

**THE TENETS OF AIRPOWER
IN AN INSURGENT
ENVIRONMENT**

BY

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ABSTRACT

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Airpower can and has played a significant role in counter-insurgency operations since the introduction of military aviation early in the last century. Its effectiveness has largely depended on the counter-insurgent airman's understanding of the uniqueness of the insurgent environment, and his understanding and application of airpower to his specific circumstances. Major Combat Operations (MCO) and Counterinsurgency (COIN) air and ground environments are dramatically different, and require different theory, doctrine, and in most cases, equipment, to be fought effectively. The threats and strategies of both protagonists in MCO share only limited commonalities with those present or required in a COIN environment. To maintain relevance in Irregular War existing baseline airpower theory, strategy and doctrine must be modified. This paper examines the potential of, and challenges to, the application of airpower in an insurgent environment, through the study of nine historically derived tenets. It offers recommendations on changes to typical MCO air force doctrine, training, capabilities and resources to meet the COIN threat. It is also intended to serve as a foundation for future COIN planners in designing well-integrated and executable counter-insurgency campaign plans that take full advantage of air power's contributions.

THE TENETS OF AIRPOWER IN AN INSURGENT ENVIRONMENT

Major Combat Operations (MCO) and Counterinsurgency (COIN) air and ground environments are dramatically different and require different theory, doctrine, and in most cases, equipment to be fought effectively and efficiently. The threats, opportunities, and strategies of both protagonists in MCO share only limited commonalities with those present or required in a COIN environment. To maintain relevance in Irregular Warfare (IW), and more specifically, counter-insurgency, existing baseline airpower theory, strategy, and doctrine must be modified. The U.S. military has historically failed to effectively codify the hard-learned airpower lessons of its (and its allies) previous counterinsurgency experiences, only publishing its first dedicated IW airpower theory and doctrine manual (of which COIN is a subset), Air Force Doctrine Document (AFDD) 2-3 *Irregular Warfare*, in August 2007. This manual is a significant step for the Department of Defense and United States Air Force. It makes a number of important contributions to the professional discussion of COIN airpower through its description of IW “Truths” for airmen and its review of the potential capabilities of airpower in a COIN environment. This paper builds on this doctrine through the study of nine historically derived tenets of airpower in counterinsurgency, and offers recommendations on changes to typical MCO air force doctrine, training, capabilities and resources to meet the COIN threat. It is also intended to serve as a foundation for future COIN planners in designing well-integrated and executable counter-insurgency campaign plans that take full advantage of air power’s contributions.

Status of U.S. Airpower Theory in COIN

AFDD 2-3 is the first AF manual to offer a list of potential airpower missions and tasks in COIN. This is a critical first step for the USAF (and DoD at large) in achieving the depth of explanation/detail required for strategic, operational, and tactical practitioners with no prior experience with the application of the full spectrum of air assets and capabilities in COIN and to develop an understanding of what is possible (and might be required and requested). There is no other source in official U.S. military theory or doctrine, and only a handful of private research publications, where a novice can find a reasonably comprehensive discussion of COIN specific airpower missions and tasks. While flawed in organization and lacking in depth and historical example, AFDD 2-3 is still a significant and useful accomplishment.

The manual's organization presents a number of shortcomings due to the authors' attempt to cover the tenets of the application of air power in four separate missions in a single short document: Support to Insurgency, Support to (other's) Counter-insurgencies, Counter-insurgency, and Counter-terrorism. Direct conduct of air operations in support of U.S. SOF forces inciting insurgency against a sovereign state is dramatically different in many ways than direct conduct of air operations in support of a conventional counter-insurgent force. While some hardware and tactics will be the same, one is fundamentally covert and offensive, while the other is fundamentally overt and defensive in nature. "Counter-terrorism" is a radically different subject than "Support to COIN". The manual addresses each mission in each chapter, often with poor delineation, forcing the reader looking for COIN-specific guidance and thought in multiple places by repeatedly sifting through potentially irrelevant data addressing the other three missions.

AFDD 2-3's description of the typical insurgent movement, its methods, and the environment in which it is created and for which it is responsible, is significantly lacking. The manual fails to describe the historic or potential future insurgent environment as it relates to air operations, either from an insurgent or government perspective. Further, the linkage between the manual's identified Irregular Warfare air power principles and capabilities and its description of the insurgent threat and environment are limited and tentative at best. What anti-aircraft tools and methods have different insurgents used in the past? How were these combated successfully? How might weapons proliferation impact this equation in the future? How have insurgents like the Union for the Total Independence of Angola (UNITA) used their own air assets in the past, under what conditions were they successful, and how might this be combated? What types of aircraft with what attributes have governments used in the past, and how might changes in future friendly and enemy technology, training, or ideology impact these types of approaches in the future? Even a simple question concerning how air power has been applied successfully or unsuccessfully against the listed historic insurgent patterns, methods and strategies is hard to answer from the information provided, and is left to the reader to discover elsewhere. One could garner from this description the "why's" or "how's" of insurgency at the national level, but not the ways in which the insurgency will manifest itself at the operational or tactical level, nor the ways in which this manifestation will challenge the tenets of classical, MCO focused, airpower theory and doctrine. The novice counter-insurgent is presented with a useful discussion of airpower qualities and capabilities in COIN, but not the detailed description of the insurgent

environment at the operational or tactical level which he would need in order to develop the strategic role of airpower and to plan and apply airpower effectively.

Summary of the Insurgent Environment

The insurgent warfare Operational Environment (OE) places significantly different demands on airpower than the MCO OE. Despite the potentially powerful capabilities of air power in counter-insurgency, it faces difficult challenges to its effectiveness originating from the unique set of insurgent OE demands placed on it by the physical environment, insurgent strategy, national and international policy, and service-cultural politics.

At the root of the problem facing counter-insurgent airmen is the fact that insurgents, in violation of the laws and customs of armed conflict, shed uniforms, identifying symbols, and signatures and hide among the population. This negates many of the advantages of technologically focused modern forces prepared for conventional warfare at some standoff from the civilian population. The insurgent attacks from his hiding place among the people, and is nearly indistinguishable until the moment of attack. His focus during the irregular warfare phases of his campaign is on disruption of government functions and services—and in discrediting the government and its forces. He strikes at all symbols of normalcy and effective governance such as schools, power lines and plants, water supplies, etc. in order to sow doubt and dissent among the population and sway (or terrorize) them to his side. In addition to the benefits of using the civilian population as camouflage and shields, he benefits when they are killed by government forces, especially when he can present the casualties as victims of excessive force. After long months of atrocities against government forces and

leaders—and propaganda efforts to weaken the links between government forces and the population—he will intentionally stage attacks from among dense civilian populations in order to draw down the wrath of government forces indiscriminately on the civilians surrounding him.

The insurgent attacks government forces vigorously when the odds are in his favor, but the physical destruction of the counter-insurgent military is not the focus of his guerilla operations. Destabilization and disintegration are his true goals. Having a limited bureaucracy, a decentralized Command and Control (C2) structure, no legal constraints, limited supply needs, and few if any classical Lines Of Communications (LOCs), he benefits from incredible mental and physical flexibility.

To be effective in this environment and against these tactics, COIN forces must secure critical infrastructure, enable the delivery of services to the bulk of the population by providing general security to them at home and at work, and finally, find and destroy the insurgents and their infrastructure. To accomplish these tasks, the counter-insurgents must immerse themselves among the population for extended periods in order to develop the environmental sensitivity, situational understanding, and intelligence network required to clearly identify the insurgents and their assets. To do so safely, they must occupy the populated areas in sufficient force to compel the insurgent combat units to go underground (or flee the area) and embolden the pro-government portions of the population to come forward with information. Historically, establishing this level and depth of security for the bulk of the population has required a force of significant size for lengthy durations. Fixed site security requirements for critical infrastructure and population centers, logistics convoys with added security elements,

mobile forces conducting limited targeted strikes in the unsecured areas, and reconstruction forces to rebuild and improve on what was destroyed by the insurgents are examples of the numerous manpower-intensive tasks required in counter-insurgency. Given the challenge of raising and paying for a force of the size needed to blanket an entire region in the required density, most counter-insurgent forces must settle for a strategy of progressively clearing, securing, and rebuilding infrastructure and popular support block by block, town by town, region by region, until the enemy is eliminated or quits.¹

Airpower can and has played a significant role in counter-insurgency operations since the introduction of military aviation early in the last century. Its effectiveness has largely depended on the counter-insurgent airman's understanding of the uniqueness of the insurgent environment, and his understanding and application of the tenets of COIN airpower to his specific circumstances. When the tenets are applied appropriately airpower plays a key strategic role.

