the differential risk of being an RPA operator in this war is at least that of an in-theater pilot. How does a terror attack on the way to work differ from ground fire on initial climb-out? In both instances, someone comes under enemy fire en route to the target area.

Moreover, the act of employing kinetics in anger brings with it a degree of personal risk. For one, operators are always subject to time-constrained judgments in accordance with the special instructions.⁴ Firing a weapon outside those rules can land them in jail. Beyond this instance, a well-weaponed “danger close” shot can end with a friendly casualty—the risk we accept with danger close.⁵ The legality of the shot, however, will not diminish its reality for the operator who took the shot; he or she will have to live with the consequences nonetheless. Along the same lines, an operator who shoots in accordance with rules pertaining to collateral damage has to live with the images of the impact. It is hard to imagine a true combat-support sortie with these sorts of sequelae.

Toward a Deeper Understanding: Combat Responsibility

Combat responsibility offers a more reliable measure than combat risk. The former defines combat in terms of two elements: (1) unlimited liability, including life and death, and (2) adversarial intent, precluding a win-win potential outcome (as in a natural disaster). The extent to which these elements are invoked is the extent to which an activity qualifies as combat. An individual holds combat responsibility if his or her choices may directly result in the saving of friendly lives or the taking of enemy lives. In other words, if individuals immediately cue, fire, or guide weapons or if they are directly entrusted with the lives of Soldiers, Sailors, Airmen, or Marines going into harm’s way, then they are in combat.⁶

Historically, combat risk and combat responsibility generally overlap. Before the advent of long-range missiles and data links, combat risk was typically a prerequisite to employing weapons against an adversary. During times of great technological asymmetries, though, these definitions would diverge. A heavily armored samurai is effectively invulnerable to all foreseeable threats, save another samurai. An archer with a longbow remains almost immune to direct combat because of his ranged weapons unless his lines break. A submariner in the early years of World War I has more to fear from the ocean than

from enemy weapons. When technological asymmetries drive these definitions apart, combat responsibility better captures the whole of combat; moreover, combat responsibility includes combat risk.⁷

What would a recognition model geared toward combat responsibility look like in our current air war? For manned aircraft, anytime aviators fly in a combat zone, they assume combat responsibility for themselves and their crew or element. Whenever pilots release a weapon in anger (including a cruise missile from outside the combat zone), they assume combat responsibility for that weapon's effects. This scenario closely resembles the current policy but with a more expansive rationale—we measure people by their duty to their comrades in harm's way as well as the risk to themselves.

RPA's demand a bit more interpretation. As opposed to a manned aircraft, associated with combat defined geographically for the most part, the RPA requires a causal lens. That is, what individuals do on the sortie defines whether or not they are in combat. Interestingly, people may realize they're going to be in combat only partway through the sortie. A sortie qualifies as combat if it includes both elements of combat responsibility: (1) lives directly on the line (2) against an enemy in wartime. A sortie that does not meet this definition may satisfy a more relaxed one for combat support: second- or third-order actions that enable direct actions against the enemy. As a rule of thumb, someone in a position to make choices that directly affect the outcome is in combat. A person who puts someone else in that position provides combat support.

For example, we may consider sensor scans on a building or a major supply route combat support—actions against an enemy when lives are not directly on the line. This type of critically important mission can often have second- and third-order effects that save lives and strike targets. But at that moment, the person is not in a position to make decisions that translate into life or death. Contrastingly, consider a similar sensor scan that finds a team emplacing improvised explosive devices. When crew members spin up their missiles with a legal attack clearance, they are in combat. A steady stare on a building becomes

combat when a friendly strike force arrives to raid that building because the crew takes on combat responsibility for friendly forces on the screen. Target development and route scans typically remain combat support. Kinetic strikes, support of direct action, and armed escort generally become combat.⁸

Therefore, in accordance with current guidance, a set sum of combat sorties would justify an Air Medal with the concurrence of the combat chain of command. Similarly, a sum of combat-support sorties justifies an Aerial Achievement Medal. For single-mission medals, causality is the prime consideration. To consider crew members for a single-mission Air Medal or a Distinguished Flying Cross, their actions must have been the deciding factor between life and death. If good guys would have died but for the actions of Lieutenant Smith, then the lieutenant is the causal factor in their survival. Similarly, if high-value target number four is about to enter a civilian area and Airman Jones's superior skill allows a minimum-range shot while that individual remains targetable, then the Airman is the causal factor in the target's demise. If Smith and Jones meet this requirement, we should consider their achievements on par with equivalent actions taken by the manned platform.

Conclusion: Combat Effects Trump Platform Prestige

At the heart of this discussion lies the sacredness of combat. Awards and decorations are among the highest avenues of formal recognition available to the military. The relative preference of awards sends a message that echoes very loudly indeed, telling a story of what the service considers valuable and worthy of respect. A dangerous temptation exists to use awards to highlight a platform or a capability—the toxicity of this practice cannot be overstated. By doing so, we tell people that what they are (and what they fly) matters more than what they do; we tell them that prestige trumps valor. Consequently, we reinforce the caste structure and continue to generate self-fulfilling prophecies about relative performance. By starting with the fight and working backwards, we send a much better message: that we value someone's

contribution to the fight. The difference that person makes is more important than the aircraft that he or she flies.

Primarily, this argument addresses cognitive consistency, which becomes all the more important, given the prodigious new cadre of RPA-only aviators. When we have a great number of brand-new lieutenants and Airmen manning our current RPAs, we must help them make the mental leap from their ground control station into a combat zone they've never seen, especially when every normal cultural cue tells them they're in peacetime New Mexico. The consequences of not doing so are frightening. When every other asset in the stack and on the ground is in a combat mind-set, the prospect of a bubble of peacetime floating around the battlespace should be terrifying.

In a way, by telling these young warriors that they are flying combat support, we confirm their brains' natural conclusion that they're sitting stateside rather than in US Central Command's area of responsibility (CENTCOM AOR). If we tell them they're not in combat, who are they to disagree? By treating combat rather than prestige as sacred, we eliminate this contradiction and help these future leaders reconcile themselves to this new type of combat. In a nascent tradition of the maturing Predator and Reaper communities, plaques over the entryways of combat spaces proclaim, "You are now entering the CENTCOM AOR." Our RPA crew members truly believe this fighting creed. We ask only that the institution affirm its veracity.

As a parting shot, the Air Force has always survived and thrived as a service by pioneering and innovating.⁹ Though grounded in timeless truths of military thought, our niche is forging new ways of war, pushing the technological frontier to transform the way our nation fights wars. And we have done so very well—pushing from air to space and into cyberspace, changing in response to revisions in the nature of warfare that we ourselves have wrought. As General Arnold predicted long ago, we now fight in the air using a global fly-by-wire system whose control cables reach across space and cyberspace. But the initiative and innovation that continually stretch the envelope cannot abide

entrenched privilege. Such privilege is rooted in the present implications of the past's distribution of power and cannot stomach change, lest that distribution be reshuffled. It becomes the inertia that anchors us to the past. For a service that relies on innovation for survival, privilege is poison. Our definitions and distributions of power should support the Air Force of the current and the next fight, not the last one. On that note, the Department of Defense's *Unmanned Systems Integrated Roadmap* predicts a force made up almost entirely of RPAs by the middle of this century.¹⁰ On the current trajectory, the only Air Medals will be the ones in history books. ✪

Notes

1. The *Degtarayova-Shpagina Krupnokalibernyy* [Degtarayov-Shpagin heavy caliber] is a Soviet-era heavy machine gun common worldwide. "Degtyarev (DShK-38 and Model 38/46) 12.7 mm Heavy Machine Gun (Russian Federation), Machine Guns," Jane's Information Group, accessed 23 February 2012, <http://articles.janes.com/articles/Janes-Infantry-Weapons/Degtyarev-DShK-38-and-Model-38-46-12-7-mm-heavy-machine-gun-Russian-Federation.html>.

2. The GBU-12 is a 500-pound laser-guided bomb common to US tactical aircraft. "GBU-10, GBU-12, GBU-16 Paveway II (United States), Bombs—Precision and Guided Munitions," Jane's Information Group, accessed 23 February 2012, <http://articles.janes.com/articles/Janes-Air-Launched-Weapons/GBU-10-GBU-12-GBU-16-Paveway-II-United-States.html>.

3. The term *exfiltration site* refers to the landing zone from which a special operations force departs the battlespace after completing its mission.

4. Special instructions are a set of overarching orders from the coalition force air component commander that govern the employment of airpower in a combat theater.

5. The term *danger close* denotes fires employed in close proximity to friendly ground forces when the ground force deems that the danger from the enemy exceeds that from the munitions employed. Formally, it refers to ordnance delivery inside the 0.1 percent probability of incapacitation distance. Joint Publication 3-09.3, *Close Air Support*, 8 July 2009, V-20, https://jdeis.js.mil/jdeis/new_pubs/jp3_09_3.pdf.

6. To keep our terms clean, we use *directly* and *immediately* to refer to a participant only one causal step away from the outcome. This useful distinction differentiates between combat and combat support. Combat-support actions are critically important in shaping outcomes although their impact is not as causally direct as that of participants in the point of attack or defense.

7. Historically, as symmetry is eventually restored, these definitions converge once again. As an academic exercise, imagine dueling fleets of Chinese and American remotely piloted combat aerial vehicles searching for each other's ground stations. In this circumstance, a seat in a manned aircraft might be a much more comfortable place.

