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Prelaunch Notes

LT COL ANTHONY C. CAIN, EDITOR

AIR AND SPACE Power Journal (ASPJ) welcomes Lt Col Malcolm Grimes, who steps in for Lt Col Scott Wierschke as senior editor. Colonel Grimes recently completed a tour as professor of air and space studies at Grambling State University in Grambling, Louisiana.

Congratulations to Mr. Al Lopes, editor of ASPJ in Portuguese, who recently received the *Medalho do Mérito Aeronáutico* (Aeronautical Medal of Merit) from the Portuguese government. This award, the equivalent of the US Legion of Merit, recognizes Mr. Lopes for his years of excellent work as editor and for his selfless service as host to international students and their families at the Air War College and Air Command and Staff College, Maxwell AFB, Alabama. Congratulations, Al!

Throughout the coming year, we will devote several pages of each issue of ASPJ to the history of air and space power as part of our preparation for the winter 2003 issue, which will commemorate the centennial of powered flight. If you have an article or would like to write one related to the history, doctrine, technological development, or future of air and space power, please let us know!

We also have plans to feature articles on counterproliferation, emerging air and space power technologies, regional security issues, the war on terrorism, and special operations, as well as on leading air and space power professionals. Send E-mail to us at aspj@maxwell.af.mil for information on how to go about getting your work published. □

It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow.

—Robert H. Goddard



The Best in Professional Air and Space Power Thought

RECENTLY, THE ASPJ staff received comments from readers, both officers and enlisted members, from all over the Air Force. Although we found all of the comments useful and appreciate the time and effort it took to complete the survey, the remarks contain recurring themes that the editorial staff must address.

"Let's face it—almost nobody reads Air and Space Power Journal. The articles are generally written by students doing some project; they are all full of academic rigor and written to get a decent grade, but people who have something to say in the field don't have time for that nonsense." Although this type of sentiment did not pervade the comments we received, it occurred often enough to communicate a general lack of understanding about the *Journal's* role in the professional growth of our service. ASPJ began with the foundation of the Air Force in 1947 as the *Air University Quarterly Review*. Gen Muir S. Fairchild, one of the founders of the modern Air Force and commander of Air University, envisioned a journal that would publish "the best professional thought concerning global concepts and doctrines of air strategy and tactics." Thus, ASPJ is the professional journal of the Air Force. Airmen—using the term in its broadest, most inclusive sense—should turn to the pages of the *Journal* to find provocative, innovative, and informative material about operational matters, evolving doctrine, cutting-edge technology, leadership, global strategy, and anything else that members of the air and space ex-

peditionary force want to understand. In keeping with General Fairchild's original vision, today's *Journal* seeks to become a unique forum for dialogue, education, mentoring, debate, and professional development.

"But I don't write like a PhD." That's okay—most people don't, and it's not necessary to be a "natural born writer" to succeed as an ASPJ contributor. What matters is that, as conscientious members of the service, you have valuable ideas to contribute to our profession. This turns into a "win-win" situation for both you and the *Journal*, which gets a wide range of sources to add to the evolving debate about how best to develop and employ air and space power. In the process of refining articles from initial submission through the final published version, many of our authors learn how to articulate ideas more effectively, how to organize, and how to convince someone "on paper" without the advantage of face-to-face conversation or PowerPoint slides.

"In the operational Air Force, we just don't have the time to sit down and write articles." This comment is the most common knock against contributing to ASPJ. Believe me, I understand the pressures of deployments and ops tempo (been there, done that, have multiple T-shirts). But the lessons that operators learn today must spread to the rest of the force as quickly as possible. ASPJ can help get the word out so that the air and space expeditionary force will continue to evolve as a learning institution. We encourage authors to

contribute “thought pieces” that may not be fully formed, that may not be doctrinally pure, and that may not have enjoyed the full benefit of months of refinement—in other words, we want to publish state-of-the-art thought on air and space power! Take the time to get your ideas, procedures, and tactics on paper so that those who are preparing to join you on the “pointy end of the spear” can benefit from your invaluable experience.

“No one has time to read the entire *Journal*. . . . No one gets a personal copy.” This remark includes two separate but related issues. The first concerns a perception that the *Journal* contains too much information to digest in a single sitting. The second addresses individual access to its contents. If you get a copy of the *Journal*, read the editorial abstract that appears at the beginning of each article to help you decide whether to continue or move on to the next feature. One of the great benefits of our format is that we place few constraints on our authors—we solicit articles that reach across the strategic, operational, and tactical range of military employment. If you find a particular article uninteresting, go on to the next one—somewhere in the pages of *ASPJ* you will most likely discover something of value to someone who employs air and space power. If you can’t find a copy of the *Journal*, go to our Web site at <http://www.airpower.au.af.mil>, where, in addition to the current issue of *ASPJ*, you will find the entire text of issues dating back to the 1980s. We are working to place every edition of the *Journal* and *Review*, back to 1947, on the Web for readers interested in using these valuable sources to understand how their profession has grown from its inception to the present. You can browse the contents of each issue on-line and choose to print only those articles that most interest you. Addi-

tionally, you will find a section called “Chronicles Articles,” which contains feature articles that we could not fit into the printed version of the *Journal*. Thus, you have several options for accessing the information in *ASPJ*—you don’t have to search for a copy in your squadron, and you don’t have to read every article at a single sitting.

“There’s never anything interesting or applicable in the *Journal*—it doesn’t relate to what I do in the ‘real world.’” The *ASPJ* staff can address most of the preceding reader comments, but this one remains the responsibility of Air Force members. This publication is the professional journal of the United States Air Force—not a “bully pulpit” for the *ASPJ* staff. Its articles reflect the interests and professionalism of authors who care enough to write and submit their work for publication consideration. The content, therefore, reflects the operational and intellectual rigor and integrity of the people who make up the institution. If you find the articles in the *Journal* boring or irrelevant, write better ones and watch them as they go through the publishing process. If you care enough to take this step, at least two things will happen: (1) you will become a more sophisticated thinker and writer, and by doing so you will become a better ambassador for our service in the joint and combined arenas; and (2) our Air Force will evolve toward becoming a more effective institution as your ideas contribute to the body of thought on air and space power. The editorial staff bears much of the responsibility for the content of the *Journal*. Professional airmen share an even greater degree of responsibility—if you don’t write it, we can’t publish it! Finally, take time to scan the contents and read the articles that strike a resonant chord; then contribute articles and thoughts, and offer constructive criticism to make your *Journal* useful to our Air Force. □



Ricochets and Replies

We encourage your comments via letters to the editor or comment cards. All correspondence should be addressed to the Editor, Air and Space Power Journal, 401 Chennault Circle, Maxwell AFB AL 36112-6428. You can also send your comments by E-mail to aspj@maxwell.af.mil. We reserve the right to edit the material for overall length.

BOOK REVIEW KUDOS

I was happy to read Dr. David R. Mets's review of *Around the World in 175 Days: The First Round-the-World Flight* by Carroll V. Glines (summer 2002). I recently read this book and enjoyed it tremendously. However, I gently take issue with Dr. Mets's assertion that this book is primarily a recreational read. After reading *Around the World*, I reread portions of Maurer Maurer's *Aviation in the U.S. Army, 1919–1939* to confirm my impression that the real hero of the world flight was Gen Mason Patrick. During his tenure as chief of the Air Service, General Patrick sponsored a number of experiments and demonstrations—long-range flights, early experiments with aerial refueling, establishment of an airways system, communications and navigation aids, and so forth—that foreshadowed the capabilities which make the US Air Force the world-spanning force it is today. The world flight was the most ambitious of these efforts. Its planning, preparation, and execution provided lessons in logistics, meteorology, and navigation that proved as important to the Army Air Forces' World War II and postwar successes as Billy Mitchell's bombing demonstrations and the later doctrinal developments of the Air Corps Tactical School. With the current emphasis on global reach, air and space warriors should be able to return to the roots that make that reach possible, and Glines's book is a valuable addition to that objective.

Maj Jamie Sculerati, USAFR
Herndon, Virginia

CORRECTION

I would like to make a minor correction to your editorial in the summer 2002 issue of *Aerospace Power Journal*. The Christmas bombings of Hanoi occurred in 1972, not 1973. I certainly appreciate all the hard work that goes into the production of such a great periodical. Although it's been nearly 10 years since I last wore the blue suit or green bag, *APJ* and *Chronicles* keep me engaged.

Chris Smith
Eglin AFB, Florida

RIVET JOINT CONFUSION?

Dr. Benjamin S. Lambeth's article "Kosovo and the Continuing SEAD Challenge" (summer 2002) rehashes inaccurate snippets from his book *The Transformation of American Air Power* (Cornell University Press, 2000). He asserts again that "another unconfirmed report suggested that the RC-135 Rivet Joint aircraft monitoring enemy SAM activity may have failed to locate the SA-3 battery thought to have downed the F-117 and may not have relayed timely indications of enemy SAM activity to the appropriate C² authorities" (12–13). Continuing, he assumes that Gen Richard Hawley's comment "when you have a lot of unlocated threats, you are at risk even in a stealth airplane" (13) somehow equates to an admission of poor performance by the outstanding Rivet Joint crews.

As a contributor to the powerful chief of staff of the Air Force's reading list and true airpower advocate, Dr. Lambeth should consider focusing on accuracy rather than insinuation. For instance, although he mentions the "RC-135 Rivet Joint" on two occasions early in the piece, within seven paragraphs he calls it the

Continued on page 102

Alexander P. de Seversky

COL PHILLIP S. MEILINGER, USAF, RETIRED



Fighter ace, war hero, aircraft designer, entrepreneur, writer, and theorist, Alexander P. de Seversky was one of the best known and most popular aviation figures in America during World War II. His self-appointed mission called for convincing the public that airpower had revolu-

tionized warfare and become decisively important. Although people considered him a theorist, his ideas on airpower were not original; rather, he was a synthesizer and popularizer. At the same time, de Seversky was a prophet, using logic and his interpretation of history to predict the future of air warfare.

Born in Russia in 1894, de Seversky exhibited an interest in flight, even as a child. During the Great War, he joined the Russian Imperial Navy and became a pilot. On his first combat mission, he was shot down, losing a leg as a result. Undaunted, he used a wooden prosthesis, learned how to fly again, and returned to combat, where he shot down 13 German aircraft. In 1917 Russia posted him to the United States as an attaché, but after the Russian Revolution began, he elected to remain in America.

Over the next two decades, de Seversky put his mechanical and business talents to work by founding Seversky Aircraft Corporation, designing not only aircraft, but also bombsights, instruments, and an air-refueling apparatus. In 1935 he designed and built the P-35—the first all-metal monoplane production fighter in the Air Corps. A strikingly beautiful airplane, the P-35 was extremely fast—it won the Bendix Air Race from 1937 to 1939—and had a significantly longer range than other fighter aircraft of its day. It was the direct ancestor of the P-47 Thunderbolt, one of the most important and successful fighter planes of World War II. Unfortunately, de Seversky was a poor businessman, and as war approached, his



board of directors voted him out of office and changed the company's name to Republic. From then on, he turned his attention to writing about and publicizing airpower.

In 1942 de Seversky published the influential *Victory through Air Power*, which the Book of the Month Club chose as one of its featured selections and which Walt Disney made into an animated movie. As many as one of every seven Americans either saw the movie or read the book, and "victory through air power" became a household phrase. De Seversky continued to write for the next 15 years, but his later books did not have the impact of his first one, and, in truth, as time went on he grew increasingly out of touch with technical developments. He simply did not understand nuclear power, jet propulsion, or the new space age.

Nevertheless, Alexander P. de Seversky captured the essence of a new weapon of war—and peace—and then conveyed an understanding of that essence to millions of Americans in a way unmatched by anyone else.

To Learn More . . .

De Seversky, Alexander P. *Victory through Air Power*. New York: Simon and Schuster, 1942.

———. *Air Power: Key to Survival*. New York: Simon and Schuster, 1950.

Lee, Russell E. "Impact of *Victory through Air Power*." *Air Power History*, summer 1993, 3–13.

———. "Impact of *Victory through Air Power*." *Air Power History*, fall 1993, 20–30.

Meilinger, Col Phillip S. "Proselytiser and Prophet: Alexander P. De Seversky and American Airpower." *Journal of Strategic Studies*, March 1995, 7–35.



We should be as careful of the books we read as of the company we keep. The dead very often have more power than the living.

—Tryon Edwards

Toward Defining Air Force Leadership

DR. MIKE THIRTLE*

PRIVATE-SECTOR COMPANIES envy the Air Force—in some ways, one might even call it a “quiet desire.” From an outsider’s perspective, the Air Force almost seems to have an endless supply of good leaders. In fact, some companies exist for the sole purpose of funneling young officers and enlisted service members from the Air Force into the private sector early in their professional lives. The same process occurs at senior levels as well. Although technical skills are likely an important consideration for such recruiting, the usual marketing language indicates that businesses aggressively seek these people because of their leadership aptitude.¹ Similarly, Air Force members typically believe that they bring a significant commodity—their ability to lead—to the for-profit sector (post-Air Force experience). Why? The answer is that the private sector yearns for leadership and that the Air Force is a proverbial breeding ground for it. This rather amazing “supply meets demand” concept isn’t very well quantified but is implicitly understood by both seller and buyer.