The Tenets

1. Firepower is Subordinate to Politics. The use of airpower in counter-insurgency is subordinate to the nature of the insurgency and political objectives of the host nation, third party governments, and other international actors.²

Insurgencies are political in nature, and aimed at political ends. They are armed conflicts between elements seeking to establish or maintain their vision of how a given society, among other things, should be organized, under what moral and ethical codes it should function, how money, resources, and political decision making power should be distributed and used, and how justice should be carried out. The struggle is for the

active, or at least passive, support of enough of the indigenous population to enable the establishment of the type of order desired by the winning side.

How force, including airpower, is applied in a country's counter-insurgency effort affects the political discussion. Poorly or indiscriminately applied, it can alienate segments of the population from the counter-insurgent's cause and weaken his standing in the ongoing political conflict.³ Properly applied, it can weaken the insurgent's physical and political position and assist the government in bringing him back into the peaceful political process, forcing important concessions from him. The destructive potential of airpower will often be constrained for any number of domestic and international political reasons.

While a strong common-sense efficiency argument has been repeatedly made for focusing a significant amount of the air effort against the cross-border sanctuaries and third-country sponsors in many recent insurgencies, the vast majority of counter-insurgent politicians in supported and supporting governments have resisted both overt and covert air and ground attacks against these types of targets.⁴ The fear of long-term repercussions, such as drawing third country sponsors and their great power protectors further into the conflict or initiating a broader war among sponsors normally outweighs the significant but short-term benefits of cross-border strikes. Like it or not, while they should continue to consider and advise on both the most efficient and effective applications of airpower in their given fight, airmen will continue to labor under constraints in the application of firepower in future counter-insurgencies.

Adapting the approach of MCO-centric air forces to deal effectively with the COIN environment should start with comprehensive education of airmen on the unique

qualities of the typical insurgent environment and the significantly increased importance of information warfare and politics at all levels of COIN warfare. Key in their education is an understanding of the need for revising their MCO-centric view of the relationship of military necessity and proportionality in order to better deal with the reality of fighting a war “among the people”. To be truly effective in counterinsurgency, they must see it not just as war “among the people” but among those they must really consider “our people” if they hope to gain the full or partial support required to win.

Airmen must learn how to apply airpower to address the intricacies of this contentious environment. In a counter-insurgency campaign, the commander’s intent for joint fires and Rules Of Engagement (ROE) should reflect the sensitive nature of counterinsurgent firepower-inflicted civilian damage and casualties front and center and convey his vision of the meaning of necessity and proportionality in this extremely challenging environment.

In order to enable strikes which are placed accurately and rapidly and which minimize the potential for collateral damage, effective counter-insurgent airpower employs the highest level of precision targeting capability on the maximum number of platforms possible. Precision targeting capability must be coupled with low yield or “scalable” yield munitions which allow strikes in close proximity to non-targeted structures and persons. Currently, the Small Diameter Bomb (SDB) is the smallest bomb in the USAF inventory with an explosive weight of 50 lbs and a blast radius of 26 feet.⁵ While this offers a significant gain in potential collateral damage reduction over previous bomb options, consideration should be given to adapting GPS guided mortar and artillery rounds for air-drop because of their even smaller explosive weights. An

additional benefit would be an increase in the number of projectiles which could typically be carried because of reduced size or weight as well as a decrease in the size of the air frame able to carry lethal armament.

2. *Air-Ground COIN Campaign Integration is Essential.* Land-power can defeat insurgency without air-power, but the cost in time, resources, and blood will be higher than if the two are integrated at the strategic and planning level. Airpower cannot defeat insurgency by itself, but can act “as a significant force multiplier, and enables counterinsurgents to operate more effectively....”⁶ Airpower and land-power, operating simultaneously but not in concert with each other will fail to achieve the full potential of their cumulative, let alone synergistic, power. For airpower to be effective against an insurgency, a comprehensive COIN strategy and appropriate theater airpower command and control system which achieves synergy is required.⁷ As John S. Pustay aptly put it;

...It must be appreciated at this juncture, however, that to derive maximum benefit from the use of airpower in... insurgency, its operations must be closely coordinated with surface operations....

...Equally important, if indeed not more important-given the highly political nature of insurgency- is the need for extremely close military and civil cooperation and coordination in virtually all counter-guerilla actions.⁸

When COIN airpower is properly integrated with effective ground operations, the insurgent finds himself afraid to mass or move above squad level for fear of detection, unable to operate his training or logistics bases for fear of attack, reduced to foot messengers to communicate and coordinate operations, and unable to launch even small-scale indirect fire attacks without significant risk of preemption, or immediate retaliation. He lives in constant fear of ground-directed air attack, air directed ground attack, or an integrated air-ground combined arms assault, as he awaits the security

force's oncoming clear, hold, and build operations to force him from his hiding place among the population, or identify and destroy him in detail even among the population.

In place of AFDD-1's essentially airpower-internal synergy discussion, a COIN-centric airpower theory must emphasize the potential air-ground synergies in a properly integrated and resourced joint COIN campaign in support of an appropriate strategy.⁹ The proper application of airpower's qualities of persistence, agility, speed, and efficient-effectiveness in the strike, transport, and ISR roles in conjunction or "parallel" with effective ground COIN operations can yield significant synergistic effects.¹⁰ These parallel operations, coordinated to occur simultaneously and continuously against a broad spectrum of physical and psychological targets, present the enemy with multiple crises and challenges occurring so quickly that he becomes overwhelmed.¹¹ The insurgent's effectiveness drops as his friction increases, creating the opportunity for less friction and increased effectiveness for the counter-insurgent.

Adding to the complexity of the integration of airpower in an insurgent environment is the fact that unlike in MCO, there may be (and some argue should be) multiple nested campaign plans from battalion through theater level. In MCO, there is typically a single theater campaign plan—a series of sequential objectives arrayed in logical order against which all subordinate elements using tactical tasks are directed. Subordinates have limited freedom of action and no lasting relationship with any given piece of terrain or population. They are provided tactical tasks a day or two ahead of the desired execution date. Further, they receive only a small percentage of the theater airpower for use in close support as most is usually dedicated to strategic and interdiction missions planned at the theater level. The theater headquarters also retains

most of the authority and assets for the conduct of political, diplomatic, informational, and economic activities, and creates and manages the plan to apply these in an integrated fashion.

In COIN, the relationship of units at every level to the terrain and population changes dramatically. Commanders at every level must tailor the theater campaign plan to their own specific conditions. While the JTF's Lines Of Effort (LOE) and end-states remain the valid focus of all subordinate headquarters, the specific objectives and sequencing of them required to win among any given local population may vary dramatically, requiring each subordinate element to create its own distinct, but nested, additional lines of effort and supporting objectives for its operational environment.¹² Airpower must be strategically structured and properly apportioned, allocated, and integrated in support of as many of these efforts and their supporting operations as is possible. MCO demands relative centralization for air to maximize its potential. COIN requires relative decentralization for air to achieve its potential.¹³

Airpower operations must not only be integrated with the campaign plans at strategic, operational, and tactical levels, but also be as closely integrated as possible into the very fabric of the ground units leading the operations as these ground units make planned and unplanned contact with the enemy. Most contacts with the enemy and with the population in the early phases of a classic insurgency will occur at squad through company level, often isolated from the remainder of the force in space and time. These sub-elements will make the bulk of proactive and reactive air support requests in an insurgent environment, and provide one of, if not the best, vantage point for the terminal control of those missions. These small units must therefore be trained and

resourced with the tools and personnel to do so effectively and efficiently. The establishment of habitual relationships between aircrews dedicated to close support missions and the ground forces they support, to the extent of co-locating these elements at the lowest level possible, is indicated. Airmen who are habitually related with ground maneuver elements would gain in an appreciation of the specific environment they would now “own” and a detailed understanding of the ground commander’s intent required to provide effective, pro-active advice and support. Their constant presence in the air over “their” area of operations would allow them to gain a better appreciation of the pattern of life of those below, acquiring the ability to accurately sense normal from abnormal and respond accordingly. Their regular interaction with ground force planners and executing units at the lowest level increases their credibility with those organizations, and improves the quality of their advice and support to ground force plans and operations.