8. Logistically, crews would indicate whether or not they performed raid support or kinetics at the completion of their sortie—information retroactively input into the flight paperwork. This procedure resembles an accounting process for KC-135s, whereby the combat status of receiver aircraft retroactively dictates whether the mission was combat or combat support.

9. “Our Air Force owes its existence to visionaries who sought innovative ways to do things—instead of going through an enemy’s line, let’s go over it. Now is the time to boldly embrace the enterprising spirit that Airmen have long demonstrated by harnessing the latest technology and developing novel ways of accomplishing the nation’s missions.” Gen Edward A. Rice Jr., “Building toward the Future,” *Air and Space Power Journal* 26, no. 1 (January–February 2012): 6, <http://www.airpower.maxwell.af.mil/digital/pdf/issues/jan-feb/Jan-Feb-2012.pdf>.

10. Department of Defense, *Unmanned Systems Integrated Roadmap, FY2011–2036* (Washington, DC: Department of Defense, Office of the Secretary of Defense, [2009]), <http://www.fas.org/irp/program/collect/usroadmap2011.pdf>.



Maj Dave Blair, USAF

Major Blair (USAF; MPP, John F. Kennedy School of Government, Harvard University) is an MQ-1B instructor pilot and an AC-130U pilot. He has served as assistant operations officer for war fighting and chief of plans with the 3rd Special Operations Squadron. As a member of Air Force Special Operations Command, he has served both physically and through telewarfare in Iraq and Afghanistan and on emerging fronts. Currently Major Blair studies international relations as a PhD student at Georgetown University; his dissertation attempts to apply dark network disruption strategies to the problem of contemporary human trafficking.

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Long-Range Strike

The Bedrock of Deterrence and America's Strategic Advantage

Maj Wade S. Karren, USAF

Let us, therefore, beware of being lulled in to a dangerous security. . . . The expenses required to prevent a war, are much lighter than those that will, if not prevented, be absolutely necessary to maintain it.

—Benjamin Franklin, 13 May 1784

Long-range strike (LRS) and the often-associated phrase *strategic attack* are perhaps the most discussed but least understood terms in current military use.¹ Despite, or perhaps because of, numerous definitions and formulations, we tend to overlook the real value of LRS capabilities in the minor details of numerous acquisition plans and concepts of operations. Many components comprise America's power to influence. Yet its ability to project conventional and nuclear military power across the globe at a time and place of our choosing represents the influential backstop for other US instruments of power. The latent threat of violence supported by a credible capability to hold an enemy's most valued resources at risk with little notice or chance for defense gives LRS its ultimate strategic value. Similarly, nations that maintain a robust LRS historically retain a strategic advantage against peer or near-peer state actors. Although the platform, plan, or strategy may change, the purpose of LRS remains the same—to undergird political will by demonstrating credible, flexible, survivable, and visible military power. If the United States wishes to maintain a strategic advantage across the globe, it should heed lessons learned by past global powers and place capable LRS among the highest priorities for

development, investment, and modernization—even in a fiscally constrained environment.

Sun Tzu, Carl von Clausewitz, and Henri Jomini all agreed that military strategy seeks to meet national objectives through the use of armed force in conjunction with all other available means—often described as instruments of power. Contemporary military theorists also concur with the premise that the use of armed force to attain national objectives still applies, even after increased globalization and the rapid development of technology. In his highly regarded work *Military Strategy: A General Theory of Power Control*, Adm J. C. Wylie posited that “the aim of war is some measure of control over the enemy,” which can be “direct, indirect, subtle, passive, partial or complete.”² Wylie makes two important points regarding military power—it must effectively exert some level of control over the enemy system, but one need not necessarily use it to exert control. In fact, the most effective control from LRS may come from weapons never physically employed against an enemy—specifically, nuclear weapons. Thomas Schelling echoes this conviction in his book *Arms and Influence*: “It is the *threat* of damage, or of more damage to come, that can make someone yield or comply. It is *latent* violence that can influence someone’s choice. . . . It is the expectation of *more* violence that gets the wanted behavior, if the power to hurt can get it at all” (emphasis in original).³ The more credible our capability to impose unacceptable damage or hinder an enemy’s critical interests, the greater our power to control his actions, even if military power is never independently sufficient to guarantee the results we desire.

Bernard Brodie, the father of modern strategic studies, speculated in *The Absolute Weapon: Atomic Power and World Order* that the introduction of nuclear LRS changed the character of warfare forever: “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them.”⁴ The deterrent effect of the force inherent in LRS assets can be much greater than the actual destructive effects. For instance, our bomber force might have

destroyed any worthwhile target in Korea and Vietnam, but the tactical and operational results proved insignificant compared to the strategic advantage gained by an LRS nuclear deterrent. The United States' LRS supplied a military power backstop for its containment strategy against the spread of Chinese and Soviet communism. Despite the difficulties of measuring the success of deterrence, we may reasonably conclude that a believable LRS deterrent constrained Chinese and Soviet actions.⁵ Thus, although the power to destroy other societies with nuclear weapons has kept nuclear states out of *existential* wars, it has not preserved them from challenges of armed conflict. Consequently we need to maintain a comprehensive and credible LRS capability.

Long-Range Power Projection: A Strategic Imperative

The basic concept behind LRS—using military power projection to influence the behavior of others—is as old as human conflict itself. Whether it took the form of naval expeditions by Athenian amphibious forays deep into Sparta, overwhelming ground attacks by Mongol light cavalry archers, or the massive aerial bombardment of the Combined Bomber Offensive of World War II, projecting power with speed across a wide span of the enemy's territory and interests has made attacking or defending against such forces increasingly difficult. Napoleonic warfare, as described by Jomini and Clausewitz, led subsequent military planners to seek ways to identify and attack an enemy's decisive points and centers of gravity.⁶ These concepts of power projection framed early ideas of how to break the bloody stalemate of World War I. Col Edgar S. Gorrell consolidated the innovative ideas of military theorists and aviators like William “Billy Mitchell, William Sherman, Sir Hugh Trenchard, and Giulio Douhet, leading to the development of a practice commonly called “strategical bombardment.” In his World War I publication *The Final Report*, Gorrell called for a strategy using the flexibility and reach of airpower to bypass the strength of the enemy's military formations and defenses to attack vulnerable, war-supporting

infrastructure.⁷ Though never implemented because hostilities ended in 1918, this idea served as the intellectual bedrock for the strategic bombing concepts developed in World War II.

During the 1930s, students at the Air Corps Tactical School studied the writings of Gorrell and Lord Tiverton to formulate the industrial web theory, which held that one could disrupt or destroy certain bottlenecks of production and thereby incapacitate an enemy's ability to make war.⁸ Unfortunately, the early theorists overestimated the destructive and moral effects of bombing and underestimated the effectiveness of ground- and air-based defenses, as well as the resilience and regenerative capabilities of modern societies and their industrial complexes. Early bombers did not have the range, precision, or payload to deliver a decisive blow to the enemy's heartland. By the time air forces had sufficiently established air superiority, which would allow truly long-range platforms to deliver atomic weapons, the war had come to a close.

Despite the continuing debate concerning strategic bombing as an independent war winner, World War II demonstrated that ultimate victory came to the side that could project forcible power at a longer distance, preserving its own war capability while denying the same to its opponent. The proposed German strategy leading up to World War II offers an example of how a lack of LRS can affect a conflict. Agreeing with the LRS premise, Germany's first chief of the General Staff, Gen Walther Wever, advocated a strategy of long-range strategic bombing. He based his strategy on bombing enemy bases, aircraft factories, war-sustaining industries, and logistical networks in order to paralyze the enemy's war-making capabilities.⁹ Fortunately for the Allies, General Wever's untimely death in 1936 prevented his strategy from coming to fruition. His immediate successors and, ultimately, Hermann Göring, commander in chief of the Luftwaffe, fatefully steered the latter away from the long-range bombing strategy. Göring's decision to develop shorter-range bombers such as the He-177 Griffon and the Ju-87 Stuka, emphasizing tactical close air support of ground forces, allowed

aircraft-production facilities in England to survive the Battle of Britain. Despite the fact that Germany enjoyed a formidable tactical fighter force, its lack of strategic focus on LRS eventually conceded the strategic advantage to the Allies by allowing British Avro 683 Lancasters and US B-17s and B-24s to project airpower from longer range without fear of long-range counterstrikes.¹⁰ The Allies were victorious in large part because they could continue war production unhindered, while the Axis powers found their war-fighting prowess constantly degraded by a combination of short- and long-range attacks. One may debate the effects of LRS in Europe, but after the use of atomic bombs on Hiroshima and Nagasaki and the end of World War II, the value of long-range power projection became readily apparent. The latent threat of further violence by LRS proved valuable to the United States and the allies because it contributed significantly to the end of the war.

The value and capability of LRS had matured exponentially by the late 1950s with the introduction of intercontinental ballistic missiles (ICBM) armed with nuclear warheads. ICBMs enhanced the value of LRS by increasing standoff range and overcoming the lack of precision evident in World War II with nuclear yields. In the end, the ability of the United States and Union of Soviet Socialist Republics to project power through LRS developed to the point where, for all practical purposes, each country could hold the entire planet at risk of instantaneous annihilation. LRS subsequently became the backbone of each country's comprehensive deterrent strategies.