The for-profit sector uses this funneling because it realizes the benefits of having former military members employed in its organizations.² Military experience translates into results such as discipline, steadiness, character, performance, integrity, and caring.³ I know this to be the truth. Having spent some time in both the private sector (outside the defense industry) and the Air Force as an officer, I have to say that some of the best leaders whom I have met are affiliated with the military—specifically, the Air Force. My discussions with colleagues in the for-profit sector have validated this impression.

*Dr. Thirtle is a staff member at the RAND Corporation.

Amazingly, however, observers outside the Air Force don't realize that for all of the great leaders we produce, we haven't documented—at least yet—the secret recipe of what contemporary Air Force leadership is in a comprehensible, universally articulated way. We “do” leadership; we sometimes talk about and debate it; and outsiders admire the “product”—even certain parts of the “production process.” However, it is a challenge for anyone to point to a specific Air Force organization, document, doctrine, or comprehensive definition of what Air Force leadership is and how it is purposefully developed and articulated to that service's people. Simply stated, I don't think it exists.⁴

In Search of the Leadership Grail

For the past two years, I have had more opportunity to study the Air Force—more specifically, Air Force leadership—as part of my work in the Force Development Division of the Air Force Senior Leader Management Office, a task that I have relished. I left my for-profit, private-sector job to do this because of my desire to discover the secret recipe. In part, I have focused on assisting with the development of a new leadership core curriculum for training squadron commanders across the major commands; other activities have focused upon Air Force education and training. Every situation that I have encountered has justified my watching, listening, and assessing. I have seen various corners of the institution that I didn't know even existed; furthermore, I have had the opportunity to witness great examples of leadership and visit places where researchers and practitioners continue to pursue leadership truths. Whether one cites the great leadership talks around “academic circle” at Air University, the National Character Leadership Symposium at the Air Force Academy, or the interaction with Air Force professionals on a daily basis, I have seen many situations that I would characterize as “great” examples—examples that my colleagues in the private sector probably haven't seen. I have also realized, however, that we are a service in search of (and, I would contend, in need of) a unifying leadership theme that is Air Force-centric; that embraces the concepts of “leading airmen”;⁵ that is both pervasive across our entire development spectrum and consistent across our various operations; that embraces our history, culture, and mission—and that resonates.

One can look around academic circle at the various professional military education (PME) programs or at our commissioning programs and realize that the institution does not have a comprehensive, cohesive concept of leadership that is uniquely singular and simultaneously well articulated across the board. Whereas concepts such as “situational leadership” are taught at Squadron Officer College, other methods are discussed at Air Command and Staff College and Air War College—our noncommissioned officer academies even talk about methods and approaches that differ from those learned by officers. The commissioning

sources—as well as basic military training, for that matter—also have different approaches to discussing leadership. In almost all cases, a void exists in our current education and training process for discussing what is unique about Air Force leadership. Instead, at the earlier and later part of the spectrum, one finds various speakers relating diverse stories about what “worked” in their experience and what one “should do.” New commanders are usually exposed to these anecdotes. Don’t get me wrong here. I find such stories entertaining and meaningful—as well as necessary for passing along the lore of the organization.

However, the diversity of messages that I have heard, coupled with the absence of fundamental truths based upon rigorous research of what it means to lead airmen, has both concerned and, at times, confused me. From what I have seen, our schools formally present most service members with academic models having no basis in Air Force experience and informally talk to them about Air Force stories. Sometimes the models support the stories; other times they do not. Many times the stories conflict with each other. At the end of the day, the service member must bridge the intellectual gap. During the midcareer years, one encounters more studies and readings concerning examples of leaders (interestingly enough, most of these examples come from outside the Air Force—many from the private sector). In fact, one commonly finds a generic set of processes and methods taught across the board. Air Command and Staff College faculty, for example, teach many lessons about general types of leadership methods, such as conflict resolution, teamwork, and group effectiveness.⁶ I contend that these methods are more conducive to an MBA style of coursework than to one that fosters a deeper understanding of what it means to lead other airmen. Likewise, the foundations of these studies are typically grounded in private-sector data and situations in non-Air Force settings.

Turmoil in the For-Profit Sector

The recent demise of companies such as Enron and Arthur Andersen (as well as Tyco, WorldCom, and a host of others) reminds us that our friends in the for-profit sector need better leaders. It’s likely that in due time they will turn our way for examples.⁷ In polls that assess the public’s confidence, the military has topped the list for many years running. In fact, recent Harris Polls indicate that the military has received a favorable rating of 71 percent and that major companies have received a rating of only 16 percent.⁸ In other words, the American people trust us.⁹ Implicitly, they also trust our leaders and our leadership output. By way of comparison, however, they evidently do not trust many leaders of for-profit industry—as strongly indicated by the instability of the stock market (even in the light of good economic news) during the past year. Americans are wary of their investments due to uncertainty about the quality of

leadership in the private sector. One could say that we're waiting for the other shoe (perhaps both shoes) to drop with respect to the next controversy swirling around corporate leadership. We have witnessed too many accounting scandals, cooking of books, and untruths told to shareholders. As with many other issues in our country, Americans tend to have a sixth sense for knowing what is right—and poor corporate leadership isn't sitting very pretty.

From my perspective, the lessons from these business debacles are relatively simple—an absence of quality leadership at the helm. In some cases, individuals took an outright and proactive approach to undermine leadership and character at all costs. In other cases, subordinates exhibited a significant lack of integrity, preferring to look the other way rather than ask tough questions—the type of questions that leaders must ask.

How could a company go from the seventh largest in America to a loose confederation of parcels at the bankruptcy fire sale in a matter of months?¹⁰ Yet, this happened to Enron—right before our eyes. Even after the company's downfall, many Wall Street analysts didn't change their ratings.¹¹ I contend that this example gets at the heart of the leadership vacuum. And don't confuse this collapse with a decrease in demand for Enron's product. It's not a problem resulting from a lack of demand—it is a problem of how a corporation's leaders didn't choose the right path. More specifically, they sought personal gain at the cost of their institution. Contrast this scenario to the case of Gen Ronald Fogleman, who put the institution before himself and retired as Air Force chief of staff.¹²

A Need to Codify

Interestingly enough, we probably spend more time (and money) looking outside the Air Force for leadership models than we do inside. Our PME programs use them almost exclusively in relation to the formal leadership models presented. Relative to what I stated earlier, this situation is very much a paradox: *the for-profit sector values military leadership; however, we look to outsiders to provide us with the fundamental truths*. It's one thing to ask outsiders for help in analyzing the data; it's quite another to disregard the tending of our own garden in lieu of harvesting the neighbor's. Why do we do this? I contend that we haven't taken the time to write down our thoughts—to challenge one another and reflect on what defines who we are as an Air Force. It appears that we have taken the concept of “commercial off the shelf” to a new level when, in reality, we need to capture our own culture and identity—not someone else's.

Institutionally, too few people are working on legitimate research in this area, and even fewer organized groups are doing so. When was the last time we had people dedicated to researching, applying, recording, and writing their observations for others to consider? When was the last time we charged groups and organizations to do the same? When was the last

time we had significant, public Air Force debate on the subject? This issue of *Air and Space Power Journal* and the one for summer 2001 represent steps in that direction.

As an example of this phenomenon, we should examine where our organizations' discretionary leadership-training dollars are currently spent. I imagine that most of our money is allocated to leadership or management training that focuses on non-Air Force themes and models. One popular course offering that comes to mind is Stephen Covey's *Seven Habits*.¹³ Back in the 1980s and early 1990s, we focused on Philip B. Crosby and W. Edwards Deming's principles of total-quality management but transitioned to Covey in the mid 1990s. He proffers good material as a supplement to a core study of Air Force leadership, but in many (almost all) cases, *we have used these offerings as the main course instead of the dessert*.

Institutionally speaking, these offerings must add up to a nontrivial budget. I would like to support this supposition with a dollar figure, but it's virtually impossible to arrive at a number because this training is usually paid for by the commander's discretionary funds on a base-by-base, wing-by-wing, unit-by-unit basis. Headquarters doesn't track these numbers in detail because it can't reach down far enough into discretionary expenditures to determine how much is spent on what. A scan of base-education offerings, however, supports the hypothesis that Covey is "in," and an articulation of what constitutes "leading airmen" is not. The resident commander or education advisor has money to spend on leadership training and chooses from a set of private-sector offerings such as the Covey course. Why? He or she does so because they exist, because they are well packaged, and because there aren't any alternatives. Many of these courses are good—some are not. None discuss the uniqueness of Air Force leadership in a manner that I propose we need. None discuss what it means to be an airman or, even more importantly, to lead airmen in today's and tomorrow's environment. When was the last time anyone saw the base-education office offer training entitled "Principles of Becoming a Better Airman"?

As a former facilitator of Covey's *Seven Habits* series, I must admit that I really enjoyed the material. It's principled, concise, and well focused. But it's not focused on the Air Force and the unique problems that we encounter. I found Covey's approach extremely helpful in my personal life as I developed methods for goal setting, prioritization, and vision. In the same vein, however, as an Air Force officer, I found myself yearning for more "Air Force" types of things. *Seven Habits* is good—but it doesn't replace the need for codifying what is unique about Air Force leadership. Covey's is probably one of the more popular training courses that many of us have attended in uniform—there are many others, I'm sure. The point is that we have typically defaulted to hiring outsiders or using non-Air Force models to train ourselves in leadership, when in reality our missions and operations—our Air Force people—require more definition of what it

means to lead in our unique environment. Our leadership models are right in front of us on a day-to-day, operation-to-operation basis.

I propose that we attempt to codify airman leadership through a more conscientious approach (research and organizational)—we need to define and articulate it in such a manner that we all speak the same language and play by the same book. Today, we do not. As our service continues to deploy and as our people continue to rotate from supervisor to supervisor and from theater to theater, it is clear that inconsistent models of leadership won't work. This is not to say that this type of inconsistency and misunderstanding worked on previous occasions, but I contend that the deployment environment exacerbates this problem.

Taking a Look at Ourselves First

Precedent exists for this concept—in the Army, for example. Since the early twentieth century, that service has actively pursued research on leadership through the Army Research Institute (ARI), which investigates, researches, and documents what works for the Army in the realm of leadership.¹⁴ A perusal of ARI's publications and research agenda reveals that the Army does research—Army-focused leadership research. ARI proactively looks within its service to determine what works best and, most importantly, why it works. The institute's material is first rate, and its highly dedicated staff and approach support the Army mission. A brief review of its research agenda for 2002 speaks for itself.¹⁵ ARI has dedicated itself to finding what works for the Army.

From 1975 to 1986, the Air Force used an analogous but not identical approach with the initiation of the Leadership and Management Development Center (LMDC) at Air University. One of the primary responsibilities of this group involved traveling around the Air Force to consult with commanders on leadership topics and to conduct organizational assessments of entire units at the request of the unit commander.¹⁶ I was just coming on-line in the Air Force when the program disbanded, so it's difficult for me to make objective judgments on the efficacy of LMDC, but from what I've read, it filled an important niche. A literature search on LMDC products indicates that interesting research occurred during this time frame as well—on Air Force leadership, culture, and the effect on families. By the mid 1980s, however, the Ira C. Eaker College for Professional Development at Maxwell AFB, Alabama, absorbed this group, and its core missions evidently dissipated at that point.¹⁷

I firmly believe that it's time to reexamine the type of model that dedicates Air Force people to conducting rigorous research on topics of Air Force character and leadership—the core issues of our service. This vision goes far beyond the essays produced as part of the graduation requirement at Air Command and Staff College or Air War College—I envision a much more

robust research process. This effort must support other activities, such as the development of coherent leadership doctrine, the establishment of operating procedures for commanders across the service, and the construction of principles that can be categorically used during all phases of PME as well as officer and basic training. This process also would encourage us to look inwards for the development of relevant base-level training that can support our institutional notions of leading airmen.

Do Unique Airman-Leadership Traits Exist?