To answer the need for close integration in planning COIN operations, competent air planners and terminal controllers must be provided in sufficient quantity to all appropriate ground headquarters from company through theater. Current doctrine and manning only allow for planning support to combined arms battalions and support for terminal control of air to two of their supporting companies at a time. No support whatsoever is provided to the reconnaissance, artillery, or logistics battalions, most of whom perform provisional infantry missions in the current wars. The USAF’s airpower planning and support force must expand to support all battalions and companies committed to infantry missions. These airmen must be trained in campaign design and

planning for COIN and should possess experience in both air operations and support for planning and execution of ground maneuver operations.

Air Force doctrine must be adapted to allow more flexible planning, command, and control methods to be applied in COIN. It must further allow and encourage the habitual relationships of airman and soldier to create the close liaison between aircrew and user in order to improve the situational understanding that leads to greater effectiveness and efficiency of both in an insurgent environment. An effective habitual relationship of airpower and ground units could be achieved by a modified theater air support concept in which a limited daily "Target of Opportunity" Air Tasking Order (ATO) would work in concert with a longer-term campaign support ATO, where apportionment and allocation might link aircrews and ground elements for weeks or months at a time. This arrangement retains the centralized control of air in the hands of the JTF commander who could re-apportion and re-allocate it at any time as required, but provides subordinate commanders with the greater predictability, flexibility, and interaction required to build and lead an effective air-ground team in the COIN environment.

3. Effective COIN Airpower Requires Learning Units. Successful insurgencies, and the environments they spawn, are dynamic. Those insurgencies which cannot adapt quickly enough die when faced with competent and relatively effective government forces. As *Field Manual 3-24* points out, what works one day in one place for the counter-insurgent does not necessarily work at a later date against the same enemy unit, or in different location against an enemy in communication with the first unit.¹⁴ COIN, in many ways more so than MCO, is a game of action-reaction-

counteraction. Successful application of airpower in a counter-insurgency requires a learning organization.

In modern MCOs, combatants battle over new ground and often against new enemy units each day as a result of the decisive nature of immediate operations. Lessons may or may not be transferrable from day to day as the players, terrain, and environment change. Lessons may not be transferred as units fall before they can transfer what they have learned coherently to sister units. High casualties on both sides may also lead to the loss of important learning points. Material such as tanks, aircraft, and radios cannot be changed quickly enough to be tailored daily to the conditions. For better or for worse, units must largely fight only with the skills and experience gained in pre-combat training.

Conversely, in COIN, decisive operations extend over greater time. Combatants often battle over the same ground, against the same enemy, using the same systems and among the same population for months at a time. Line soldiers and leaders of both insurgent and counter-insurgent forces have multiple opportunities, often within the same day, to gain increasingly deeper understanding of their enemy and the environment. Based on their experience, they are able to make incremental adaptations to tools and tactics against a relatively known enemy. Each side settles into a set of basic and observable tactics, which can be adapted as conditions change.

Each time the counter-insurgent adapts to the countermeasure, the insurgent applies another—although usually at significant opportunity or efficiency costs. To defeat or disrupt signals intelligence efforts, the insurgent adapts his organization in high threat areas to be more independent and intent based or adopts non-

electromagnetic means of communication in that area such as runners or riders.¹⁵ He can also adopt cipher systems, buy encrypted radios on the open market, or adopt a “use once and discard” policy with cell phone Subscriber Identity Module (SIM) cards, providing each user with ten or twenty at a time, resupplied at regular intervals.

In regard to airpower, as a rule insurgents cannot match the threat with planes of their own, but can seek to reduce or mitigate the effectiveness of the tool for the counterinsurgent through a number of creative means. To mitigate the effects of planes and drones near his fielded combat units and facilities, he can attempt to purchase Man Portable Air Defense Systems (MANPADS) such as the SA-7 or pickup truck-portable anti-aircraft guns. These force the counterinsurgent to adopt less effective tactics, such as flying at higher altitudes or greater speeds, in order to reduce his risk. He might attempt to condition the COIN force to avoid air assault raids or to expend ever greater effort to safely conduct these operations by staging periodic anti-aircraft ambushes. Using infiltrators or other means he could feed false intelligence to the counterinsurgent in order to lure him into air-defense saturated killing zones.¹⁶

The insurgent can also increase his dispersion, or level of camouflage, as he determines through real world testing what the government’s air and ground elements can and cannot detect. As he “feels out” the counterinsurgent force through trial and error and determines their Rules Of Engagement (ROE), he learns what combat power will allow them to do and not do. He can also increase the safety of his critical assets by embedding them in or close by what he determines to be the government’s “no-strike” and “no-go” areas.

The insurgent could seek to achieve de-facto temporary local air superiority during his critical offensive operations by using feints and deception to divert government air assets off an intended target with a coordinated feint at another distant location. He can achieve a similar advantage by testing the response times and operating patterns of the counter-insurgent air support and surveillance system and operating within this tempo. Either of these is more effective when synchronized to take advantage of the limitations of the counterinsurgent's ROE. Knowing these two factors, he would seek to operate inside the counter-insurgent's decision cycle and outside his ROE. For example, determining the response times of rotary and fixed wing aircraft from bases or orbits to a given location and knowing the enemy's ROE, the insurgent seeks to engage a unit too small, or in a poor position to maneuver against him, then executes his attack from start to finish inside the response time of the aircraft. Prior to the arrival of aircraft, which well-placed observers in the surrounding terrain could warn him of, he withdraws his forces from direct observation of the attacked element, disperses them, and presents them to the aircraft in such a way that the neither the ground or air observers can achieve Positive Identification (PID) and meet their ROE criteria to attack.

The insurgent can also apply the direct counteraction of attacking the airfields which house and support the planes. The Faribundo Marti National Liberation Front (FMLN) succeeded in nearly crippling the El Salvadoran Air Force (ESAF) in a daring guerilla raid on the airbase at Ilopango IAP on the 27 January 1982. A raiding party of 100 FMLN fighters infiltrated the perimeter of Ilopango AB and destroyed five UH-1Hs and three C-47s and damaged four Ouragans and two UH-1s badly. Two Ouragans

were written off, while two others were repaired and returned to service years later. The damaged helicopters were written off and the whole fleet was grounded for a period of time.¹⁷ Had the ESAF's main benefactor, the United States, not immediately moved to replace the losses, the government's only asymmetric advantage in the conflict would have been lost. These "denial of asset/support" attacks can also be conducted in manners less costly to the insurgent, but just as effectively. On 13 April 1966, the Viet Cong (VC) guerillas launched an intensive mortar attack on Tan Son Nhut airbase in South Vietnam. Approximately 157 rounds of 81-mm mortar and 75-mm recoilless rifle fire destroyed four aircraft and damaged 56 more. This attack also killed or wounded 156 US and Army of the Republic of Vietnam (ARVN) servicemen.¹⁸

A dynamic enemy demands a counter-insurgent air force which is as or more dynamic, one which knows its enemy's mind, preferences, and predilections, and can think one step ahead of him. Insurgency requires a counter-insurgent force which is willing and able to anticipate the flow of action and reaction and willing to break with tradition and firmly held wisdoms to adapt its procedures, equipment, and organization to meet the changing demands placed before it by the environment and the insurgent himself. Both the individual counter-insurgent airman and the organization to which he belongs must demonstrate a high level of learning and willingness to adapt.

The After-Action Review (AAR) process used by the U.S. Air Force and Army in pre-deployment training must be brought with them to combat, made joint, and expanded in scope and depth, not abandoned as a peacetime training concept when the units leave home station. A joint combat AAR process enables the commands involved to gather and disseminate lessons learned in a disciplined manner. They

provide the information and forum necessary to determine when change is required or an opportunity presents itself. When supported by special Inspector General (IG) teams performing disciplined and impartial data collection and linked back to training and resource establishments in the continental United States, the AAR process provides the data and analysis needed to rapidly create and resource new Tactics, Techniques and Procedures (TTP) in order for later deploying units to adapt to new enemy challenges or weaknesses.

An effective AAR process feeds highly responsive and adaptable training and equipping systems. Airframe and weapons modification can then turn in terms of weeks or months, not years. Further, TTP and equipment modification authority and resources should be pushed as far forward as feasible to enable operators and their first-line supporters to make the changes that are feasible at their level. Learning militaries adapt technology, tactics, operations, and strategies.

