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Building toward the Future

Gen Edward A. Rice Jr., USAF

Common wisdom asserts the existence of an ancient Chinese curse that translates, "May you live in interesting times." In keeping with the Chinese theme of wisdom that we all "know," it is often said that the Chinese characters for *crisis* and *opportunity* are identical. The well-informed readers of *Air and Space Power Journal* (*ASPJ*) know that both of these memes have long histories but no basis in truth. However, that fact does not preclude them from being incredibly appropriate for the situation in which we find ourselves. Certainly, we are living in interesting times, and although numerous challenges face the Air Force today, we have a unique opportunity to shape our future. As the first online-only issue of *ASPJ* launches in January 2012, the Air Force—indeed, the entire nation—must deal with a period of fiscal austerity. Although not unprecedented, such circumstances are new to many Air Force people who have served during a time when resources were relatively abundant. As we move forward, we must remain undaunted by such issues and embrace the opportunities that present themselves, building our way to the Air Force of tomorrow.

The Challenges of Interesting Times

No one can read current events without coming face-to-face with many of the dilemmas that confront the Air Force today. The nation's financial crisis has become a major driver as the Department of Defense (DOD) and Air Force must deal with fiscal realities dictated by the budget crunch. The $450 billion cut across the DOD budget, mandated by the Budget Control Act of 2011, forced Air Force leaders to examine carefully each and every dollar spent and not only cut excess spending but also evaluate all missions and functions to determine where the service could take risk.[1] Currently, the Air Force uses various force-shaping tools to arrive at our authorized end strength of active duty members;

additionally, it has implemented tools for managing the civilian force in order to return to the levels of manning in fiscal year 2010. The looming effects of the sequestration, triggered when the Joint Select Committee on Deficit Reduction failed to arrive at an agreement to reduce the deficit by the required $1.5 trillion, create more uncertainty regarding manning and funding levels for the future.

These challenges, on top of the ongoing mandate to meet mission requirements to support the joint team in winning today's wars and to develop Airmen for tomorrow, point to an uncertain future. Despite the constraints on funding and manning, the Air Force remains the nation's go-to force, providing global vigilance, reach, and power to exert national strength anywhere, and offering the nation immediate options for action. In short, the United States depends upon the efficient, imaginative, and effective use of air, space, and cyber power to maintain a leading national advantage to help overcome uncertainty.

Seizing the Opportunity

We may not know what the future looks like, but we do know that we cannot get there simply by continuing to do what we have always done. We must not look to the past as a blueprint for the future. As the Air Force moves into leaner fiscal times, I believe that we will receive the resources necessary to carry out our mission, albeit we will not receive any extra resources. The most important part of the new fiscal reality, however, is that we will not have at our disposal enough resources to conduct our mission in the same way we have in the past. Truly, this situation presents a once-in-a-generation opportunity for the Air Force to capitalize on new technology and processes that can fundamentally alter the way we do business. We cannot implement this essential shift merely by trimming "around the edges" and making incremental cuts in the way we operate now in order to fit into our new funding structure. Instead, we must envision the Air Force of tomorrow and build toward that future in a manner that takes full advantage of the many technological and procedural advancements that began as "good ideas" in the

pages of *ASPJ* and its predecessors. We must identify those areas that lie at the core of our mission and determine new means of attaining those goals. 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.

Building toward the Future

It is entirely fitting and appropriate that this particular article appear in the very first online-only edition of *Air and Space Power Journal*. This worthy initiative highlights the process of turning challenges into opportunities. *ASPJ* is charged with providing a forum in which professional Airmen can make significant contributions to scholarly thought concerning the exploitation of airpower and the development of forces dedicated to this pursuit—a responsibility it has discharged in print for more than 60 years. However, the new fiscal environment made continued production in that format impossible, a reality codified by a recent executive order to reduce spending on such activities as printing.[2] Faced with a new financial constraint, the *ASPJ* staff and Air University devised a way to transition quickly to the digital realm, preserving the ability to meet their mission charge. The new version of *ASPJ*, which retains all the attributes of the original, will serve as a platform for Airmen to advance the dialogue on air, space, and cyber operations. Further, the *Journal* does not lose portability since Airmen can view it on e-readers. As we build to the future, the online incarnation of *ASPJ* will undoubtedly grow and mature, incorporating new media and becoming interactive as well as carrying out and advancing the mission creatively. As this small example illustrates, Air Force leaders have a number of opportunities to determine smarter, more efficient, and effective ways of fulfilling our mission and leveraging new technologies and capabilities to improve our system of doing business. In this exciting time, I challenge leaders at all levels to embrace a culture of cost consciousness and seize the opportunity to build the Air Force of to-

morrow in a fresh, innovative manner. The nation and our joint partners depend upon the Air Force to maintain an advantage, overcome uncertainty, and always aim high . . . fly-fight-win. ✪

Notes

1. Budget Control Act of 2011, Public Law 112-25, S.365, 112th Cong., 1st sess., 2 August 2011, http://www.gpo.gov/fdsys/pkg/BILLS-112s365enr/pdf/BILLS-112s365enr.pdf.
2. Executive Order 13589, Promoting Efficient Spending, 9 November 2011, http://www.whitehouse.gov/the-press-office/2011/11/09/executive-order-13589-promoting-efficient-spending.

Gen Edward A. Rice Jr., USAF

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Air and Space Power Journal's "Creative Destruction"

Lt Col Michael Tate, USAF, Chief, Professional Journals

The term *creative destruction* appears frequently in current publishing circles. Normally used by economists, it describes the constant evolution of capitalist markets and the processes within organizations. Creative destruction affects systems that require innovation in order to stay competitive and survive. Specifically, it entails the constant introduction of new variables into and upon those systems, making current, possibly successful, processes obsolete or inefficient. Similarly, the publishing world is experiencing such a phenomenon as technology continues its exponential advances.

The staff of *Air and Space Power Journal* (*ASPJ*) has eagerly entered this evolutionary process, starting from a clean slate with our new online format. Not simply an updated design, our website reflects significant changes to article categories and types of content. However, we have not completed the deconstruction and reinvention of *ASPJ*. We will continue to make the *Journal* a true multimedia experience by incorporating innovations into future editions.

You, our readers, are a vital component in our transformation. We would like to know what you want to see in *ASPJ* and whether or not you have any concerns about navigating our website. Please take a moment to send us your ideas and comments so we can better serve the professional needs of the United States Air Force and continue the long-standing tradition handed down from previous generations of Airmen. ✪

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What Every Airman Needs to Know about Medical Stability Operations

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The multidimensional complexity of stability operations has captured much attention in the Air Force. Key features of these operations include humanitarian relief, reconstruction of emergency infrastructure, provision of essential government services, and maintenance of a safe, secure environment. "Military health support" plays an everyday, vital role in each of these features.[1] Because stability operations call upon a wide array of unique Air Force capabilities, the service's future leaders will need an understanding of this aspect of agile combat support and building partnerships to effectively conduct not only these operations but also those involving airpower.

In the context of past military campaigns, medical stability operations (MSO) may seem more appropriate for the Red Cross or the US Agency for International Development (USAID), not the Air Force or Department of Defense (DOD). The new MSO paradigm has vast breadth and many dimensions of support for wider national security goals. This article examines some historical successes involving MSOs and lessons learned. It then discusses the many dimensions of these operations, taken from DOD Instruction (DODI) 6000.16, *Military Health Support for Stability Operations*, which states that they shall "be explicitly addressed and integrated across all MHS [Military Health System] activities including doctrine, organization, training, education, exercises, materiel, leadership, personnel, facilities, and planning."[2] Using this framework, the authors hope to help future Air Force leaders better understand how the DOD implements this essential task, "a core U.S. military mission" with "priority comparable to combat operations," in the current operational environment and what to expect when confronted with the challenges associated with stabilization operations.[3]

These actions have a recent history as the leading part of the stability, security, transition, and reconstruction operations set of tasks.[4] In point of fact, they have a much longer history. Some authors have drawn analogies between modern-day stability operations and the eighteenth-century frontier campaigns as well as the nineteenth-century occupations of Mexico, the Philippines, and the former Confederate States. In 1966 Gen H. K. Johnson, the Army chief of staff, first used *stability operations* in a doctrinal context, describing them as a principal Army mission: the "employment of force to maintain, restore, or create a climate of order under which a government under law can function effectively."[5] In 1967 Army Field Manual 31-23, *Stability Operations: US Army Doctrine*, made this concept part of formal guidance. Describing medical support for stability operations, Col (later Maj Gen) Spurgeon Neel, USA, the US Military Assistance Command surgeon in Vietnam, wrote that "the keystone of the program is the development within the host nation's army of a medical training program which will yield a permanent increase in the degree of

medical self-sufficiency."[6] We now understand that MSOs and building partner-nation capacity are a responsibility not only of the Army or the Air Force but also of the entire US government, each focusing on its own role while acting to complement partner agencies. With this knowledge, we can now discuss how the DOD and Air Force implement MSO guidance in furtherance of agile combat support in today's complex world.

Doctrine

Many of the fundamental employment principles for MSOs are in place. Titles 10 and 22 of the *United States Code* have long provided guidance for building medical capacity in partner nations, such as the distribution of excess property and the functions of the international military education and training program, which has sponsored exchanges of subject-matter experts since 1961. National Security Presidential Directive 44, "Management of Interagency Efforts Concerning Reconstruction and Stabilization," 2005, authorized the Department of State as the lead US government agency for stability operations, with the DOD playing a supporting role. The resulting changes in defense doctrine have proven robust.

Joint Publication (JP) 3-0, *Joint Operations*, September 2006 (most recently updated in August 2011), led the way, and its direction is creating new joint, service, and command policy. JP 3-07, *Stability Operations*, September 2011, advises joint force commanders who integrate and synchronize stability operations with offensive and defensive combat operations that humanitarian needs may occur during any phase of these actions.

JP 4-02, *Health Service Support*, October 2006, a text of nearly 400 pages, now in revision, includes guidance for the medical component, advising personnel to think beyond force protection and issues dealing with the care of combat casualties in both the planning and execution of the stability operations mission. Health threats to the indigenous popu-

lation, multinational forces, US government employees, and contractors are part of the military mission, as is working with international organizations and nongovernmental organizations (NGO). Thus, military health services contribute to social, political, and economic stability.

JP 3-29, *Foreign Humanitarian Assistance*, 17 March 2009, directs the undersecretary for policy to oversee the Defense Security Cooperation Agency, which implements funding for the humanitarian assistance and international military education and training programs. One successful organization, the Defense Institute for Medical Operations, housed in San Antonio, Texas, under executive agency of the Air Force Medical Service, sponsors "train the trainer" courses for allied military and civilian medics on a wide range of topics, including disaster response and HIV/AIDS. In a classic example of building partner capacity, one of the authors of this article, Colonel Waller, taught regional disaster response with the institute's teams in South Africa and El Salvador. In the latter, a locally sponsored civil-military disaster exercise—the first of its kind in San Salvador—followed the course. When a devastating earthquake struck a few months later, these preparations saved many lives and allowed regional medical capabilities to handle the response without US or other outside manpower.[7]

DODI 3000.05, *Stability Operations*, further implements the new MSO doctrine: "Ensure DoD medical personnel and capabilities are prepared to meet military and civilian health requirements in stability operations."[8] This broad assignment includes four main tasks, mentioned in the opening paragraph of this article.

DODI 6000.16 clarifies the employment of military medical personnel, emphasizing the high priority of the MSO mission as well as the means of integrating it into the full spectrum of MHS activities and into a vital piece of the Air Force's agile combat support capability. A joint capabilities document titled *Stability Operations: Military Health System*, August 2008, which implemented the mission, lists 13 MSO capability areas.[9] One of the document's priority recommendations includes development of a doctrine, organization, training, materiel, leadership and

education, personnel, and facilities (DOTMLPF) change request for MSO and homeland defense / civil support, a task nearing completion. As the combatant commands (COCOM) and services rewrite their directives and instructions to comply with the new guidance, many issues remain. The new MSO mission must translate into training and budget priorities, not into an additional duty without additional funding or personnel. Other current tasks and expenses must take a lower priority to insert MSO skills into the mix of MHS competencies. When combat operations decrease in scope, some funding and manpower may become available. If not, Air Force line commanders, manpower leaders, and the senior MHS leadership will have to create efficiencies and innovations to fulfill their MSO mandate. The Air Force, possessing the most portable and agile medical assets of the three services, will confront some unique problems and play an essential role.

What activities would most likely build partnerships and partner capacity, enabling an allied country to respond to its own and regional contingencies? In 2007 a Joint Forces Command white paper described medical-capacity-building activities as "better than direct healthcare" and more effective in reaching bilateral strategic goals.[10] Paraphrasing senior DOD and State Department leaders, Col Sean Murphy and Col Dale Agner point to US government and DOD humanitarian activities as the best "dollar-for-dollar" actions for realizing national security goals overseas.[11] They advocate replacing the terms *building partnership capacity* or *medical diplomacy* with *cooperative health engagement*, which implies shared learning and a long-term friendly relationship with the host nation, rather than a temporary marriage of convenience. Cooperative health engagement can take place in a world where "ally" to "belligerent" and "secure" to "hostile" forms a continuum marked by both ambiguity and the daily movement of nations.

Hence, MSO doctrine must inform and influence policy and strategy actions. Future MSO doctrine needs to answer a number of questions: How much cultural knowledge should medical personnel bring to the various COCOMs and multinational exercises? Is proficiency in the

local language an essential requirement in every engagement; if so, how does the DOD best ensure that its operators acquire that proficiency? As the DOD and Air Force assess humanitarian efforts, what measures of effectiveness best capture the value of a mission? What public health indicators should drive our MSO priorities, and how country-specific should they be? How can battlefield lessons learned translate into better humanitarian assistance? The special forces medic model of blending into the community and building credibility with the host nation's citizenry has its successes and admirers, but according to Title 10, *United States Code*, humanitarian and civic assistance must not provide care for a host nation's military or paramilitary forces.[12] Can doctrine relieve and clarify this type of tension? The authors of this article know that building a partnership with host-nation officials while denying medical care from deployed Air Force personnel to them or their families constitutes a substantial quandary.

Doctrine alone will not translate into effective and efficient MSO capabilities. In spite of the new MSO employment principles, the US response to the earthquake in Haiti and the Continuing Promise deployments did not include public health planning and preventive medicine personnel, other than a few medics deployed for the health protection of US forces. Developing graceful, noncontroversial redeployments from humanitarian operations and an MSO exit strategy has proven a daunting challenge. Organizational and military cultural changes must take place in order to implement MSO doctrine effectively in future operations.

Organization

Once robust doctrine is in place, how will the DOD, Air Force, and the latter's MHS organize to conduct more effective MSOs? The DOD's regional COCOM headquarters are organized to support many legacy medical security cooperation activities, such as multinational exercises, humanitarian assistance missions, tropical disease laboratories, and the direct provisioning and teaching of medical care, including re-

cent, well-publicized humanitarian deployments of the USNS *Mercy* and *Comfort*.[13] However, the inability of the Department of Health and Human Services to sustain funding for a much-needed Central American Regional Medical Training Center in Panama and the negative publicity of an unfilled "promise" after Congress cut funding represent an unflattering example of unsustainable US medical engagement in partner nations, exemplifying the concerns noted by Murphy and Agner.