As the concepts of massive retaliation and mutually assured destruction emerged to deal with the reality of the new strategic standoff, theorists such as Schelling, Brodie, and Lawrence Freedman came to grips with the implications of using LRS for deterrence in the nuclear age. By definition, deterrence is "the prevention of action by the existence of a credible threat of unacceptable counteraction and/or belief that the cost of action outweighs the perceived benefits."¹¹ It depends solely on the adversary's perception of what the opposition (United States) is *willing* and *capable* of doing. The first component of the equation—a

country's will—ebbs and flows with the political climate. Yet without a credible capability to strike, the will to act becomes a paper tiger because a lack of capability would nullify the ability to act. Thus, capability is a prerequisite to any successful deterrent strategy. Compared to other instruments of military power, LRS platforms historically provide the best requisite capability to hold any target at risk, at any time, and therefore enable successful deterrence strategies. Assuming a nation's will to act, the strategic foresight to develop, modernize, and adequately fund LRS has paid invaluable dividends by lending credibility to that country's deterrent threats. Consequently, the value and importance of LRS with respect to national defense and security remain evident today and into the foreseeable future.

Nearly every conflict since World War II has demonstrated the United States' willingness and ability to use conventional LRS assets for limited objectives while retaining sufficient nuclear capability as a plausible deterrent. Despite the demonstrated capacity to destroy targets from long range at will—in Serbia, Iraq, Libya, or Afghanistan—air strikes alone cannot bring about desired political outcomes. Diplomatic engagement, effective strategic communications, economic embargoes, governance aid, and financial incentives for commercial investment are all part of resolving and recovering from wars. Yet without LRS, these forms of soft power possess less coercive power over the enemy. Even in today's complex world, the power of LRS remains the essence of deterrence and a foundational element of America's strategic advantage. However, as Mark Gunzinger points out, for the United States, “that advantage is dissipating.”¹²

Long-Range Strike: The United States' Strategic Advantage

Nations that can maintain freedom of action and the ability to threaten and apply violent force without retaliation will hold the ultimate strategic advantage. Failure to maintain credible LRS capabilities

diminishes the effectiveness of the other instruments of national power. Although the US military has provided a dependable backdrop of international security for over 60 years, the size of that force has diminished recently even though the need for a strong force has not. In light of the present situation, one that closely resembles the slow demise of the British and Roman global powers, we would do well to heed Julian Corbett's remarks about the intrinsic advantage of sea control during the waning years of Britain's global preeminence: "Yet the fact remains that all the great continental masters of war have feared or valued British intervention . . . because they looked for its effects rather in the threat than in the performance. . . . Its operative action was that it threatened positive results unless it were strongly met."¹³ Just as sea control and power projection proved critical for Britain, so is LRS valuable for today's leading nations. Global actors such as China, Russia, and India recognize LRS's strategic value, considering it imperative to a successful national security strategy. These rising global competitors, especially China and Russia, seek to obtain or develop their own LRS and to cultivate antiaccess and area denial capabilities to diminish the enduring strategic advantage of the United States. For example, China has fielded over 1,000 short- and medium-range missiles, multiple double-digit Russian-made surface-to-air missile systems, and a dozen Russian *Kilo*-class submarines capable of launching the Sizzler cruise missile.¹⁴ China's DF-21 ballistic missile, boasting a range of approximately 1,500 miles, can reach US bases in Korea, Japan, the Philippines, and Thailand.¹⁵ The Chinese also developed the H-6K aircraft, having a 2,000-mile combat radius and carrying six CJ-10 cruise missiles, which can strike US installations in Guam, Wake Island, and Australia.¹⁶ China continues to add to its stockpiles each year, creating a lethal engagement zone for US fighter and bomber crews well outside the first island chain.¹⁷ Without an authentic LRS capability, the United States will become more reliant on other global basing options to project forcible power at shorter ranges. These basing options, however, will pose a substantial risk to US and allied forces.

Over the past half century, the United States has become accustomed to fighting for objectives in relatively permissive operating environments with virtually unlimited access to worldwide basing—two advantages that may not continue into the future. The likely strategic environment of global uncertainty that faces us will be marked by religious extremism and nationalism, resulting in regional instability. The proliferation of ballistic missiles and advanced integrated air defense systems (IADS) that protect mobile, hardened, multidimensional, and asymmetrical enemies will further complicate this environment. Separately, the United States is experiencing unprecedented financial pressures, dwindling industrial might, and an aging, shrinking military infrastructure. In addition, the safety and security of previously unassailable forward operating locations and communications networks are in doubt. As we regroup outside the growing threat envelopes, investing in LRS technology, developing associated intellectual capital, honing technical industrial skills, and sustaining LRS operational prowess are essential to preserving our deterrence and maintaining a strategic advantage. Assuming that global basing options decline, the absence of updated LRS will restrict the United States' freedom of movement and maneuver.

With the loss of dependable global basing options, the factors of space and time create a tyranny of distance that requires a long-range solution to the power-projection problem. LRS solutions, then, must include a combination of seven essential elements: range, speed, payload, flexibility, precision, survivability, and persistence.¹⁸ Although labeled by some critics as a repetition of Cold War clichés, the “new triad” still provides a valuable threat of violence required for today’s successful deterrence strategies. Whether it calls on tanker-supported intercontinental bombers with sufficient range, payload, precision, and flexibility; submarine forces offering payload, persistence, and survivability; or ICBMs maintaining payload, speed, persistence, and survivability, the United States can still hold an enemy’s most valued resources at risk and send the strategic messaging necessary for current-day international relations. Notwithstanding the Cold War effectiveness of

LRS, our LRS forces confront a much more complicated threat environment and must remain much more flexible. The United States must be able to engage flexibly or hold at risk targets anywhere in the world with conventional or nuclear payloads. Those LRS capabilities will need to act against either very precise or ambiguous coordinates in pursuit of a variety of military and political objectives. This important change in the characteristics of future conflicts calls for the modernization of LRS strike assets. These operations will necessitate more responsive space assets and intelligence, surveillance, and reconnaissance aircraft with penetration capability supported by electronic attack or other standoff weapons capable of degrading a modern IADS. The development and sustainment of LRS systems are critical to retaining the US strategic advantage.

Conclusion

The fundamental value of wielding a credible, flexible, survivable, and visible demonstration of military power to realize national objectives has not changed. The strength of the American military is based on its ability to project long-range conventional and nuclear power across the globe at a time and place of its choosing. That prowess has remained a key component of our successful deterrent posture for more than 70 years. Many forms of global power exist (e.g., economic influence, diplomatic engagement, strategic communication), but only the United States currently maintains a legitimate capacity for persistent, precise, long-range global strike. Historically, however, great powers tend to believe that the sources of power will remain valid forever, even though they fail to make the requisite investments to maintain them. Without a concerted focus on LRS as a key component of the military instrument, our influence on global events will undoubtedly prove this axiom true. LRS gives America the military strategic advantage necessary to remain a preeminent global power. In the early 1980s, President Ronald Reagan confronted the same growing concerns (fiscal constraints and a declining military) as he challenged the

American people to make the difficult choice to secure the country against a rising Soviet threat. President Reagan rightly said, “We maintain the peace through our strength; weakness only invites aggression. This strategy of deterrence has not changed. It still works.”¹⁹ History has proven him correct. As we balance complex rising threats while holding debates about the country’s fiscal future, we can say once again, “Now is a time for choosing.” As long as we retain our LRS capabilities and our strategic military advantage, we can remain a preeminent global power. To do otherwise would expose us to the same decline in influence experienced by the British as their naval power projection diminished during the economic hard times of the mid-twentieth century. ✪

Notes

1. LRS encompasses the family of platforms, weapons, or systems that operate at long range with relative speed to employ precision payloads. See Robert P. Haffa Jr. and Michael W. Isherwood, “Long Range Conventional Strike: A Joint Family of Systems,” *Joint Force Quarterly* 60 (1st Quarter 2011): 102–7, http://www.ndu.edu/press/lib/images/jfq-60/JFQ_60_102-107-Haffa-Isherwood.pdf. *Strategic attack* refers to those operations intended to produce strategic effects by striking directly at the enemy’s centers of gravity. These operations are designed to achieve their objectives without first having to directly engage the adversary’s fielded military forces in extended operations at the operational and tactical levels of war. See Air Force Doctrine Document 3-70, *Strategic Attack*, 12 June 2007, <http://www.e-publishing.af.mil/shared/media/epubs/AFDD3-70.pdf>.
2. J. C. Wylie, *Military Strategy: A General Theory of Power Control* (New Brunswick, NJ: Rutgers University Press, 1967), 151, 89.
3. Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), 3.
4. Frederick S. Dunn et al., *The Absolute Weapon: Atomic Power and World Order*, ed. Bernard Brodie (New Haven, CT: Yale University Press, 1946), 76.
5. See Nina Tannenwald, “Nuclear Weapons and the Vietnam War,” *Journal of Strategic Studies* 29, no. 4 (August 2006): 675–722, http://www.watsoninstitute.org/pub/vietnam_weapons.pdf.
6. *Decisive point* refers to “a geographic location or source of military or nonmilitary power whose destruction or capture, control or defense, or continuous surveillance and monitoring would give an immediate and marked advantage over the opponent in accomplishing one’s military objective.” Milan N. Vego, *Joint Operational Warfare: Theory and Practice* (Newport, RI: US Naval War College, 2009), IV-61. A *center of gravity* is “a source of

massed strength—physical or moral—or a source of leverage whose serious degradation, dislocation, neutralization, or destruction would have the *most decisive impact* on the enemy's or one's own ability to accomplish a given political/military objective" (emphasis in original) (*ibid.*, VII-13).