In order to deny the insurgent the propaganda and physical victories of downing aircraft or forcing them into less effective tactics, counter-insurgent air defense suppression systems and tactics must receive top priority in the AAR and response systems. The insurgent must not be allowed to apply anti-aircraft counter-measures to reduce friendly air operations and force aircraft into tactics such as seeking safety at altitudes which reduce or eliminate the airframe's sensor-enabled asymmetric advantages.

To minimize the insurgents' ability to close with friendly forces in the absence of air support and to deny him freedom of movement, the counterinsurgent must field a sufficient number of appropriate aircraft over friendly forces at the most likely times and

places of attack. He must minimize or effectively eliminate any predictable decision cycle time or pattern. No ground maneuver unit should operate in contested areas during demonstrated or predicted high-threat times without continuous aerial ISR support and armed close support aircraft within two minutes response time. Optimally, aerial ISR and strike aircraft would be overhead of, and essentially dedicated to, each maneuver element conducting operations away from its parent unit in a contested area 24 hours a day. This is perhaps most efficiently done by fielding aircraft capable of long times on station without refueling, carrying large munitions loads, and capable of multiple simultaneous roles. Combining ISR and strike functions in a single airframe reduces the total number of airframes required over a single point at any given time. Combining the ISR and strike capabilities of an airframe, such as the AC-130, with some of the capabilities of an airborne command post or aerial Psychological Operations aircraft, such as the EC-130 Commando Solo, or loudspeaker systems of the British "Sky Shout" offers another example of simultaneous capabilities enhancement and airframe requirement reduction.

High-endurance, multi-role aircraft also increase the dynamism of a COIN air force through their ability to rapidly detect and engage insurgents without requiring the assistance of other platforms, or the additional coordination time that would entail. The concept of multi-role aircraft should be adapted to support COIN from the MCO-centric combination of air to air and air to ground capabilities to one more like the MQ-9B Reaper UAS, combining the long-loiter and acquisition capabilities of an ISR platform with the punch of a dedicated attack aircraft or gunship. The presence of a high-endurance aircraft able to self acquire and immediately attack hard to locate insurgent

forces and assets is a potential game-changer when combined with effective ground force operations.

The air-ground ROE must be as liberal as politically possible and their details closely guarded. While always keeping in mind the potential political implications of applying firepower on a congested battlefield, commanders should actively pursue measures and actions which create uncertainty as to the details of the ROE in the minds of the insurgents—as both a deterrent and as a lure when appropriate. Most importantly, soldiers and airmen must avoid establishing deliberate or unintended patterns, which invite unwanted insurgent counteractions. Enough resources must be provided to allow what appears to the insurgent to be unpredictable randomization of air operations. The insurgent must be constantly surprised by aircraft arriving proactively or reactively over the battlefield unreported by his observers at the normal departure airfields or under habitual orbit points. Randomized additional sorties brought in from third country bases, or off carrier decks to augment those kept inside the area of operations, may be one solution. The integration of larger numbers of hard to detect high altitude UASs—especially strike capable ones—may be another answer. More liberal application of aerial firepower (and thus more random to the insurgent) under existing ROE can also be assisted by the fielding of precision guided, low yield/low collateral damage munitions, which allow strikes closer to friendly forces and civilians than the insurgents may be used to or able to adapt to easily.

Lastly, force protection of counter-insurgent aircraft at their bases must be a priority. Loss of aircraft to insurgent attack on home bases would be both a physical and psychological victory and must be denied to them. A balance must be struck between

protecting these high value assets and the previously discussed imperative to allow their commanders, planners, and pilots to maintain as close and intimate a relationship with their supported ground units as possible. While basing remote from the contested areas may be optimal in terms of force protection, a way must be found to maintain a close link between the air and ground elements of the team. It is a tactical imperative for effective support. A permanent direct liaison element from the supporting squadrons to their supported battalions is one option. Repetitive short term (up to a week-long) rotation by small numbers of aircrew and air commanders to the battalion and smaller units they support may be another. At a minimum, utilization of electronic means such as daily VTC battle updates or continuous feed S3 to S3 video links in supported/supporting command posts should be considered.

4. Target Location is Harder, yet More Critical Than Ever in COIN. Fast and accurate target location, positive identification, and accurate attack are significant challenges in an insurgent environment. Modern insurgents will typically adopt irregular warfare strategies which violate the customs and laws of armed conflict. This makes positive identification of their forces and infrastructure dramatically more difficult for counterinsurgent forces. To be successful, counter-insurgent airpower must be persistent, technologically capable, and decentralized in as many aspects of its command and control as possible.

In an MCO environment, especially those involving large formations, targets are plentiful. Signatures of enemy activity, such as electromagnetic emissions or massed thermal signatures as well as the distinct appearance of military vehicles and sheer size of vehicle and troop formations, give them away easily. Once oriented to the location of

nearby friendly forces by ground or air observers, or given a “Kill Box” with no friendly units inside, a pilot with little specific understanding of the units in contact or status of the ground battle or terrain can quickly locate, positively identify, and attack valid enemy targets. Combatants on both sides are clearly marked and distinctively equipped. In addition, their tactics and operating procedures present obvious signatures that reveal their presence and activities.

In insurgency, the insurgent, lacking MCO capability, adopts a different strategy and mode of operations. Classic insurgencies initially follow a classical guerrilla warfare strategy and tactics in their early stages. They and terrorists normally choose to leverage the protective and supportive effects of close integration with a host population. They violate the law of war by wearing civilian clothes without identifiable insignia, driving unmarked civilian vehicles, and hiding their political, military, and logistical infrastructure in and among the population. They often use the cover of protected sites such as hospitals and religious and cultural centers. In modern wars, they shun distinct electromagnetic transmitting devices in favor of more secure, less detectable means of communication. On the other hand, the counter-insurgent is clearly marked and his equipment is militarily distinct. Conversely, the insurgent combatants and their “equipment” act and look largely like the general population, and are comingled with them. Given warning of counterinsurgent elements approach by their cell-phone enabled early warning system, insurgents can achieve even higher levels of de-facto camouflage by ceasing suspicious activities and moving under cover. Also, having embedded himself in the population, the insurgent threatens or takes coercive measures against the population to minimize their will or ability to expose him to the

counter-insurgent. This makes clear identification of much of the insurgent architecture from the ground tedious and difficult. From the air it is nearly impossible. When he chooses to initiate contact with ground forces, the insurgent does so from within very close range and from among the civilians, making him hard to engage without fear of fratricide or collateral damage.

The target identification challenge is compounded for high speed, low endurance aircraft, and any air unit without a habitual relationship to a given AOR or the responsible ground unit. An F-16 pilot bouncing at high speed from area to area across the entire length of a country like Afghanistan—seeing any given piece of land only in 20 minute increments at widely separated times and sharing no close collaborative relationship with the soldiers who work the land daily—is sorely challenged to develop anything other than superficial familiarity, and tells friend or neutral from foe only with great risk. He contributes to the fight in substantial ways, but does not serve as the force-multiplier he needs to be

To be effective in target location in an insurgent environment, the counter-insurgent air force must demonstrate a number of capabilities, including persistence and the technical and experiential ability to discern enemy patterns and signatures against a complex backdrop of non-insurgent activities. Such capabilities are gained through COIN-tailored human and technological systems.

In order to detect patterns of abnormal life in an insurgency, especially those which function at a slow tempo, or detect well-planned and camouflaged massing of insurgent forces for training, resupply, or attack, ISR aircraft must maintain persistent watch over the contested area.¹⁹ In order to overwhelm small friendly outposts or

patrols, insurgents must first mass without being detected or disrupted, and then have the time necessary to execute the assault, exploit the spoils of their attack, and exfiltrate before being counter-attacked. Persistent, COIN-tailored air-power training and technology limits the insurgents' ability to mass undetected and dramatically reduces their ability to exploit or exfiltrate successfully.

Persistent over-watch flown or controlled by aircrews with an intensive knowledge of the AOR, the ground maneuver unit's operations, the population, and the insurgents creates the ability for the crew to discern variations from standard in the patterns of life in the area and increases effectiveness dramatically. Eight, ten, or twenty total daily hours of combined manned or unmanned "eyeball" or video surveillance of a finite area by a single element, coupled with information from other systems observing across the electromagnetic spectrum and properly interpreted, reveals enemy patterns and assets not detectable when observed in short bursts.