My professional instincts tell me that they probably do. Why do I believe this? Studies indicate that an organizational culture such as the Air Force's probably has leadership models unique to how it conducts business. There almost have to be. ARI has found them for the Army. Private-sector organizations have found uniqueness in what they do and how they lead.¹⁸ How could we recruit, train, operate, and interact as we do if it were otherwise? Very few professions do what we do—the only others are the Army, Navy, and Marine Corps, who have unique aspects to their operations, history, and, consequently, cultures as well. At the very least, I think we'll find traits that may be similar in a general sense and that differ by the degree to which the airman operates. I think we have to give this process a fair shake by examining who we are and how we lead—and document our findings in a meaningful way for our people. *At the end of the day, by answering the question What is an airman? we will begin to define what is unique about who we are and how we lead.*

To date, people have proposed purposeful ideas on what is unique—concepts such as centralized control and decentralized execution, for one.¹⁹ There may be many others. The key for us is to take the time and energy to begin to explore this issue further. Of course, history can be a starting point for developing our hypotheses for what we explore; both James Hooper and Dr. David Mets have made this point.²⁰ Furthermore, we not only need to look more introspectively now, but also we need to project where we're going with respect to our operating environment. If it is true that our Air Force is likely to transform itself more than it has since the Wright brothers began working in their bicycle shop,²¹ I also suspect that we will have to approach the future in a more proactive way to define what our leadership model is—one that focuses upon what it means to lead airmen. □

Round Lake, Illinois

Notes

1. Roger Cameron, *PCS to Corporate America: From Military Tactics to Corporate Interviewing Strategy*, 3d ed. (Dallas: Odenwald Books Publishing, 2000), 17.

2. Stephanie Overby, "Leadership Lessons from the Modern Military," *CIO Magazine*, 15 April 2002, on-line, Internet, 15 August 2002, available from http://www.cio.com/archive/041502/hs_leadership.html.

3. Carla Johnson, "What HR Can Learn from Military Veterans," *HR Magazine*, June 1997, on-line, Internet, 15 August 2002, available from <http://www.shrm.org/hrmagazine/articles/default.asp?page=0697TOC.HTM>.
 4. In "The Sources of Leadership Doctrine in the USAF," elsewhere in this issue, Dr. Shannon Brown analyzes the history of leadership doctrine in the Air Force, concluding that almost 40 years have passed since the Air Force has published a comprehensive doctrine document on the subject.
 5. See Maj Gen Charles D. Link, USAF, retired, "Leading Airmen," *Aerospace Power Journal* 15, no. 2 (summer 2001): 7–12.
 6. "Leadership and Command," Distance Learning, Version 3.0 (Maxwell AFB, Ala.: Air Command and Staff College, July 2000).
 7. At the Air Force Academy's National Character Leadership Symposium on 21 February 2002, David Gergen from Harvard University's Center for Public Leadership spoke about Harvard's interest in how the Air Force Academy develops its leaders.
 8. Both *The Harris Poll* from 16 to 21 January 2002 and the *Fox News Opinion Poll* from 2 to 3 April 2002 show similar results.
 9. Humphrey Taylor, "Whom Do We Trust to Tell the Truth? . . . Whom Do We Trust the Least?" *The Harris Poll*, no. 61 (12 December 2001), on-line, Internet, 15 August 2002, available from http://www.harrisinteractive.com/harris_poll/index.asp?PID=273.
 10. Steve Priest, "Code of Conduct: A Matter of Trust," *Chicago Tribune*, 18 January 2002, 18.
 11. Paul R. La Monica, "Where Wall Street Went Wrong," *CNNMoney*, 29 November 2001, on-line, Internet, 15 August 2002, available from http://money.cnn.com/2001/11/29/investing/q_enronanalysts.
 12. Dr. Richard H. Kohn, ed., "The Early Retirement of Gen Ronald R. Fogleman, Chief of Staff, United States Air Force," *Aerospace Power Journal* 15, no. 1 (spring 2001): 6–23.
 13. Stephen R. Covey, *The Seven Habits of Highly Effective People: Powerful Lessons in Personal Change* (New York: Simon & Schuster, 1990).
 14. "ARI: A Brief History," *U.S. Army Research Institute for the Behavioral and Social Sciences*, on-line, Internet, 6 June 2002, available from <http://www.ari.army.mil>.
 15. US Army Research Institute for the Behavioral and Social Sciences, "FY 2002 Program" (Alexandria, Va.: ARI, October 2001).
 16. T. A. Arnold, "A Grip at the Grassroots (LMDC's Traveling Teams Consult with USAF Personnel)," *Airman*, 1979, 16–20, 23.
 17. *Air University History* (Maxwell AFB, Ala.: Air University, 31 December 1995), on-line, Internet, 3 June 2002, available from <http://www.au.af.mil/au/history>.
 18. For example, see "Leadership Model," National Aeronautics and Space Administration, on-line, Internet, 15 August 2002, available from <http://leadership.nasa.gov/nasa/lmd/Model/Leadership%20Model%20Summary.htm>; Boeing's model, on-line, Internet, 15 August 2002, available from <http://www.boeing.com/companyoffices/aboutus/leadershipcenter/xblc3.htm>; and *The Veridian Leadership Model*, on-line, Internet, 15 August 2002, available from <http://www.veridian.com/Aboutus/leadershipModel.asp>.
 19. See Maj Gen Charles D. Link's foreword to Lt Col John J. Zentner's *The Art of Wing Leadership and Aircrew Morale in Combat*, CADRE Paper no. 11 (Maxwell AFB, Ala.: Air University Press, June 2001), vii.
 20. See James T. Hooper's article "Creating Strong Leaders and Strong Units: Using Air Force History as a Leadership Tool," elsewhere in this issue; and Dr. David R. Mets, "In Search of a Twenty-First-Century Air-Leadership Model: Fodder for Your Professional Reading," *Aerospace Power Journal* 15, no. 2 (summer 2001): 40–51.
 21. Link, "Leading Airmen," 7–12.
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It is imagination primarily which distinguishes the brilliant tactician from his plodding brother.

—Field Marshal Wilhelm Ritter von Leeb

Creating Strong Leaders and Strong Units

Using Air Force History as a Leadership Tool

JAMES T. HOOPER*

MOST AIR FORCE leaders understand that they are responsible for mentoring airmen and building teamwork within their units. Leaders can draw upon numerous leadership theories and practices, from both military and civilian sources, that can help them meet these responsibilities. The purpose of this article, however, is to discuss why leaders should consider Air Force history an indispensable tool in their endeavors. Many of our officers and noncommissioned officers have not been taught to use history in such a manner. Often they are unaware of the full range of historical methods, techniques, and resources they can use, not only to learn about leadership, but also to teach it and to support their mission at the unit level. This article discusses the value of history for leading and developing airmen and provides an overview of possible applications for unit leaders in today's Air Force.

History and the Education of a Leader

In 1999 the Air Force initiated a comprehensive reexamination of its leader-development requirements and practices. As part of that work, it reviewed how leadership was taught throughout the professional military education (PME) system. Among other findings, the service discovered that much of the instruction in PME was based on a review of the academic and military literature on management, leadership, and command, as well as a presentation of major theoretical concepts and themes.¹

An understanding of theoretical concepts and a familiarity with relevant literature are important elements of a leader's education. However, if education entails "learning a discipline /subject that enables understanding, extrapolations and application," the Air Force needs a broader approach.² Leadership theory is essential for providing context, but theory alone cannot enable an airman leader to draw salient conclusions, impart meaning, and act. Ultimately, leadership concerns human relationships—more specifically, a leader and followers engaging and working to achieve a shared purpose or goal. Since leadership is about people, one should view the practice of leadership as an art to be

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developed rather than a process to be mastered. Certainly, identifiable leadership principles and skills can be distilled into generalized theory that good leaders follow. However, these principles and skills exist only as a foundation, to be used by effective leaders as a guide to thought rather than a substitute for it. Because the practice of leadership is an art, the education of leaders should incorporate many dimensions, including a grounding in theory, practical exercises and applied experiences, training in the employment of leadership tools such as organizational climate surveys and psychometric instruments, and case-study analysis—all considered within the perspective provided by history and the reflections of other leaders, both current and past.³

Gen Barry R. McCaffrey, USA, retired, recently observed that history is invaluable because it enables a leader to “gain perspective, maturity, and judgment from vicariously living the lessons of both inspired and failed leaders in other places and times.”⁴ It enables a leader to think about issues beyond his or her own individual experience and to take advantage of the wisdom of others. When the time comes to act, the leader draws upon a wider and deeper range of experiences and insights. For airmen leaders, the study of history can help provide insights and understanding in seven specific areas, each directly relevant to leadership responsibilities in today’s Air Force:

1. *Understanding Airmen.* Since the publication of Dr. James MacGregor Burns’s groundbreaking work *Leadership* (New York: Harper & Row, 1978), leadership theory has emphasized the importance of followers and their relationships with leaders. Although the Air Force has benefited greatly from this theoretical work, most of it addresses “followers” in generic terms. Clearly, significant differences exist between an airman follower and an employee in General Motors or a volunteer in the American Red Cross.⁵ Similarly, one sees identifiable differences between the expectations, values, beliefs, and typical behaviors of airmen and those of members of the other services. Historical study illuminates these differences and provides insights into approaches used to inspire and lead airmen successfully in the past.
2. *Unit Dynamics.* Air Force units are more than the sum of the individual airmen assigned. History can help leaders by showing them how strong units were formed and organized in the past, how organizational values were instilled in members, how successful leaders fostered teamwork and camaraderie, and how problems within units were solved/overcome.
3. *Combat Conditions.* Airmen are expected to operate under combat conditions characterized by isolation, high stress, danger, and fear. Historical study helps a leader understand the impact of combat conditions as well as leadership techniques that have enabled units to

fight and win in the past. Such techniques include setting a personal example, leading from the front, and implementing unit-training programs on discipline and teamwork.

4. *War Fighting and Military Operations.* Historical study is essential to an understanding of warfare at the strategic and operational levels of war, and to an appreciation for human reactions at the tactical level. Although the nature of air and space operations is constantly evolving, history can illuminate enduring elements and principles of war fighting. Leaders can use historical case studies to help them understand campaign planning, the use of military forces to achieve national objectives, the role of air and space power in joint and coalition operations, and the integration of different functional capabilities to achieve combat effects. Finally, the study of history helps shed light on current Air Force doctrine and practices. For example, the concept of centralized command and decentralized execution is firmly rooted in Air Force practices developed in the crucible of war and proven successful.
5. *Operating Environments.* Air Force units deploy daily in support of each of the geographic combatant commands. Air Force leaders not only routinely train, operate with, and lead foreign military forces, but also interact with foreign populations and work with local employees to accomplish their missions. An understanding of the historical context that frames a unit's operation, coupled with the concomitant cultural knowledge and insights into decision-making processes, is likely to prove very beneficial during coalition operations and expeditionary deployments overseas.
6. *Leader Responsibilities and Challenges.* By providing a forum for examining the actions of previous leaders, history also serves as a tool for thinking about leadership responsibilities and challenges. Historical case studies and biographies describe how other leaders solved problems, why they made specific decisions, how they addressed ethical demands and dilemmas, and how they coped with competing leadership responsibilities.
7. *Enduring Aspects of Leadership.* Although the technology of warfare has evolved significantly since the Wright brothers' first flight in 1903, the foundations of human leadership have remained constant. History provides insights into the enduring aspects of leading people, such as the role of vision and shared purpose, the importance of building trust and teamwork, and the approaches for motivating followers to provide their best efforts for the good of the organization. In this regard, the leadership examples provided by Abraham Lincoln or Gen George C. Marshall are as applicable to Air Force leaders today as those provided by Gen Billy Mitchell and Gen Jimmy Doolittle.

How can an aspiring Air Force leader take advantage of the value that history offers? First, one must remember that history is about interpretation and thought. Not a simple recitation of facts and events, it entails a voyage of discovery followed by an attempt to impart meaning. Second, the ability to think critically about history does not happen by accident. Leaders should frame the study of history within a larger context of professional development, which involves both self-study and PME.

Extensive reading and reflection are critical. The chief of staff of the Air Force's reading list provides a good starting point for Air Force leaders at all levels.⁶ It includes many historical and biographical sources with which leaders should become familiar. Local units and PME schools will often augment this list with additional readings. Leaders who care deeply about their profession should make the investment in time that is necessary not only to read and think about key historical works, but also to discuss them with others. They should also take advantage of the many opportunities to learn about Air Force history, such as elective coursework at PME and civilian universities, visits to Air Force museums and historical sites, and attendance at talks, lectures, and symposia.

Although good Air Force leaders use history for self-study and education, the best leaders recognize that they are responsible for mentoring their followers. They consider the needs of the airmen directly in their care and think through an individualized approach for developing their subordinates and ensuring that historical study and reflection are integral components. They share books, articles, videotapes, and other materials with followers and discuss their importance and meaning. They create opportunities for their airmen to learn, whether by arranging visits to nearby museums and battlefields or by inviting retired leaders to talk about their personal experiences. They develop programs tailored to the needs of their airmen and the local situation. For example, a leader in a unit deployed in Korea may want to share books on the Korean War and arrange trips to nearby historical sites. In short, strong leaders take a proactive role, using a variety of approaches to help develop their airmen and pass along their heritage.