7. Col Edgar S. Gorrell, *The U.S. Air Service in World War I*, vol. 1, *The Final Report*, ed. Maurer Maurer (Washington, DC: Office of Air Force History, Headquarters USAF, 1978).

8. Maj Scott D. West, *Warden and the Air Corps Tactical School: Déjà Vu?* (Maxwell AFB, AL: Air University Press, 1999), 17–20, <http://www.au.af.mil/au/awc/awcgate/saas/west.pdf>.

9. Alan J. Levine, *The Strategic Bombing of Germany, 1940–1945* (New York: Praeger, 1992), 16–17.

10. *Ibid.*

11. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 8 November 2010 (as amended through 15 January 2012), 96, http://www.dtic.mil/doctrine/new_pubs/jp1_02.pdf.

12. Mark A. Gunzinger, *Sustaining America's Strategic Advantage in Long-Range Strike* (Washington, DC: Center for Strategic and Budgetary Assessments, 2010), [ix], <http://www.csbaonline.org/wp-content/uploads/2010/09/2010.09.14-Sustaining-Americas-Strategic-Advantage-in-Long-Range-Strike.pdf>.

13. Sir Julian Stafford Corbett, *Some Principles of Maritime Strategy* (London: Longmans, Green and Co., 1918), 57.

14. Haffa and Isherwood, "Long Range Conventional Strike," 103.

15. *Ibid.*

16. *Ibid.*

17. *Ibid.*

18. Rebecca Grant, *Return of the Bomber: The Future of Long-Range Strike*, Air Force Association Special Report (Arlington, VA: Air Force Association, 2007), 21–24, <http://www.afa.org/Mitchell/Reports/0207bombers.pdf>.

19. President Ronald Reagan, "Address to the Nation on Defense and National Security," 23 March 1983, Ronald Reagan Presidential Library, accessed 22 February 2012, <http://www.reagan.utexas.edu/archives/speeches/1983/32383d.htm>.



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MOBILITY IN THE NEXT WAR*

Colonel Clifford J. Heflin

THE UNITED STATES, having been the deciding force in two world wars by virtue of its industrial might, must face the realization that the next war may commence, without warning, with a paralyzing blow directed at its vital industries, transportation, and fuel supplies. In any plan to meet this eventuality, the Air Force must consider two factors:

(1) The force necessary to neutralize the exterior force or maintain the strategic situation, whenever and wherever it might strike, and,

(2) The striking of a retaliatory blow, with the time element being constantly in mind.

With respect to the force necessary to maintain the strategic situation, the British Navy presents itself as a good historical example, from which several conclusions can be drawn.

The British Empire owes its foundation and continued existence to trade, dependent mainly upon sea power for its security. This sea power was itself dependent upon a strong merchant fleet, a powerful navy and a chain of strategic naval bases and refueling stations in all parts of the world. On these bases fleets could pivot or concentrate the “coherent dispersal about a strategic center” of which Corbett speaks in *The Principles of Maritime Strategy*. There is no sea or ocean across which British trade routes passed in which she did not possess naval bases. The range of her sea power was world-wide. Wherever the center of gravity shifted,

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fleets could sail to look after her interests, as bases for their reception and maintenance were available in all quarters of the globe, increasing their mobility.

Applying this same strategy to the Air Force, there can be visualized a system of primary, secondary, and transit bases, fully equipped and manned, enabling forces to concentrate, pivot or disperse, meeting any threat of aggression. Given dispersed targets, against which there could be no hope of a quick knock-out blow, and given, too, the threat of counter-attack from widely separated bases against one's own vulnerable areas, it is unlikely that any nation will wisely embark upon war. Our national aim, therefore, should be to deploy our Air Power so as to prevent war by threat of action, rather than allowing a traditionally tardy policy of seeking to reply to blows already delivered and received.

Concentric rings of strategic air bases could threaten almost any possible enemy. Our blows could converge on a common center, while those of the enemy would of necessity be absorbed by scattered points upon the circumference. The principle of concentration would be achieved as well by making the enemy disperse his forces as by our own actual physical concentration in time and space. The classic example, in this regard, is Lee's use of Jackson in the Shenandoah valley campaign of 1862. Against the overwhelming Federal forces advancing upon Richmond, the Confederate capital, the obvious defense was the concentration of all available Confederate forces in that vicinity. Instead, Jackson's bold handling of his detached force in the Shenandoah valley created such alarm in Washington, the Federal capital, that the forces closing on Richmond were dispersed or recalled to meet the created apparent threat, and Richmond was saved. Similarly, our dispersed



bases, aided by the mobility of Air Power, could create the necessary threat which would force an enemy to scatter his own forces. If such a widespread potential danger to the enemy could be achieved and kept before his mind even prior to the beginning of any war, actual hostilities in armed conflict should not be necessary.

The main responsibility for defense and attack will rest with the Air Force in the future, to an even greater degree than in the past or during the present. The essence of the successful use of Air Power in either defense or international enforcement action is mobility. Our Air Force must be capable of offensive or defensive action in any part of the world upon short notice. It is a common fallacy to assume that air forces are inherently mobile. They are governed in their own sphere by the same limitations as naval forces. They must have fully equipped bases in all areas where they are called upon to operate.

Their mobility goes up in inverse ratio to the supplies they have to take with them. Experience in the last war has shown that a very complex ground organization has to be set up before modern aircraft can be operated, and this is not likely to prove less true in the future. Such an organization cannot be improvised, nor will future wars allow the breathing space to which the United States has become accustomed in the past. Experience with planning for overseas forces in the last war shows the difficulty of moving modern aircraft without a previous base organization into the required area. In spite of the supposed mobility of air forces, it actually proved easier to operate naval vessels far from their nearest base than it did to operate aircraft within that same area. The conclusion, therefore, must be drawn that Air Power, like sea power before it, depends, for its effectiveness, upon the possession of a chain of prop-



erly equipped bases. Without them its mobility is largely illusory, and without this mobility the structure of defense is not sound.

The necessary requirements for a base system would seem to be:

- (1) The provision of facilities for rapid deployment of forces in any desired direction.
- (2) The provision of adequate and immediate logistic support.
- (3) Sufficient strength and depth to restrain enemy forces from penetration of vital areas.
- (4) The provision of sufficient base sites in any given area to permit adequate dispersion and alternate location.
- (5) A capability for rapid expansion.

Because of peacetime economy, always a problem to the armed forces, the Air Force should develop the best system of employment of fighting units and their logistic support, consistent with budgetary allowances, keeping in mind the lesson which democratic peoples so often must be taught, namely, that potential power and actual power are not at all the same, and must be kept in rational balance.

IN MAJOR de Seversky's own presentation of the case for Air Power, the outstanding feature which characterizes him above all other students of that subject is an insistence on the vital importance of large radii of action for bombing aircraft, and the possibility of even increasing ranges to distances far beyond comparison with any heretofore available. He emancipates the air force of the future from any concern with extensive ground organization which Douhet



conceded, and from all the island stepping stones of the Arctic routes in the Atlantic and Pacific, to which Mitchell attached such importance. He prophesies the early realization of non-stop flight around the world, using terms similar to those which Mitchell had used 17 years before. In his book, *Victory Through Air Power*, de Seversky says that, “within five years at the outside, the ultimate round-the-world range of 25,000 miles becomes inevitable.” He may prove to be almost correct; but in order that he may have his prediction materialize, technical progress in airplane design and improvement in power-plant economy, to say nothing of navigation problems and the sonic barrier, will have to be much more rapid during the present and immediate future than at any time in the past twenty years. For an airplane to circle the world without stopping, at the present time, it would necessarily have substantially more than 75 percent of the total load in the form of fuel, leaving less than 25 percent of the gross weight for structure, engines, crew, military equipment and anything else which must be carried.

The idea of operating from home bases, without the burden of establishing and maintaining advanced and intermediate bases, would be welcomed by every Air Force officer, if it could be realized without paying too prohibitive a price. From the inherent characteristics of the airplane as developed during the last 40 years, however, it appears probable that the price of such a method of operation will continue to be extremely high in the measurable future. Even if aircraft had attained the range necessary to launch bombing attacks from a distance of 6000 to 8000 miles, it would be likely to remain much more economical in materiel, and therefore more efficient, to operate from nearer bases wherever they could be obtained, with fuel supplies secured locally, or brought in



by tanker at only a fraction of the cost in manpower and materiel, should they be brought in by air.

Even if one disagrees with de Seversky's statement that the air forces can operate from their home grounds without concern for establishment and maintenance of advanced and intermediate bases, there is every reason to hold that the flight elements should not be concerned with the ground organization, except as bases for their reception and for logistic support, enhancing mobility.

After a discussion of the base system, and its importance in maintaining the strategic situation, logically the next question should concern the kind of units which could be designed to operate in and out of these bases.