As discussed earlier, to achieve this level of situational understanding of a given operational environment and maximize effectiveness against an insurgent movement, centralized planning and decentralized application of airpower in combat must be redefined. Simply put, a "COIN tailored" aircrew with a high number of daily flight hours in support of a habitually associated area and ground unit would know when more than the normal number of vehicles is present at a given farm family compound. They would question whether the farmer and his relatives could afford the three BMW 5 series vehicles partially hidden under tarps in his date palms that have not been previously observed. Further, they would notice that there are 10 more bed rolls hung out to dry than there are members of the family they have observed to date, and would have

access to the knowledge that the farmer has not complied with the population and resource control measures required by their supported ground in regards to reporting the arrival and departure of visitors. Unexplained freshly turned earth in a communal area of desert nearby is another easily detected cue for this hypothetical “COIN tailored” aircrew.

In the event an insurgent attack takes place when surveillance is present but cannot strike, their area familiarity and the capabilities of their or other’s special radar and signals detection systems will allow them to follow the insurgents off the attack site for later strike. At worst, these abilities would allow the counterinsurgent to reconstruct the insurgent actions before, during, and after the attack (infiltration routes, points of origin, etc) and use this to improve their understanding of the enemy’s current or emerging tactics and execute follow-on raids.

In addition to the need to modify the C2 system and create COIN tailored doctrine and training for situational awareness and planning purposes, close coordination between air and ground elements is critical. As targets are generally fleeting, in order to achieve the desired effects of strike operations against insurgents near-instantaneous response is required for decisive action by the counter-insurgent’s airpower control system.²⁰ Based on lessons from Iraq, Afghanistan, and previous conflicts, a “two minute” rule of thumb for airpower to initiate a strike in response to a spotting or enemy strike is an appropriate planning factor. Both direct fire and indirect fire ambush style attacks are executed by competent insurgents in extremely short time spans. For example, the typical mortar ambush on a forward operating base in Iraq in 2005 was less than two minutes from the first round fired until the section had

displaced, and moved 100 meters or more and blended into the population, or found other cover. If persistent ISR platforms fail to detect insurgent pre-firing preparations for indirect fires, COIN airpower has less than two minutes to acquire a target and strike. The timeline for insurgent IED or direct fire ambushes is similar. The majority of these latter enemy actions take place in close proximity to friendly forces and/or civilians. A means of rapid clearance and control of fires must be established. Since such contacts typically occur between friendly and enemy platoon and company-sized elements out of direct line of sight of their parent headquarters, the organization and systems adopted in COIN must be optimized to enable fast, accurate, and efficient control and coordination of aircraft for these levels of command.

The counterinsurgent air force can address this “need for speed” in execution by three complementary means. First, it can resource trained terminal air controllers to the lowest possible tactical levels by assigning air force liaison personnel to the company and platoon level. Second, terminal air control certification tasks can be added to the certification process of the artillery observers already assigned to those elements. These changes provide the ground element with improved target identification and weapons selection capabilities, reduce risk to the friendly force and population, and speeds the terminal control process by placing the “sensor” in direct communication with the shooter instead of routing his communications through multiple headquarters. Third, a counter-insurgent air force can add munitions to the same persistent platform with which it performs the surveillance or alternatively couple the unarmed ISR platform with rapidly available and easily tasked precision lethal fires platforms. Such changes achieve synergistic physical and psychological effects on the insurgent’s focus and

aims. Persistent and effective multi-role ISR/Strike air cover enables rapid, repetitive, and reliable detection and attack of insurgent forces and activities. A persistent and reliable threat of detection or attack from the air creates tough choices for the insurgent. He must either cease operations in the “covered” area or adopt counteracting tactics such as dispersion or camouflage, which reduce his agility and range of options and complicate his operations. When properly resourced and executed, persistent COIN airpower denies the insurgent easy access or use of critical resources and facilities such as logistics support and training bases. It denies or complicates his ability to seize the initiative and accomplish his assigned tasks.²¹

Each of the counter-insurgent’s aircraft must carry as diverse, capable, and adaptable a target acquisition suite as possible as the insurgent learns to apply more complex deception countermeasures to protect his operations. Sensors which can detect differing forms of signatures—thermal, visible light, radar, etc.—and combine, compare, and contrast these in real times against historical patterns of the area offer the greatest potential. Optimally each aircraft has the most capable sensors of each type on board. At a minimum, each should have at least basic capabilities which can be used to cue a smaller number of more capable sensors controlled at the theater or national level. The airframe and its ISR systems must be capable of accommodating rapid and repeated software and hardware improvement as the ongoing AAR process identifies gaps in capability and opportunities for significant asymmetric gain or to compensate for the adaptability of the enemy.

5. Air Mobility Must be Developed as a Key Counter-Insurgent Asymmetric Advantage. The aerial movement of ground forces provides an asymmetric advantage

in mobility and flexibility that returns the initiative to government maneuver forces that is normally the advantage of the guerrilla. Simultaneously it degrades the enemy's flexibility and initiative.²²

In the typical insurgency, especially where the insurgent faces a weak or incompetently led counterinsurgent air and ground force, the insurgent enjoys significant flexibility and initiative over the counterinsurgent. He is able to move and mass with limited risk of detection of his forces and consequently strike at will. He chooses the time, location, and tempo of most attacks. He initiates contacts under favorable conditions. Disregarding the rules of warfare, he is able to hide in plain sight while maintaining near-perfect situational understanding of his enemy. When the factors align in his favor he strikes. When they do not align, he holds his fire and remains undetected.²³ Base camps and other critical areas remain relatively safe thanks to members of his "infrastructure" (i.e., political and logistics cadres) housed along the lines of communication, as well as warnings from the general public. While he may not be able to defend a base from determined attack, he can normally evacuate anything of value before lumbering counterinsurgent ground elements arrive. Lastly, when he moves, he moves quickly. His fighters, supported by carefully developed networks of supporters and supply caches, move with only the clothes on their back.²⁴ When he masses for attack, logistics are provided by the local committee near the planned operation. He is fed, rested, and provided weapons and supplies from sites very near the intended attack site. After the attack, he discards or re-stores them in caches and goes into hiding or moves on. While both forces are ground-bound and move at the same relative speed, the insurgent has de facto interior lines of communication and

supply. When confronted with land forces, he sees his enemy first, usually masses quicker since the war takes place in the midst of his supporting infrastructure, and inevitably chooses the terrain and time which suits him best.

When applied in an integrated fashion with the capabilities of strike and ISR components of airpower discussed earlier, the air movement of ground combat units provides the counterinsurgent force with a significant asymmetric advantage in the typical COIN fight. Fixed wing aircraft conducting air-land operations can enable the counter-insurgent to rapidly mass ground forces in response to threats or as part of a buildup for offensive operations. When correctly managed and coupled with an effective intelligence system, this allows even a counter-insurgent with inferior total numbers of troops to nonetheless achieve overwhelming mass at critical points across vast distances. When supported by valid intelligence and employing COIN tactics, parachute and air-assault operations enable the counter-insurgent to act in real time against insurgent forces. Depending on the sophistication of his enemy and quality of his own operational security, airborne and air-assault operations enable the counterinsurgent to achieve operational and tactical surprise with an overwhelming force against a vulnerable enemy. Air-landing fixed wing and rotary wing aircraft can also evacuate wounded soldiers from the point of injury all the way back to home country medical centers with incredible speed, thereby saving the counter-insurgent's most precious resource and returning more soldiers to the fight quicker than ever before. Rhodesian "Fire Force" operations against Zimbabwean insurgent forces in the 1960s and 70s demonstrate the potential utility and effectiveness of small unit combined parachute and heliborne operations in a COIN fight.²⁵ These standing integrated

Rhodesian Army-Air Force units, operating under the unified command of a single ground force commander, combined long range ground reconnaissance and surveillance patrols with rapidly deployed and highly mobile heliborne and parachute forces. When a reconnaissance patrol had located insurgent forces, it would notify its parent Fire Force headquarters. The Fire Force would move rapidly to the targeted location, insert squad sized elements in isolation positions by helicopter, and simultaneously parachute up to a company sized element in close proximity to the insurgents. These paratroopers would seek to maneuver the insurgents into a position where they were trapped between the isolation and search force, and destroy or detain them. The mission commander, airborne overhead in a command and control helicopter, would direct the movement of forces, call for aerial resupply, and control the delivery of fires from fixed and rotary wing aircraft organic to his task force.²⁶

With some exceptions, western counter-insurgent forces have conducted few true heliborne air-assault operations as part of their counter-insurgent operations since Vietnam. No opposed airborne or air-land assaults have been conducted. Inter-and intra-service frictions have prevented habitual air-ground task force formation or teaming. Consequently operations must be planned well in advance and resources negotiated for explicitly: opportunities for friction expand exponentially. Standing or habitual air-ground strike teams as part of doctrine allow rapid or immediate seizure of opportunity as it presents itself.