The assistant secretary of defense for health affairs has created a Medical Stability Operations Working Group (MSOWG), which is building MSO competency requirements that will drive organizational changes in the MHS. The international health specialist (IHS) initiative of the Air Force Medical Service, now 10 years old, is a notable organizational success, formed from the vision of Lt Gen Paul K. Carlton Jr., former Air Force surgeon general. That initiative has placed a cadre of language-skilled and culturally competent medical personnel at each of the regional COCOMs to facilitate coalition and humanitarian activities.[14] IHS teams have proven their value in the Indian Ocean tsunami relief, establishment of the Iraq Ministry of Health, and dozens of multilateral exercises in every theater. The MSOWG recommended implementation of a similar triservice organizational capability. Moreover, the Public Health Service is forming international field coordination elements in response to demands for some international capacity building and humanitarian assistance, with emphasis on US territories and friendly partner nations.

Coordination of efforts between military services and the regional joint headquarters has proven problematic—witness the health-related missions executed with a partner nation by one MHS organization without the knowledge of another military agency working concurrently in the same region. Recognizing a need for improved coordination and communication, the MSOWG recommended organizational improvements to narrow this gap.

The relationship between the DOD and international civil-military humanitarian coordinating groups, such as the United Nation's (UN)

Interagency Standing Committee, embodies another area of concern for nimble MSO organizational capability. Both that committee and a consortium of the US Institute of Peace, DOD, and USAID have published consensus standards on civil-military relationships in stability operations. US Southern Command established an exchange position at USAID in 2007 to help remedy some of the communication and synchronization issues. The DOD's Office of the Assistant Secretary of Defense for Health Affairs, International Health Division, has a Department of State liaison detailed to that office, along with a full-time NGO specialist, in an effort to enhance interagency discussion and coordination. The DOD's organizational reengineering efforts may be well served by similar cooperation with other agencies in areas such as training.

Training

Historically, military humanitarian missions were often considered deployments for training, and at times regional strategic goals in the theater security cooperation plan received less than adequate attention. Clearly, DODI 3000.05 should put this type of behavior to rest by directing the COCOMs to integrate stability operations concepts and activities into training, exercises, and all types of planning. The instruction directs the undersecretary of defense for personnel and readiness to share stability operations training with other US government agencies, allies, and NGOs, and to include language and cultural proficiency in those training activities. Gaps in implementation remain, however, as reflected by the newly updated version of the joint military training directive (DOD Directive 1322.18, *Military Training*, 13 January 2009), which does not mention stability operations.

The emphasis on changes in training under MSOs does not involve a giant step for Air Force medical personnel. After all, humanitarian work often motivates young people to enter the health career field, and military health care providers commonly use some of their leave or off-duty time to volunteer their services for humanitarian activities in the local community or abroad. Thus, to include MSO missions as

part of their duty represents a continuation of their avocation and a retention incentive for many of these personnel.[15]

However, even with all this action taking place, much of the legacy annual training needs updating. Predeployment training, which implements many MSO concepts, requires greater attention. Training should include the needs of the host nation's citizenry in terms of public health and preventive medicine. As a first step, medical personnel supporting the embedded training teams and provincial reconstruction teams (PRT) in Afghanistan have undergone both general and region-specific predeployment training in MSOs. The North Atlantic Treaty Organization's (NATO) Training Mission and Combined Security Transition Command–Afghanistan has engaged the Center for Disaster and Humanitarian Assistance Medicine at Bethesda's Uniformed Services University in MSO training, building capacity within the medical sectors of the Afghan national army and police.

Much of the work done under an effective MSO model—the DOD HIV/AIDS Prevention Program—managed by the Navy and concentrated in 26 African partner nations, entails military-to-military assistance and training to develop new programs tailored to local cultures and conditions. This nation-specific process has led to greater ownership and acceptance by partner nations, as attested by the program reviews.[16]

In another MSO illustration, Murphy and Agner describe the model success of the DOD's Combat Casualty Care Course in Chile. Chilean navy physicians took training from US Air Force personnel and taught their new skills to both civilian colleagues and fellow military physicians from 15 nearby nations. Course graduates from several countries later deployed together to an earthquake response in Pisco, Peru, where they provided interoperable medical services.[17] This training in South America also creates capacity to support peacekeeping operations all over the world. Many countries in South and Central America have used this training on such deployments. The fact that it took more than 10 years to get this program in Chile on solid footing emphasizes the long-term relationships essential for MSO success.

The recent deployment of medical personnel in the Mongolian military to the UN peacekeeping operation in Darfur, Sudan, stands as another MSO success. The Air Force component of Pacific Command (PACOM), through its IHS team, coordinated Mongolia's purchase of a portable Air Force hospital equipment package and trained personnel in operating the equipment, providing Mongolia with an opportunity for both positive international recognition and deployment funding from the UN. Certainly, all parties benefited from this activity—a model for future MSO efforts in training as well as in educational activities.

Education

A number of educational courses support MSOs, most prominent among them the Medical Stability Operations Course, a three-day event sponsored by the Defense Medical Readiness Training Institute in San Antonio. The institute has taught the Combat Casualty Care Course to thousands of Air Force and other military medical personnel for decades. Having a combined lecture and small-group-discussion format, the MSO course introduces military officers to their MSO roles. The Department of State's Office of the Coordinator for Reconstruction and Stabilization offers several training courses in reconstruction and stabilization. The Uniformed Services University of the Health Sciences in Bethesda, Maryland, which teaches a variety of MSO-related courses, has included some MSO concepts in its medical school, nursing, and graduate curricula for decades. NATO's Marshall Center in Germany makes available a three-week course in security, stability, transition, and reconstruction for US as well as allied officers and civilians. A three-day medical mentor training course has become part of combat skills training at the Joint Readiness Training Center at Fort Polk, Louisiana, for all DOD medical advisers deploying to Afghanistan. These offerings reflect the diversity of courses and robust efforts to build effective MSO education.

The new joint Military Education and Training Center in San Antonio has invited foreign students to participate, as has the new Aero-

space Training Center at Wright-Patterson AFB, Ohio, which will host the Advanced Aerospace Medicine for International Medical Officers Course. Both centers seek international exchanges for staff. These examples indicate that the DOD is moving in the right direction with regard to cooperative health engagement and better MSO education, both of which can lead to more productive MSO exercises.

Exercises

Many of our annual multination exercises of long standing have emphasized MSO skills since the Cold War days. The authors are familiar with such exercises as the African MEDFLAG, Caribbean New Horizons, Philippine Balikatan, and Cobra Gold in Thailand.[18] These four illustrate bilateral exercises with robust MSO planning and activity, often including some teaching and medical civic action project providing direct care to a host nation's indigent citizens. Although these exercises carry out their primary purpose of bilateral military training, they are not sufficient by themselves to build public health capacity in partner nations.[19]

COCOMs and service components have begun to realign their exercises with MSO capacity-building goals within their areas of responsibility. For example, European Command has recently revamped its MEDCEUR exercise to focus on training both US and coalition forces in disaster-response operations. The Pacific Angel exercise includes flying a Pacific Air Forces (PACAF) medical-subject-matter exchange team into remote areas to provide training requested by host nations, thereby fulfilling both the training and engagement requirements of the exercise in a single effort.

Medical exercises, both inside the DOD and in the civilian community, need to emphasize strategic outcomes and significant long-term effects—not just the simpler indicators of progress. For example, if improved public health is a regional security goal, then simply measuring the number of immunizations is not sufficient to establish progress

toward that objective. One must measure disease rates specific to those immunizations and improved overall public health months or years later—as entities such as the World Health Organization often do.

Better measurement of the effect of MSO humanitarian activity offers several benefits both currently and for future endeavors. Planning ahead for real-time data collection and analysis may allow appropriate midcourse corrections while the mission is in progress. Outcomes can help commanders prioritize future activities, based on the value demonstrated. These efforts can deconflict activities of other US agencies and NGOs, providing quantifiable results with a transparency that can become an effective tool against extremism. Additionally, some of these measurement efforts offer insight into the materiel requirements for MSO activities.

Materiel

Materiel requirements for MSOs are substantial and different from those used in combat operations. An MSO-capable medical force depends upon portability and reliability, qualities of Air Force medical assets that have traditionally set the standard for the DOD. Further reengineering for current operations and miniaturization of medical gear will enhance the performance of MSO materiel. The NGO humanitarian community has set a high standard in the materiel area with the internationally accepted Sphere Project standards, which apply to many MSO tasks.[20]

The effective use of Chinook helicopters in Pakistan, following the severe earthquake there in 2005, produced one of the most successful public relations scenarios in the history of military humanitarian operations. The Chinooks moved heavy loads of humanitarian and medical materiel as well as injured patients over mountain passes blocked by debris from landslides. The subsequent publicity did a great service to US security efforts in the region.[21]

Another "good news story" about medical materiel involves the Chilean air force's success with its deployable hospital, created by using the US Air Force's portable hospital and some NATO standard gear as a model. That unit has deployed to nearby nations after an earthquake, a supermarket fire, and a mass-casualty bus accident, each accompanied by resounding beneficial effects for patients, diplomacy, and the training of hospital personnel.

These two examples provoke some concern about the DOD's materiel capabilities. We must improve MSO interoperability with allied nations, making it as seamless as possible. The urgency of an effective crisis response (often called the "golden hour" in medicine) must drive greater innovations in portability for MSO teams, probably including the pre-positioning of some relief supplies near known areas of risk. Long-term storage of relief supplies will require that the DOD study the safety of extending the shelf life of disposable medical supplies, whose current expiration dates often are not set by scientific studies. Regional security priorities and political relationships, as well as the vulnerability of our specific coalition partners to crises, will create priorities for some of these MSO materiel tasks.

The Air Force has recently developed the next generation of expeditionary medical support, known as the health response team. This unit packages all of the deployment lessons learned, along with lessons from PACAF's humanitarian-assistance rapid-response team, which has deployed from Guam's contingency response group. The health response team utilizes a modular package that can respond, for a limited time, to any humanitarian activity, disaster response, or full kinetic engagement, thus allowing US personnel to take what they need, and no more, for each operation. The Air Force medical service is working to make one available for each COCOM, in addition to filling Air Force–specific requirements. Proper utilization of this unique asset will create new MSO issues for future Air Force leaders.

Leadership

The MHS faces a significant task in developing leadership for MSOs. Many current leaders grew up in the Cold War, an era often marked by bipolar competition and bereft of General Johnson's stability operations doctrine of 1966. Deployments for humanitarian missions were seen as tools against a monolithic Soviet enemy and its surrogates. The era of complex emergencies, highlighted by the movie *Blackhawk Down* and the failure of US forces in Somalia in 1993, startled policy makers, who had not planned for such incidents.

Despite this history, MSO leadership enjoyed some bright moments. Many people considered PACOM's humanitarian response to the Indonesian tsunami, the relief mission occasioned by the earthquake in Pakistan, and the response to the Japanese tsunami/nuclear disasters as well-led operations and models for future action.[22] PACAF's IHS team, in support of PACOM, played a key role in the former missions, putting the right skills in the right place at the right time. If we wish to have a sustainable, cost-effective humanitarian impact, we need this capability in future operations worldwide.

To translate these lessons and many others into knowledge and skills for future Air Force leaders, National Defense University and the services' war colleges are actively engaging their students—our current and future leaders. Air University hosts the Air Force Culture and Language Center, which offers elective familiarization courses in strategically important languages, with the intent of deliberately developing future leaders with cultural competence and proficiency in key languages. In addition to the fortunate few who can attend these schools, we need other MSO leaders with equal competence. Consequently, the Pentagon's MSOWG is defining requirements for developing MHS leadership. Furthermore, the Defense Institute of Medical Operations and the Defense Medical Readiness Training Institute, mentioned above, emphasize the grooming of leaders in two flagship courses: (1) Leadership Course in Disaster Public Health and Public Health System Management and (2) Leadership Course in Regional Disaster Response and

Trauma Systems Management. By using these tools with proper diligence and time, the DOD can cultivate the requisite leaders, who must produce the right personnel mix for robust future MSOs.

Personnel

Senior line leaders, such as Gen Michael Ryan, former Air Force chief of staff, have advocated greater language and cultural competency for over a decade. Both the short-tour rotation cycle and the efficiency-report-driven culture that primarily rewards short-term success can work against the long-term requirements of a mature MSO program. Relationships with some partner nations may not thrive under these constraints. If the DOD is to place stability operations on the same priority level as combat operations, as mandated by the new DODIs, it needs to adjust some personnel policies for medical manpower. New job requirements will create new education and training requirements. Coordination of simultaneous programs in personnel and education in this time of high operations tempo will prove daunting.

For a decade, the Air Force's IHS billets, both officer and enlisted, have survived the stresses of headquarters manpower ceilings and the demands of combat operations at each of the regional commands. IHS personnel who served on the Coalition Provincial Authority's liaison advisory team at Iraq's newly reconstructed Ministry of Health rendered invaluable service at a critical time and made themselves available on short notice. Having a trained and accessible cadre of subject-matter experts enhanced our broader security goals.

The MSOWG is beginning to make this successful concept a joint effort of the Air Force, Army, and Navy to produce global health specialists trained in interagency knowledge, regional political realities, and cultural/language skills—individuals who would greatly enhance MSO capabilities. How will the Air Force's and its sister services' personnel systems handle this change? Past history tells us that it won't be easy

and that the uniqueness of the mission may necessitate some changes in the services' current promotion systems.

Standing up the human capital to meet the MSO mission's requirements is best done in synchrony with doctrine and educational programs rather than sequentially. Clearly, the mandate to support this mission involves significant human resources in the era of stability operations. Further, we cannot have personnel in place to perform MSOs without the right facility mix for these new missions.

Facilities

Facilities for effective MSO will reflect innovations and capabilities not available to Cold War–era medical personnel, such as portability and stand-alone reliability. Shelters built by the DOD, either for crises or deliberate action in a long-term, complex environment, must be culturally appropriate, have the support and "ownership" of the host community and nation, and address commonsense public health and hygiene issues. The DOD also should work with host-nation governments and NGOs with a long-term commitment to sustain the facilities.

The role of PRTs and the analogous use of funding for commanders' emergency response programs have come under some criticism by members of the humanitarian community, many of whom believe that the distinction between humanitarian workers and PRTs has blurred, with unintended consequences. This argument has some validity, but in a low-security environment, the choices may come down to PRT facility or no progress at all—clearly a difficult decision.

Concerning humanitarian actions in uncontested environments, all stakeholders must agree on the site and style of a new facility. Similarly, the effort must be long lasting. In an MSO era, we must reengineer shelters from outdated Cold War–era packages. In the 1990s, Colonel Waller deployed with a New Horizons RED HORSE exercise team to a Caribbean nation, observing that the public health hospital there had lost its roof in storms seven times during the previous 20 years, often replaced

at the expense of US taxpayers. The next roof should be sustainable (i.e., built to survive most hurricanes), one of the most basic lessons of MSOs. Having a durable facility will help both of our nations concentrate on other priorities, such as better planning for future needs.

Planning

The military's medical planning community can support effective execution of MSOs. Medical planners require innovative, collegial teamwork with the line community, partner nation, and other stakeholders. Inclusion of a specific MSO annex greatly enhances the theater security cooperation plan, an annual priority list for each COCOM, written in the past at European Command, Southern Command, and Pacific Command, and currently in preparation at Africa Command. Such a plan has a long history of including a separate preventive medicine annex, which focuses on protecting the health of US forces—not on MSOs. The new MSO annex, which addresses both the protection of the force's health and long-term public health goals of partner nations, will help with regional priorities for the supporting components. Other organizations and countries will better understand the overall direction of the plan and its medical support when the priorities of the MSO annex are known.

Deliberate and crisis-action plans should respect all stakeholders—including the host nation's ministry of health, the embassy staff, and, especially, health care providers at the deployment site, who provide continuity of medical care after an MSO activity. Plans must also address the long-term impact and legacy of the proposed mission. We must build partner nation capacity without discrediting the host nation's medical providers, and any host-nation public health metrics considered during the planning of mission priorities must be as accurate as possible. Most importantly, planners must address the development of local human capital to provide enduring health care and to teach others to do the same in a self-sustaining, locally resourced, and

culturally appropriate cascade. Rather than displace local capability, MSO must build capable partners.