If we consider a fighting unit as such and only as such, we note that the composition of the tactical organizations is based upon tables of organization and equipment which are further broken down into flight echelons and ground echelons, with flight echelons moving in their own unit aircraft, and the ground sections transporting by ground means. It is well to state here that there are some plans now in existence whereby ground echelons will move by air, also. The two main drawbacks to such proposals are shown in the amount of air lift that must be made available versus that which is in being and, secondly, the time factor involved in preparing for, embarking, and debarking from, such an air movement.

Based on *AAF Staff Officers' Manual 115-65-1*, a typical example of such a unit is a Bombardment Squadron, Very Heavy, Table of Organization and Equipment 1-167R. There are 74 officers and 254 enlisted men, or an aggregate of 328 within this organization. The flight echelon is composed of ten crews of six officers



and five enlisted men each, manning ten aircraft, limited initially in mobility only by the range of their aircraft. This, then, is the fighting unit, and the remainder of the personnel, the ground echelon, composes the supporting elements of that combat organization. The mobility of the squadron would not be hindered too much if it involved only the movement of ground personnel, but 294,613 pounds of equipment is on hand to be transported. It should be borne in mind that this is only one squadron, and that a Very Heavy Group would have a total of 1,261,172 pounds of ancillary equipment.

Excluding this excess baggage, and considering the air echelon only, would result in freedom of movement, giving the air commander complete flexibility by being able to add to or subtract from the required effort and mobility, in order to concentrate upon or disperse the fighting units wherever the center of gravity dictated. Blows could converge upon a common objective, while those of the enemy would of a necessity be dispersed against the scattered bases around the circumference.

Having divorced the air echelon completely from the ground components, and being free from any responsibility other than the mission of fighting, we can now devote all energy to the effective use and employment of modern Air Power by development and application of the most profitable tactics and techniques. The conclusions from this type of reasoning can only resolve themselves into one big factor, true mobility.

THE BRITISH, in planning their postwar air force, realized the need for a system of bases strategically located throughout the British Commonwealth. They foresaw also the requirement for keeping the fighting elements mobile by the separation of the air



echelon and the ground echelon. These points are demonstrated in their Planned Flying and Planned Servicing System, now in effect. Under this plan operations, administration and maintenance are divided into three wings, under a station commander. The operational units upon arrival at a base submit an estimate of their needs to the technical wing, which, in turn, arranges for the logistical support and plans the work load. Such a system permits the required freedom of movement to the operational units, wherever the situation dictates, without the dependency upon the ground elements, since the technical staff at the planning level is cognizant of the situation and has alerted or manned the necessary bases prior to their actual arrival.

The basic principle of planned flying and planned servicing can be described in general terms as the marshalling of the available resources of the Royal Air Force in order to produce the maximum possible useful effort. The amount and general pattern of effort required, and the degree of operational opportunity, are forecast by the air staffs of Air Ministry and the commands, as well as circumstances permit, and can be used as a basis for the establishment of aircraft, manpower, airfield and supply requirements.

The British, in the use of their system, specifically hold that Planned Flying and Planned Servicing is a joint matter for Air Staff, Technical and Administrative branches. Its success, they hold, is entirely dependent upon wholehearted cooperation between the personnel of these branches at all levels. The Air Staff must, however, take a leading part, since they are the consumers, and must be expected to voice their desires and anticipated achievements.

The concept applying correctly to one nation is not necessarily applicable to another; this will depend a great deal upon a number



of variables, together with the situation in general. However, logic can properly be applied toward a conclusion whenever it is noted that any nation or number of great nations, known to be at least normally canny in their military ideas to the point of recent successes, seem to be in accord with respect to any one particular school of thought along a specific line of application. With this in mind, it should be profitable to examine the known ideas of such countries as Russia and Germany, the former at present a great military power, the latter now fallen but previously accepted by world standards as a most formidable foe to the entire world, a power with a proud, methodical, and precisely successful military machine.

Russia, it will be seen, has currently in effect a system of logistic support which provides for the desired quick movement and general characteristic of mobility for the tactical elements, in that she completely separates the logistic and operational functions, down to and including all levels. In addition, as a matter of information on the same subject, her command structure of logistic elements differs from those of the United States, in that each department head receives orders from his opposite number at the next higher echelon. Thus, a signal officer at base level would obtain instructions, technical and otherwise, from the signal officer at next-higher level. It must be admitted that such a practice goes even further than the action recommended in this paper, if, indeed, such action proves to be the desired, logical step.

Up to this point, then, it would appear that two of the three currently great powers are in accord upon this one idea, namely, the method of logistic support to be provided to the operational elements of a fighting machine in the air. The United States, it would also seem, has not been in agreement with this.



As an additional factor which should be given a certain amount of weight, consideration should be given the German Air Force system of logistic support. As previously mentioned, concession must be given to the historical fact that Germany was defeated, and must not necessarily, by virtue of that fact alone, be given credit for possessing an efficient method of waging successful air war. Further investigation into this field, however, presents an entirely different picture. The foremost military minds of the world, almost without exception, have admitted and still maintain that the German Reich must be given credit for unusually sound thinking, along with methodical and precise planning, in all matters concerning the application of the principles of war. Indeed, such German military men as Clausewitz, Bismark, Schlieffen, Moltke, Ludendorff and Frederick the Great have been given to posterity as the foremost exponents of the art of warfare. Weight, then, may be properly given to their considered opinions as practices of the German military machine, although their relation to that organization does not in itself establish the wisdom of those opinions and practices.

Here, too, it is found that logistic support was given to the German Air Force through a system of organization and bases entirely disconnected, with respect to command channels, from the tactical units. Two separate chains were constantly in operation; the first, a system of tactical organizations with emphasis upon rapid employment and mobility, and the second, a supporting system of logistic support, capable of handling the entire support picture, and giving emphasis to the degree of mobility and effect attainable by the fighting units. It is to be noted that when the German machine actually crumpled, the logistic machinery was still in efficient operation, and that the failure of supplies at various points of the huge



pipeline was occasioned, in every case known by the writer, by the failure in the actual production of supplies, or in some instances, by the failure of the logistically supporting machinery outside the jurisdiction of the German Air Force. Despite this failure, the average American combat pilot seems to have wondered, on various occasions, as to the apparently uncanny ability of the German Air Force, especially intercepting fighters, to move, upon a few moment's [*sic*] notice, entire fighting organizations from one section of Western Europe to another, or even from Eastern to Western Europe, with no apparent need for rehabilitation at the new point, nor any shown necessity for removal back to the original base upon termination of that current phase of the air battle. If the basic system of logistic support used in the German Air Force is taken into consideration, these performances seem much simpler.

THE UNITED STATES could easily adopt a similar system, by the establishment of areas to be controlled by a Regional Service Command; all bases within such areas could be assigned this headquarters, as it could be located in the numbered Air Force headquarters and could have command jurisdiction over all the service elements. The service commander could, by adding or subtracting specialists and equipment from the service group, enable that organization to maintain any type of aircraft. This seems important in view of the differentiation which must be made between jet engines, reciprocating engines, and the various types of airframe and airfoil construction. The service commander could, by moving these logistical resources from one base to another, increase the effort of some bases while decreasing that of others, according to the dictates of military experience, and with the very apparent gain of economy of force, flexibility, and overall efficiency.



This proposed service commander, being closely allied in actuality with the air force commander, would properly be expected to foresee the needs of logistic support, and could make plans accordingly, without interfering with or detracting from the mobility of the fighting elements. In like manner, the air force commander could mass or disperse his forces, without the added worry of bringing into play the various ground echelons.

The base itself would be operated by the service group, having the mission of logistic support of the fighting unit. This would unquestionably place the tactical commander in the position of having more of the comforts of home without shouldering the responsibilities of ownership. While subordinating in no way one commander to the other, it would, rather, place each in the position of being supreme in his own field, yet understanding the other's mission, and creating an atmosphere of cooperation and mutual understanding.

Before we proceed to another point in this dissertation, a few words may well be said concerning the question of morale. Much has been said of the detrimental effect to the morale of personnel within the logistic elements adjacent to the tactical organizations. In this regard, no morale problem can logically be blamed upon any one element or practice; secondly, there is room for reasonable belief that any such lack of good morale may have been due, indeed, to the fact that the service organization, by its very integration into the operational unit, lost the right to any identity, organizationally speaking, with the function it was performing. Finally, if such an argument is to be allowed against the separation of logistic and operational elements, certainly one cannot place such weight upon the value of morale as to allow the air arm to be deprived of the greatest single factor justifying its existence, namely, mobility.



The value of the supplying and repairing force is quite important; equally important is the morale of the airplane builder and the miner who produces the metal for them; can it be seriously suggested that they, too, should become a part of the fighting unit in the theater?

The day of the knight flying about in his trusty airplane, with his scarf waving in the breeze, has passed into history. It has given way to the use of mass personnel, all performing duties peculiar to their talents. It is inconceivable that this new idea will not become even more pronounced, as advances are made in industrial and technological fields. As expressed by Major General Hugh Knerr at a recent interview, it may be assumed that in any future war, the major weight of its application will be necessarily provided through the efforts of the industrial and technical might of the country, rather than the military itself. Further, in practicing the principles used successfully by business concerns the world over, it is necessary that each individual be shown the effect of his efforts in tightening the bolt, rather than to inveigle him into believing he is a member of an organization which has an entirely different mission.