Counter-insurgent air force doctrine should also advocate the use of airborne, air-land, and heliborne strike forces to execute disruption operations outside the areas currently in the “hold” or “build” phases of COIN. An airmobile reserve force able to

rapidly reinforce isolated population or infrastructure security forces when the enemy exposes himself during attacks can retain the initiative for the counterinsurgent, destroy the enemy's forces, and disrupt his planning and decision making cycles.

Further, COIN air forces should advocate the adoption of an environmentally adapted version of Rhodesia's Fire Force TTP and the creation of standing joint airborne and air-assault Task Forces (TF) to execute them. This would enable these teams to develop Tactics, Techniques, and Procedures (TTPs), improve cohesion and training levels, and execute to a high level of effectiveness. The U.S. Army, through the creation of its TF ODIN counter-IED unit after several years of combat in Iraq, has taken the kinds of steps required to break the self-imposed MCO paradigms preventing effective COIN air-ground teaming. Though failing to include the USAF in its initial construct, TF ODIN offers one model for effective air-ground TF operations in COIN.²⁷

Lastly, COIN air forces should seek to provide robust and diverse air transport assets in-theater to enable aggressive and pervasive airborne and air-mobile operations. This requires a mix of small, inexpensive aircraft with low operating costs capable of conducting squad or platoon level air-drops or air-lands, backed up by tactical airlifters capable of multi-platoon or company sized operations. Placing a portion of these in standing direct support relationships with ground formations at the battalion, brigade, or division level would enable the teaming essential to successful COIN air doctrine.

6. Airpower Enables Reduced Counterinsurgent Force Ratios. Airpower can reduce the total numbers of ground forces required to prosecute a COIN war and increase the effectiveness of those forces which are committed through its ISR, strike,

and logistics transport roles. When properly resourced and applied, airborne ISR and firepower assets can reduce the ratio of COIN forces required to defeat insurgents.²⁸ “Static” population and infrastructure security tasks, “mobile offensive” tasks against insurgent forces in the unsecured areas, and the need to maintain quick reaction elements to support each typically require large counterinsurgent to insurgent force ratios for the counterinsurgent to succeed—on the order of 4, 8, 10 or more to 1.²⁹

While not able to replace the need for ground combat units, aerial platforms can extend the “eyes”, “ears” and reach of these units—essentially magnifying or multiplying their combat power when closely integrated into operations at multiple levels.³⁰

It enables the friendly ground commander to fight the enemy in three dimensions. Aerial assets enable him to surveil and acquire potential targets earlier and at greater distances than ground based methods, avoiding surprise and striking with aerial or indirect fires before the enemy can use his surface weapons. Once contact is made, the counterinsurgent commander is able to fix an enemy force with aerial firepower, isolate it, deny it relief, and maneuver against it with ground forces from the most advantageous position. Put simply, COIN airpower’s capabilities enable a smaller ground force to see and fight like a much larger one and, when combined with the previously discussed mobility advantage of airborne assault, enable him to quickly achieve a mass advantage over the enemy at a point of contact, even though he has is inferior in numbers in the larger area of operations. It creates tactical and operational interior lines.

Proper COIN airpower doctrine creates a significant positive effect on the percentage of counter-insurgent manpower in theater that can be committed to

offensive COIN tasks, and the amount of time they are able to remain in the field conducting those tasks, by relieving ground unit personnel of a number of fires, logistics, and administrative related requirements. Counter-insurgency ground operations are historically manpower-intensive, with a large proportion of forces spending much of their efforts supporting themselves—creating a tooth to tail quandary when COIN theory demands maximum engagement of ground forces with the security of the population.

The value of ground based fire support assets such as artillery and mortars lies in their ability to provide twenty-four hour, day, night, un-interdictable, all-weather fires. Their value is reinforced in the ground maneuver commander's mind by the fact that because he owns them directly, he can plan for their proactive or reactive support with near certainty that they will respond when he needs them. The cost for this certainty is an increase in manpower requirements and ammunition-specific logistics load support, which grows exponentially with the area that must be covered. Unit manning, logistics, and security requirements all contribute to the tail requirements. If the requisite quantity of aircraft is allocated and the C2 system of a COIN air force provides predictable and immediately available fire support, maneuver commanders can forego a portion of their ground-based fire support assets, resulting in a significant logistics and security cost savings and the ability to re-task these units to other critical COIN manpower needs. As demonstrated in Afghanistan early in Operation Enduring Freedom (OEF), the marriage of high endurance aircraft with large payloads, such as the B-52, with target location pods like SNIPER, and scalable precision munitions like JDAM and Small Diameter Bombs (SDB), operating at altitudes well above insurgent AAA fire, presents

opportunities for decreases in deployed land force structure without a meaningful decrease in combat effectiveness.³¹

Air transport assets can also create asymmetric advantages. Fixed and rotary-wing transports, when used to move supplies and conduct administrative movement of personnel, provide counter-insurgents with five critical asymmetric advantages. First, they enable the counter-insurgent force to avoid use of road networks that are vulnerable to enemy attack and interdiction. This yields a significant reduction in manpower related security costs linked to ensuring convoys are able to travel to and from their destinations safely. It enables units to spend more time on their tactical tasks and less on ensuring logistical system security. Second, air-delivered logistics can enable more persistent ground operations by mobile units by resupplying them using light planes parachuting or free-dropping along their route of march instead of requiring their movement to a formal road, rail, or airhead.³² Third, reductions in the loss of material to the insurgents increases the effectiveness of friendly units and reduces the amount of redundant supplies that must be fed through the system to compensate for losses in transit. In those conflicts where the insurgent draws much of his material through seizure from government forces, the enemy will suffer from a reduction in the number of seizure opportunities and commensurate reduction in supplies, and eventually, effectiveness. Fourth, removing logistics and liaison convoys from the roads removes a lucrative propaganda target from insurgent reach, forcing them to attack better equipped and hardened front line combat units at greater risk and cost to themselves. Fifth, security units relieved of their convoy taskings can be re-tasked to important COIN missions more directly related to defeating the insurgency.

John Pustay, in his 1965 primer *Counterinsurgency Warfare*, highlights the effect of holistic transport and logistic support of ground units by air:

Using the Malay Emergency as an historical example, troop lifting, casualty evacuation, and supply dropping combined to multiply the number of troops deployed on productive anti-insurgent patrols by a factor of not less than four. The probabilities for effective engagement and defeat of the guerillas are considerably increased through the use of aerial transports.³³

To maximize the impact of airborne ISR and strike assets' ability to enable increased small unit activity, counter-insurgent airpower must maximize the number of platoon and company sized ground units which can be simultaneously supported from the air during high threat hours. This effect can be generated and made affordable through good predictive analysis of the enemy and the purchase of COIN-tailored high endurance armed and ISR airframes, or multi-role platforms such as the AT-6B Texan II.

To enable the vision of a minimization or re-tasking of ground-based fires assets in the contested area of an insurgency, counter-insurgent airpower must adopt and expand the concept behind the USAF's B-52 de-facto "airborne artillery" performance in OEF. In order to reduce wear and tear on precious and aging conventional bombers, especially those still dual-tasked with nuclear strike missions, consideration might be given to non-standard delivery platforms such as military transports or commercial aircraft. Transformational thinking by airmen, not necessarily high-dollar, high-tech transformational weapons, is part of the solution to the COIN airpower challenge.³⁴

If the problem is one of projecting support fires, then a different way of looking at air power is called for. Once air dominance is established, it is possible to have what amounts to constantly orbiting artillery platforms that are all weather and that are always over the battlefield. Systems and procedures can be put in place that would enable supporting aircraft to respond directly to calls for fire from the battlefield, maybe in an

automated way. "A good test case might be to take a retiring C-141, outfit the bed of it with vertical launch tubes, and try the concept," COL Killebrew said. "If you orbit high enough, say at 30,000 feet or so, you are out of range of most air-defense systems, and the response time is the time it takes the missile or bomb to go from 30,000 feet to the ground. For sustained firepower - firepower that can be quickly aligned with different parts of the theater - that kind of airborne artillery would be hard to beat."³⁵

Inexpensive, removable bomb racks or ramp/paratroop door drop systems to dispense re-purposed 60 or 81mm GPS mortar rounds from C130s or C-27s are within the technical and intellectual reach of most air forces. They could perform the most critical roles of purpose-built gunships and strike aircraft at dramatically lower investment and operating costs.