Conclusion

The dimensions of MSOs are as wide as the security challenges that face our nation and world in the twenty-first century. As this article has demonstrated, these operations reach into each element in the spectrum of military tasks—doctrine, organization, training, materiel, leadership and education, personnel, facilities, exercises, and planning—in varied and important ways.

MSOs are establishing a new paradigm for the military services to utilize their medical resources effectively and execute stability operations in furtherance of national security objectives. The Air Force can resource its medical personnel—critical and sometimes unique MSO assets—to execute these missions successfully. MSOs offer essential support to agile combat support and building partnerships, two of the Air Force's core functions. The complexity and spectrum of the work involved in performing effective MSOs will challenge the DOD and its MHS in diverse and sundry ways. The authors believe that the Air Force is up to the task, but the solution sets are neither trivial nor automatic. They demand continuous and evolving doctrine, education, resourcing, and application of lessons learned from current and past operations. ✪

Notes

1. Joint Publication 3-0, *Joint Operations*, 11 August 2011, http://www.dtic.mil/doctrine/new_pubs/jp3_0.pdf.
2. Department of Defense Instruction (DODI) 6000.16, *Military Health Support for Stability Operations*, 17 May 2010, [1], http://www.dtic.mil/whs/directives/corres/pdf/600016p.pdf.
3. Ibid.
4. The update of DODI 3000.05, *Stability Operations*, 16 September 2009, http://www.dtic.mil/whs/directives/corres/pdf/300005p.pdf, replaced the 2006 version (stability, security,

transition, and reconstruction operations). The Department of State prefers the term *reconstruction and stabilization*.

5. Andrew J. Birtle, *U.S. Army Counterinsurgency and Contingency Operations Doctrine, 1942–1976* (Washington, DC: Center of Military History, US Army, 2006), 421, http://www.history.army.mil/html/books/us_army_counterinsurgency/CMH_70-98-1_US%20Army_Counterinsurgency_WQ.pdf.

6. COL Spurgeon P. Neel, "The Medical Role in Army Stability Operations," *Military Medicine* 132, no. 8 (August 1967): 605.

7. Rasa Silenas et al., "US Armed Forces Medical Operations other than War," *International Journal of Risk Assessment and Management* 9, no. 4 (2008): 367–75, http://www.inderscience.com/search/index.php?action=record&rec_id=20414&prevQuery=&ps=10&m=or.

8. DODI 3000.05, *Stability Operations*, 10.

9. The 13 areas include medical communications and information management (MCom), health risk management (HRM), health risk assessment (HRA), medical command and control (MC2), medical intelligence (MI), medical logistics (ML), medical planning (PLAN), combat casualty care and patient transport (CC), patient movement (PM), mental health support (MH), health risk communication (HRC), international health and cultural preparedness training and education (TE), and veterinary service support (VS).

10. Joint Forces Command, *Emerging Challenges in Medical Stability Operations*, white paper (Norfolk, VA: Joint Forces Command, 4 October 2007), "Introduction," 4.

11. Col Sean Murphy and Col Dale Agner, "Cooperative Health Engagement in Stability Operations and Expanding Partner Capability and Capacity," *Military Medicine* 174, no. 8 (August 2009): iii–x.

12. Title 10, *United States Code*, chap. 20, sec. 401.

13. The DOD tropical disease laboratories are the Naval Medical Research Units in Jakarta, Indonesia; Lima, Peru; and Cairo, Egypt; and the Armed Forces Research Institute of Medical Sciences in Bangkok, Thailand.

14. Lt Gen Paul K. Carlton Jr., "New Millennium, New Mind-Set: The Air Force Medical Service in the Air Expeditionary Era," *Aerospace Power Journal* 15, no. 4 (Winter 2001): 8–13, http://www.airpower.au.af.mil/airchronicles/apj/apj01/win01/win01.pdf.

15. LTC Jeff Drifmeyer, COL Craig Llewellyn, and LCDR David Tarantino, "Humanitarian Service and Recruitment and Retention of Uniformed Services Medical Personnel," *Military Medicine* 169, no. 5 (May 2004): 358–60.

16. "Country Reports," DOD HIV/AIDS Prevention Program, Naval Health Research Center, accessed 7 December 2011, http://www.med.navy.mil/sites/nhrc/dhapp/countryreports/Pages/default.aspx.

17. Murphy and Agner, "Cooperative Health Engagement," iv–v.

18. Colonel Waller, one of the authors of this article, participated in each of these four long-standing military exercises, which have humanitarian assistance and medical components. MEDFLAG, which has occurred annually since 1987, typically as one to several three-week events per year, focuses on disaster response training, medical collaboration, and provision of care to host-nation citizens. The exercise rotates to a different African host nation each year. He took part in Uganda and Cameroon exercises during a tour of duty in US Air Forces in Europe. Balikatan, meaning "shoulder to shoulder" in Tagalog, has occurred during most years since the early 1980s. The exercise remains bilateral, medical participation representing only a portion of it, including collaboration and exchange of medical experts and

provision of care to the host nation. Colonel Waller led a portable Air Force hospital, which saw more than 14,000 patients in a rural site in Luzon during a late 1980s exercise. The New Horizons exercise is dominated by engineering and infrastructure improvements in multiple Caribbean nations each year, but medical participation does occur. Colonel Waller led a small medical team to the island nation of Saint Kitts as part of New Horizons in the late 1990s. The Cobra Gold bilateral exercise in Thailand began in 1982 and became multilateral in 1994. Medical participation is a minor but important part of this interoperability exercise. The portable hospital commanded by Colonel Waller deployed to Cobra Gold in the late 1980s.

19. Recently in a initial exercise-planning conference, discussion about building a school in a tropical partner nation did not address basic public health items such as toilets, sinks, and mosquito screening of the windows. More than a century after learning about the necessity of these items during the Panama Canal excavation, we should certainly include them as part of the standard construction template for such scenarios—but we do not.

20. Sphere Project, *Humanitarian Charter and Minimum Standards for Humanitarian Response* (Rugby, UK: Practical Action Publishing, 2011), http://www.sphereproject.org/.

21. Bret Stephens, "Chinook Diplomacy," *Wall Street Journal*, 22 December 2005.

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Col Stephen Waller, MD, USAF, Retired

Colonel Waller served in a variety of command, planning, and health care provider roles for over 30 years. He led the Department of Ophthalmology at Wilford Hall Medical Center, Lackland AFB, Texas, where he performed the first laser refractive surgery in an Air Force facility. His team there developed a portable eye surgery capability that has since treated over 70,000 patients and performed 6,000 surgeries on deployed exercises, primarily in the Southern Command area of focus. For this work, they received the secretary of defense's Installation Excellence Award in 1999. A graduate of Air Command and Staff College and Air War College, Colonel Waller, who attained the designation of international health specialist, is currently an associate professor of preventive medicine at the Uniformed Services University of Health Sciences in Bethesda, Maryland.

Lt Col Jose Fonseca, USAF, Retired

Lieutenant Colonel Fonseca retired from active duty after honorably completing a 23-year career as a Biomedical Science Corps officer. He served his last four years at Headquarters US Southern Command, where he led various aspects of medical security cooperation. Directly upon his retirement, he served under a grant to the Henry M. Jackson Foundation as assistant professor of preventive medicine at the Uniformed Services University (USU). As part of a team of faculty experts, he developed expanded public health curricula for graduate programs in humanitarian assistance, disaster response, and global health. Lieutenant Colonel Fonseca received his master's degree in public health from USU in 2003, completing the international health concentration and a 12-month practicum in various agencies dedicated to global health.

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Col James Fike, USAF, MC, Retired

Colonel Fike (BS, Brigham Young University; MD, George Washington University) is a private consultant in global health, working in travel and tropical medicine as well as health care technologies in the humanitarian assistance and disaster response environments. Board certified in internal medicine and qualified in aerospace medicine, he has extensive experience in operational, wilderness, tropical, and travel medicine. Recently retired from the Air Force, he spent the last 11 years of his career within the Air Force International Health Specialist Program in a variety of positions, including director of the program and consultant in international health to the Air Force surgeon general. While on active duty, Colonel Fike served at all levels, tactical through strategic, both as a clinician and as a subject-matter expert in medical stability operations.

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Colonel Murphy (USAFA; MS, National War College; MD, Uniformed Services University of the Health Sciences) is the deputy assistant surgeon general for health care operations. He is board certified in pediatrics and is qualified in aerospace medicine. He has commanded at the flight, squadron, and group levels in both the deployed and home station environment. Colonel Murphy has served at the joint combatant command level as the command surgeon for US Southern Command and previously as the command surgeon for Pacific Air Forces.

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The Efficiency Paradox

How Hyperefficiency Can Become the Enemy of Victory in War

Lt Col Geoffrey F. Weiss, USAF

Efficiency: the ability to produce a desired effect, product, etc., with a minimum of effort, expense, or waste.

Effectiveness: producing a definite or desired result.

At the time of this writing, America's military is embroiled in conflicts throughout the Middle East and faces threats simmering in the Far East, Africa, South America, and even along our southern border. Simultaneously, the economic realities of a multitrillion-dollar national debt and trillion-dollar deficits, as well as the prospect of cuts in defense spending amounting to hundreds of billions of dollars, are forcing significant belt tightening. Even our services in combat must look for more savings and efficiencies. Theoretically, at some point increased efficiency cannot make up the difference, and the cuts become too deep, injuring a vital capacity or costing lives in combat due to a scarcity in training or resources. How will we know when we have

reached that point? Perhaps more insidiously, is it possible that resorting to a culture of hyperefficiency in itself could harm our effectiveness in combat?[1] Can a quest for efficiency result in a loss of effectiveness?

The answer to the last two questions is yes. Seeking efficiency can harm our effectiveness, and we may not see it coming unless we first understand a phenomenon known as the efficiency paradox—the apparent contradiction that occurs when maximizing efficiency actually results in diminished effectiveness. The process of preparing and planning for war demands efficiency because of the scarcity of resources and the expense of training for war and war making; however, after fighting has begun, the war fighter must contend with uncertainty, contingency, and an adaptive enemy. In war the line between waste and reserve can blur, tipping the scales from victory to defeat; furthermore, the requirement to abandon initial assumptions that subsequently prove faulty may lead to operations that fall short of achieving strategic ends, making the endeavor far more costly. By recognizing the existence of the efficiency paradox and its characteristics, the Air Force and the other services can better balance efficiency and effectiveness in the transition from peace to war, thus increasing the chances of success. Negating this paradox involves knowing how *not* to fight like we train; knowing how and why to develop war plans based upon what we must do to win, even in the face of uncertainty and friction; and understanding how to inform policy makers about strategies and forces that do not irresponsibly promote efficiencies at the expense of effects.

This article seeks to familiarize the reader with the efficiency paradox, much as a treatise would study a potentially dangerous species. If we know where to look and what to look for, then we can avoid potential dangers. Towards that end, the article examines some historical instances of efficiencies pursued in planning and training that failed to produce desired outcomes. Moreover, after addressing how efficiency and effectiveness relate to traditional principles of war, airpower, training, and planning, it offers a practical example from recent experience. The article concludes with some recommendations for avoiding pit-

falls that arise from the efficiency paradox. By understanding this paradox, we can recognize and evade that point at which hyperefficiency becomes the enemy of victory.

When Plans Go Awry: History and the Efficiency Paradox

When you have resolved to fight a battle, collect your whole force. Dispense with nothing. A single battalion sometimes decides the day.

—Napoleon Bonaparte

Placing undue faith in an ability to minimize commitment of resources while maximizing outcomes is not without historical precedent. In mid-summer 1941, while Europe fought a war and America enjoyed a precarious peace, US Army Air Corps strategists in the Air War Plans Division (AWPD) under Gen Henry "Hap" Arnold set about the task of articulating the role that airpower could play in rolling back and ultimately defeating the Germans. Leveraging the "American propensity to see war as an engineering science" (with the airplane as its foremost instrument), the AWPD, having determined that destruction of 124 targets within Germany would win the war, calculated that such an objective required exactly 6,860 bombers operating with a target accuracy in combat 2.25 times worse than that in training.[2] We now know that outcome required the vise grip of Allied ground forces from the east and west. By the time the dust settled from the Allied bomber offensive, the United States and Britain had lost a combined 16,462 aircraft and 76,000 personnel.[3]

Twenty years later, in Vietnam, we made a similar miscalculation. Secretary of Defense Robert McNamara, the "whiz kid" who used "quantitative management methods" to mold the post–World War II Air Force into "a supercompany," employed the same model to run the Vietnam War. Drawing on exhaustive statistics involving troop supplies, kill ratios, ordnance expended, and so forth, he computed what he considered a winning formula.[4] As the ground situation worsened,

America devised and implemented Operation Rolling Thunder to use *just enough* force to compel the North Vietnamese to accede to its wishes. In fact, Rolling Thunder was a resounding dud, having dropped 640,000 tons of bombs with very little effect.[5]

More recently, we can look to Somalia and Operation Iraqi Freedom as obvious examples of planning efficiencies leading to disaster. In Somalia, American forces lacked the resources in firepower and armor to stand toe-to-toe with Mohamed Farrah Aidid. As Maj Clifford Day notes in his analysis of US operations in Somalia, "both missions were ill prepared to deal with the . . . urban guerrilla movement in Mogadishu, and the US political and military leadership was not willing to commit the warpower [*sic*] necessary to carry out the difficult tasks they were assigned."[6] In Iraqi Freedom the brilliantly efficient campaign to topple Saddam Hussein proved far too little to secure the nation in the aftermath of his fall. According to Antulio Echevarria, "In a sense, Operation Iraqi Freedom saw an attempt to supplant mass with economy of force. That attempt succeeded well enough in the initial phases of the conflict, but it failed completely when military operations shifted from major combat operations to providing security for reconstruction efforts."[7]

Perhaps less obvious are the instances of Operations Desert Storm, Allied Force, and Enduring Freedom. In Desert Storm, the coalition used overwhelming force to evict Saddam from Kuwait but called it off, based on the faulty calculus that sufficient force had stabilized the region and destabilized Saddam's regime. Hindsight shows that a more aggressive posture might have prevented the need for Iraqi Freedom altogether, together with its $800 billion price tag and tens of thousands of casualties.[8] Regarding Allied Force, despite our ultimate victory, it lasted far longer than first predicted.[9] Lastly, as of this writing, Enduring Freedom continues feverishly. The highly efficient coalition approach that initially expelled the Taliban has proven insufficient to maintain control of the country in the long term, regardless of the efforts of a long succession of generals and strategies.

This tendency to leverage minimum force to produce a result is not restricted to the strategic and operational levels of war. The battle for Fallujah in Iraqi Freedom serves as a particularly telling tactical example. In 2004 US Marines had the task of clearing the Iraqi city of Fallujah of dangerous terrorists and insurgents. Although 2,000 of them methodically began the operation, they were neither fast nor effective enough to complete it. The second time around, however, 15,000 Marines cleared the city, prompting Ralph Peters to observe that "it was clear that commanders and planners had learned their lessons well: numbers mattered, mass was back."[10]

In preparing for and planning war, we are tempted—in a desire for efficiency—to rely upon quantitative models or overly optimistic thinking (perhaps founded upon training experiences) regarding the capability of forces available. In fact war only infrequently lends itself to modeling. This is not to say that we should embrace inefficiency or abandon all planning models. But it does indicate that we must temper faith in these tools with a healthy dose of respect for the unknown, keeping our assumptions conservative and to a minimum. We must consider variables within realistic ranges and not adjust them arbitrarily to maneuver our projections into acceptable but artificial bounds. When our initial plans become casualties of war, we must be ready with branch plans and have the capacity and will to execute them.