PROFESSOR Arnold Joseph Toynbee, in his book *A Study of History*, states that:

The theory of history is a dialectic, that is, it reports the challenge of something by an exterior force. If the response to the initial challenge is successful, the process involves new challenges, with new responses. If the last responses are not successful, the community breaks down.



He states further that in the study of history, events and cycles are repeated in somewhat similar forms, regardless of the civilization being considered:

At first, the community is led by a creative minority. The masses, stimulated by the common challenge that has called the society into being, and by the creative leadership that has guided its response, follow without undue questioning. Response to a challenge, however, calls forth a further challenge.

Thus, the challenge of overpopulation on a weak soil, to which the Athenians responded by taking to the sea as a maritime empire, called forth a new challenge as a result of Athens' new relation between its ships and the sovereign community of Sparta.

The United States seems to be now facing a nation which apparently is trying to respond to such a concept of world domination. Herein we have a dominant minority, ruling by force. A time of trouble ensues — a time of internal struggle and foreign wars, which more and more take the form of world conflicts. This period can be terminated only when the dominant minority, among its distracted fellows, delivers a crushing blow to all its rivals and becomes the “universal state.” Rome, having crushed Carthage and Macedonia, thus became the universal state of Hellenic civilization. It has happened before, in the seemingly endless cycle of history.

If we apply such a formula to modern times, an interesting picture presents itself. The Air Force, having succeeded the navy as a first line of defense, faces now this, challenge, and its response to the summons will, in all probability, set the pattern of civilization for many generations to come. The Air Force has made a successful reply to World War II in itself, but this cannot presuppose success in answer to the next bid for power. On the contrary, one



success tends to make the responder more self-satisfied. He comes to believe that the previously given solution is surely the successful answer to the next arising problem. The elasticity of thought and effort, essential in such a response, may be lost. The forms, concept, organization and policy in which the successful reply has been made, tend to freeze and to impose themselves upon the solution of the latest question of tactics, strategy and overall need for new ideas, for which they are wholly unsuited.

With this nation putting its trust and faith in the armed forces, particularly the Air Force, failure in proper response cannot be risked. It must be realized that the operations of an air force can no longer be considered as being local in extent, or limited in range. Bombers, with their present capability of ranging the world, must have the necessary facilities, such as well-equipped bases, meteorological information, communications, and other items of logistic importance, always including radar. There must be developed, in addition, the most effective tactics and techniques, through sound organization, in order that these may be properly applied.

An attempt has been made in this article to show the specific and urgent need for immediately considering the separation of operational and logistic functions. This country should plan and build its Air Force with full knowledge that the methods of waging war are changing at a rate never equalled in history. It is believed that the separation of the fighting units from the service elements will give this country a sound basis with which to meet any of the eventualities.

There should be nothing startling about the proposed solution. Navies throughout the world have used just such a system with



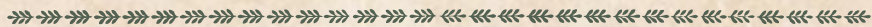
fantastic success. It can be as successfully applied to the vast oceans above the ground.

Finally, since it has been seen that the other two remaining great powers of the earth, Britain and Russia, have already in effect such a system, it would appear that, for such a reason alone, serious consideration should be given to the idea. Judging from the evidence at hand, a fair tryout of the proposed solution could do little harm, and should benefit the armed forces to a great extent.

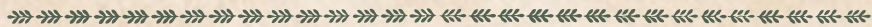


Closely connected with the growth of air transportation is the new cooperation which has sprung up between religious groups in a drive toward common goals. The Air Age promises much, in fact, in the whole broad field of human relationships. The peoples of the world will intermingle more freely; each will come to appreciate the problems and aspirations of the other. Such appreciation cannot fail to lessen and eventually to erase the national and racial suspicions and prejudices, always a prime factor underlying turmoil and conflict.

W. Stuart Symington in *Air Affairs*



Col. Clifford J. Heflin, former base commander of Wendover and Roswell Army Air Fields, flew 25 wartime missions as an 8th Air Force Bomb Group commander; he was graduated from the Air Command and Staff School in June.





We encourage you to e-mail your comments to us at aspj@maxwell.af.mil. We reserve the right to edit your remarks.

AIR FORCE POLICY FOR ADVANCED EDUCATION

Maj Tobias Switzer's article "Air Force Policy for Advanced Education: Production of Human Capital or Cheap Signals?" (Winter 2011) is extensively researched and very well written. However, I believe that his assumption that only two reasons exist for most officers engaging in voluntary off-duty education programs (promotion or improving their service to the Air Force) misses the mark. A third, and possibly more relevant, reason for seeking advanced civilian degrees involves preparation for transition to civilian employment upon separation or retirement. Many officers utilize educational benefits for future employment, sometimes totally outside their active duty Air Force specialty code (AFSC). (It would be interesting to see the correlation between a graduate's degrees earned and AFSC.) In the Air National Guard, as in the active duty Air Force, one assumes that anyone seeking promotion beyond O-5 has attained a graduate degree, preferably an MBA or a master's degree related to his or her duty area or the area to which that person wishes to advance. That assumption remains consistent with the intent of Gen T. Michael Moseley, the former Air Force chief of staff. Major Switzer's premise that advanced academic degrees (AAD) signal commitment is questionable based on the third possibility. Who would not find time to complete free education and degrees that would increase one's income potential upon retirement from the active forces? Furthermore, some officers are fortunate enough to utilize duty time for completing classes, studies, or research papers. Assuming that the officer wants to attain the highest rank possible before retiring with as many credentials as possible, AADs would indicate less, not more, loyalty to the Air Force.

I do fully concur with Major Switzer's point that officers complete professional military education by correspondence to enhance their chances of attending in residence. I have never understood why the Air Force would want or could afford to pay for the same training



twice. If the resident and nonresident courses offer the same curriculum, then having officers repeat the training is wasteful.

I propose taking Major Switzer's ideas relative to the Army program a step further. Since the Air Force does not require retention of as many officers as does the Army, the Air Force would not be well served by holding degree seekers to a contractual service obligation, like the Army. Doing so would probably result in separation bonuses for newly degreed midgrade officers. Nevertheless, I do agree with the immersion and cross-pollination aspects—so much so that I would suggest that active duty Air Force officers desiring to acquire AADs be transferred to reserve status, utilize the GI Bill or like funding to earn the degree, and then return to active status. Officers can execute a permanent change of station to the university of their choice; use their allowance for tuition, books, and housing; and maintain readiness by performing unit training assemblies with a nearby Guard or Reserve unit or an ROTC detachment. This scenario would reduce costs to the Air Force, increase our exposure to the citizens we are defending, and allow us to concentrate our efforts on learning, in addition to numerous other benefits for both the individual and the Air Force, as noted by Major Switzer.

Air Force officers should use AADs to develop skills and abilities and thereby develop human capital for use by the service—not to seek promotion, show loyalty, or prepare for a second career. Relevancy and applicability to Air Force requirements should determine the need to expend precious dollars in the future.

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AIR FORCE POLICY FOR ADVANCED EDUCATION: THE AUTHOR REPLIES

Lieutenant Colonel Lombard shares some interesting thoughts, and I thank her for engaging me and the Air Force community on this important issue. After the publication of my article, I received many



messages from across the Air Force and the Department of Defense. Not everyone agreed with my analysis or conclusions, but those who reached out to me believe that something is profoundly wrong with the status quo. The Air Force has set up a system in which officers are highly incentivized and subsidized to acquire meaningless advanced degrees.

It should come as no mystery why officers engage in suboptimal behaviors such as pursuing advanced degrees at educational institutions of poor quality. Over several decades, our senior leaders have created a system, a culture, and powerful incentives to pursue advanced education for reasons other than increasing skills and abilities relevant to the Air Force. Our officer corps is simply responding, in the most efficient manner, to the set of incentives placed in front of it. If our senior leaders are not happy with the outcomes, then they must change the incentive structure or expand the set of available opportunities.

Lieutenant Colonel Lombard's idea offers an excellent alternative to my admittedly expensive solution. Why not let officers take a two-year sabbatical and pursue graduate studies at their own expense, using the post-9/11 GI bill? With thoughtful study and design, the Air Force could create a program to give officers time off to study without hurting their careers. The service could place them in some type of reserve status, requiring only a physical examination and a physical fitness test every year. Upon completion of graduate studies, the officers could return to active duty and be placed in a promotion year group two years junior, thereby avoiding a penalty against their original cohort, which would have continued to gain experience and performance reports during the officers' sabbatical. Such a program would permit maximum flexibility to pursue a degree of choice and expand educational opportunities at little or no direct cost to the Air Force. I commend Lieutenant Colonel Lombard for sharing this idea.

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<http://www.airpower.au.af.mil>

Hubert R. Harmon: Airman, Officer, Father of the Air Force

Academy by Phillip S. Meilinger. Fulcrum Publishing (<http://www.fulcrum-books.com>), 4690 Table Mountain Drive, Suite 100, Golden, Colorado 80403, 2009, 392 pages, \$35.00 (hardcover), ISBN 978-1-56373-184-6; \$20.00 (softcover), ISBN 978-1-56373-185-3.