Creating Strong Units

The value of history is not confined to individual education and development. History is an important tool that leaders should use to help build teamwork, pride, and a sense of belonging in their units. The Air Force recognized the role of history in creating strong units at an early date. Air Force Manual (AFM) 35-15, *Air Force Leadership*, published in 1948, offered practical guidance on how leaders could use history to inculcate a sense of belonging in the unit. For example, it advised leaders that "every man entering your unit should be told its history; told by you, preferably, in your welcoming talk."⁷ Air Force leaders were encouraged to

hang photographs of previous unit members and pictures of the unit in action throughout the offices and barracks. The manual also recommended the maintaining of unit scrapbooks, ideally in a location where airmen could read them, and the writing of histories for members of the unit. Finally, AFM 35-15 highlighted the importance of the unit insignia and stressed the importance of ensuring that airmen understood its significance, history, and traditions.⁸

Col David L. Goldfein, whose book *Sharing Success—Owning Failure: Preparing to Command in the Twenty-First Century Air Force* is now required reading in Air Force leadership training for squadron commanders, provides similar advice. He recommends that new leaders study their squadron's history prior to arriving for duty and highlights the importance of the squadron historian, advising that, if a historian is not assigned, the commander should "hire one within." Colonel Goldfein further recommends that previous squadron commanders and unit members help relate the unit's history. He emphasizes the importance of focusing on the airmen who previously served in the unit rather than on aircraft and machines. Ultimately, these efforts should seek to bring the "history of the squadron to life."⁹

All of these techniques and methods illustrate potential approaches for using history to strengthen the unit. Each has merit and should be considered by Air Force leaders. However, two elements are often missing at the unit level: (1) a deliberate approach that relates history directly to unit objectives, values, and activities and (2) an understanding of the range of tools and resources available to support both leader and unit.

The process of integrating and structuring history into unit activities begins with vision. The commander's vision is informed by the unit mission and provides a statement of shared direction for the members of the unit. However, a good vision statement is more than a guide for future actions—it should also serve to define unit values and accepted behaviors. Using desired values and behaviors as a starting point, the leader can identify those elements in the unit's history that support and bring them to life. For example, one might illustrate the value of "selfless service" through citations issued to previous members of the unit. The commander should also use desired behaviors and values as the basis for creating or reinforcing unit traditions. History plays a critical role in this regard by assigning meaning to existing traditions and serving as a foundation for the creation of new traditions.

With this understanding of "what" is needed and "why," the leader should involve members of the unit in developing specific programs and events that make history meaningful. Air Force and unit history can be incorporated into a full range of activities, including the reception and orientation of new airmen, commander's calls, "rites of passage" ceremonies, unit-training events, mentoring of unit members, promotion ceremonies, and day-to-day events. The commander will lead many of

these events, but in a good unit, airmen of all ranks will also want to become involved. A smart leader will take advantage of their enthusiasm and ingenuity.¹⁰

Making It Happen

This article has mentioned thoughts and ideas about how leaders can use history. However, the Air Force operates in an environment characterized by high operations tempo and competing demands. Most units already have full schedules and many tasks to accomplish. Given these constraints, how can a leader put these ideas into action? What resources are available?

It is important to remember that established channels exist for historical support in the Air Force. As far as possible, leaders should strive to leverage those resources. Most leaders have neither the time nor the training to function personally as unit historian. Simply assigning a historian, however, will not ensure that the job is accomplished. Only the commander has the perspective to understand the development and mentoring needs of airmen in the unit. Only the commander is personally accountable for the unit's mission and, thus, fully comprehends not only where the unit needs to go, but also the behaviors, values, and traditions that should be highlighted and reinforced. Most importantly, only the commander can incorporate history into unit ceremonies, commander's calls, and other events; furthermore, by setting a personal example, the leader can make history a meaningful and living part of the unit. Consequently, the commander should provide the unit historian with sufficiently detailed guidance on how he or she intends to use history so that the historian can support the commander's objectives in a meaningful way.

Within the context provided by this guidance, the historian and other airmen in the unit can work together to identify relevant historical materials and sources. The range of materials that may prove useful is nearly endless, including primary documents (e.g., original reports, memoranda, correspondence, and transcripts); secondary sources (e.g., books, monographs, and journal articles); annotated bibliographies and other reference works; videotape and audiotape recordings and presentations; photographs, paintings, prints, and artwork; and historical objects (e.g., memorabilia, patches, and items of equipment).

The range of potentially relevant sources for historical support and information is nearly as large; a full listing would take volumes to publish and would soon become outdated. However, for the purposes of using history as a leadership tool, the Air Force History and Museums Program usually provides the best starting point. In addition to the Air Force History Support Office (Bolling AFB, Washington, D.C.), the Air Force Historical Research Agency (Maxwell AFB, Alabama), and the Air Force

Museum (Wright-Patterson AFB, Ohio), history offices and museums at major commands and bases are often excellent sources.

The history programs of joint organizations and the sister services may also be useful in some circumstances. For instance, in compiling a history of a Red Horse unit deployed overseas, one may find more information and records of relevance from Army and Marine Corps organizations supported by the Red Horse unit than may exist in official Air Force channels. Units overseas often have unique opportunities. For example, airmen in a unit stationed in the United Kingdom might be able to supplement a squadron history program by considering the Battle of Britain and visiting such local sites as the Royal Air Force (RAF) Museum at Hendon or St. Clement Danes (the Central Church of the RAF). Nongovernmental sources can also be very helpful. Universities and academic centers may sponsor relevant lectures and special events; one may find applicable photographs and records in the National Archives or other repositories; and special events, such as the upcoming celebration of the centennial of flight, may provide additional opportunities.

Imagination is important. One Air Force squadron recently used a historical painting of its officers in a World War I French château as the basis for building a new lounge. Photographs of unit heroes and memorabilia from the squadron's history were displayed prominently throughout the squadron's workplace. The squadron commander greeted newcomers or visitors to the unit with an impassioned talk about the unit's history and traditions, using the World War I background and the various paintings and memorabilia as props.¹¹ Other Air Force units have developed equally imaginative approaches to teaching history and building unit traditions.

Ultimately, the key to success lies in the personal involvement of the unit leader. Strong leaders will identify what is important and why. Using good ideas gleaned from unit members, other successful units, and the Air Force History and Museums Program, the commander can establish parameters to guide unit efforts and outline the types of activities needed (e.g., a program of guest lectures by former unit members; the posting of photographs and portraits of squadron heroes, with accompanying biographical information; or a structured program of professional reading and "rites of passage" ceremonies for newly promoted noncommissioned officers). Operating within this guidance, the assigned historian and other members can create programs that are innovative, exciting, and directly relevant to the unit. Through continued personal involvement, the commander can set the example and make "history come to life" within the unit.

Conclusions

History is an invaluable tool for Air Force leaders; it has great value for an airman's individual development, the mentoring of followers, and the

creation of stronger units. If used effectively, history augments and builds upon an individual's personal experience and training, providing the leader with invaluable perspective and insights. At the unit level, history is important because it is a key source of pride and helps to develop a sense of belonging and teamwork.

Without deliberate planning and effort, however, one cannot benefit from the potential value that history offers. Leaders should include the study of history in both their personal development and PME experiences. They should also incorporate historical study into the mentoring of their followers. At the unit level, deliberate planning is necessary to build positive traditions and relate history to desired values and behaviors. Finally, deliberate planning is a precondition for success, but it alone will not suffice. The involvement, passion, and personal example set by the leader are essential if history is to “come alive” within the unit. The best commanders in today's Air Force understand what is required and use history to inspire the airmen in their care and pass along their heritage. □

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Notes

1. Developing Air and Space Leaders (DAL) Support Office, *Squadron Commander Training: Air Force Leadership Core Curriculum Facilitator's Guide* (Washington, D.C.: DAL Support Office, 16 April 2002), x.
2. One can differentiate education from training (defined as “learning a particular set of skills to perform specific tasks, not generally transferable or applicable to other situations”) and experience (“learning from duty substantially enhanced by education and training”). See United States Air Force, “Education and Training Strategic Plan,” vol. 1, “The Core Document,” draft, 16 May 2002, 2.
3. These thoughts were informed by *Leadership: The Warrior's Art*, ed. Christopher D. Kolenda (Carlisle, Pa.: Army War College Foundation Press, 2001), xv–xviii; and *Contemporary Issues in Leadership*, 5th ed., ed. William E. Rosenbach and Robert L. Taylor (Boulder, Colo.: Westview Press, 2001), 1–3.
4. Gen Barry R. McCaffrey, “Foreword,” in *Leadership: The Warrior's Art*, xiv.
5. For example, civilian organizations are not responsible for managing violence, do not place their “followers” deliberately in harm's way, and do not have the same level of authority over the personal lives of their employees as does an Air Force leader.
6. *Chief's Sight Picture: CSAF's Reading List*, 22 July 2002, on-line, Internet, 16 August 2002, available from <http://www.af.mil/lib/csafbook>.
7. AFM 35-15, *Air Force Leadership*, December 1948, 18.
8. *Ibid.*, 17–20.
9. Col Daniel L. Goldfein, *Sharing Success—Owning Failure: Preparing to Command in the Twenty-First Century Air Force* (Maxwell AFB, Ala.: Air University Press, October 2001), 103–4.
10. Robert W. Madden, “Living on the Edge: Building Cohesion and the Will to Win,” in *Leadership: The Warrior's Art*, 71–78.
11. Personal observation of the author, February 2002.

Always employ outposts. Always utilize patrols. Always keep a reserve.

—Field Marshal Erwin Rommel



Editor's Note: PIREP is aviation shorthand for pilot report. It's a means for one pilot to pass on current, potentially useful information to other pilots. In the same fashion, we intend to use this department to let readers know about air and space power items of interest.

Air Staff Rides

Wartime Leadership Experience

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STAFF RIDES ARE seminars that address contemporary issues of leadership and strategy by combining academic study with tours of actual battlefields. Although they may take different forms, they all seek to further the development of leaders. Between 1858 and 1869, Helmuth von Moltke,

chief of the Prussian General Staff, institutionalized the practice by conducting annual staff rides that considered hypothetical situations, based upon possible plans of operations against Prussia's enemies.¹ Staff rides have long been a staple of the US Army and Marine Corps, both of which use Civil War battle-

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fields to discuss leadership, decision making, tactics, and strategy. Today, civilian businesses conduct staff rides for executives, and the leisure industry offers them to tourists.² There is a hint that even the Air Force is mining the benefits.

Staff rides are pedagogically unique in the education of military leaders. They show students the dynamics of battle, especially those factors that interact to produce victory or defeat. Students are exposed to the human dimensions of warfare via case studies in military leadership. Successful staff rides depend upon (1) the active participation of students in the systematic study of the event, including exchange of information, formulation of thought, and collective analysis of the military operation, and (2) a visit to the actual site, which facilitates complete integration of the preliminary study with battlefield analysis in three dimensions. The combination of classroom and field study enhances student involvement and retention of lessons learned.³

On the one hand, "air" staff rides differ little from conventional staff rides. After undertaking preliminary study, participants tour airfields, command posts, ammunition dumps, and battlefields where airpower played a role. On the other hand, air staff rides are distinctive in the sense that touring the battlefield at a tactical level has little or no applicability to airmen. Instead, the air ride must focus on decision making at the operational level in order for students to grasp how airpower shaped the battle. The ride does not neglect the tactical ground battle, however, since joint warfare requires knowledge of the ground conflict to understand how the air force fits in. The joint experience helps airmen become better leaders and commanders in war. Changes in technology and corresponding changes in doctrine render some lessons obsolete, especially those linked to minor tactics. But most identified lessons are timeless because they are based on universal operational principles and natural human characteristics. These lessons are most important for officers who aspire to higher command and true mastery of the art of war.

World War I tours are popular in France, but World War II sites offer the Air Force participant a greater number of choices. The Normandy campaign is considered a classic, and the Royal Air Force Staff College now offers a regular tour. Other staff rides include Rotterdam 1940, which still allows the student to see the effects of aerial bombing; Kent 1940, a Battle of Britain locale; Arnhem 1944, which examines the airborne operation; and Belgium 1940/1944, which offers the simultaneous study of two campaigns. Although Europe may include a number of accessible sites, Asia too has sites and battlegrounds worth visiting, as do Singapore, Pearl Harbor, and Tinian. In Europe the relative compactness of some campaigns facilitates their study.