Mass and Economy of Force

Economy of force is the judicious employment and distribution of forces.

The purpose of mass is to concentrate the effects of combat power at the most advantageous place and time to produce decisive results.

—Joint Publication 3.0, *Joint Operations,* 11 August 2011

As history shows, transporting our efficiency model with us into combat can be dangerous. In an efficiency-based paradigm, the operative question is, What is the minimum required to carry out the task at

hand? This inquiry works well for undertakings we can clearly define in contexts that we mostly control. It compels us to commit the least number of resources necessary, thus freeing other assets that we can obligate elsewhere. This idea is embodied in the principle of war known as "economy of force." Unfortunately, in combat we do not control all of the variables. Both the enemy and chance have a say. What now appears to be "steady state" can and will change—most likely at a time when we least expect it.

The principle of economy of force is perfectly valid, but the nine (original) principles of joint operations exist for a reason. We cannot apply any one of them in a vacuum. We must weigh economy of force as a guiding concept against other factors such as mass, simplicity, security, and, of course, objective.

An approach that delivers the minimum resources in personnel and materiel to combat may incur significant risk in terms of flexibility to react to changing conditions. And what guidelines define "minimum"? Planners and war fighters allocate and apportion forces based upon estimates and guesswork originating from what they know at the time. Those forces are organized, trained, and equipped according to older approximations and within highly constraining budgetary parameters. To paraphrase former secretary of defense Donald Rumsfeld, you fight the war with the army you have, not the one you want. But we must consider the true question: what is the army you *need*?

Doctrinally, the Army and the Marine Corps task-organize to meet mission requirements in a way that provides some flexibility by not seeking hyperefficiency.[11] This approach arises partly from their Clausewitzian approach to warfare, whereby they acknowledge a large component of uncertainty and chaos in combat.[12] As a result, our ground component plans operations with forces that have an overwhelming advantage over the enemy, usually in terms of combined-arms firepower and tactics if not sheer numbers. Part of this force structure normally includes a reserve element. Marine Corps Doctrine Publication 1-0, *Marine Corps Operations*, 2001, observes that "the re-

serve provides the commander the flexibility to react to unforeseen developments. . . . Once committed, the reserve's actions normally become the decisive operation."[13] As the conditions of battle unfold, the reserve can concentrate at a decisive point to turn the tide, rout the enemy, or stave off defeat—the heart of the principle of mass. Maintaining a reserve may not seem efficient, especially if we never call upon it. Nevertheless, quantity is a quality in and of itself: winning every time in minimal time has an efficiency all its own. All services would do well to acknowledge that sacrificing mass upon the altar of economy of force could ultimately prove both inefficient and ineffective. Clearly, there is *no* efficiency in war without victory.

The Somalia debacle helps illustrate this point. Though entrusted with raising the ante from humanitarian aid to war with the Somali National Alliance, Somalia Task Force Ranger did not possess the resources to do so. Had it proven successful, using a small force to neutralize the alliance might have epitomized efficiency; however, "although [Task Force Ranger] was made up of some of the most skilled military forces in the world, . . . relying on one small force, no matter how good they were, left little tolerance for friction in battle with an enemy that was grossly underrated."[14] Arguably we are feeling the cost of this failure in terms of human life and national prestige even now in the ongoing global war on terrorism.

Airpower and Efficiency

In the last fifteen years, airpower has achieved stunning military success, if not political victory, in the First Gulf War, Bosnia, Kosovo, Afghanistan, and Iraq.

—Grant T. Hammond, 2005

President Obama wants the Defense Department to cut $400 billion in planned spending over the coming decade, and managing those cuts will be a herculean task.

—*Air Force Times*, 2011

We may naturally think of the Air Force as the most efficient of the services since efficiency was one of the founding principles of the development of airpower. Contemporary airpower (now in full flower vis-à-vis the theories of Billy Mitchell and Giulio Douhet) alone can strike anywhere, anytime, at any level of war. A single Airman can wreak staggering damage upon an enemy force—what could be more efficient than one bomber precisely striking dozens of targets previously inaccessible to ground forces? But we have the propensity to play to our strengths, hoping that the enemy will repeat the patterns we have dealt with effectively in the past—witness the Air Force's mind-set after Operations Desert Shield and Desert Storm.

Now the Air Force enters the second decade of the twenty-first century in a position few could have imagined just 20 years ago. A remarkable upheaval has occurred not only from the instability of international security that characterizes our post–Cold War / post-9/11 world but also from acute domestic economic woes. Amidst this turmoil, the Air Force, which has defined itself from its origins as an independent guarantor of security through strategic deterrence, is redefining itself and its relevance in a "small wars" context through space, cyberspace, surveillance, command and control, rapid mobility, and persistence via remotely piloted aircraft. Commanding such change and its attendant challenges requires extraordinary care in managing both capital and human resources. To do so successfully, we must make efficiency our operative principle because we simply have no time, money, or personnel to waste. The Air Force's in-garrison units—in the midst of budget cuts and a significant reduction in force—scramble to meet training and flying-hour requirements established during a different era, all the while managing a dynamic personnel tempo that includes more frequent and longer deployments for many Airmen in critical positions.[15] To meet all these demands, commanders prioritize their responsibilities in organizing, training, and resourcing to ensure that our forces are ready to fly, fight, and win—certainly the right thing to do but possibly very dangerous if we attempt to fight like we train.

Efficiency in Training

We must approach training with efficiency in mind because we have only so many dollars to put towards expensive combat and contingency operations. In fact, during fiscal year (FY) 2011, joint and contingency funding comprised over a quarter of the Air Force's overall budget![16] A review of the service's budget plan for FY 2012 indicates that funding for operation and maintenance (readiness) will drop for the first time since 2004.[17] Indeed, some major commands have found inventive ways to leverage contingency funds to pay for training in light of inadequate readiness funding. For example, mission-qualification training for the E-3 Sentry, once wholly funded with operation and maintenance dollars, is now partially supported by contingency funds justified as necessary to prepare Airborne Warning and Control System crews for combat. The personnel and deployment tempo resulting from our many global commitments also takes a toll on readiness. In a typical E-3 operations squadron of some 300 Airmen, personnel cuts intended to save money have produced more one-deep positions and more Airmen with multiple duties. Extrapolated across the force, these cuts can have a systemic impact on capability. Airmen designated to fly training missions and exercises find it more difficult to balance those responsibilities with leave, individual readiness requirements, and additional ground duties. Moreover, even if funds were available, the number of missions—from peacekeeping and humanitarian to full theater war—does not allow enough time to train adequately to meet every possible scenario. The mantra "train like you fight" has often become "train the best you can."

Given this reality, units make maximum use of simulated and computer-based training, carefully scheduling live scenarios to attain the most "bang for the buck." Particularly in live training, fallout of one or two key players can degrade the overall benefit. We have become experts at piecing together meaningful training from the bits and pieces we have to work with to realize as much value as possible.

In combat, however, we have to be careful. Unlike training—sometimes a one-sided affair in which some is better than nothing—combat

is always two-sided. The strategic bombing campaign over Europe in World War II clearly revealed that the bomber did not always get through. Only by applying the overwhelming mass of airborne firepower and by employing long-range fighter escort did the Allies prevail. In Iraqi Freedom, the 101st Airborne Division used a deep-strike helicopter tactic developed in training, sending a wave of attack helos ahead of the forward line of battle only to meet a hailstorm of small-arms fire that destroyed two of the 31 Apaches and damaged all but one of them. In the words of one of the pilots, "There's a very different threat out there than what we expected. . . . I guess we believe that what we've been training for, for a long time, is not going to work here."[18]

As we transition from training to combat, we need to appreciate the areas in which we had to cut corners and could not train like we fight. We must remain wary of tactics untested against a live enemy. Our training experiences should serve as a scale model for combat, not a template. They inform our thinking about how to approach our roles and missions without all the risks but also without all the fidelity of reality. Before we employ in combat, we must identify the weak points in our tactics and organization so that when we "scale up," we are prepared to address them. This preparation can include building in "inefficiencies" we could not afford in training. Our organizations should minimize single points of failure and one-deep positions as well as implement some organizational redundancy. We should always bring enough of the right personnel so that our warriors can focus on their specialty instead of serving as jacks-of-all-trades, masters of none. The same principles apply in terms of materiel and logistics. We must remember that flexibility is the key to combat power and that, at times, inflexibility can increase in proportion to efficiency.

Efficiency and Planning

As noted, training demands efficiency, but in planning we should be more circumspect. Any planning process begins with a problem that the plan must solve.[19] For example, "How do I solve the problem of de-

feating country X if it attacks us?" (strategic). "How do I secure control of the air over country X?" (operational). "How do I neutralize target Y in country X?" (tactical). We must consider many factors in answering these questions and devising a plan. Perhaps each of a number of different plans could independently solve these problems. Also weighing heavily in this process are constraints—limitations that planners must consider, including those on funds and resources. Difficulty arises if planners affirm the possibility of creating a winning plan regardless of resource constraints, a plainly illogical stance. However, like the frog in the kettle, if the heat builds slowly enough, we may not know we are in boiling water until it's too late.

Thus, planners have the daunting yet vital responsibility of doing their best to assess the problems before them realistically. They should beware of overly optimistic assumptions and resist the temptation to stack the deck during war gaming. Planners must understand resource limitations and articulate concerns when analysis and war gaming point towards unsatisfactory levels of risk. Most importantly, they must guard against the chimera that we can solve every problem the way we *want* to solve it in light of the resources at hand. No matter how we try, we cannot determine the values of three unknowns, given just two equations. When we reach this point, we must have the intellectual honesty to admit it and then identify the problems we *can* solve with available resources.

A Recent Experience

In the fall of 2010, during my command of a large flying squadron engaged in combat operations over Iraq and Afghanistan, I experienced the efficiency paradox firsthand. With respect to the daily apportionment of personnel and aircraft, having our aircraft on station, on time, without fail constituted the only measure of effectiveness that mattered. To do so, we had to put aside practices effective 90 percent of the time in favor of those effective 99 percent of the time. In combat the 90 percent solution is not good enough. Though limited in planes

and personnel during training, in combat the squadron brought a sufficient number to meet minimum requirements of the steady-state fight and to cover the eventuality of several potential contingencies in the Arabian Gulf. I directed earlier show times, longer hours, redundancies in personnel and equipment, and even duplication of effort to minimize mistakes and their effect on the mission. In the air, we assumed more risk to maximize on-station time during malfunctions that did not immediately affect flight safety. We allocated dozens of Airmen and extra resources for optimal flexibility and, ultimately, effectiveness. Indeed, nine out of 10 times, we could have performed our mission with less. So why didn't we?

The answer lies in the Airman's Creed: "I will never falter, and I will not fail." In combat, lost sorties and even lost minutes can mean the difference between life and death. During our missions, at times no one would have missed us for 90 percent of the sortie duration, but for the other 10 percent, we literally became lifesavers. Sometimes we define effectiveness as a capacity to respond to the unexpected; hence, we flew with enough capacity to handle a variety of less common mission profiles (e.g., search and rescue) as well as unforeseen air threats or expanded ground-combat contingencies.

Some Airmen are not used to thinking this way because it differs from the usual noncombat situation. Furthermore, Airmen are accustomed to thinking more independently about their contributions in combat and are less comfortable in a supporting role. For example, our country always needs us in our strategic capacity and in our operational and tactical roles against a determined air force or air defense. We know exactly what to do and where to be. As supporters in a counterinsurgency setting, though, we may know the scheme of maneuver, but we don't always know how and when others will call upon us. No longer can we simply execute the air tasking order; rather, in the air we often have mini-air tasking orders to fulfill, the exact timing and details of which remain unknown at takeoff. This situation is driven by the uncertain nature of ground combat, for which the insur-

gent often sets the agenda, and by the challenge of dynamic targeting at all levels of warfare. Friendly air and ground forces must have our support, without fail. That is our measure of effectiveness.

The efficiency paradox was not lost upon Lt Gen Mike Hostage, then the commander of US Air Forces Central Command, who took the time during a visit with our expeditionary wing to explain his experience with it in terms of Army and Air Force perspectives on intratheater airlift. The Air Force, he said, measured the effectiveness of that airlift in terms of cargo capacity per sortie, which admirably fell in the range of 90–95 percent (i.e., filled nearly to capacity for each mission).[20] However, attaining such efficiency required some manipulation of routes, timings, and cargos designed more to maximize the efficiency metric than to meet the needs of forces needing the gear. When the Army received some aircraft to handle its own requirements, those missions flew at only about 20–25 percent capacity, but the Soldiers were thrilled because they had exactly the cargo they needed, when they needed it. As General Hostage explained, Airmen should understand that we may need to sacrifice our own measures of efficiency to meet the measures of effectiveness necessary to win this war.[21]

Recommendations

Now that we have some familiarity with the efficiency paradox, how do we combat it? I recommend a multitiered approach. First, incorporate instruction and discussion regarding this phenomenon into our professional military education across the services. Whether or not one agrees with the points made in this article, a healthy discourse on the concept will help future leaders by guiding their thoughts on training, planning, and war fighting in relation to efficiency. Students of war should consider this paradox in their analyses of historical case studies as well as present and future conflict. Would awareness of this phenomenon have resulted in different outcomes? Where did we get it right, and what was the result?[22] The answers to these questions will help us respond to those not yet asked. With the efficiency paradox in

mind, warriors can work consciously to assess where efficiency might tread close to wishful thinking and circumvent courses of action that do not adequately account for unknowns.

Second, the paradox identifies a seam between training and war fighting, both in practice and in our mind-set. Therefore, as part of their periodic review of training plans, all military units responsible for preparing forces and providing them to combatant commanders should initiate an assessment of where training is not consistent with how we actually fight. If possible, we should improve fidelity; if not, we should tailor our spin-up academics and in-theater exercises to fill in the seam. Understanding that efficiency can drive us to train differently than we fight, our leaders need to prepare their forces to fight to win and make the case for reserve and redundancy where necessary to improve the likelihood of victory.

Third, joint planning guidance must reflect the reality of the efficiency paradox and must warn planners about the perils of ascertaining the minimum force required for mission success. Although overestimation of a threat rarely results in defeat, underestimation often does. We cannot allow ourselves to be lulled into a sense of security because our current conflict appears steady-state. Today's contingency operations could erupt in a number of unpredictable ways, and future wars are never obliged to resemble those of the past. Planning doctrine should emphasize the utility of reserve and redundancy not simply as "nice to have" but as essential elements of flexible, winning plans. Exercises should challenge planners by introducing uncertainty, rewarding flexibility, and punishing rigidity.

Finally, senior military officers must remain wary of marching in lockstep with civilian leaders well schooled in business and/or political concepts but not as familiar with the particulars of war. Business theories and quantitative modeling that work well in classrooms or on Wall Street may fall short in combat. Deterministic models can give us confidence in our projections of an uncertain future and can offer useful support to predictions regarding military force and materiel. However,

uncritical reliance on them or the manipulation of variables to create agreeable outcomes is tempting and dangerous. Armed with an understanding of the efficiency paradox, our leaders can make a compelling case for strategies and force levels that have the best chance for successfully realizing our national military objectives. Granted, outcomes might still fall short of expectations—but not because we failed to grasp the pitfalls of valuing efficiency at the expense of victory.