In order for air logistics assets to maximize their ability to enable more efficient and effective ground force operations, counter-insurgent air forces should consider a number of adaptations and enhancements. First, they should seek to relieve less efficient and more operationally expensive rotary-wing assets from logistics tasks better performed by small fixed-wing Short take Off and Landing (STOL) aircraft freeing these helicopters for air-assault operations. Primitive STOL airfields should be built to support outlying villages and FOBs in remote areas to enable fixed wing logistics and MEDEVAC operations instead of rotary wing operations where feasible. The CHINDIT force of WWII fame built an airfield from scratch in unprepared Burmese jungle in 24 hours using hand labor and a few glider delivered light bulldozers, enabling sustained landings of 100 C47 sorties a day immediately on completion. In eight years of post-9-11 warfare, few FOBs in Iraq or Afghanistan below the division level, nor any of the hundreds of remote patrol bases, are supported by fixed wing airfields. Few if any have been built, and worse yet, some remote bases with existing fixed wing capable airfields make no use of them.

To support units on the move and locations not amenable to fixed wing airfields, COIN air forces should field platform enhancements such as the U.S. Air Force's Precision Airdrop System (PADS) and guided logistics delivery systems such as the U.S. Army's Precision and Extended Glide Airdrop System (PEGASYS), to replace ground based support convoys. COIN air forces should also consider reviving an old WWII CHINDIT tactical logistics tactic in its original, or an updated form. The U.S. 1st Air Commando used lightweight L-5 liaison aircraft for the support of moving columns and remote units. To supply units without a feasible air strip, they rigged 2 standard 250 lb bomb racks on the wings of the aircraft and fitted them with a British standard drop-pack, which they would drop filled with 200lbs pounds of supply each by parachute—or more frequently low altitude/low speed free-drop—to waiting troops.³⁶ One could envision replacing the venerable (and vulnerable) L5 and equivalents with UAS airframes designed to perform the same tactic or high performance aircraft fitted with parachute enabled supply “bombs” in re-purposed cluster or leaflet munitions bomb casings.

7. Airpower in COIN Creates Deterrent Effects. In an insurgent environment, the psychological effect of properly resourced and executed air operations in synergy with the physical effects of its strikes, troop movements, or logistical support missions creates deterrence.

The suppressive, often deterrent, value of aircraft in COIN cannot be overstated. Once COIN forces have demonstrated an ability to link ground or air observers/collectors with armed aircraft, or observation aircraft with ground maneuver forces, and rapidly, accurately, and effectively respond to observations of insurgent

activity, insurgents are forced to respond or risk destruction. They become conditioned to react to the presence of any aircraft. As AFDD 2-3 correctly puts it, the persistent presence of aircraft, which have demonstrated a reliable pattern of detecting and attacking insurgent forces, presents “A constant, credible, and unpredictable threat of detection and response that can significantly complicate the enemy’s planning and execution.”³⁷ As discussed earlier, this persistent, effective presence forces tough choices on the insurgent and reduces his flexibility and efficiency. At a minimum, any manpower, time and resources spent in dispersing his forces and resources, hardening and camouflaging his positions, and executing less efficient transportation, communication, and supply methods are resources not able to be committed against counter-insurgent forces or other insurgent objectives. Optimally, this persistent airborne intelligence collection and lethality threat will lead the insurgent to abandon operations in those areas, or at those times, where he does not feel the ability to either overcome his disadvantages or to operate in the face of them at an acceptable cost. The more the insurgent’s operations and overall effectiveness and impact are reduced in a given area, the better the counter-insurgent force and the supported government are able to conduct their operations and tasks and turn the population against the insurgent.

The author’s anecdotal experience from Iraq in 2005, and as an Observer Controller at the Joint Readiness Training Center (JRTC) training forces to deploy to Iraq and Afghanistan, provides confirmation of this deterrent effect of airpower on insurgents. When armed aircraft or UAVs were visible and audible to either the role-play insurgents at JRTC, or the real world Sunni or Shia insurgents of Baghdad whom they

replicated, the streets and urban areas with line of sight of the aircraft went quiet, and stayed quiet for the entire duration of the aircraft's presence. While low-level criminal, planning, and supply activities undoubtedly continued, overt direct fire and explosive attacks on counterinsurgent forces and the population ceased. When queried, both JRTC insurgent role-players and local Iraqis' responses to questions about this effect were the same. Not being pilots themselves, they assumed those operating the aircraft had better total visibility and situational awareness than they often actually did, and that in fact they were looking directly at them! Instead of the soda-straw view of the battlefield that is often the reality, especially with UASs, they pictured the pilot being able to see the entire area around his craft at all times and to be able to see, understand, and respond immediately to any perceived threat. Their belief was: If I can see him, he can see me, and will either pre-empt me or get immediate revenge against me if I conduct an attack, so I will wait.

The level of effectiveness of this deterrent capability varies with the nature, psychology, and experience of the insurgent groups faced, as well as the number, capabilities, and most importantly, demonstrated effectiveness of counter-insurgent air and supported ground assets. When faced with the unholy trinity of persistent aerial surveillance and attack, reliable indirect fires, and effective infantry, insurgents choose to live to fight another day and in another place.

Achievement of this deterrent effect by COIN forces comes from the repeated demonstration of skill in the rapid and effective application of ground maneuver and aerial firepower to insurgent stimuli, enabled by sufficient aerial platform resources and effective C2 as discussed earlier.³⁸

8. *COIN Airpower Applies a High-Cost/Low-Cost Mix of Capabilities.* There is a critical role for both the high-tech and low-tech aspects of airpower in counter-insurgency.³⁹ While high cost, MCO centric platforms play important roles in COIN, there is a significant, potentially more effective, and in the end, efficient role for large numbers of COIN-tailored, low-cost, high endurance strike, ISR, and transport aircraft in COIN.⁴⁰

Achieving the effect of persistent presence across the contested area of a nation suffering insurgency can require large numbers of aircraft. The number of aircraft required to achieve the required airborne “density” is a function of a number of factors, such as the loiter time the available airframes are capable of, the ratio of maintenance to flight hours, the number of trained flight crews available, and the refueling and rearming turn-around times. The range and transit time from airfields and effectiveness of the airframe and crew once on station also play key roles. The poorer the counterinsurgent air force’s performance in these measures, the more aircraft will be required. The more expensive the chosen airframes are to operate, the more expensive the maintenance of a persistent air presence will be. Even the wealthiest air forces may struggle to maintain the appropriate density of aircraft if they choose to operate less efficient and effective platforms.⁴¹

While a supersonic jet fighter-bomber optimized for MCO may be capable of successfully conducting COIN ISR and strike missions, its maintenance and operating costs per hour flown, on-station vice refueling times, and relatively high loiter speed may negatively impact its effectiveness and the air element’s ability to field enough of them to achieve wide spread “air-to-ground supremacy”. Too low-tech a solution, no matter

how cost efficient, can cause other issues. While an Cessna O-2 possesses superb loiter time and speed, and can be fitted with some target acquisition capabilities, its limited payload and service ceiling and poor survivability against anti-aircraft fire may pose a prohibitive cost in lost aircraft and aircrews. A proper mix of high and low cost airframes must be found for each conflict based on the opportunities and challenges presented.

Colonel Anthony Cain of the U.S.A.F.'s College of Aerospace Doctrine, Research and Education summarized the airpower "hardware" lessons learned in Twentieth Century counter-insurgencies in stating:

Air and space platforms must be tailored to match the unconventional and small scale of the counterinsurgency effort. This does not mean the platforms must be "low tech," only that they must be specifically designed to perform the types of missions required in counterinsurgency rather than adapting "large war" capabilities to the small war environment.⁴²

Relatively low cost armed UAVs such as the MQ-9, or COIN optimized conversions of trainers such as Beech AT-6B Texan II, may be this generation's equivalents of the O-2 Skymaster or A1 Skyraider of the Vietnam era.