Recently, United States Air Forces in Europe (USAFE) took advantage of its prime location to organize staff-leadership rides to World War II battlefields. The 86th Operations Group conducted air rides to Normandy, the Berlin airlift locations, and the Market-Garden battlefields in eastern Netherlands, in accordance with the theme of comparing historical to current airlift operations. The 86th involved personnel from all levels of its command, from airman to squadron commander. Furthermore, Gen Gregory S. Martin, USAFE commander, organized two air rides in June and July 2002 to emphasize airpower mentorship and leadership. The rides included discussion of high-level concerns and concepts at the strategic and operational levels. This experience identified lessons about command and communications in 1944, both successes and failures, that resonate in today's world, illustrating to all attendees that the United States Air Force has been a remarkable military arm for many generations. □

Notes

1. See Hansgeorg Model, *Der Deutsche Generalstabsoffizier: Seine Auswahl und Ausbildung in Reichswehr, Wehrmacht und Bundeswehr* (The German general staff officer: His selection and education in the Reichswehr, Wehrmacht and Bundeswehr) (Frankfurt am Main: Bernard & Graefe Verlag, 1968).

2. The Paul H. Nitze School of Advanced International Studies (SAIS) offers staff rides for corporate executives. See *SAIS Executive Education Programs*, on-line, Internet, 1 October 2002, available from <http://www.sais-jhu.edu/programs/executive/staffrides.html>. See also *MIDAS Tours*, on-line, Internet, 1 October 2002, available from <http://midastours.co.uk/t064a.html>.

3. See the foreword to William Glenn Robertson's *The Staff Ride* (Washington, D.C.: US Army Center of Military History, 1987), on-line, Internet, 1 October 2002, available from <http://www.dean.usma.edu/history/outreach/staffrides/foreward.html>.



Emotional Intelligence

Implications for All United States Air Force Leaders

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Editorial Abstract: Emotional intelligence and its five domains of empathy, handling relationships, self-awareness, managing emotions, and motivating oneself constitute a set of learned, interpersonal abilities that allow leaders to become highly effective. The authors outline the characteristics of emotional intelligence and offer practical ways for readers to integrate its techniques into their leadership style.

Knowing others and knowing oneself, in one hundred battles no danger. Not knowing the other and knowing oneself, one victory for one loss. Not knowing the other and not knowing oneself, in every battle certain defeat.

—Sun Tzu, *The Art of War*

THIS ARTICLE EXPLORES the emerging field of emotional intelligence (EI). It discusses what it is, why it matters in general terms, how individuals can improve their EI, and what impact it has on the effectiveness of US Air Force leaders. Specifically, EI is powerful because it overrides logic in the brain due to the way people are wired. Unlike natural intelligence, usually labeled IQ, EI *can be* developed. Studies have shown that highly productive team leaders have high EI. That is why Air Force

leaders at all levels should know about this emerging field. As will become apparent, Sun Tzu's concise observations about the awareness of both self and others anticipated the results that emerged from twentieth-century EI studies. He asserted that a person with self-knowledge as well as knowledge of the opponent will win. EI studies offer a more sophisticated, more practical approach to developing this essential awareness of self and others. More specifically, almost all highly effective leaders have EI—lesser leaders do not.

What Is Emotional Intelligence?

Scientists began tracing the outlines of EI in the 1920s. By 1990 J. D. Mayer and P. Salovey had identified five EI domains under two overarching relational areas:

Interpersonal

- *Empathy* involves the degree that individuals are sensitive to others' feelings and concerns. Empathetic leaders are sensitive to the differences in how people feel about things. Such leaders are able to step outside themselves to evaluate situations from another perspective.
- *Handling Relationships* describes how effectively leaders detect and manage the organization's emotional environment. This requires developing a wide-ranging competence for sensing subtle shifts in the social atmosphere.

Intrapersonal

- *Self-Awareness* involves purposeful monitoring of one's emotional reactions to identify feelings as they emerge.
- *Managing Emotions* builds on the understanding of emotional origins derived from self-awareness to manage feelings appropriately as they arise.
- *Motivating Oneself* requires individuals to channel emotions effectively. Examples could include stifling impulses and delaying gratifications.¹

When one considers EI in light of these domains, it becomes obvious that the field represents a set of comprehensive, interpersonal abilities rather than hardwired native skills; as such, it can be learned. EI could well be called "affective effectiveness." The affective domain consists of mind, will, and emotions ("heart knowledge"); it contrasts with linguistic, logical, mathematical, and spatial intelligences—the cognitive domain of "head" knowledge. When military leaders unfamiliar with EI first hear about it, they are generally

unreceptive. But there is more to judging this "book" than its "touchy-feely-sounding" cover.

Currently, Dr. Daniel Goleman is the leading author and researcher in EI studies. He begins his first book, *Emotional Intelligence: Why It Can Matter More Than I.Q.*, with a discussion of the brain-mapping work of neuroscientist Joseph LeDoux of the New York University Center for Neural Sciences:

His findings on the circuitry of the emotional brain overthrow a long-standing notion about the limbic system, putting the amygdala at the center of the action. . . . Sensory signals from the eye or ear travel first to the thalamus, and then across a single synapse—to the amygdala; a second signal from the thalamus is routed to the neocortex—the thinking brain. This branching allows the amygdala to begin to respond *before* the neocortex, which mulls information through several levels of brain circuits before it fully perceives and finally initiates its more finely tailored response. . . . This circuit does much to explain the power of emotion to overwhelm rationality (emphasis in original).²

This mapping discovery carries powerful implications. According to Goleman and others, the human reactions stored in the amygdala can be altered. With repeated practice, a normally "short tempered" individual can learn to manage and even relearn those initial reactions to frustration or discomfort. More importantly, over time, the stored information for individuals engaged in antisocial, self-defeating behavior can be changed. Until now, our cultural bias has called for focusing training and measurement efforts only on cognitive abilities, but interesting new data demonstrate that EI can be developed.

Implications for Leader Development

As leaders intuitively appreciate, the better they know/understand and manage themselves and the better they know/understand and manage others, the more likely they are to get the results they want. And that is EI's value to military leaders. In an interview conducted in 1996, Dr. Howard Gardner cited

linguistic and personal intelligence as the sine qua non of leadership: "It doesn't mean that all leaders have to start with having well developed variants of both of them, but if they're not a particularly good speaker [sic] or they don't have a particularly good understanding of other people, that's got to be a top priority for them."³

A 1997 American Management Association study discovered a significant mismatch between employer expectations and the skills of newly graduated professionals, who lacked the ability to speak and relate to others effectively and to work as team players. Additionally, the University of Virginia's Business School interviewed corporate recruiters, who told them the top skills they sought were interpersonal: the ability to adapt to the feelings and concerns of others, to motivate others, and to deal effectively with conflict and adversity.⁴

Data gathered by Dr. Goleman show that EI is a reliable predictor of higher-division effectiveness:

Emotional intelligence played an increasingly important role at the highest levels of the company, where differences in technical skills are of negligible importance. In other words, the higher the rank of a person considered to be a star performer, the more emotional intelligence capabilities showed up as the reason for his or her effectiveness. When I compared star performers with average ones in senior leadership positions, nearly 90% of the difference in their profiles was attributable to emotional intelligence factors rather than cognitive abilities. Other researchers have confirmed that emotional intelligence not only distinguishes outstanding leaders but can also be linked to strong performance.⁵

Arguably, these same desired skills are at the heart of leadership generally and Air Force leadership specifically. These are not management skills—they are fundamental to the capacity to lead airmen.

For Goleman and his colleagues, versatility is the key to EI. As individuals develop strong EI competencies, they gain flexible ranges of leader-style options and, ultimately, leader effectiveness. Because EI involves problem solv-

ing and managing the uncertain, Goleman's approach is anything but wine and roses. Instead, he focuses on leadership's bottom line: results. His work with the Hay/McBer consulting firm, which collected observations from a sample of 3,871 executives selected from a database of over 20,000 such people worldwide, led to some groundbreaking leadership applications for EI. Executives who lacked EI were rarely rated as outstanding in their annual performance reviews, and their divisions underperformed by an average of almost 20 percent.⁶ Goleman's study identified six distinct and effective leader styles, all derived from different EI competencies. Like the arbitrary lie of a golf ball, the situations or environments in which executives find themselves appear to dictate the mix of EI competencies and, eventually, the appropriate leadership style that a leader would invoke:

- *Visionary*: Occurs when change requires a new vision or clear direction
 - EI competencies: self-confidence, empathy, catalyst for change
- *Coaching*: Helps employees improve performance by building long-term capabilities
 - EI competencies: developing others, empathy, self-awareness
- *Affiliative*: Helps heal team rifts, motivates during stressful times
 - EI competencies: empathy, building relationships, communication
- *Democratic*: Builds consensus, solicits employee inputs
 - EI competencies: collaboration, team leadership, communication
- *Pacesetter*: Elicits high-quality results from motivated team
 - EI competencies: conscientiousness, achievement, initiative
- *Commanding*: Provides a kick-start turnaround in a crisis, deals with problem employees
 - EI competencies: achievement, initiative, self-control.⁷

Unlike traditional approaches to leader development, wherein people label their style based upon how they perceive their own strengths and preferences, Goleman's approach expands the horizon:

The most effective leaders switch flexibly among the leadership styles as needed. Although that may sound daunting, we witnessed it more often than you might guess, at both large corporations and tiny start-ups, by seasoned veterans who could explain exactly how and why they lead and by entrepreneurs who claim to lead by gut alone. . . . Such leaders don't mechanically match their style to fit a checklist of situations—they are far more fluid. They are exquisitely sensitive to the impact they are having on others and seamlessly adjust their style to get the best results.⁸

One of Goleman's greatest contributions to leadership studies is the aforementioned notion of sets of competencies grouped into specific styles. He indicates the competency mix needed in specific situations and even ventures to predict how a particular style mix will affect group cohesiveness. Because he focuses on leadership's bottom line, he doesn't back away from either the style or the appearance of stress or conflict in the leadership scenario. On the contrary, he remains acutely aware that some approaches, although necessary for the problems at hand, will have human consequences (e.g., a backlash) and should be monitored for longer-term challenges. Using Goleman's bottom-line focus may lead to an appropriate EI behavioral-leadership mix but offers no guarantee that all individuals in the organization will emerge from the scenario feeling happy or satisfied. If they wish to realize the maximum benefits from EI, leaders who incorporate EI into their leadership portfolio must combine the short-term focus required for completing the immediate task with a long-term emphasis on the organization's emotional health. In other words, commanders and supervisors develop EI awareness by maximizing their inherent capabilities and developing the flexibility to trade in and out of the style needed in a given leadership situation.

Development Efforts: Emotional Intelligence Can Be Learned

In his article "What Makes a Leader?" Dr. Goleman answers the question "Can EI be learned?" with a resounding "yes" and expands upon the basic mechanisms required to enhance EI:

Emotional Intelligence is born largely in the neurotransmitters of the brain's limbic system, which governs feelings, impulses, and drives. Research indicates the limbic system learns best through motivation, extended practice, and feedback. . . . The neocortex [which governs analytical and technical ability] grasps concepts and logic. It is the part of the brain that figures out how to use a computer or make sales calls by reading a book. Not surprisingly—but mistakenly—it is also the part of the brain targeted by most training programs aimed at enhancing emotional intelligence. When such programs take, in effect, a neocortical approach . . . they can even have a negative impact on people's job performance. . . . To enhance emotional intelligence, organizations must refocus their training to include the limbic system. They must help people break old behavioral habits and establish new ones. That not only takes much more time than conventional training programs, it also requires an individualized approach.⁹

Acknowledging Goleman's emphasis on the individualized approach to leadership development, many top-level company leaders hire specialists to help them and their people with leadership-effectiveness issues. By using personal coaches and mentors, they seek to accelerate the natural process of maturation. After all, complex military and business institutions can no longer afford to wait 20–30 years for their personnel to develop the full complement of cognitive and affective traits required to become effective leaders. Air Force Instruction (AFI) 36-3401, *Air Force Mentoring*, incorporates EI principles by providing guidance for the full spectrum of Air Force leadership skills. It underscores the pivotal role of the supervisor in developing his or her subordinates in both technical and professional/personal arenas by highlighting the need to estab-

lish personal relationships with them. The AFI urges Air Force leaders to use mentoring as one of the key relational tools for building EI skills and awareness in both themselves and their subordinates.¹⁰

Supervisors must mentor their people—especially subordinates who are supervisors—on their human skills; they must also persuade their own bosses to provide them guidance and feedback. Mentoring involves a longer and generally more comprehensive relationship between an experienced person and one who is less experienced. This ongoing relationship allows for the kind of “monitored behavior modification” that is necessary to improve EI, according to Goleman’s research.¹¹

Coaching tends to be a periodic or more short-term, symptom-specific encounter between two professionals. In the Air Force, it seems appropriate to expect the immediate supervisor to begin mentoring by coaching functionally organized teams. As relations with team members evolve, leaders may incorporate additional outside assistance as they deem appropriate for the growth desired. Ultimately, leaders cultivate personal relationships as they progress from coaching toward true mentoring roles. To supplement the less formal aspects of mentoring relationships, leaders may use formal feedback-and-evaluation sessions to develop their relationships with subordinates. Such activities may prove especially useful for leaders charged with supervising large organizations.¹²

Goleman also points out that the limbic system takes much longer to be reprogrammed (i.e., learn new behaviors) than does the neocortex. Only after months of repetition and practice can one create “new neural pathways [that] become the . . . default option” for the emotional brain. He tells the success story of Jack, a high-paced striver who pounded on folks who didn’t meet his expectations:

Jack realized he had to improve if he wanted to advance in the company. Making such a connection is essential (must value the change). Once Jack zeroed in on areas for improvement and committed himself to making the effort, he and his coach worked up a plan to turn his day-

to-day job into a learning laboratory. For instance, Jack discovered he was empathetic when things were calm, but in a crisis, he tuned out others. This tendency hampered his ability to listen to what people were telling him in the very moments he most needed to do so. Jack’s plan required him to focus on his behavior during tough situations. As soon as he felt himself tensing up, his job was to immediately step back, let the other person speak, and then ask clarifying questions. . . . Jack learned to defuse his flare-ups by entering into a dialogue instead of launching a harangue.¹³

From Jack’s example, we see how one must make a commitment to change behavior. One must also appreciate the difference between universally counterproductive behavior and situation-specific ineffectiveness. For example, the competence of “initiative” isn’t always effective behavior. A person who joins a highly specialized, tightly knit group and loudly describes during his or her first week all the changes that need to occur—the clean-sweep approach to leadership—probably won’t have much influence. However, initiative may often be the exact competency called for during a crisis situation in which roles are generally understood and expectations are relatively clear. People with high EI know the difference and behave accordingly.