Conclusion

> *The logic has been simply baffling to me: Expand our military commitments while cutting our armed forces.*
>
> —Rep. Buck McKeon (R-CA)
> Chairman, House Armed Services Committee

Whether on the battlefields of Afghanistan today or in the skies over an unnamed future foe, our forces must depend upon coordinated, precise, effective action to defeat the enemy and achieve our military objectives. Such action demands employment of the right blend of capabilities in sufficient measure, at the appropriate time, every time. These forces are not concerned with efficiencies, only effectiveness. Understanding the efficiency paradox helps us get this right from the outset by concentrating our training, planning, and execution on effectiveness first, relegating efficiency to a supporting role. The weapons that will help circumvent this paradox include making sound intelligence estimates, using a reserve, employing selective redundancy in areas of vulnerability, and viewing our planning models and assumptions with a healthy dose of skepticism (i.e., considering them guides, not directives, to our thinking).

We can embrace training efficiencies, but at the same time we must recognize the point at which efficiency becomes weakness in the transition to combat. Airmen in particular should realize that effectiveness is the starting point. We must wisely choose the efficiencies we em-

ploy to reach that destination, understanding that what might seem a good idea in peacetime or in the short term could in fact lead to a far more costly outcome or perhaps even defeat.

Perhaps the most difficult and unpalatable aspect of dealing with the efficiency paradox involves presenting advice not in concert with fiscal constraints or political pressures. Sometimes our "can-do" attitude runs head-on into reality. In those cases, we either find a way to make it appear that the shape of any hole will match the peg we have (e.g., the Battle of Fallujah), or we take the more difficult path and risk political backlash (to wit, Gen Eric Shinseki and Iraqi Freedom).[23] These choices are not easy, but as leaders and professionals we have the solemn duty to make them, even when they are unpleasant or unpopular.

The greatest dangers are those we never see coming. Time and again, history has shown that the idea of "just enough" in war can become "not enough" very rapidly. But if we recognize the dangers of a blind drive towards hyperefficiency, we can guard against that tendency to see efficiency as the end for which we strive. In that case, we will have successfully negated the efficiency paradox and—by balancing efficiency and effectiveness—greatly increased our chances for victory. ✪

Notes

1. I define "hyperefficiency" as a condition whereby maximizing efficiency becomes the central aim of an endeavor.
2. Stephen Budiansky, *Air Power: The Men, Machines, and Ideas That Revolutionized War, from Kitty Hawk to Iraq* (New York: Penguin Books, 2004), 287.
3. Ibid., 330.
4. Ibid., 377.
5. Ibid., 378.
6. Maj Clifford E. Day, "Critical Analysis on the Defeat of Task Force Ranger," Research Paper AU/ACSC/0363/97-03 (Maxwell AFB, AL: Air Command and Staff College, 1997), 36, http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB63/doc10.pdf.
7. Dr. Antulio J. Echevarria II, "Principles of War or Principles of Battle?," in *Rethinking the Principles of War*, ed. Anthony D. McIvor (Annapolis, MD: Naval Institute Press, 2005), 66.

8. Amy Belasco, *The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations since 9/11*, CRS Report for Congress RL33110 (Washington, DC: Congressional Research Service, 29 March 2011), 1, http://www.fas.org/sgp/crs/natsec/RL33110.pdf.

9. John E. Peters et al., *Operation Allied Force: Lessons for Future Coalition Operations*, Research Brief RB-72-AF (Santa Monica, CA: RAND Corporation, 2001), 1, http://www.rand.org/pubs/research_briefs/RB72/index1.html.

10. Lt Col Ralph Peters, USA, Retired, "Speed the Kill: Updating the American Way of War," in McIvor, *Rethinking*, 99.

11. Field Manual (FM) 3-0, *Operations*, June 2001, 3-7, http://www.dtic.mil/doctrine/jel/service_pubs/fm3_0a.pdf.

12. It is easy to find numerous references to the famous Prussian war theorist Carl von Clausewitz in Army and Marine Corps doctrine. On the nature of war and uncertainty (fog) and friction, see FM 6-0, *Mission Command: Command and Control of Army Forces*, August 2003, 1-10, http://www.dtic.mil/dticasd/sbir/sbir043/a30a.pdf; and Marine Corps Doctrine Publication (MCDP) 1, *Warfighting*, 1997, 3–8, http://www.dtic.mil/doctrine/jel/service_pubs/mcdp1.pdf.

13. MCDP 1-0, *Marine Corps Operations*, 2001, 6-27 through 6-28, http://www.dtic.mil/doctrine/jel/service_pubs/mcdp10.pdf.

14. Day, "Critical Analysis," 36.

15. Timothy Barela, "STRESSED OUT—with Frequent and Longer Combat Deployments, along with More Work and Fewer People, the Military Workforce Faces Increasing Anxieties at Home and Abroad," *Torch Magazine*, 1 November 2007, http://www.torch.aetc.af.mil/news/story.asp?id=123079305.

16. *United States Air Force: FY 2012 Budget Overview* (Washington, DC: SAF/FMB, February 2011), "The Air Force Budget, FY11 PB Request–FY12 PB Request," slide 6, http://www.saffm.hq.af.mil/shared/media/document/AFD-110214-041.pdf. Note the following figures for the FY 2011 President's Budget: $20.8B (overseas contingency operations) + $30.4B (non-blue [joint]) = $51.2B (30 percent of the $170.8B budget).

17. Ibid. Note that funding for operation and maintenance decreased from $45.8B to $45.3B from FY 2011 to FY 2012, the first drop from one fiscal year to the next since 2004 (when readiness spending decreased from $25.7B [2003] to $25.4B [2004]). For comparisons, see "Previous Year's Budget Materials," Air Force Financial Management and Comptroller, http://www.saffm.hq.af.mil/budget/.

18. Rick Atkinson, *In the Company of Soldiers: A Chronicle of Combat* (New York: Henry Holt, 2005), 152–53.

19. For specific details on joint planning, refer to Joint Publication 5-0, *Joint Operation Planning*, 11 August 2011, http://www.dtic.mil/doctrine/new_pubs/jp5_0.pdf.

20. Lt Gen Gilmary Michael Hostage III, commander, US Air Forces Central Command (address to the 380th Air Expeditionary Wing, Al Dhafra Air Base, United Arab Emirates, fall 2010).

21. Ibid.

22. For example, one could argue that the Powell Doctrine, which called for overwhelming force (a hard lesson that Gen Colin Powell learned from the Vietnam War), illustrates why Operation Desert Storm was so effective militarily against the Iraqi forces despite the later political decision to end offensive operations. Michael A. Cohen, "The Powell Doctrine's

Enduring Relevance," *World Politics Review*, 22 July 2009, 1, http://www.worldpoliticsreview.com/articles/4100/the-powell-doctrines-enduring-relevance.

23. Army general Eric Shinseki famously disagreed with Secretary of Defense Donald Rumsfeld on the size of the ground force necessary to secure victory in Operation Iraqi Freedom. Shinseki advocated a force of several hundred thousand to topple Saddam's regime and secure the peace afterwards. Rumsfeld, who wanted faster action and a smaller force, won the day and eventually hastened the general into retirement. Robert Schlesinger, "Nancy Pelosi, the Shinseki Myth and Things That Really Piss Me Off," *Huffington Post*, 1 December 2005, http://www.huffingtonpost.com/robert-schlesinger/nancy-pelosi-the-shinseki_b_11532.html.

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Air-Mindedness

The Core of Successful Air Enterprise Development

Maj Chris Wachter, USAF

> *The Air Force is the great developing power in the world today. It offers not only the hope of increased security at home, but, also, on account of its speed of locomotion, of the greatest civilizing element in the future, because the essence of civilization is rapid transportation.*
>
> —Brig Gen William "Billy" Mitchell, 1925

When Billy Mitchell, the father of American airpower, commented on the importance of the Air Force, America was at an inflection point. Barely 20 years old, the aircraft had already been put to use in a wide variety of ways. Virtually every type of military mission that airplanes could fly was tested in the first years they saw combat during World War I.[1] Even so, seven years after Mitchell led the largest formation of US military planes over Château-Thierry, he wrote a book called *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military*.[2] As much as he wanted America to have a strong military air force, he realized that the viability of that force was irrevocably tied to the economic well-being of a nation. In order to establish strong and enduring airpower, society needed to become "air-minded," acknowledging the advances in transportation, communication, commerce, and governance that the use of air could bring to the nation. In essence Mitchell understood that a strong aviation enterprise represented the keystone for the future strength of American economy and defense.

In today's environment, the United States conducts security cooperation efforts to build partnerships and partner capacity in an attempt to

"further the U.S. objective of securing a peaceful and cooperative international order."[3] To prove successful in this strategy, the US Air Force must demonstrate to partner nations how developing a strong aviation enterprise lays the foundation for the economic and security benefits that airpower can provide.

The American Airpower Narrative

In the early 1920s and 30s, American society had to make a conscious decision regarding the "aeroplane." That is, should the United States embrace "air-mindedness" and expand its forays into the advancement of aviation—the choice of many developed countries in Europe—or should America continue to rely on the strength of its Navy and its relative isolation from the rest of the world for prosperity and defense? Despite post–World War I retrenchment on military budgets and the economic depression, the promise of general aviation captured Americans' imagination. Our aviation enterprise blossomed as inspired by Mitchell's activism.

Mitchell noted that "those interested in the future of the country, not only from a national defense standpoint but from a civil, commercial, and economic one as well, should study this matter [the organization of aviation in a country] carefully, because airpower has not only come to stay but is, and will be, a dominating factor in the world's development."[4] He intended that the term *airpower* be used in reference to defense *and* civil aviation, a marked difference from its present usage, which refers solely to military force in and from the air. Mitchell had a much simpler concept of airpower: "The ability to do something in or through the air."[5] He considered it necessary for a nation to possess airpower if it wished to advance as a civilization. Although Mitchell certainly held that airpower would reach its pinnacle through bombers and pursuit aircraft capable of defending the United States, he also well understood the importance of a strong, nationwide infrastructure and a populace willing to support the country's aviation enterprise.

In much of his early writings, Mitchell described the possible advantages a strong aviation backbone could provide to society. He focused on airpower's unique characteristics—its circumvention of geography and unmatched speed—to link it directly to improvements in communication, commerce, and governance. Mitchell saw airpower not only as revolutionary but also as requisite to the advancement of our civilization in the nascent globalized environment.

Mitchell may indeed have merited the often-applied label "the prophet of airpower" because he had to convince the US population of the advantages of a still-developing enterprise. But the fact remains that our nation has adopted a sense of air-mindedness and that in the past 90 years, we have enjoyed more security, stability, and success both inside and outside our borders, thanks to airpower. Today we easily fly cross-country to visit friends and relatives, we order goods delivered the next day to our door, and our elected officials conduct business in our nation's capital and respond to their constituents' needs at home, all thanks to aviation. In short we travel swiftly, communicate, and conduct business, thanks to our robust, integrated, and reliable aviation enterprise. Mitchell foresaw these benefits and tied them directly to advantages in national defense as well:

> We may confidently expect that, when a system of airdromes is established through the country, and proper rules for the regulation of aircraft have been prescribed by law and are well administered, which will guarantee to the public safe transit through the air; when we have developed suitable types of aircraft essentially for commercial purposes, we shall see a greater development of commercial aviation. . . . We must remember that, as we develop our commercial power in the air, just so much more do we develop our means of national defense.[6]

We need a bottom-up approach to creating the capacity for developing partner nations to use aviation for these purposes long before we can reasonably expect those countries to employ higher-cost, higher-technology elements of combat airpower to preserve their own national security.

Aviation Enterprise Development

The forthcoming Air Force air-advising operating concept defines "aviation enterprise" as "the sum total of all air domain resources, processes, and culture, including personnel, equipment, infrastructure, operations, sustainment, and airmindedness."[7] Despite the references to aviation enterprise development (AED) as a concept, we might do better to consider it a holistic approach to discussing and institutionalizing airpower in a particular nation-state. As such, AED offers a strategic narrative for how the Air Force, joint community, and other interagency players integrate to assist partner nations in building capable, enduring aviation capability and capacity.

The impetus for this AED narrative has firm roots in US strategic guidance. One of the primary US national security interests lies in building partner capacity. The national security strategy of 2010 highlights the fact that foreign instabilities can have global effects which may directly threaten the American people: "To advance our common security, we must address the underlying political and economic deficits that foster instability, enable radicalization and extremism, and ultimately undermine the ability of governments to manage threats within their borders and to be our partners in addressing common challenges."[8] Similarly, according to the national defense strategy of 2008, "The most important military component of the struggle against violent extremists is not the fighting we do ourselves, but how well we help prepare our partners to defend and govern themselves."[9]

When it comes to airpower, however, transferring our advanced aviation capability to developing nations does not come easily. Taking a page from Mitchell's model, the Air Force has identified the need to foster the aviation enterprise in these developing nations prior to integrating high-end capabilities. In 2009 Gen Norton Schwartz, the Air Force chief of staff, chartered an irregular warfare (IW) "tiger team" that assessed the service's current capabilities against the backdrop of the threat environment. Team members adopted the fundamental operating premise that "the security, stability, and economic develop-

ment of a nation in the early 21st century are inextricably linked to its aviation resource capacity and capability."[10] This statement does not differ substantially from the one Billy Mitchell made about the development of US aviation almost 90 years ago: "As transportation is the essence of civilization, aviation furnishes the quickest and most expeditious means of communication that the world has ever known. . . . The future of our nation is indissolubly bound up in the development of air power."[11] The tiger team found that "countries employing high-end aviation largely represent the developed or rapidly developing world. They have strong local economies, and are adequately performing the primary role of government, which is to provide for the needs of the people."[12]

However, we cannot force those countries that do not employ high-end aviation into doing so. The Air Force should not encourage aviation development solely in terms of its own capabilities or those of our country's near peers. Instead, the most comprehensive, sustainable approach for our partners involves helping them develop their own attitude of air-mindedness. This enables them to reap the tangible benefits of aviation not only militarily but also in a way that legitimizes their central governments, assures their sovereignty, and encourages improvement in their economy, technology, education, and communications. Not without risk, this course of action demands significant buy-in from the relevant populations. Partner nations must appear to use air assets to benefit economic systems that support their people, an objective that will require significant effort from the Air Force: we must be prepared to support other US government agencies in their efforts to assist partner nations in developing their airpower capability and capacity. Although not always directly linked to foreign military air forces, such development originates in US national policy and security. A partner nation should *not* begin to create air-mindedness by acquiring combat platforms; rather, it should start with aviation infrastructure and education. Air-mindedness has the initial goal of expanding communication—an important result because it complies with much of what US strategy on IW hopes to accomplish.

Alignment of Aviation Enterprise Development with US Irregular Warfare Strategy

The Department of Defense defines IW as "a violent struggle among state and non-state actors for legitimacy and influence over the relevant population(s). Irregular warfare favors indirect and asymmetric approaches, though it may employ the full range of military and other capacities, in order to erode an adversary's power, influence, and will."[13] Struggles to influence popular will show that information, communication, and responsiveness repeatedly prove vital to success. A government bolstered by a strong aviation enterprise is better equipped to inform, support, and secure its population. In the twenty-first century, helping partner nations build an air-minded society is one of the best ways to spread and ensure good governance in their outlying areas.

US policy on IW usually consists of five IW activities—counterinsurgency, counterterrorism, foreign internal defense, stability operations, and unconventional warfare—but many other relevant IW activities other than those five exist.[14] A common approach, which will produce greater efficiencies in a coherent and effective strategy for employing such activities, must inform the Air Force capabilities and capacities required to work with, through, and by our partner nations.[15]

AED offers this common approach for Airmen to advocate with policy makers regarding the role that US aviation resources play in assisting partner nations, including those developing countries that typically do not receive traditional security assistance. Just as Mitchell argued for a system of airdromes, regulation of aircraft, and properly administered public safety regulations, so can the Air Force offer our nation's decision makers and component commanders AED capabilities to help a partner nation build its aviation infrastructure and increase its capacity for transportation, communication, and commerce in previously unattainable ways and in unreachable areas. Doing so, in turn, can allow for improved governance and supply capability to support theater se-

curity via air. Consequently, the tangible benefits to citizens will help create technological advancement as their air-mindedness grows. Air-minded societies tend to seek progress and freedom; additionally, they are more open and more likely to foster educational opportunities as well as scientific advancements. Air-mindedness propels a society towards a common core of communication and language, allowing it to contribute to greater market access and unrestricted logistical flow.