Given the propaganda and practical costs of losing aircraft to anti-aircraft fire in an insurgent environment, anti-aircraft suppression and small-arms fire hardening of airframes are a top priority for the counter-insurgent. Selection of aircraft with payload growth potential should be considered in order to enable armor and suppression system growth as threat countermeasures emerge.

If, as discussed earlier, habitual joint relationships can be established at the battalion level and below, relatively low-cost manned and unmanned platforms with good ISR capabilities could be teamed with Guided Multiple Launch Rocket System (GMLRS) and precision guided mortar and artillery capable units. The low-cost ISR

platform could remain well above the range of insurgent anti-aircraft fire and coordinate the delivery of long-range precision fires from invulnerable, and relatively low-cost, indirect fire units.⁴³

9. *Effective COIN Airpower is Inherently Joint.* The service culture of an MCO-centric air force like that of MCO focused armies can negatively affect its performance in counter-insurgency. Developed-nation militaries, and those trained and resourced by “first world” militaries, have historically resisted training for, resourcing, and conducting operations other than MCO—and in particular COIN operations. This has been true of the USAF in recent decades.⁴⁴

American airmen are bred in training and urged by doctrine to seek the most direct, decisive, and efficient application of air-power possible in any given combat situation. In MCO, this can in some ways be measured by the number of sorties conducted which found viable targets, dropped bombs, and hit the enemy. A successful mission is defined as one in which intelligence and delivery systems have worked successfully together to find and attack a target. A mission in which an aircraft finds no targets and returns home with full bomb racks is seen as a failure. This and other MCO-centric attitudes and systems embedded in air force culture and doctrine can have significant negative effects on airpower in COIN. The very nature of the insurgent environment means that opportunities to deliver “decisive” kinetic blows against one’s enemy are few and far between.⁴⁵ This does not mean important effects are not being achieved from the air. In COIN, a sortie’s “failure” to drop a bomb is not necessarily a failure at all. If the number of reported enemy attacks and events declines from norms during the times that aircraft are present over an AOR, a major positive effect—

security— has in fact been achieved. If focused on Measures Of Performance (MOP), such as sorties flown or solely on enemy-centric Measures Of Effectiveness (MOE) such as enemy elements engaged, the critical MOE of reduced levels of violence in specific areas achieved by persistently present and effective aircraft in collaboration with effective ground maneuver operations may be devalued. Airpower leadership must ensure that air service training and culture adapt to the COIN environment.

Air forces may continue to apply inefficient or inappropriate platforms and tactics against an insurgency long after they have been shown to be a poor match to even the casual observer. In addition to service cultural preferences, modern MCO capable aircraft are extremely expensive to acquire, operate, and maintain. To operate an F22 fleet on the scale of the USAF's fleet requires large and often cumbersome training and logistics pipelines, which operate in multi-year cycles. Diversion of funds, pilots, and support crews from this type of program to a COIN-centric program can incur significant costs and impacts in the short and long terms. Even an air force which is convinced to pursue acquisition of COIN-specific tools, or chooses to integrate COIN specific tactics into its training program, but does so using existing acquisition, career management, and training modification rules and norms, can turn what could have been a relatively fast and inexpensive adaptation into a extremely expensive and time-consuming process. An air force's need to remain institutionally focused on what it perceives as its most dangerous, yet remote threat (an MCO peer competitor such as the China, India, or Russia) may lead it to economize its efforts by applying its MCO-optimized systems to an insurgency. The resistance to properly adapt and COIN-optimize at least a portion of the force can be almost insurmountable. Secretary of Defense Robert Gates shared

his perspective of issues with air service focus and culture in an April 2008 address to the Air War College;

In the early 1990s, I was Director of CIA. After 27 years of experience as an intelligence professional, I had seen many agents place themselves in harm's way to collect information in some of the world's most dangerous and inaccessible environments. ...The introduction of UAVs around this time meant far less risky and far more versatile means of gathering data, and other nations like Israel set about using them. In 1992, however, the Air Force would not co-fund with CIA a vehicle without a pilot. Unmanned systems cost much less and offer greater loiter times than their manned counterparts, making them ideal for many of today's tasks...My concern is that our services are still not moving aggressively in wartime to provide resources needed now on the battlefield. I've been wrestling for months to get more intelligence, surveillance, and reconnaissance assets into the theatre. Because people were stuck in old ways of doing business, it's been like pulling teeth.

All this may require rethinking long-standing service assumptions and priorities about which missions require certified pilots and which do not. For those missions that still require manned missions, we need to think hard about whether we have the right platforms. Whether, for example, low-cost, low-tech alternatives exist to do basic reconnaissance and close air support in an environment where we have total command of the skies – aircraft that our partners can also afford and use.⁴⁶

To address air-ground service-cultural issues in an irregular war, defense leaders might also re-examine the relationships between air and ground forces. Indeed they should question the very construct of separate air and ground forces as opposed to integrated ones along the lines of the US Marine Corps' organization. Along with the benefits of distinct services—and there are many—come the greater friction of service oriented needs and perspectives. In COIN, soldiers must be as intimately aware of the role, abilities, and weaknesses of airpower as with land power. The same is true in reverse for Airmen. Air forces must see the fielding of trained and fully manned liaison teams to ground units as a task of the highest priority. For this to be true, they would need to acknowledge their support roles—close air support, transport, defensive

counter-air, and intelligence—are of equal importance as strategic attack and offensive counter-air.⁴⁷ They would further need to change the attitude of the force's pilot rank and file from one that reviles and avoids service with the ground forces to a culture that seeks it out.⁴⁸ Advancement and command selection that rewards repeated successful tours with the ground forces is one path to this end-state.

To solve the doctrinal issues concerning the airpower's pursuit of appropriate end-states using the correct Measures Of Effectiveness requires the education of the force in the historical roots and methods of insurgency and the complexities and historical successes and failures of counterinsurgent forces. Airmen must be educated from the start on the political nature of war and the potential roles of airpower across the spectrum of war. They must also be full participants in the campaign planning of all elements conducting COIN from the very start as both air-minded advisors and concerned strategic and operational military professionals.

MCO-centric air force's such as the United States', which because of the global aspirations of their governments are subject to periodic commitment to counterinsurgency operations, must create and maintain robust COIN-focused doctrine and forces and field COIN-tailored platforms. Commitment of MCO-optimized platforms with limited supporting doctrine to long duration COIN wars risks tactical failure in the current war, fatigue-induced equipment failure in a future MCO, and budget stress or failure at any point along the way. Lower-cost COIN-optimized manned and unmanned airframes in some tactical units of the general-purpose air force and organic foreign force training squadrons appropriately equipped to rapidly train supported air forces on COIN air frames can relieve the stress on high-end strike platforms and maintain both a

credible current COIN capability and an MCO deterrent. The COIN-optimized airframes would provide a force in being, able to execute the rapid and effective transition to Phase IV of any MCO, and provide assets for effective rear-area security during Phase III operations. Such a force would be effectively integrated for joint warfare across the spectrum.

Conclusion

Major Combat Operations and Irregular Warfare, though sometimes overlapping in time and space on any given battlefield, demand different strategy and doctrine and equipment optimized to their environmental conditions in order to maximize the effects of airpower. This is all the more evident in a pure insurgent environment where the insurgent is focused or constrained almost exclusively to a guerilla strategy. The insurgent warfare Operational Environment (OE) places significantly different demands on airpower than the MCO OE. Despite the potentially powerful capabilities of air power in counter-insurgency, it faces difficult challenges to its effectiveness originating from the unique set of insurgent OE demands placed on it by the physical environment, insurgent strategy and tactics, national and international policy, ground support demands, and service-cultural politics. A detailed understanding of these challenges and the historically derived tenets of the effective application of airpower in an insurgent environment are critical tools in the counterinsurgent's kitbag. A detailed description and discussion of these tenets should be included in the base and IW specific doctrine of both air and ground services and serve as one of several guides to effective strategy development and planning for counterinsurgency. The desired attributes and capabilities of counterinsurgent airpower identified by the tenets should help guide the

development of airpower capabilities which provide optimal support to the counterinsurgent commander.

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