People who are genetically wired with higher EI need little nurturing to augment what nature gave them. Others may require time, effort, and repeated practice to reach the level of EI whereby their competencies and versatility give them the flexibility to handle ever-changing situations. Developing EI appears to be within anyone’s reach. Cultivating stronger EI can improve one’s grasp of leadership styles—especially if one develops the flexibility to use the right style in each situation.

Leadership and Emotional Intelligence at Work

The ideal leadership picture is more in line with the “invisible” leader of Eastern philosophy. Unit members carry out their mission with equal ability and enthusiasm, regard-

less of whether or not the boss is present. The leader's goal is to develop subordinates in such a way that they can perform well—perhaps ever better—without him or her. This orientation contrasts our Western ideal of knighthood wherein one leader dominates in a given unit. Effective leaders don't use dramatic gestures to get their bosses to notice them—they focus on pushing responsibilities down to subordinates and deliberately developing them to become their replacements. In fact, the overriding function of a leader is to guide and help develop their subordinates' leadership as a guarantee of healthy units and individuals. This highly effective leader is a master of the key traits noted by EI experts, able to move smoothly from one style to another as situations dictate.

New on the Job

Gen Jerome "Jerry" O'Malley was famous for the approach he took as new commander of a unit. This powerful leader preferred to assume the role of a sponge initially. He listened and learned about the people and their strengths and developmental needs, using a patient, pleasant approach before beginning his molding and shaping process. Listening is essential in a new job. Subordinates evaluate their leaders to find out if they are trustworthy, competent, and attentive to their needs. Job requirements will refine and shape a leader's "commander personality," based upon the people, challenges, opportunities, and other situations. Acting too quickly after assuming command may preclude a leader from responding as flexibly as he or she might like later on. Leaders limit their range of options to act as they refine their judgments. General O'Malley serves as a role model for commanders who wish to approach a new situation and its people intelligently.

Impact of Emotional Intelligence

In the early 1980s, a frontline F-4E squadron, as heavily tasked a unit as one could find, had prepared to operate in three different theatres and could do anything asked of it. One com-

mander of this squadron, a master aviator, was absolutely tops technically but had only average EI. A rather directive person who nevertheless could listen, he was the only individual doing the thinking and creating plans. Things were fine as long as the plan was working, but he had little flexibility and only average subordinate support when it wasn't. He went on to complete his career honorably as a full colonel in a joint staff position. His successor, a staff officer out of the Pentagon, had been out of the flying business for several years and was only an above-average pilot—but he had extraordinary EI. By using all the tools and techniques in his portfolio, this man took a solid-gold squadron and made it superhuman; moreover, the effects spilled over to the rest of the wing. He's currently a four-star general in the Air Force.

An earlier situation had direct combat impact during the Vietnam War. Assigned as air liaison officers to the 1st Cavalry Division of II Corps, forward air controllers (FAC) out of a certain airfield served three battalions. One could easily see the dynamics of the level of trust between the different FACs and the company or brigade commanders with whom they worked. During fast-moving, confusing ground engagements, the FACs saw much more from the air, especially in the absence of a command helicopter. The FACs who demonstrated high EI competencies routinely enjoyed greater latitude in helping the ground commanders direct maneuvers. But the FACs who lacked developed EI—those who had not gained the complete trust and confidence of the men they served—functioned in a more limited fashion. A dramatic difference existed in the trust that the Army commanders had in these two groups of FACs—a situation that stands as a clear example of direct-combat impact.

Developing EI Competencies in Air Force Officers: A Natural Evolution

Given the growing importance of air and space power in emerging strategic and opera-

tional environments, how might we describe the integration of EI development into practical leadership experience? Recognizing that our civilian and enlisted populations also need to develop these qualities, we illustrate this process of integration in the following scenario, which follows a representative officer's career from lieutenant to lieutenant colonel.

As newly active participants in the officer culture of the Air Force, lieutenants encounter many unfamiliar dynamics. Senior leaders, peers, and subordinate mentors, as well as personal observations and everyday trial-and-error opportunities, provide the necessary teaching tools that allow young officers to progress through entry-level leadership roles. Continuing formal education and professional military education are vital as well. Studying great leaders (and not-so-great ones) adds immeasurably to their understanding of themselves and others. Although they are junior officers, lieutenants should remember that they are key members of the Air Force's leadership team—great responsibility accompanies their rank and position within the institution. This is the time for them to begin a career-long effort to learn about highly effective leaders, to discover how they developed, and to ask how they need to prepare themselves. Even before they find themselves in tough spots, lieutenants have opportunities to seek honest feedback and ongoing mentoring. They can refine their strengths and discover weaknesses. In fact, with time and attention, these officers can transform their weaknesses into strengths.

Because lieutenants occupy the first link in the chain of command, they often bear the brunt of challenges that accompany the mentoring of enlisted members. According to a lieutenant who served in Operations Desert Shield and Desert Storm, "As soon as we stepped off the plane at our final location, the major challenge for myself and the four other officers in our 100-man Prime BEEF team was to keep morale up. Initially, we had limited tools and equipment, poor food, grossly overcrowded living conditions, and a sense that we

were just a burden on the base."¹⁴ Few conventional or cognitive leadership-training courses could hope to equip leaders to overcome these challenges. This officer's perception that morale became the most significant problem he encountered underscores the need to infuse leadership-development programs with EI education. The stresses of wartime operations tempo only heightened this lieutenant's need for EI skills to keep his force operating at peak efficiency: "I found myself constantly explaining the 'big picture' when I didn't know what it was. Nor did I know whether our situation would improve. I never realized how much the enlisted force depended on us for information and leadership. We spent a significant amount of time counseling and advising about personal problems. . . . I had not expected this task, and frequently I found it difficult due to the complexity of the problem or just plain lack of experience in counseling on my part."¹⁵

This example clearly illustrates that open-ended operational deployments require Air Force leaders to possess the full spectrum of leadership styles. Although lieutenants may not cast the overarching organizational vision—the "big picture"—they often will serve as the commander's agents who transmit and explain that vision to the troops. Leaders also must remain alert to signs of stress within the organization. The coaching style allows leaders to use the EI domains of empathy and managing emotions to counsel and mentor subordinates through the stress of long periods away from home. Indeed, this skill might be the most critical leadership component in the young company-grade officer's leadership portfolio.

As officers move into positions of greater leadership responsibility, they should expand their portfolio by using more EI traits and fundamental leadership styles. By the time young officers have become captains, they should have achieved a technical confidence that allows them to shift gradually from focusing on themselves to focusing on others. Thus, they should consciously employ competencies associated with teamwork, which requires an ongoing awareness not only of their own

growth, but also the strengths and developmental needs of their fellow workers. As officers mature in terms of self-confidence and wisdom, they should begin to focus on the traits associated with understanding others' professional and personal strengths and abilities. Developing these EI leadership competencies, especially when captains have more work to do than extra hands to do it, becomes a conscious effort—a personal development priority. Although they still seek feedback and mentoring, maturing captains find themselves mentoring others as well.

This focus on developing other people forces captains to manage time and tasks carefully. The experiences of another Desert Storm veteran who supervised personnel-support efforts at a deployed location illustrate how the shift in focus translates into mission-oriented actions:

Within my team, I had two areas of concern. First, I had too large a team for the population we were supporting. All the airmen were from one base and all the NCOs [noncommissioned officers] were from my (different) base. Initially, the airmen had difficulty taking direction from NCOs they did not know. I split the team into two shifts, a day shift and a night shift, which kept everyone busy. The day shift handled customer inquiries while the night shift handled paperwork and computer updates. Second, I established a "forum" where both shifts aired their differences and came up with their own solutions. I also called upon my three master sergeants to lead and discipline.¹⁶

By recognizing the potential conflicts that stemmed from merging personnel from different units, this captain forged an effective team and simultaneously created an atmosphere that allowed her to mentor the senior NCOs under her command.

By the time Air Force officers become majors and lieutenant colonels, most have been responsible for significant assets or projects. In our culture, *significant* doesn't necessarily mean sheer numbers of people, planes, or satellites. The Air Force generally requires few assets to deliver tactical precision and strategic effects. Midlevel officers are responsible for people and modern assets that are incredibly more ef-

ficient in defending the nation than in times past. For that reason, developing the traits and abilities described by Dr. Goleman in his leader styles becomes vital. Every platform as well as every controller's action has the potential to produce incredible effects. This new environment calls for leaders who continually develop their own and others' EI.

The uncertainty of the requisite tactics to combat tomorrow's foes creates a need for astute commanders with equally engaged subordinates who act on mission-type orders. This fine-tuning is necessarily left to the people who actually place the bombs on target. The evolving environment requires more agility and flexibility than ever previously imagined. Centralized control with decentralized execution by small groups of talented individuals will become more common. In effectively led teams, the leader—one with high EI traits—capitalizes on each member's greatest strengths to create synergies for tackling and solving real-time problems.

A supply-squadron commander in a wing of B-52s and A-10s recounted his opportunity to exercise EI when, soon after taking command, he faced dwindling funds allocation at year's end. With each of his four flights insisting that its needs were the squadron's top priority, he called the chief enlisted managers (CEM) (senior or chief master sergeants) together for the fuels, combat-support, procedures, and administration-support flights and told them to prioritize their requirements and justify them to *each other*. Later, when asked why he had approached it that way, he said, "The annual fight over end-of-year funds is a given, but I didn't know the squadron's actual history. The Senior NCOs did. It was up to them to work it out fairly, in a way everyone could live with."¹⁷ The squadron commander called a follow-up meeting to have the four CEMs explain their rationales to him. The commander realized that he had an opportunity to address some long-standing communication challenges among his key enlisted leadership and thus strengthen the squadron's team orientation. Recognizing what his squadron lacked and having the se-

nior NCOs participate in his final decision helped the commander pave the way for continued open lines of cooperative interaction among the squadron's flights.

Conclusion

The emerging field of study known as emotional intelligence has high importance in leadership-sensitive organizations. A cluster of skills and competencies that has great effect on leader effectiveness, EI *can be* learned, developed, and improved. While researchers continue to refine the field, the two key relational domains—interpersonal and intrapersonal—remain unchanged. The assumption behind EI studies, confirmed by research, maintains that leaders must understand and manage their own emotional makeup before attempting to understand and manage other people.

According to Leadership Advantage, an executive and organizational-development consulting firm, empathy plays a critical role in improving EI. The firm suggests several steps leaders can take to develop empathy:

- Keep track of missed opportunities to display empathy.

- Be aware that subordinates may not explicitly express underlying concerns.
- Never presume to know what others are feeling.
- Ask open-ended questions rather than ones that require only a simple “yes” or “no” answer.
- Practice listening without interrupting.
- Avoid being defensive.
- Allow creative time for others to express ideas without judging them.
- Work on achieving an effective balance of focus, goal orientation, and empathetic listening.¹⁸

This list represents some of the practical things Air Force leaders can do for themselves and mentor others to do as they seek to enhance their EI portfolio.

The emotionally intelligent leader evolves into someone with the ability to move seamlessly from one approach or style to another, allowing the requirements of the situation and the resources at hand to dictate what he or she needs to do. A portfolio of leadership styles can serve as a vital tool for all supervisors, especially supervisors of other supervisors. Sun Tzu's millennia-old advice holds for everyone—commanders most of all. □

Notes

1. J. D. Mayer and P. Salovey, “Emotional Intelligence,” *Imagination, Cognition, and Personality*, no. 9 (1990): 185–211.