Air Force–Unique Capabilities for Aviation Enterprise Development and Beyond

The Air Force has made great strides in recent years to increase its ability to enable AED. Robust demand exists for the capabilities encompassed by the AED concept. The service has organized, trained, and equipped both special operations forces and general-purpose forces to meet these challenges, primarily through our security cooperation efforts—and it will continue to do so. Organizations such as the Air Advisor Academy increase the service's capacity to expertly assess, train, educate, advise, and assist partner nations. Furthermore, units such as Air Force Special Operations Command's 6th Special Operations Squadron and Air Mobility Command's mobility support advisory squadrons employ teams of expeditionary special operators and air advisors who build relationships with partner air forces and help them enhance their aviation capacity to better respond to their nation's needs.

Expanding globalization and complex, worldwide supply chains have prompted the emergence of an imperative: the Air Force must enlarge its AED capabilities and institutionalize the AED approach throughout its general-purpose forces. Through Air Force–led AED and adoption of an attitude of air-mindedness, our partners and their citizens can realize benefits in transportation, communication, and commerce via the air, even before successful transition to a military application of airpower occurs. Only by means of a strong foundation of developed avia-

tion enterprise can we expect successful, sustainable security within our partner nations.

Not every partner nation may want a changed mind-set towards aviation, and there are limitations to our capability to encourage partners to adopt air-mindedness. Some partner nations will see aviation—military aircraft in particular—only as a means to increase their prestige. However, given the current austere budget environment, we must smartly apply any expansion of AED capabilities to partners willing to establish a strong national core of aviation, prior to responding to any demand for high-end military aviation equipment. Referring to budget constraints, General Schwartz emphasized that "we would rather be a smaller, capable Air Force than one that is larger and not ready. . . . That's the strategy we're going to follow."[16] In line with this strategy, our Air Force should invest intelligently in AED for a small number of partner nations—those we can reasonably anticipate will embrace and incorporate air-mindedness. To do so, we must conduct a thorough study and evaluation of potential partners for development rather than offer blanket support for any nation that asks for funds.

In 1921 Billy Mitchell, a colonel at that time, wrote, "While [aviation] is still expensive and somewhat dangerous, this is being overcome every day; and it is increasingly evident that the future national defense, future predominance in commerce, and the future economical development of a country lie in the air."[17] In 2011 General Schwartz directed that the Air Force "focus on cultivating new partnerships that enhance our friends' aviation enterprises and their ability to provide security."[18] We can best encourage security cooperation by offering AED, advocacy, and training to enhance the ability of willing partner nations to control the air, space, and cyberspace domains. An attitude of air-mindedness led to civilization's advancement in the past and will lead to stability and good governance in the future. ✪

Notes

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Partnership between the US and Iraqi Air Forces

One Airman's Perspective

Lt Col Andy Hamann, USAF

The US military has engaged in combat and training operations in Iraq for more than two decades. Most recently, our participation focused on building Iraq's capacity as a capable and credible military force—in other words, we formed a partnership. However, as of New Year's Day 2012, the US military will have assumed a very different posture in Iraq. In accordance with the security agreement signed by President George W. Bush and Prime Minster Nouri al-Maliki in 2008, virtually all US military members should have left Iraqi soil, as the United States makes good on its pledge to depart by 31 December 2011. Thus, as the fledgling Iraqi democracy continues to grow, so does the Al Quwwa al Jawwiya al Iraqiya (Iraqi air force [IqAF]), though now without direct assistance from the US Air Force (USAF). This article discusses some of the USAF's recent partnerships with the IqAF, addresses some challenges that the latter now faces, and speculates about the relationship between our air forces in the future.

The Partnership

I redeployed from Iraq in November 2011, having had the privilege of commanding the 52d Expeditionary Flying Training Squadron (the USAF's only such squadron), which included instructor pilots who trained IqAF pilots in Iraqi T-6s—the same aircraft the USAF uses for pilot training. The 52d was part of both the 321st Air Expeditionary Wing and the Iraq Training and Advisory Mission (ITAM), designed to

> advise, train, assist and equip the [IqAF] and Army Aviation Command in developing foundational and enduring capabilities to maintain internal security and defend against external threats; to provide airfield operations in support of [United States Forces–Iraq]; to transition designated missions and functions to other US government agencies; and to reposture the force [in accordance with] the US-Iraq Security Agreement, in order to strengthen the US-Iraq partnership and promote regional stability.[1]

Specifically, the 52d sought "to advise, train, and assist in building an [IqAF] with foundational and enduring capabilities in flying training while establishing a continuing relationship between the United States and Iraqi air forces."[2] Simply stated, our mission was to train IqAF pilots to fly and become instructor pilots.[3] Before the 52d rolled up our flag to leave Iraq in late October, we held a graduation at which 11 IqAF airmen formally received their instructor pilot rating. We also completed an operational handover to our counterpart, IqAF Squadron 203, which currently carries out both a primary pilot training and an instructor pilot mission. This fully organic IqAF operational mission in flying training is modeled after that of a typical flying training squadron in Air Education and Training Command (AETC). Despite the small number of IqAF instructor pilots at present, this young air force's assumption of such a mission is quite an accomplishment, of which it is rightfully proud.

Regardless of Squadron 203's operational autonomy, it has virtually no maintenance capability, primarily due to underdeveloped English-language and technical-training programs for its maintainers. Thus, for the foreseeable future, the IqAF will continue to rely on US contractors to complete basic and scheduled maintenance as well as daily flight-line maintenance for the T-6. Most likely this dependence will continue until the IqAF formalizes and then makes good on a strategic vision that includes addressing goals for aircraft maintenance and sustainment—something diligently advocated by USAF advisers under the ITAM organization.

In support of the US national security strategy and in accordance with the previously mentioned security agreement, USAF Airmen—as part of the ITAM—advised, trained, and assisted the IqAF at the request of the elected government of Iraq and at the direction of the US

government. Both Iraqi and US political and military leaders agreed on the mutual benefits and necessity of extending the training and advising partnerships into 2012, albeit involving much smaller numbers of US personnel. Most of them thought that our two governments would reach a similar security agreement that would allow a US military presence in Iraq—one that would continue priority training missions. Because this did not occur, however, US troops exited Iraq as originally planned in the 2008 security agreement framework. The small team of US forces that remains in Iraq is part of the US Embassy's mission in the Office of Security Cooperation, an arrangement similar to those in other US Embassy missions throughout the world.

As political and diplomatic ties between the United States and Iraq take root, military strategists and planners continue to examine ways of forging military relationships for the coming years. Leaders in both countries are concerned about Iraq's evolving democracy, especially in light of sectarian and ethnic divisions as well as the growing influence of Iran. Such issues raise questions about the future of USAF and IqAF relations, the IqAF's progress in its rebuilding effort, and that air force's capability 10 years from now. A brief look at the IqAF during the past two decades reveals not only its ability to field a credible air force but also the possibility that such an ability could deteriorate over time.

The Iraqi Air Force over the Last 20 Years

On the verge of the Gulf War of 1991, the IqAF was large and confident. Various reports estimated its readiness and air order of battle at between 700 and 950 fixed-wing assets. Undoubtedly, the IqAF's 40,000 airmen, 24 main operating bases throughout the country, and extensive infrastructure built to sustain conventional attacks gave it a prominent position among the region's air powers.[4] Clearly, Iraq took pride in its air force, making it a national priority. Furthermore, the country's leaders were familiar with running and leading an air force, and the government valued a powerful air defense.[5]

During the first Gulf War, the coalition inflicted heavy losses on the outmatched IqAF but did not decimate it—witness the fact that Saddam Hussein continued to use his air components in bombing raids against his people in southern and northern Iraq. Appalled, the world community took action in the form of United Nations Security Council decrees that established no-fly zones to restrict the presence of Iraqi military aircraft in areas south and north of Baghdad. The effects of the war, the 12-year enforcement of the no-fly zones, and economic sanctions led to the IqAF's slow demise. By 2003, when the United States invaded Iraq during Operation Iraqi Freedom, the devastated IqAF did not launch a single fighter aircraft in the nation's defense. In 2004, as a new Iraqi democracy began to take shape, the IqAF also started the process of rebuilding.[6]

Rebuilding the Iraqi Air Force

Initially, the IqAF relied on the assistance of the USAF. Our air forces have collaborated on a number of matters over the past eight years—take, for example, the ITAM organization, which included hundreds of USAF Airmen serving in advisory roles, charged with training and assisting the IqAF at its bases throughout Iraq. The advisory efforts emphasized transforming the IqAF into a credible twenty-first-century air force by strengthening it in several traditional roles, such as command and control; intelligence, surveillance, and reconnaissance; airlift; ground attack; combat support; and the development of airmen. USAF advisers advocated formulation of long-term strategic visions, all the while building strong relationships between our airmen. At present the IqAF operates a small fleet of transport, reconnaissance, close air support, and training aircraft. As it continues to rebuild, the IqAF has made a priority of investing in air defense capabilities and adding light attack aircraft. To further assist Iraq in providing for its own security, the Obama administration approved the sale of F-16 aircraft to that country, and in September 2011 the government of Iraq spent more than $1.5 billion to purchase the combat-proven F-16 advanced air defense fighter, as have 25 other nations.[7] This acquisition and others will facilitate interoperability

not only with the USAF but also with many NATO and allied partners. Although a significant step towards renewing Iraq's air defense, the decision to field a new weapon system such as the F-16 carries with it many challenges. These include ensuring the proficiency of Iraqi personnel in English, offering follow-on technical training for IqAF pilots and maintenance crews, making decisions on weapons storage, executing bilateral government agreements for the release of sensitive information, investing for the long term in modernizing and building base infrastructure, and developing career paths. As a trusted partner, the USAF has pledged its assistance to the IqAF in meeting these challenges, as have US military members associated with the US Embassy's mission. Failure to renew the security agreement, however, has prevented implementation of further military assistance outside the embassy's framework at present.

Future Relationship

At this important time in the rebuilding of the IqAF, proper investment by the Iraqi government in its air force and airmen is critical. Despite historic achievements between the US and Iraqi militaries during the last several years, several concerns remained when we withdrew our forces in December, and the Iraqi government risks repeating mistakes of the past if it fails to devote adequate resources to address the needs of the IqAF. As tens of thousands of US troops left Iraq over the last quarter of 2011, specific questions still loomed regarding how and if that nation could operate its own air force. For example (and almost unbelievably), despite its position as one of the world's largest oil-producing countries and despite years of US advising, questions about military priorities remained unanswered: Will the IqAF be able to refuel its own aircraft? Can the Iraqi military offer adequate force protection and security for its bases? Can the IqAF provide airfield management services at its bases as they return to Iraqi control after eight years under US direction? Can the IqAF ensure simple power generation to keep facilities operating? Will the IqAF be able to develop and retain its airmen? Answers to these questions must come from the government of Iraq and the IqAF, but

continued advice and training from the USAF could have benefited Iraq in arriving at those solutions. Such ongoing assistance has prompted debate on Capitol Hill since the complete withdrawal of US military personnel devoted to training and assisting may have been more a political rather than a sound strategic decision.[8] Only time will tell if we left too early; nevertheless, even without a renewed security agreement, the USAF can continue to stand alongside the IqAF.

Gen Norton Schwartz, the USAF chief of staff, has made a priority of building air-force-to-air-force partnerships and assisting in building partnership capacity, highlighting the latter as one of the USAF's core functions.[9] The USAF has helped the IqAF build capacity and address the concerns mentioned above by hosting visits by its senior leaders to the United States. For example, in November 2011, I accompanied five IqAF officers to a T-6 users conference in San Antonio, Texas, where representatives from countries that fly this aircraft, as well as members of the USAF and US Navy, not only attended briefings and received information on the health of the T-6 fleet but also had opportunities to share lessons learned and take part in some of the processes involving foreign military sales. Additionally, the IqAF delegation visited the Defense Language Institute as well as several flying and training organizations at Randolph AFB, Texas, capably hosted by the 12th Flying Training Wing, the 37th Training Wing, and AETC's International Affairs Directorate. These visits showcased the professionalism of the USAF and furthered the building of relationships between our air forces by permitting the IqAF delegation to visit, ask questions, and see firsthand where many of their members will receive training in the United States as a result of future partnerships such as the one involving Iraq's purchase of F-16s. The delegation's senior officer commented that he was impressed by the openness and transparency of both the T-6 manufacturer and the USAF in discussing problems, mitigation plans, and the overall state of the aircraft program.

Before we stopped flying in Iraq and officially handed the reins of the squadron to the IqAF, we had the privilege of leading several fourships of its aircraft as part of the upgrade process for IqAF instructors—

some of that air force's brightest young pilots. I expect that these confident, capable individuals will become good coalition airmen-partners, flying missions in the region and around the globe as well as performing coalition exercises, humanitarian assistance / peacekeeping operations, and real-world contingency operations.

In a large sense, our future partnership with the IqAF remains unknown and in the hands of the two nations' political leaders. However, we do know that the USAF stands ready to continue its current partnership with the IqAF and to maintain the airmen-to-airmen relationships formed over the last several years. Hopefully, as our diplomatic relationships normalize along more traditional lines, I anticipate that our air forces' engagement, training, and partnerships will do so as well. Indeed, General Schwartz noted that "oftentimes, the military-to-military rapport is the centerpiece of the diplomatic relationship, including times when political winds shift, and the nation-to-nation connection cools. The more that our military-to-military connections remain vibrant, the stronger our strategic relationships can become."[10] I hope that the government of Iraq recognizes the importance of continuing a partnership with the US military as well as with regional allies and that senior IqAF leaders formulate a strategic vision which will lead their airmen into the next decade. ✪

Notes

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Support the Combatant Commander, Develop the Force, or Roll the Dice?

What the Air Force's Deployment Tasking Process Doesn't Do

Lt Col Kevin Parker, USAF

Over the last 10 years, Airmen have routinely waked up in a foreign land wondering, "Why am I here?" One aspect of this question relates to the Air Force's current personnel deployment system. Most Airmen are well versed in the timing of their deployment cycle, but the method of selecting an individual for a specific deployment tasking remains a mystery. In some ways, the process is more akin to rolling dice than following a deliberate procedure. In truth, understanding the system may not offer much comfort.

The Air Force's current personnel deployment mechanism ignores two major discriminators in assigning an Airman to a tasking. First, the system rarely considers any unique qualifications an individual possesses. Second, it fails to take into account the effect of a tasking on an Airman's professional development. Thus the Air Force deprives itself of any special expertise that its personnel could bring to the current fight and misses an opportunity to prepare them for the future, largely due to the timing of the steps in the process and an overemphasis on minimum requirements.

Recently, the Air Force announced an initiative to convert its air and space expeditionary force (AEF) deployment system to a new construct known as AEF Next, which "will focus on teaming, at the unit [and] installation level" as well as put "commander[s] and immediate supervisors back into the deployment decision process."[1] Furthermore,

this initiative creates an opportunity to improve the areas discussed in this article, which primarily apply to joint expeditionary taskings (JET) and individual augmentees (IA)—the two of them making up 17 percent of all Airmen tasked in AEF 9/10. This seemingly small percentage nevertheless accounts for more than 5,000 Airmen.[2] Even if AEF Next eliminates most single-person and small-team unit type codes (UTC) for the preponderance of the force, JET and IA taskings will still require a methodology and system for filling.