The structures in the cadet area of the United States Air Force Academy (USAFA) are named for Airmen who seem to personify the function of those edifices. Buildings affecting cadet life, such as the dormitories, dining hall, and social center, carry the names of air war heroes (e.g., Lance Sijan), airpower combatant commanders (e.g., Hoyt Vandenberg and Hap Arnold), and airpower visionaries (e.g., Billy Mitchell). The academic buildings are named for prominent Air Force educators (e.g., Muir Fairchild and Robert McDermott). It seems appropriate, then, that the administration building carry the designation Harmon Hall as a testament to Lt Gen Hubert R. Harmon's organizational talents, which proved critical to the establishment of his academy. As his biography points out, a career that included an unremarkable combat and command record but a sterling background in staff work and diplomatic assignments prepared him well to be the "Father of the Air Force Academy."

Just as Harmon was the right choice for the job as USAFA's first superintendent, so is Phillip Meilinger the correct historian to pen Harmon's biography. In light of his experience as a cadet, an instructor pilot, and a member of the history department faculty for two tours at the academy, Meilinger brings a unique and personal perspective to Harmon's life. Renowned as one of the most prolific writers on subjects concerning airpower, Meilinger has also written a biography of Gen Hoyt Vandenberg, who served as Air Force chief of staff during the long and arduous legislative process to establish USAFA. The author's extensive research includes not only official documents but also personal papers, diaries, and interviews provided by the Harmon family. These insights into the general's life allow the reader to have a fuller sense of the man previously known primarily from his profes-

sional reputation. Furthermore, Meilinger provides an excellent historical context to the formative events that shaped Harmon, as well as thorough but concise explanations of airpower theory for readers unfamiliar with the evolution of Air Force doctrine.

Meilinger portrays the general's career as one of missed opportunities for professional advancement through combat commands. Stateside duties and illness prevented Harmon from experiencing combat in World War I, and his assignments in the strategically important but largely nonhostile Caribbean theater during World War II kept him away from most of the fighting. By the time he finally got an assignment as commander of Thirteenth Air Force in the Pacific, the fighting had largely moved westward. Consequently, his five-month tour failed to challenge his combat command skills sufficiently. In all of his assignments, however, Harmon displayed an aptitude for organizational ability. This trait, which made him an exceptional staff officer, would ultimately better serve him in his future efforts to establish the academy and in his later stint as a superintendent. Marrying into high society refined his social skills, which Harmon would find useful in his diplomatic assignments in London and at the United Nations, as well as his relations with Congress and high government officials. His tours on the Air Staff in Washington were instrumental in his learning to navigate the bureaucratic labyrinth of government and the intricacies of the legislative process, which would prove critical in obtaining congressional authorization for USAFA.

In his attempt to burnish Harmon's credentials in establishing and leading the Air Force Academy, however, Meilinger stretches the point somewhat when dealing with the superintendent's academic prowess. Although he recognizes that Harmon was not an educator, the author maintains that the general's experience not only as a West Point cadet and tactical officer but also as a student at several military schools and a commander of training schools helped prepare him to form USAFA's academic program. Granted, Harmon had some general ideas on instituting an air-centric curriculum that included more emphasis on the

humanities and social sciences than he experienced at the Military Academy, but his emphasis on a core curriculum bereft of academic majors reveals his strong ties to the West Point model. Moreover, Harmon's lack of experience in higher education policy and curriculum development meant he could offer little academic expertise as his incompetent first dean of faculty struggled to establish the initial academic program and prepare the academy for accreditation. After the dean's dismissal, Harmon assumed the position himself even though he had precious little experience for the job. Fortunately, Col Robert McDermott, the vice-dean, was more than up to the task of gaining accreditation and would make USAFA's academic program a model for the other service academies. Meilinger does hold Harmon accountable for faculty and admission problems experienced during the academy's first two tumultuous years at its provisional location at Lowry Field in Denver—difficulties that the author attributes to the superintendent's temporary status, failing health, and easygoing leadership style. Finally, Meilinger emphasizes the warm relationship Harmon had with his cadets; however, save a moving reminiscence in the foreword by 1959 graduate and former superintendent Lt Gen Bradley Hosmer, now retired, no other testimonials by former cadets appear in the book.

The final chapters are as much a history of the congressional authorization process and early years of the academy as they are a biography, for Harmon's role was inextricably linked to every aspect of USAFA's development. It is indeed unfortunate that Harmon passed away prior to seeing completion of the construction of his academy at its permanent location near Colorado Springs, for it has become a monument to the general's life.

Although Airmen rightly revere their air warrior leaders who have advanced air and space power and have met the challenge as combatant commanders and managers of violence, Hubert Harmon stands as a reminder that the Air Force also owes much of its success to the unsung administrators, organizers, and builders who often toil away in mundane offices behind nondescript desks in relative obscurity. This

biography is as much a tribute to these Airmen as it is to the Father of the Air Force Academy.

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Shield of Dreams: Missile Defense and U.S.-Russian Nuclear

Strategy by Stephen J. Cimbala. Naval Institute Press (<http://www.usni.org/naulinstitutepress>), 291 Wood Road, Annapolis, Maryland 21402, 2008, 256 pages, \$24.00 (softcover), ISBN 978-1-59114-117-4.

Stephen J. Cimbala's *Shield of Dreams* offers more than a traditional overview of and discourse on missile defense. In this well-written text, the author seeks to show the reader how strategic force models with different force-structure configurations would affect any missile defense configuration. A nuclear strategist who published extensively on superpower force structures during the Cold War, Cimbala has moved on to the twenty-first century, with its multipolarity and nonstate actors—both of which have an effect on strategy and new defense calculations. Missile defense has come to the forefront in terms of political and strategic relationships because the stability that once defined relations between the United States and USSR regarding delivery systems for strategic nuclear weapons and warheads has shifted to the uncertainty associated with smaller deterrent forces and the proliferation of nuclear weapons in numerous nations in South Asia.

Tracing nuclear arsenals from the early Cold War years to the present, Cimbala explains, from a nuclear strategy standpoint, how defense factored into US-Soviet weapons development. During the second nuclear age, when Russia relied on its nuclear force structure to maintain its great-power status, the United States chose to abrogate the Anti-Ballistic Missile Treaty to start the deployment of a national ballistic missile defense establishment. To date, these deployments in California and Alaska are designed to protect against a limited threat from North Korea. As the United States sought to expand its defense screen

to the North Atlantic Treaty Organization and into the former Warsaw Pact countries of Poland and the Czech Republic, Russia's angry reaction gave prominence to the missile defense debate. The current administration, which changed the Bush-era plan to a more mobile, maritime-based defense, is working with the alliance at the Lisbon ministerial to reach a consensus.

Not a mere history of missile defense, this book utilizes sophisticated computer models to lay out what force structure would best suit each superpower's national interest and would establish a level of trust between the United States and Russia. This would also allow a reduction in the overall number of nuclear weapons that each side has deployed. Cimballa explores alternative force structures and lays out how Russia could be encouraged to adopt a more stable force structure that would rely less on prompt launch yet assure survivability. Fearful of losing its nuclear edge, however, Russia has recently tested multiple independently targeted reentry vehicles and other defenses in its strategic missiles system to ensure their survival in a postulated missile defense environment. The text concludes that missile defense between the superpowers will not create a defense-dominated world. Arms control, coercive diplomacy, and unconstrained nuclear proliferation—themes that preoccupied the latter half of the twentieth century—will continue into the twenty-first. As usual, missile defense is no substitute for power politics, according to Cimballa.

Other topics examined in the text include nuclear war termination and the role that missile defenses could play in such a scenario, as well as the emergence of a world in which superpower stability and parity factor into missile defense structures. Cimballa also discusses developments in Asia and the growth of nonstate actors who could strike with weapons of mass destruction, together with the inability of defensive developments to minimize such attacks for at least 25 years, given today's defense technologies. These discussions make the text current as far as international developments are concerned.

Shield of Dreams is must-read for individuals involved in planning strategic force structure, missile defense, and modeling of nuclear force structures and defensive systems. The variables that Cimbala uses in his models are worthy of further study and incorporation into scenario-based gaming for determining the needs of service and defense posture.

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In the Graveyard of Empires: America's War in Afghanistan by Seth G. Jones. W. W. Norton (<http://books.wwnorton.com/books/>), 500 Fifth Avenue, New York, New York 10110, 2009, 448 pages, \$27.95 (hardcover), ISBN 978-0-393-06898-6; 2010, 464 pages, \$15.95 (softcover), ISBN 978-0-393-33851-5.

Drawn from recently declassified documents and hundreds of interviews with the architects of US policy in Afghanistan, Seth G. Jones's new work explains how the US military campaign, despite its early successes, ultimately stalled in Afghanistan. *In the Graveyard of Empires* is replete with insiders' insights, including the perspectives of Colin Powell, Richard Armitage, Zalmay Khalilzad, Ronald Neumann, Lt Gen Karl W. Eikenberry, Lt Gen David W. Barno, Wendy Chamberlin, Robert Grenier, and Graham Fuller. The inclusion of viewpoints from the State Department, Defense Department, and Central Intelligence Agency also indicates the disconnected nature of their objectives in Afghanistan.

Jones describes recent American experiences through the lens of historical imperial misadventures: "Past empires that have dared to enter Afghanistan—from Alexander the Great to Great Britain and the Soviet Union—have found initial entry possible, even easy, only to find themselves mired in local resistance" (p. xxv). This historical view, however, is incomplete. It is true that many great armies and empires have conquered Afghanistan: Persians (Cyrus the Great), Greeks (Alexander the Great), Arabs, Mongols (Genghis Khan), Timurids (Timur),

Mughals (Babur), Sikhs, British, and Soviets. These empires ruled Afghanistan by force and their conquest was fleeting, but occupation and resistance was only part of the history. The Afghan people absorbed art and culture, religion, language, architecture, and technology from each of these imperial incursions and forged lasting bonds with their would-be conquerors.