2. Daniel Goleman, *Emotional Intelligence: Why It Can Matter More Than IQ* (New York: Bantam Books, 1995), 15, 17. The amygdala is part of the limbic system, a group of brain structures that play a role in emotion, memory, and motivation. For example, electrical stimulation of the amygdala in laboratory animals can provoke fear, anger, and aggression. The hypothalamus regulates hunger, thirst, sleep, body temperature, sexual drive, and other functions.

3. Quoted in Christopher Koch, “The Bright Stuff,” *CIO Magazine*, 15 March 1996, on-line, Internet, 5 September 2002, available from <http://inst.santafe.cc.fl.us/~mwehr/Humanrel/15EmotIntArt.htm>.

4. “On Emotional Intelligence,” on-line, Internet, 5 September 2002, available from <http://inst.santafe.cc.fl.us/~mwehr/Humanrel/21EIQoverview.html>.

5. Daniel Goleman, “What Makes a Leader?” *Harvard Business Review*, March–April 2000, 94.

6. Daniel Goleman, “Leadership That Gets Results,” *Harvard Business Review*, March–April 2000, 80–81.

7. Daniel Goleman, Richard Boyatzis, and Annie McKee, *Primal Leadership: Realizing the Power of Emotional Intelligence* (Boston: Harvard Business School Press, 2002), 39.

8. Goleman, “Leadership That Gets Results,” 87.

9. Goleman, “What Makes a Leader?” 97.

10. AFI 36-3401, *Air Force Mentoring*, 1 June 2000.

11. Goleman, “What Makes a Leader?” 97.

12. The officer evaluation report has a block called “Impact on Mission Accomplishment.” According to AFI 36-2406, “You may also address the ratee's ability to evaluate and develop subordinates here.” AFI 36-2406, *Officer and Enlisted Evaluation Systems*, 1 July 2000, 46.

13. Goleman, “Leadership That Gets Results,” 88–89.

14. 1st Lt Gregory S. Brown, “Engineering from Rock to Sand,” in *From the Line in the Sand: Accounts of USAF Company Grade Officers in Support of Desert Shield/Desert Storm*, ed. Michael P. Vriesenga (Maxwell AFB, Ala.: Air University Press, 1994), 23.

15. *Ibid.*, 24.

16. Capt Jacqueline C. Grant, “Tracking Personnel in Camelot,” in *From the Line in the Sand*, 28–31.

17. Maj Howard Kosht, Department of Leadership, Air Command and Staff College, Maxwell AFB, Ala., interviewed by author, August 2002.

18. “Managing with Emotional Intelligence,” 2001, Leadership Advantage, Olney, Md. 20832, on-line, Internet, 5 September 2002, available from <http://www.leadershipadvantage.com/managingWithEmotionalIntelligence.shtml>.

Maj Gen Mason M. Patrick

DR. ROBERT P. WHITE



Maj Gen Mason M. Patrick stands as one of the great yet unsung pioneers of American airpower. An engineering officer by training, this 1886 graduate of West Point did not begin his military-aviation career until 1918. At that time, during World War I, Gen

John J. Pershing selected Patrick to command the Air Service of the American Expeditionary Force (AEF). Patrick's no-nonsense approach brought order to the personality-induced chaos (primarily the friction between Gen William "Billy" Mitchell and Gen Benjamin D. Foulois) that had engulfed the air arm. With Patrick in charge, the AEF Air Service provided the support that Pershing desperately required.

After the war, Patrick returned to his engineering role, thinking he had left military aviation for good. But by the end of 1921, the Air Service found itself embroiled in doctrinal disagreements, severe fiscal deficiencies, and personal antagonisms, all of which greatly degraded the efficiency and promise of this new combat arm. Now the chief of staff, General Pershing turned to Mason Patrick once again to take charge of the Air Service.

Merely keeping the Air Service breathing, let alone attempting to gain autonomy, proved a massive and problematic undertaking. To complicate matters, Patrick had to contend with Mitchell, his second in command. Realizing his deputy's advantages and disadvantages, Patrick deftly employed Mitchell's talents but constrained his political and publicist personality. Patrick even favored retaining Mitchell as his deputy but could not save this volatile airman from himself. Ultimately, Mitchell's outspoken tactics resulted in his court-martial and subsequent resignation in February 1926.

Beginning in October 1921, it fell to Patrick to orchestrate the behind-the-scenes policies and politics that



eventually resulted in the creation of the US Army Air Corps in July 1926, along with an impressive five-year procurement program. One of the first aviation officers to recognize the full potential of airpower during war and peacetime, Patrick proved remarkably successful in gaining support for the three legs of his aviation triangle: military aviation, commercial aviation, and the aviation manufacturing base; he also promoted legislation that greatly enhanced each of these spheres. A visionary as well, he explained in detail the concept of what would eventually become, in the 1990s, the air expeditionary force to an Army General Service School audience at Fort Leavenworth, Kansas—in 1924. Patrick even found time to earn his wings, doing so at age 59.

Like Mitchell, Patrick believed in the strategic and independent capabilities of the air arm. But he took a much more practical, gradualist, and successful approach to set the Air Service on the road to independence.

To Learn More . . .

Bingle, Bruce A. "Building the Foundation: Major General Mason Patrick and the Army Air Arm, 1921–1927." Master's thesis, Ohio State University, 1981.

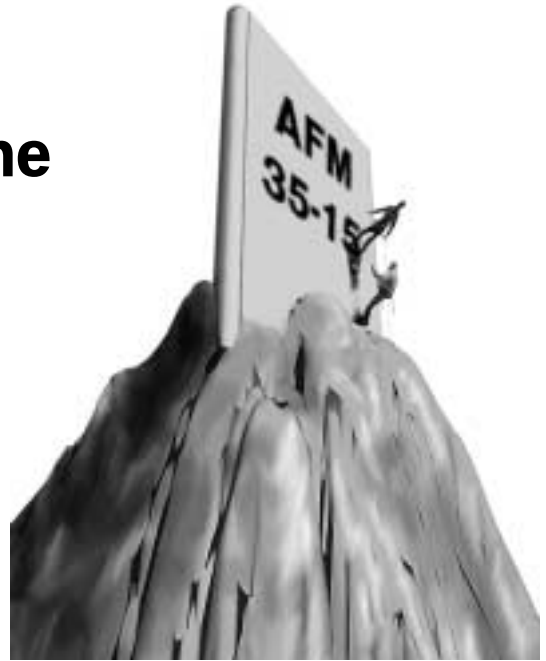
Patrick, Mason M. *The United States in the Air*. Garden City, N.J.: Doubleday, Doran, and Company, Inc., 1928.

White, Robert P. *Mason Patrick and the Fight for Air Service Independence*. Washington, D.C.: Smithsonian Institution Press, 2001.

The Sources of Leadership Doctrine in the Air Force

SHANNON A. BROWN, PHD

Editorial Abstract: The primary elements of requirements, theory, and lessons learned have played a vital role in producing leadership doctrine for today's Air Force. Dr. Brown summarizes how Air Force leadership doctrine has evolved over the years.



Contrary to popular thought, future warfare, however automatic, will necessitate more intelligence, skill, courage, and responsibility by the men using the weapons than was ever necessary in the past. Only sound leadership will insure that air force units will successfully accomplish their tasks.

—Air Force Manual (AFM) 35-15, *Leadership*,
December 1948

WRITING IN THE summer 2001 issue of *Aerospace Power Journal*, Maj Steve Michael asserts that “aerospace leaders develop their fundamental war-fighting beliefs from a study of doctrine.”¹ Given the fact that the Air Force has not had a published leadership doctrine since the mid-1960s, Major Michael’s observation raises a number of important questions: How did Air Force *leadership doctrine* evolve after 1947? In the absence of a formal Air Force-wide leadership doctrine, what concepts, principles, and theories did the service adopt or appropriate from external sources to inform the leadership beliefs of air and space leaders? This article explores these questions by examining key Air Force leader-

ship publications and by tracing continuities, differences, and omissions.

What we discover from a quick review of the old manuals is that the service’s understanding of its overarching mission has always shaped leadership doctrine and that context and environment have heavily influenced both leadership and mission. These findings are not surprising. But we also discover that civilian academic research on leadership exerted a strong influence on Air Force leadership doctrine and leader-development publications; perhaps more importantly, Air Force leadership doctrine drew on new and emerging trends in civilian research and theory concerning leadership. In the absence of official Air Force leadership doctrine, civilian

writing on leadership became a de facto substitute for institutional guidance.

In order to understand how best to produce a leadership doctrine for today's airmen, one must consider the historical sources of Air Force leadership doctrine and the ways in which roles, missions, and environment have shaped the way the service has framed discussions of leadership and leader-follower relations. Three primary elements of leadership doctrine exist—requirements, theory, and lessons learned. From the earliest days of the service, the requirements of Air Force leadership doctrine were expressed in terms of an institutional mission, which provided the conceptual framework for leadership objectives and practices. Lessons learned illustrated specific ideas about requirements and the real-world application of theory. Academic and commercial leadership publications, supplemented by scientific and psychological research, provided the intellectual foundation for Air Force leadership doctrine.

The academic study of leadership is a relatively new field; its origins date back to the 1930s, when classic writings on military leadership were subjected to close scrutiny by men seeking the answers to age-old questions: What makes a good leader? Are leaders born or made? After World War II, leadership studies changed their focus as new approaches and techniques were applied to explore these questions. As the study of leadership evolved, the Air Force drew theory, lessons, and guidance from the civilian academy to promote leadership doctrine and training concepts appropriate to the service's mission—the effective matching of theory with requirements. The survey that follows shows that the history of Air Force leadership doctrine, perhaps more than that of the other services, is a story of dynamic appropriation and adaptation.

Leading Airmen, Not Soldiers

After World War II, the newly independent Air Force sought to establish its identity separate from the Army. Drawing on lessons learned from the war, the leadership of the

new service recognized the importance of developing a coherent basic doctrine that emphasized the uniqueness of the Air Force's capabilities.² Senior Air Force leaders, understanding that creation of a distinctive leadership doctrine represented an important step in this direction, published AFM 35-15, *Leadership*, in 1948, after much discussion and revision.³

A significant departure from the established field-manual format for Army leadership, AFM 35-15 outlined the mission, roles, functions, and guiding principles of the Air Force and incorporated details of the latest scientific findings on leadership. The manual abandoned the Army's standard "traits and principles" approach to the presentation of leadership doctrine in favor of a more nuanced interpretation of the leader's role in a military unit. Psychology formed an important part of AFM 35-15, which encouraged the leader to become "a human engineer" by understanding and manipulating the fundamental drives, instincts, and fears of subordinate airmen.⁴ Borrowing heavily from recent wartime studies of personality and performance, it included an entire annex dedicated to surveying the state of psychology.⁵ The manual advised that collaborative leader-follower relationships were crucial to the successful execution of the highly technical work of the service. It identified psychological principles as the key to maintaining good relationships with subordinates because relying solely on the legal authority derived from command was not enough to ensure the successful execution of the Air Force's overarching mission, defined broadly as "readiness" and "victory in air battle."⁶

One could not help noticing an air of uncertainty about the future in AFM 35-15. The definitions of *readiness* and *victory in air battle* emphasized the value of strategic bombing and the importance of air superiority to success in war—airpower applications familiar to the generation of airmen who served in the European and Pacific theatres.⁷ The writings that formed the basis of this new Air Force leadership doctrine encouraged leaders-in-training to give full consideration to the im-

portance of “discipline and morale” to ensure readiness to carry out bombing and air superiority missions.⁸ Readiness was both a mission and goal unto itself; however, AFM 35-15 identified neither opponents nor peer competitors or made any explicit statements about what the service might be called upon to do in order to carry out its *readiness* and *victory* missions.⁹

This emphasis on mission—however vague—was significant since it established a precedent for the future development of Air Force leadership doctrine. The institutional mission statement emphasized the unique aspects of leading airmen and formed part of an effort to establish the Air Force’s doctrinal and cultural independence from the Army. In contrast, institutional mission statements were nowhere to be found in the Army’s postwar field manuals (FM) on leadership doctrine. The Army’s publications also made only passing remarks about the links between psychology and leadership, a connection explicitly stated in AFM 35-15.¹⁰ The Army’s doctrine manuals focused instead on cultivating the individual leader, borrowing key concepts from the trait-focused leadership studies produced by civilian academics during the 1930s and 1940s.¹¹ For example, the broad themes of teamwork and readiness appeared in the text of the 1951 version of FM 22-10, *Leadership*, but only to organize the presentation of the *leadership principles* and *leadership traits* that formed the core of the publication.¹² One could reduce the Army’s position on leadership development, which overlooked broad institutional missions, to a simple statement: Leadership “depends upon traits which can be developed, and upon the application of techniques which can be learned.”¹³ This philosophy guided the writing of Army leadership doctrine throughout the 1950s and 1960s, the decades during which Air Force leadership doctrine evolved along with the service’s overarching mission.¹⁴ As the mission evolved, so did the theoretical and intellectual underpinnings of the service’s leadership doctrine.