The Problem within the Process

Before analyzing the system, one must have a rudimentary understanding of it, specifically from a squadron-level perspective. A squadron has the responsibility to fill a tasking for a UTC that comes to a base from the major command (MAJCOM). For simplicity's sake, let us assume that the UTC is for one person. The squadron must produce a name to fill the tasking within a few days, having only the location, in-place date, duration, Air Force specialty code (AFSC) required, grade required, and line remarks to help make the decision.[3] Among other administrative information, line remarks, if any, may express a desired specialty or experience in very brief terms. For the squadron, if only one available Airman meets the requirements, then the choice is easy. If two or more do, then squadron commanders apply their own heuristic. Several factors usually play into this decision, such as dwell time, home-station duties, and timing of significant events (weddings, childbirth, attendance at professional military education schools, etc.). Commanders have neither sufficient time allowed nor information to consider Airmen's qualifications or the expected duties of the position. Consequently, minimum requirements become the driving force rather than consideration of which individual could have the most productive effect or would best benefit from the experience. Thus, to fill each tasking that comes their way, squadron commanders must utilize limited information to make the best decision possible, doing so in isolation from other decisions. As deployment taskings trickle to the

squadron throughout the cycle, the sequence and timing of the process drive a large number of single, isolated personnel decisions, leaving no chance of optimizing the system.

A good start to rectifying such a system would involve addressing two clichés: (1) we should all be "plug-and-play" Airmen, and (2) if the minimum wasn't good enough, it wouldn't be the minimum. Despite the truth of these statements, they do not compare to the effects that a better system could produce. Certainly, all Airmen should be plug-and-play to some extent, capable of performing duties in any organization commensurate with their grade, AFSC, and skill level. Further, the gaining command establishes the minimum requirements for a tasking, based on what it considers necessary for the job. Granted, these two facts have validity but should serve only as a baseline.

How the Air Force Can Improve

We know that other organizations seek to do better. Can the Air Force do so as well? For example, professional football teams that need a new quarterback do not approach the draft each year by settling for just any passer from a Division I college. Instead, they want the best—one who will contribute the most to their chances of winning. Similarly, when shopping for a new car, few buyers have in mind only minimum requirements for the number of seats, trunk space, and gas mileage; rather, they want the best vehicle they can afford. A plug-and-play approach that emphasizes merely the basics creates an environment in which nothing more than "clearing the bar" defines success. A recent criticism of the Army personnel system claimed it "treats each employee as an interchangeable commodity rather than as a unique individual with skills that can be optimized."[4] The same holds true of the Air Force's deployment system. The current approach well suits the beginning of a conflict, when a number of manning requirements need filling in short order. However, when operations span multiple years, a more refined system would better support the combatant commander (COCOM).

One Approach: Leveraging Expertise

An improved approach would consider the value of expertise in professional experience, regional knowledge, and language skills. Professional experience builds over time through varying assignments and duties. Take, for instance, Gen Curtis LeMay, whose operational proficiency in World War II, coupled with his time at Headquarters Materiel Command and his position as deputy chief of staff for research and development, made him uniquely suited to transform Strategic Air Command into a leading force in the Cold War.[5] Today's combat-seasoned Airmen have the most deployed experience since the Vietnam War, but the deployment system allows no mechanism for capitalizing on it. An officer who served on a provincial reconstruction team (PRT) in a previous deployment would be ideal for a joint headquarters staff or embassy office with oversight of several PRTs. Such an officer would have firsthand knowledge of challenges in the field. His or her successes, failures, and observations would prove useful compared to what another officer without the same professional experience might offer—although both meet the minimum requirements. Conversely, an officer with experience in a joint headquarters would have a better grasp of command priorities and processes, which would be helpful to a PRT in the field.

Furthermore, the present system does not make use of Airmen's regional knowledge—their understanding of the culture in an operating environment, something that the Air Force now includes in its professional military education curriculum and promotes in its *Air Force Culture, Region & Language Flight Plan*.[6] Individuals who have deployed to a particular region or country have knowledge of local customs, mannerisms, and social habits beyond that found in textbooks. Clearly, sending them back to that region or country would prove beneficial to the service. Language skills offer the same advantage. Under the current system, someone who speaks Dari (one of the official languages of Afghanistan) would have little opportunity to use it if he or she were the base's only available Airman who met the

minimum requirements for a tasking to Iraq. At the same time, despite the availability of an Arabic-speaking Airman at another base within the same MAJCOM, today's system would never recognize the possibility of a swap.

Another Approach: Developing Airmen

So far, these observations lead toward a recommendation to redeploy Airmen to former duties and locations. Doing so, however, would ignore the importance of force development. As commander of Strategic Air Command, General LeMay could draw on his broad experience because, throughout his career, he had diverse assignments that broadened his perspective. Adm Mike Mullen, formerly the chairman of the Joint Chiefs of Staff, sees the United States at "a strategic inflection point" that forces the military to expand its focus beyond Iraq and Afghanistan.[7] Furthermore, according to Secretary of the Air Force Michael Donley, "Over the past decade, the Air Force has substantially reshaped itself to meet the immediate needs of today's conflicts and position itself for the future."[8] Without question, the Air Force must win today's fight and prepare for the next conflict. Sending Airmen back to the same jobs at the same deployed locations does not satisfy the latter imperative. In practical terms, lessons learned from PRT experience in Iraq may or may not apply to a PRT in Afghanistan; however, a fresh perspective with new ideas based on a broad background has value. Additionally, someone who has served on a PRT in Iraq and Afghanistan should be considered a qualified expert in postconflict or transconflict reconstruction for future operations planning or policy development. A mix of deployed field, headquarters, Air Force, and joint assignments would also supply a broad experience base to Airmen.

The system now in place does not let commanders deliberately develop their Airmen through deployments. Instead, as described above, it demands a name within a few days for a single tasking, without regard for later taskings within the same cycle or those that

flow to other bases. Commanders know the special skills their Airmen possess. They also know what types of deployments would better develop them for the long war or the next fight. Regardless, by the time commanders can act, they either assign a tasking to the only Airman meeting the minimum requirements or choose from a very small pool of qualified, available Airmen. Even if commanders could select from among several individuals, the minimal information available on the duties of a tasking offers little substantive criteria with which to make a decision.

With regard to force development alone, one might easily conclude that the Air Force should never return an Airman to the same deployed location. Rather, the service would do better to develop its Airmen as much as possible by sending them to a variety of deployments. Although this development paradigm in its purest form may also prove too extreme, it merits consideration.

Finding a Solution

Two equal yet contrasting viewpoints apply to this issue. One suggests that the Air Force should send Airmen back to the same place as much as possible to capitalize on their experience and skills in the current fight. The other holds that the service should deliberately broaden its Airmen as much as possible by varying their deployment taskings. Perhaps former secretary of defense Robert Gates has the best answer: "The defining principle driving our strategy is balance."[9] This article does not attempt to choose sides or favor one view over the other. Instead, it recognizes the merits of both arguments and calls attention to the fact that the current Air Force system for deployment taskings permits neither view, more closely resembling a roll of the dice. The article does, however, make two recommendations, realizing that any change in methodology would need to come from the Air Force corporate level to ensure equal implementation across the force.

Recommendation No. 1: Require More Information about Individual Taskings

The lack of information on individual taskings hobbles commanders' ability to make informed decisions. Location, in-place date, duration, AFSC, grade, and limited line remarks are insufficient to leverage any expertise or deliberately develop Airmen. Additional functional oversight and direct coordination with downrange staffs and units would help build and consolidate available, current information on units and individual positions. Establishing and maintaining an expanded scheme of codes to denote desired and available skill sets could facilitate a more automated approach. Admittedly, pulling additional details may necessitate changes to the request-for-forces process.

Recommendation No. 2: Batching

To optimize the system, the Air Force must remove some of the process-driven structural impediments that force isolated decisions in response to single taskings to single bases. If the succession of taskings were held at base level and not immediately filled, then commanders could choose the best Airman for each tasking. Batching several taskings into decision groups would provide better matches. MAJCOMs could implement similar batching processes to optimize a larger pool.

Batching, however, involves two major issues. First, optimizing the system would call for additional management actions. For example, batching taskings at the MAJCOM level would necessitate a sourcing conference to consider the taskings and available names. MAJCOM functional area managers are best suited to facilitate sourcing conferences in person or via video teleconferencing. The optimization payoff compared to additional management logically leads toward setting a threshold to determine when batching makes sense (i.e., first deployments for second lieutenants and airmen first class may not warrant batching). Second, Airmen who eventually receive taskings would lose preparation time. Any batching would reduce the advance notice Airmen now have to put their professional and personal affairs in order.

Indeed, very short notice taskings would further hinder preparation time, rendering batching unfeasible. However, the Air Force Personnel Center's metrics show that, on average, Airmen receive notification more than 100 days before their first movement.[10] Certainly, Airmen need time to prepare themselves and their families for deployment, but the Air Force has given most of them a sense of predictability when determining their vulnerability windows. With these facts in mind, sacrificing some of the aforementioned 100-plus days seems worthwhile, given the potential benefits of batching.

Conclusion

In contemplating improvements to its deployment system, Air Force leaders must carefully consider several competing interests. During a discussion of AEF Next, Gen Norton Schwartz, the Air Force chief of staff, mentioned a few of them: synchronizing deployment and assignment cycles, standardizing the presentation of forces, and facilitating the deployment of Airmen and their leadership as a team.[11] This article has highlighted a few others: improving support to the COCOMs and enhancing the quality force for the future. As we refine the service's deployment tasking system, we must seek the best balance, continually attempting to maximize the Air Force's contribution to the COCOM in order to win the current war. We must also deliberately develop our force to prepare for the long war and the next fight. These interests apply to JET and IA taskings as well as the entire force. We cannot leave the fate of either of these priorities to chance. This article should serve as a call to action for including the concepts presented here in any system improvements that deal with deploying a specific Airman to a specific tasking. Anything less does nothing more than meet the minimum requirements and develop the force by rolling the dice. ✪

Notes

1. Mitch Gettle, "Air Force Refines Force Presentation, Generation," Air Force News Service, 16 November 2011, http://www.af.mil/news/story.asp?id=123280212.

2. The Air Force filled 5,239 JET and IA taskings among the total of 30,845 in AEF 9/10, December 2010–May 2011. "Metrics Review: AFPC Directorates," Headquarters Air Force Personnel Center, 15 November 2011, slides 14–15, https://aef.afpc.randolph.af.mil/reference/Nov_2011_AEF_Metrics.pptx.

3. A survey of three installation deployment plans showed a range of three to seven days for squadron-level commanders to return a name to the installation deployment officer.

4. Tim Kane, "Why Our Best Officers Are Leaving," *Atlantic* 307, no. 1 (January/February 2011): 84.

5. "General Curtis Emerson LeMay," US Air Force, accessed 1 May 2011, http://www.af.mil/information/bios/bios.ap?bioID=6178.

6. Department of the Air Force, *Air Force Culture, Region & Language Flight Plan* (Washington, DC: Department of the Air Force, May 2009), http://cultureandsecurity.yolasite.com/resources/flightplan%20Gen%20Schwarz%205-09.pdf.

7. Thom Shanker, "Joint Chiefs Chairman Says Military Must Focus beyond Iraq and Afghanistan," *New York Times*, 8 February 2011, http://atwar.blogs.nytimes.com/2011/02/08/joint-chiefs-chairman-says-military-must-focus-beyond-iraq-and-afghanistan/.

8. Hon. Michael Donley, secretary of the Air Force, "A Strategy Focused on Balance" (address, National Security Forum, Maxwell AFB, AL, 17 May 2011), http://www.af.mil/information/speeches/speech.asp?id=649.

9. Robert M. Gates, "The National Defense Strategy: Striking the Right Balance," *Joint Force Quarterly* 52 (1st Quarter 2009): 2, http://www.ndu.edu/press/lib/images/jfq-52/1.pdf.

10. On average, 105 days passed between notification and first movement for AEF 9/10, December 2010–May 2011. For JET and IA taskings only, the average was 116 days. "Metrics Review: AFPC Directorates," slides 14–15.

11. Gen Norton A. Schwartz, chief of staff, US Air Force (address, Air Force Association Air and Space Conference and Technology Exposition, National Harbor, MD, 20 September 2011), https://newafpims.afnews.af.mil/shared/media/document/AFD-110921-014.pdf.

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The Strategic Striking Force*

Lt. Col. Frank R. Pancake

IN THE three years that have elapsed since the end of World War II several significant facts have been brought home to the American people. First, the victorious conclusion of a war does not insure an acceptable and durable peace. Second, the United Nations is still far from maturity as an instrument for outlawing war and preserving the security of the world from aggression. Third, the United States has inherited from Great Britain the role of leader among the democratic nations of the earth.

Following a period of gradual disillusionment, during which time we began to understand these and other truths, we have come to the realization that if we are to have peace in our time it will have to be a Pax Americana. There has been further awakening to the fact that the instrument of Pax Americana must be Air Power, just as the instrument of Pax Britannica a century ago was sea power. We have come to understand that we will not be heard at the conference table, we will not be heeded in the halls of the United Nations, we will not acquire and maintain the respect of aggressor nations, and we will not be able to insure a reasonable degree of security unless we have a striking force of highly trained air units capable of immediately attacking vital targets in an enemy's homeland.

Thus, the main burden of preserving the security of the United States rests squarely on the strategic striking force of our air arm. It behooves us then to carefully study the requirements for this strategic striking force, so we may be certain that it is at all times capable of performing its mission with absolute precision and success. Its

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failure could well bring disaster and ruin. What, then, are the requirements, the fundamental necessities, which must be provided if the operations of the strategic air force are to be successful?

The First Requirement: *Complete knowledge of the economic, industrial, military, and political targets in potential enemy states, including the vital elements in their war making machinery.* General H. H. Arnold, in his "Third Report of the Commanding General of the Army Air Forces to the Secretary of War," 12 November 1945, expressed this requirement as follows: "Through a worldwide intelligence system, maintain constantly up-to-date information regarding all phases of the national life, economy, and philosophy of potential enemy states." And further: "Maintain an analysis, continuously being revised to meet new conditions, to show the importance of all industries and other activities of potential enemies and to evaluate the relative importance of each of the units in each activity." In short, we must know the weaknesses and the bottlenecks in every nation's economic system before we can hope to direct operations against those weaknesses in time of war.

In order to insure that this information will be available in the minutest detail when hostilities threaten, we must have an intelligence system second to none, a system which will keep our Air Force constantly abreast of developments in all other countries of the world. Analysis of all information must be continuous to insure that we are fully cognizant of just what the vital elements are, where the components are located, and what the physical layout of each component is.

The machinery for obtaining this information—The Central Intelligence Agency—is now in being. This agency has been established as the organization which is responsible for collection and

coordination of all intelligence information affecting the national security. It analyzes and disseminates this information to the using agencies, one of the most important of which is the United States Air Force. The Air Force in turn relays pertinent information to the Strategic Air Command and its striking units. Thus, although the intelligence organization exists, there remains the tremendous job of making it function properly. We cannot afford to wait until hostilities have begun to get this machinery operating effectively. We made that error in World War II and had we not been able to call upon the British Intelligence Service and those of other allied nations, we could not have launched the strategic air war against Germany in the summer of 1942. We would not have known what to bomb. It took several years after Pearl Harbor to assemble the necessary information on Japan. We know that such negligence in the present years of peace will be fatal in any future war.