Jones's first chapter, Afghanistan's "Descent into Violence," covers a lengthy period from 330 BCE through 1979. But it ignores US interests in Afghanistan before the Soviet invasion. More importantly, Jones overlooks the implications of the post-World War II decision by administration officials to focus on Iran and Pakistan as allies in Southwest Asia. Jones's overemphasis on Cold War narratives, no doubt due to his sources, supports a 1990s historical revisionism that overstates US successes in the Soviet "soft underbelly"—Central Asia. His coverage of the mujahideen era, moreover, focuses on Russian and Pakistani efforts and denies Afghans agency in their own history.

US policy makers withdrew from the region after 1989 and quickly lost interest in Afghanistan's future. There were opportunities to mediate during the civil war, but as Zalmay Khalilzad indicates, "America has not helped Afghans and our friends in the region make the right decisions" (p. 51). At the same time, Pakistan began to interfere more audaciously to confront an imagined "Tehran-Moscow-New Delhi axis supporting Kabul," in the words of one State Department memo (p. 47). A decade-long hiatus of expertise ensued until the events of 11 September 2001 brought American focus back to Afghanistan. This unfortunate disconnect explains how policy makers misread the Soviet experience, choosing the ineffectual "Panama model" and a "light footprint" to stabilize Afghanistan instead of a larger invasion force. Jones could have studied the development of these strategies with much more detail.

The real strength of the book emerges when he discusses US awareness of the Taliban-Pakistan connection. From the beginning of the conflict, Richard Armitage explains, "Pakistan's leaders had to choose

between the United States or the terrorists; there was no middle ground” (p. 88). And ample evidence indicates that the Pakistani government supported US operations initially. Jones's study, however, raises the question of whether Pakistani officials continued to aid the Taliban and the al-Qaeda network as militants flooded into Pakistan at the end of 2001. When Pakistan was unwilling to target its erstwhile client, the borderlands proved an “ideal sanctuary” for militants.

The decision to invade Iraq in 2003 further complicated matters. As Jones argues, “Despite the impressive gains in security, infrastructure, and democracy, the United States shifted resources and attention to Iraq and allowed the Taliban, al Qaeda, and other insurgent groups to rebuild in Afghanistan and Pakistan” (p. xxv). Yet Jones does not view US challenges as one dimensional; instead, he identifies several pivotal developments in the surge of violence during the mid-2000s that shaped America's war in Afghanistan. With resources diverted to Iraq and command transferred to the North Atlantic Treaty Organization, rampant corruption and lack of security resulted in growing Afghan indifference to the weak government in Kabul. Funding for the Afghan government waned while contributions to insurgents increased after the US invasion of Iraq. The collaboration of religiously motivated Pakistani-based recruits and Afghans frustrated with local corruption and ineffectual governance led to the rise of three militant groups: the neo-Taliban, Gulbuddin Hekmatyar's Hezb-i-Islami, and the Jalaluddin Haqqani network.

Jones's research on the murky history of Pakistani military support for Afghan insurgents is important. He reveals that Pakistan's Inter-Services Intelligence and Frontier Corps provided vital, even combat, support to the Taliban throughout the war. This practice took on deeper significance when the US military appeared to draw down in 2005, further increasing Pakistani commitment to partners in Afghanistan. Jones, who served as an adviser for the commanding general of US special operations forces in Afghanistan, witnessed the escalating violence that followed.

In the end, the author observes some of the key missteps of the US engagement in Afghanistan. In particular, US policy makers lacked a joint Afghan-Pakistan strategy to address the complexities of the frontier. The shift in resources to Iraq at a key moment in the stabilization of Afghanistan also had a lasting impact. Jones offers sage advice for the future of Afghanistan: "Security in rural areas must come from local Afghan institutions, especially tribal ones, since foreign armies have never succeeded in establishing law and order in Afghanistan" (p. 321). Choosing to see Afghanistan as a "Graveyard of Empires" is provocative and ominous, but it fails to advance our understanding of the complex US engagement with Afghanistan and extends the long tradition of dismissing Afghanistan as unruly and bellicose. Despite these faults, Jones's work is a welcome sequel to such pioneering works as Steve Coll's *Ghost Wars* (2004) and Lawrence Wright's *Looming Tower* (2006). Gen Norton A. Schwartz included *In the Graveyard of Empires* in his Chief of Staff of the Air Force Reading List for 2010.

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Daring Young Men: The Heroism and Triumph of the Berlin

Airlift, June 1948–May 1949 by Richard Reeves. Simon and Schuster (<http://www.simonandschuster.com/>), 1230 Avenue of the Americas, New York, New York 10020, 2010, 336 pages, \$28.00 (hardcover), ISBN 1416541195; 2011, 336 pages, \$16.00 (softcover), ISBN 1416541209.

In his well-chosen title, Richard Reeves clearly lays out his purpose of revealing the bravery and achievement of a military operation often misunderstood or overlooked by Americans today. He explains in the introduction that studies of the post-World War II period sometimes paid little, if any, attention to the Berlin airlift and that students regularly confused it with later Cold War hostilities taking place after the official division of Germany (p. xv). With the publication of *Daring*

Young Men, Reeves seeks to correct this oversight, and although it is certainly not the first study on the subject (Andrei Cherny's *The Candy Bombers*, more than twice as long, appeared almost two years earlier), this work makes an important contribution to the history of the airlift.

Electing to remain within the time frame of the airlift itself, Reeves opens the first chapter on 20 June 1948, mere days before the beginning of the Soviet blockade (p. 1), and closes the final chapter on 12 May 1949, the day the blockade officially ended (p. 259). After he introduces the blockade decision by reproducing media coverage of the event, the author then provides background on the impetus for such a decision—namely, the issue of currency reform (p. 14). From there, the work proceeds chronologically, each chapter covering roughly one month of the operation. This design proves remarkably easy to follow, even for readers having little familiarity with the airlift. In chapter 3, the author carefully chronicles the beginnings of the effort, calling its first month a “cowboy adventure” both “heroic and frantic” under Gen Joseph Smith, provisional task force commander of the airlift (pp. 71, 67). To demonstrate the truth of these claims, Reeves shares stories of pilots desperately overworked, sleeping only seven hours out of every 32 and often falling asleep at the controls of their planes (p. 70). He tells of Airmen purposefully breaking their legs by jumping out of low windows just to be sent home for rest and of mismatched airplanes parked haphazardly across the airfields, without regard for any schedule and in dire need of maintenance (p. 82).

Reeves then explains how the operation changed and began to function like a well-oiled machine. He places the turning point at 23 July, one month after initiation of the blockade, when Gen Hoyt Vandenberg, Air Force chief of staff, was persuaded to give control of the airlift to Maj Gen William Tunner, the ruthlessly efficient deputy commander for operations of the Military Air Transport Service (p. 71). Less than three days after his arrival in Germany, Tunner demanded changes in the procedures for crews unloading at the Berlin airports of Tempelhof and Gatow (p. 83). Carefully monitoring their efficiency on his beloved

charts, the general constantly strove to increase tonnage into Berlin by promoting contests between squadrons and airfields and staging massive one-day efforts to rally his aircrews (p. 105).

According to Reeves, Tunner's unique management style and innovations demanded by the extreme requirements of the airlift fundamentally changed aviation forever (p. 184). After Tunner's plane became stuck in a nightmarish stack, number 28 in line to land at Tempelhof, he locked his pilot and copilot in a hotel room, charging them with creating entirely new approach procedures that would enable landings at Tempelhof once every minute (p. 103). Crews devised strategies to reduce their time on the ground from hours to mere minutes and made recommendations for civilian airlines, such as inclusion of a flight engineer, standardization of instrument panel locations, and use of three initial level-off altitudes to increase takeoff frequency and horizontal separation (p. 184).

The limited time frame of this study contributes greatly to its readability, and the thorough epilogue will appeal to individuals hoping for a where-are-they-now conclusion. By highlighting the months of the airlift, Reeves is able to offer greater detail regarding the day-to-day operations and experiences of people involved in the operation. Instead of examining the event through the perspective of one particular group, the author rotates each participant into the spotlight, quoting everyone from President Harry Truman and his joint chiefs (p. 77) to the hungry children of Berlin who caught flying candy tied to handkerchief parachutes (p. 90).

During his preparation for writing this book, Reeves gathered extensive archival material, conducted interviews with some of the participants, and examined a host of secondary sources. This research is well documented in the endnotes and bibliography; however, the note style is somewhat more difficult to access than that found in traditional monographs and may frustrate academic historians anxious for documentation of specific quotations and claims.

Overall, *Daring Young Men* is an easy read, even for someone with limited knowledge of its subject. Reeves's discussions of the innovations in air traffic management and aircraft maintenance serve as an excellent history lesson for Airmen in those career fields. His analysis of the effectiveness of Air Force leadership strategies earned the book a place in the Air Force chief of staff's professional reading program for 2010. Additionally, Reeves's explanation of the Berlin airlift as an outline for the Cold War and the key to the formation of modern Europe makes this book an important read for anyone seeking a deeper understanding of military and political history.

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