The Second Requirement: *Strategic Air Power in being, capable of launching destructive attacks immediately upon commencement of hostilities.* In addition to knowing what and where to strike, it follows that we must have the weapons with which to strike. In the next war, blue prints alone will not deliver heavy blows. Time will not be permitted us to tool up. The United States will stand or fall on her ability to wage decisive war in the first days and weeks after the initial onslaught.

This point is stated quite emphatically by General Carl Spaatz in "Strategic Air Power: Fulfillment of a Concept," *Foreign Affairs,* April 1946. In speaking of the lessons learned from our experience with strategic Air Power in World War II, he says:

> One lesson is that the time we were given to make our preparations was an absolutely essential factor in our final success. We had warn-

> ing in 1939, and by 1941 had made notable progress. Following Pearl Harbor, with the United States actually at war, we had two and a half years more to build the striking force necessary to fulfill the strategic concept. The total time allowed us to prepare for the final all-out assault was four and a half years. It is unthinkable that we should ever again be granted such grace. . . . Had our peacetime air force been maintained during the 1930's at the level it attained even as early as the date of Pearl Harbor, and had it in consequence been prepared to act in the first year of war on the level it attained in mid-1942, then the tremendous and costly effort of the next two and a half years would have been enormously lessened. We would have struck at the heart of the enemy much earlier. It is even conceivable that the fact of an American air force in being, with full potential in 1939, might have prevented the outbreak of war. In the next war, should there ever be one, four and a half years will not be allowed us in which to build up an air force, insured by the resistance of our Allies to common enemies. America will be Target Number 1; we will stand or fall with the air force available in the first crucial moment.

A corollary to this second requirement of strategic Air Power in being is the requirement of penetration. Our aircraft must be capable of penetrating to and destroying enemy targets; otherwise we do not have true Air Power in being, but only impotent numbers of men and machines. The strategic air force must employ equipment and tactics which can cope with enemy defenses and hit enemy targets, or admit defeat.

The Third Requirement: *Possession of bases from which the vital elements of our potential enemies can be attacked.* The fulfillment of this fundamental is, of course, directly related to the range of the aircraft being used. We must strive for aircraft with sufficient range to operate from the United States against targets anywhere in the world. Meanwhile, we must make every effort to obtain and maintain bases which are within striking distance of our potential enemies.

We must also remember from the bitter experience of the last war that possession of bases in time of peace is not synonomous with possession of bases in time of war. We discovered that as we helplessly watched Wake, Guam, the Philippines, Hong Kong, and Singapore being overrun by the Japanese early in the war. These islands, instead of being the strong points in our outer armor, became spearheads of the enemy's attack aimed at our own heart. If our bases in the far corners of the world are to serve the purpose for which they are intended, they must be garrisoned and equipped to withstand an initial siege, and airborne troops and supporting Air Power must be ready at all times to go to their rescue. Unless we are prepared for such eventualities our bases will do us more harm than good. It goes without saying that the support of distant bases will be difficult and will require a tremendous overhead of supporting troops.

The Fourth Requirement: Our fourth requirement follows logically upon the heels of the first three. If we know what to strike, have the Air Power with which to strike, and possess the bases from which to launch that Air Power, we can by no means be assured of successful operations unless we also have *sufficient resources in personnel, materiel, and productive capacity* to *back up our air effort for the duration of the strategic air war.* Our initial effort must be a strong one, but it must be followed by successively stronger attacks until our enemy's will to resist is completely broken. We have already stressed the requirement for an adequate initial striking force. This force may well be all that we will have a chance to use. However, we cannot discard the possibility of a delayed decision. This means that resources in personnel, materiel, and productive capacity must be maintained in a state of readiness so that they may be quickly transformed to a war status when needed.

It is vitally necessary that the timing of this transformation be geared directly to the calculated endurance of the strategic air force which is maintained in being. Since this endurance is definitely limited, our resources must be easily convertible to wartime operations.

This means, first of all, a pool of trained personnel. As a result of the tremendous training program of World War II, we now have the richest reservoir of air force talent on earth. We must not allow this talent to disintegrate through lack of interest in the military needs of the nation. This means a progressive and realistic reserve training program which will maintain the proficiency of reserve officers and men in strategic air equipment. It also means a coordinated effort with the Air Training Command to insure that strategic units will have a satisfactory number of trained replacement personnel.

Our research must be continuous and progressive. Our weapons must be the best that science and industry can provide, and we must constantly strive to better them. The using agency—the Strategic Air Command and its subordinate units—can and must be ever critical of the faults of its equipment and ever constructive in its suggestions for new and better replacements.

As our instruments of war are perfected, the heads of industry must be informed as to the estimated requirements of strategic Air Power in time of war, so that necessary plans may be laid to facilitate conversion to mass production with the least possible delay. It may be necessary to build vital plants and hold them on a stand-by status. Strategic air leaders must leave no stone unturned to insure that our productive capacity can convert to wartime operations in time to support our air offensive during the first crucial days of the struggle.

The Fifth Requirement: *Adequate logistical support.* If we have fulfilled requirement number four and are assured of the necessary resources in men, materiel, and productive capacity, we know that our strategic air force is still not operational until replacement personnel and materiel are flowing regularly to the using wings and divisions.

World War II has often been called a war of logistics. The expression "too little and too late" was a common explanation for air battles lost and territory sacrificed to the enemy. We turned the tactical tide only after we had swelled the logistical tide.

World War II furnished us with an excellent example (the B-29 force in China) of strategic Air Power rendered almost impotent by the logistical problems of operating from remote overseas bases. During some ten months of operations in India and China the Twentieth Bomber Command hit Japan proper only *six* times and ran a total of but *forty-four* operations, an average of 4.4 per month, against all targets. After this force was moved to the Marianas as the 58th Bomb Wing, it immediately became as operationally efficient and dependable as any of the wings of the Twentieth Air Force. In three and a half months it flew *thirty-four* operations for a monthly average of nearly *ten.* The principal reason for this transformation was the absence of insurmountable logistical problems which plagued our forces in China.

The lesson is clear for the future. Strategic air units cannot carry out effective operations against an enemy unless ample logistical support can be provided.

The Sixth Requirement: *Adequate communications.* The strategic air force needs the following communications services: com-

mand channels to both higher headquarters and subordinate units; air-to-ground, air-to-air, and ground-to-air operational control; and aids to navigation and bombing. These facilities existed in fairly satisfactory form at the end of World War II. All should be greatly improved before another war. It is particularly imperative that we do our utmost to improve our blind bombing equipment and our means of communication over vast distances.

The Seventh Requirement: *A sound plan of action.* The basic plan for the employment of strategic Air Power is to strike at such vital targets of the enemy's national structure as his heavy industry, his transportation, his oil, and his electric power. If we sufficiently weaken those vital elements we can force his capitulation, although in the meantime we may have to strike at his strategic air arm to prevent his attacking our own vital targets. This method of employment of strategic Air Power proved itself so decisively in World War II that we take it for granted that this same general plan of action will be used in any future war. But beyond that broad basic plan there must be detailed plans specifically designed to deal with all potential enemies. We must gather our intelligence, pick out prospective targets, and plan how we are going to destroy or neutralize those targets.

When we have mapped out the strategic plans, their actual realization becomes the responsibility of our strategic air force commanders. They must then evolve their tactical plans for carrying out the preconceived strategy.

We have an excellent example of the evolvement of a sound tactical plan of action in the experience of the Twentieth Air Force. The original plan for the employment of B-29s against Japan was modeled on methods the Eighth Air Force had tested and found

successful in Europe—high altitude daylight formation bombing. After all, the B-29 was designed specifically for that tactical use. But three months of effort in applying these tactics did not bring results. Japan had only been scratched. Results indicated that a new plan of attack was urgently needed. Low altitude night bombing and incendiary attacks, supplemented by daylight bombings and aerial mining, provided the solution. The new plan was the beginning of the end of the Pacific War.

We need, then, a sound overall strategic plan directed against vital targets, plus a sound tactical plan of action which will provide the proper employment of our striking force for the accomplishment of its mission.

The Eighth Requirement: *Relentless prosecution of the plan of action.* Our final principle may seem somewhat obvious, but it is nonetheless important. It is to prosecute the plan of action relentlessly and unceasingly until the enemy's economic system has collapsed and his will to resist has been crushed. This means that strategic Air Power should not be diverted to tactical targets except in extreme cases. It must be remembered that the consequences of strategic air assaults are like the spread of cancer; the effects are not immediately apparent, but, like that fearful disease, the results are fatal.

Probably the most outstanding example of strategic air operations which failed because the plan was not pursued to a decisive conclusion was the German air battle against Britain. As early as 1938 the *Luftwaffe* had a *Studie Plan* of Great Britain, an intelligence analysis of that country which included its strategic weaknesses. Nazi Air Power was first to be aimed at RAF and aircraft industry targets in order to eliminate any threat to the *Luftwaffe* and to establish its supremacy in the skies over Britain. Then the

German Air Force was to attack shipping and harbor facilities in an effort to interdict supplies to Britain and throttle her imports of war materials. The Germans had a good plan of action, but it failed for one principal reason: Goering did not follow it. He was under pressure from Hitler to destroy English cities; the German Navy wanted mining and shipping attacks before the RAF had been neutralized and domination of the air assured; and there were other spectacular schemes which offered better advertising for the *Luftwaffe*. The end result was diversion of effort, failure to wrest control of the air from the RAF, and defeat in the now historic Battle of Britain. The Germans had a plan but did not see it through.

In direct contrast to the German effort was the Combined Bomber Offensive Plan of the Allies, which was approved in June 1943 by the Combined Chiefs of Staff and called for a round-the-clock bombing of strategic German targets. The objective of this plan was the "destruction and dislocation of the German military, industrial, and economic system, and the undermining of the morale of the German people to the point where their capacity for armed resistance is fatally weakened." The ruins of Germany testify that the objective was achieved. It was achieved because the allied strategic air forces in Europe had a definite plan of action and followed that plan to its victorious conclusion.

In summary, the essential requirements for the conduct of successful strategic air operations are: a superior intelligence system, strategic Air Power in being, suitable bases and sufficient resources, adequate logistical support and communications, and a sound plan of action, plus relentless prosecution of the plan.

In the event of another war our first and perhaps only major offensive effort will be strategic air attacks. It is imperative that

these operations be successful. These requirements, properly fulfilled, will guarantee a successful strategic air campaign which, in turn, will guarantee a successful war.

We must assume, in making our plans, that there will be a direct attack on the United States mainland in any major war in which the United States will become engaged on and after January 1, 1953. It may be that the war will not open with this direct assault. It may be that the fighting will start at some point in the world where our forces will come in contact with those of other nations. It may be that the fighting will be localized at that point, on the model of the practice war between Germany and Russia in the Spanish Civil War. But this is not likely; and certainly we must not count on it. We must assume, in making our plans, that if the enemy can do it he will make a direct air assault on the United States mainland regardless how or where the first shooting starts.

It must be assumed that there may be no warning of the attack. We must assume that the force we will bring into being by the end of 1952 will be the force which will have to handle the attack. We will get no further warning than that which we already have.

—The President's Air Policy Commission
Survival in the Air Age (1948)

Lt. Col. Frank R. Pancake (Va. Mil. Inst., 1938), faculty member of the Air Command and Staff School, was Director of Training, 247th Bomb Unit (OUT), Deputy C.O., 502nd Bomb Group, and Deputy Ass't. Chief of Staff, A-3, Hqs., 20th Air Force.

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AIR FORCE POLICY FOR ADVANCED EDUCATION

I congratulate Maj Tobias Switzer for his well-written article "Air Force Policy for Advanced Education: Production of Human Capital or Cheap Signals?" (Winter 2011). The author's interpretations of the data are reasonable, and his reasoning is logical and complete. I agree with his conclusion that, through its promotion policies, the Air Force has sent the clear signal that obtaining advanced degrees is important for promotion, regardless of whether the degrees are related to job requirements or are needed to satisfy those requirements. "Checking the box" is the logical response.

In general, I believe that education is good, that more is better, and that it can benefit both the individual and the organization for which he or she works. Consequently, I disagree with Major Switzer's conclusion that much of the time and resources spent in pursuit of these degrees is wasted and that the education gained is irrelevant or useless to the Air Force. Nevertheless, he has a point when he questions why the Air Force should pay for someone to get a degree in basket weaving if it doesn't have any need for anyone who knows how to weave baskets. To me, this raises a larger issue than whether advanced degrees should be a factor in selection for promotion—specifically, the issue of how well the Air Force maximizes the development of its people, best matches them to the jobs it needs done, and realizes the most benefits from their knowledge, skills, and abilities, regardless of degree level or grade.

Promotions are just a part of this process and not necessarily the driving part. Assignments, training, education, and manpower might be just as or more important than promotions in producing these outcomes. In fact, one could argue that the Air Force's promotion system works to the detriment of such results. Because the current system doesn't closely link promotions to future assignments, it doesn't best

match each person's qualifications to the needs of his or her next job. Whereas the commercial world competitively promotes into a position, selecting the individual whose qualifications, including education, best match the needs of the position, the Air Force promotes first and then finds a suitable position for the promotee. Grade and education factor into the service's assignment process, but so do other aspects, such as time on station. The current assignment system does not send either a clear or strong signal to Air Force members about the degree fields, levels, sources, or timing they should pursue.

Finally—and perhaps most corrosive to beneficial outcomes—is the culture that regards promotions and grade attained as the ultimate marker of personal career success. Much more than not, the Air Force culture views jobs and degrees as paths to promotion, not the other way around. When, if ever, this practice is reversed—that is, when jobs accomplished are seen as the marker of career success and education, and when promotions are seen as paths to job opportunities—then degree "signals" will finally align with Air Force success.

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AIR FORCE ISR OPERATIONS

Cultural transformation lies at the heart of Lt Gen Dave Deptula and Col Mike Francisco's article "Air Force ISR Operations: Hunting versus Gathering" (Winter 2010). Although I completely concur with this vivid metaphor's usefulness concerning information, some unit-level considerations are worthy of deeper discussion and thought.

First, with regard to the underemployment of collection management, I contend that it is fairly rare for the unit level to be fully aware of and actually engage the vast tools of collection management. Granted, intelligence Airmen at this level are not trained to be experts in such management (nor should they be); however, at best a cultural reluctance and at worst a professional ignorance exists in generating intelligence requirements. We have weapons for hunting information but do not employ them frequently. Instead, we often choose the analytical path of least resistance and peruse favorite Secret Internet Protocol Router Network (SIPRNET) (or Joint Worldwide Intelligence Communications System) websites for relevant information. Indeed, classified online resources are powerful tools. However, without proactive leadership, these tools can germinate an analytical proclivity to merely pluck ("farm") data from this vast, distant, and processed informational pasture.

Second, regarding anemic consumer-to-producer cross-talk, the Air Force's general intelligence (especially at the unit level) Airmen are exceptionally reluctant to contact the producer of an intelligence product. Nearly every intelligence product has a phone number or e-mail associated with it, but rarely does a user call the author for questions or clarification. I consider this simple action an example of unit-level "hunting," but it is generally not culturally accepted (codified, taught, and routinely implemented) amongst unit-level intelligence. In con-

trast, my intelligence experience has seen producers as typically and genuinely honored to receive a call "from the field" on their work; they will readily assist the field above and beyond posting a new product on the SIPRNET. Operational and strategic horizontal-level intelligence networking is quite impressive; however, my interpretation of General Deptula's position is an argument for equally impressive vertical connectivity between the tactical consumer and the expansive intelligence, surveillance, and reconnaissance architecture.

I understand and support the importance of doctrinal codification and development of tactics, techniques, and procedures as proposed by the authors. However, their improvements at the macro level may neither quickly nor effectively stir the needed cultural transformation they posit at the micro level.

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