Peace Is Our Profession

By the early 1950s, the role of the Air Force in the emerging Cold War was becoming clear. The danger of conventional and nuclear confrontations between the United States and the Soviet Union led the Air Force leadership to two important conclusions: “1) The defense of the United States must be based on airpower; and 2) In this thermonuclear age, defense is best assured by a strong air force in being.”¹⁵ Following Air Force deployments to Berlin (1948) and Korea (1950–53) and the Soviet detonation of a nuclear device (1949), an explicit mission—*deterrence*—began to shape the Air Force’s basic and operational doctrine. In the words of Gen Curtis LeMay, one could reduce the Air Force’s purpose in the late 1950s and early 1960s to a single statement: “Our mission is to deter war by providing our Nation with the primary forces to gain and maintain general aerospace supremacy—and if deterrence fails, to repel and defeat the aggressor’s forces.” No one had any doubt about whom the Air Force could expect to face in a military confrontation: “We maintain our aerospace forces in readiness to respond to any kind of military challenge the Communists may make.”¹⁶ This deterrence mission—both conventional and nuclear—guided the development of Air Force leadership doctrine in the 1950s and early 1960s.

During this period of doctrinal transition, the academic study of leadership changed in focus and scope. In the 1950s, civilian scholars of leadership turned their attention to the dynamics of group behavior—a subject that dovetailed nicely with the Air Force’s new deterrence-oriented understanding of its purpose.¹⁷ A proliferation of studies about leader personalities and traits undertaken in the 1930s and 1940s had yielded inconclusive results about the nature of leadership. Group dynamics became a new frontier for leadership research, and the Air Force quickly embraced the group approach to leadership analysis as a theoretical improvement to the service’s leadership doctrine. The cultivation of individual leaders remained an important

part of Air Force leader-development publications, but new manuals encouraged airmen to recognize that the service's deterrent capabilities were possible only through effective teamwork. Leadership-training materials incorporated studies of leader-follower interactions, and a number of Air Force-sponsored research projects explored the interpersonal dimensions of small-unit and aircrew performance. The service's leadership publications cited case studies that emphasized team-building processes, acculturation, and group performance under conditions of stress. During this period, Air Force leadership publications included both positive and negative examples of group dynamics and case studies.¹⁸

AFM 50-3, *Air Force Leadership*, the 1964 revision of the service's leadership doctrine manual, included language that emphasized the cultivation of effective partnerships and forward-thinking leaders. The "Mission" section, for example, encouraged airmen to be creative in their problem-solving efforts: "You are expected . . . to use initiative in conceiving more efficient ways in which the mission may be fulfilled. . . . If you think of some new practice that is lawful, by all means implement it." The manual emphasized the superior capabilities of the service's dynamic air and space forces, marshaled by leaders who understood their "responsibility to further the mission of deterrence and readiness" (emphasis in original).¹⁹ AFM 50-3 presented information on leader growth and self-improvement in the context of team leadership, advising leaders-in-training to be sensitive to context when they made decisions. Significant conceptual and theoretical differences existed between AFM 50-3 and AFM 35-15, the newer manual de-emphasizing the uses of psychology and including more Air Force-specific anecdotes (lessons learned) to illustrate points about cooperation, authority, and group effectiveness. This is not to suggest that psychology had fallen out of favor with leadership-development writers in the Air Force—other service publications from the early 1960s focused on specific psychology and group-management matters, supplementing the basic doctrine found

in AFM 50-3.²⁰ With a maturing leadership doctrine and an evolving leader-development system, the Air Force continued to promote leadership concepts that linked mission (deterrence), organizational theory, and psychology with leader development.²¹

Leadership and Institutions in Transition

By the late 1960s, however, competing operational missions clearly were eroding the deterrence mission that had served as a touchstone for basic Air Force leadership doctrine for over a decade. Strategic deterrence remained a vital function of the Air Force, but the service's broad role in Southeast Asia had proven that neither deterrence nor readiness adequately captured the scope of work performed by Air Force personnel. New analytical and resource-management techniques adopted by the Department of Defense (DOD) and implemented by the services complicated the leadership-doctrine picture. These new techniques included systems analysis, whose proponents introduced new thinking on leadership to the Air Force.

The approaches derived from systems analysis and theory became important new tools for exploring leadership, and both scholars of civilian leadership and academics working under military contract used these techniques. Systems approaches to leadership blended elements of older scholarship on traits, situations, and group dynamics with feedback loops, causal-relationship constructs, correlation analysis, and information-flow models applicable to the study of power in large organizations.²² Some smaller-scale studies attempted to measure group dynamics in quantitative terms or evaluate leadership performance with surveying tools.²³ Other models and studies produced in the 1960s and 1970s attempted to capture leadership processes: examples included the "3-D Leadership Effectiveness Model" developed by Paul Hersey and Kenneth H. Blanchard of Ohio State University, as well as Fred E. Fied-

ler's contingency theory, which, over time, evolved to focus on individual cognitive resources.²⁴ References to and excerpts from all of these studies of leadership appeared in key Air Force leader-development publications in the early 1970s, and new leaders-in-training were encouraged to consider the applicability of these approaches and theories to their own work and lives.²⁵

Surprisingly, no clear institutional leadership doctrine emerged during this period to shape the organization and presentation of diverse approaches to leadership practice, most likely because the "requirement" component of the service's leadership doctrine remained unresolved. As the body of civilian leadership literature grew, Air Force leadership-training publications incorporated a proliferation of other studies and theories not directly influenced by systems analysis, including a growing literature on leadership "styles." The Air Force embraced the latter studies, derivative of earlier situational and group-dynamic analyses of human relations, and incorporated them into a variety of official leader-development and managerial publications.²⁶ Air Force leadership-training materials from the early and mid-1970s encouraged young officers and officer candidates to develop an appreciation for diverse leadership styles and to use techniques appropriate to the setting, mission, and followers.²⁷ Combined with myriad leadership theories and models, the wide range of leadership style "choices" presented to airmen formed the basis of a leadership toolbox that had taken the place of institutional leadership doctrine by the mid-1970s.

In the absence of formal doctrine, other influences shaped the Air Force's leader-development process, such as the "Human Goals" credo adopted by DOD in 1969. The Human Goals declaration had the effect of shifting the focus of leader development away from a single, overarching mission, the "requirement" that had guided writing on leadership doctrine: "The keynote of leadership in the Air Force is recognition of the importance of people. . . . The leader must never lose sight of the needs, capabilities, and aspirations of

the individual. Rather, he must concentrate on the development, satisfaction, and creative potential of each group member."²⁸ Behavioral science also continued to shape the service's leadership curricula: "There is much more to the study of leadership than case histories of well-known leaders and recollections of heroic deeds. . . . An understanding of leadership requires a detailed analysis of cause and effect."²⁹ As the 1970s drew to a close, one discovered that sweeping institutional changes, an evolving institutional mission and unclear requirements, and decentralized leader-development responsibilities had created a void in leadership doctrine in the Air Force.

Paradigm Shifts and Sea Changes

In 1978 James MacGregor Burns published the groundbreaking book *Leadership*, in which he defined a new concept—transformational leadership—that attempted to move beyond established theories of transactional relationships in leader-follower arrangements. Hailed by some people as an intellectual paradigm shift, Burns's book defined transformational leadership as situations wherein "one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality. In other words, both leader and followers—as well as the social system in which they function—are transformed."³⁰ Undoubtedly, this approach to leadership would have resonated with post-Vietnam War military officers who were guiding (or watching) the significant changes occurring within and around their institutions—changes that included the introduction of the All-Volunteer Force concept, post-Vietnam force reductions, new rapid-deployment requirements, and the emergence of AirLand Battle and other doctrines.

What is striking about the 1970s and 1980s is the absence of any basic Air Force leadership doctrine that took either transformational leadership theory or ongoing administrative and doctrinal changes into account. This seems like a missed opportunity, given the implica-

tions of transformational-leadership theory and the fact that civilian scholarship had proven itself a theoretical cornerstone of doctrine in the late 1940s, when the service's mission was vague. By default, the responsibility for leadership training fell to the major commands and schools, while basic leadership doctrine was neglected. Despite the decentralization of leadership-training responsibility, however, civilian thinking on leadership continued to influence the service and remained a cornerstone of leader development. In 1983 Air University published the first edition of AU-24, *Concepts for Air Force Leadership*, which presented readers with a variety of articles by both military and civilian writers, organized in a thematic format similar to that of the 1970 Air Force Reserve Officer Training Command (AFROTC) publication *Concepts of Air Force Leadership*. AU-24 went through subsequent revisions, with newer editions incorporating examples of recent writing on leadership.³¹ Although not a statement of doctrine, AU-24 continued the established service practice of producing edited volumes for leader development. A review of the table of contents of any edition of AU-24 provides ample evidence of civilian influence on thinking about leadership in the Air Force. Balancing the civilian articles in AU-24 were contributions by active and retired military personnel who brought a measure of directly relevant professional advice and insight to an important text on leading airmen. Key readings in AU-24 mixed traditional and more current writing on leadership, including articles on ethics, values, traits, management concepts, and leader-follower relations.³²

Although memoranda or Air Force instructions (AFI) addressed many leadership and management issues during the 1970s and 1980s, efforts emerged to establish a broad leadership concept for the service. Air Force Pamphlet (AFP) 35-49, *Air Force Leadership*, published in late 1985, represented an important "return to basics" statement of servicewide leadership guidance but was not formal doctrine. The pamphlet (written in a format similar to that of the Army's FM 100-22, *Military*

Leadership) emphasized a leader's traits and principles but made no reference to the requirement-based institutional mission statement that had distinguished earlier iterations of Air Force leadership doctrine from the Army's official leadership guidance.³³

As the Cold War ended, Air Force leadership doctrine remained in a state of limbo. Leadership training continued, with responsibilities shared by Air University, Air Education and Training Command, and other corporate entities, all of which continued to rely heavily on civilian scholarship to train new leaders. In response to changes in the international security environment following the collapse of the Soviet Union, the Air Force made several sweeping reorganizations that consolidated existing commands and created new corporate bodies. Despite these structural changes and corresponding updates to basic and operational doctrine, however, no revised statement of Air Force leadership doctrine ever emerged. Recent institutionally directed efforts hint at ongoing attempts to fill the void in leadership doctrine. In the early 1990s, senior leadership approved the creation of an Air and Space Basic Course designed to provide new Air Force officers with a common and unifying indoctrination experience, and in 1998 Gen Michael E. Ryan, the Air Force chief of staff at that time, ordered the preparation of a new leadership doctrine for the service. These gestures, which reflect a renewed focus on leadership doctrine, constitute a positive development that comes at an important time in the history of the Air Force.

Coming Full Circle

Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, is the most current version of the Air Force's understanding of the uses of air and space power. Lacking anything that resembles a *deterrence* mission to guide the development of the service's operational and leadership doctrine, the Air Force has embraced a "shape and respond" mission framework that includes "promoting regional stability, thus preventing emergence or growth

of conflicts,” combined with the capability to “deter, resolve, contain, or engage and win” any crisis.³⁴ Uncertainty about the future is implied in AFDD 1, and the language, although more dynamic than that of AFM 35-15, is reminiscent of the broad mission statements found in the latter, published in 1948 under circumstances strikingly similar to those faced by the Air Force today. Mobility and airlift, interdiction, and strategic capabilities were all important elements of the Air Force’s post-World War II mission. AFDD 1 declares that these capabilities and functions are equally important today, for many of the same reasons.

What remains to be developed is a comprehensive statement of leadership doctrine—written in a style consistent with the service’s Cold War-era doctrine publications—that links the *shape and respond* mission with leadership and acknowledges the demands that will be placed on airmen by the air and space expeditionary force. This is not to suggest that the service’s senior leadership is unaware of this requirement; the organizational and doctrinal transformations that began in the late 1990s have been accompanied by a strong interest on the part of Air Force leaders in current leadership writings, especially transformational leadership and other theories that address the process and consequences of large-scale institutional change.³⁵ AFDD 1-3, *Air Force Leadership*, now being prepared for review and eventual distribution to the force, represents an important step that may well fill the doctrine void.³⁶ The sources of this new doctrine remain to be seen, but there exist readily identifiable requirements, theories, and lessons learned from which one can create a living doctrine statement.

Conclusions

Until 1964 Air Force leadership doctrine consisted of three readily identifiable components: requirements, theory, and lessons learned. Leadership-doctrine publications issued in the 1950s and 1960s emphasized mission and theory, the former influenced by context and the latter by civilian writings and

academic research on leadership. Historical insights and examples played only a minor role in early leader-development publications, perhaps because doctrine writers could draw only on the brief legacy of the institution to illustrate key points without borrowing from the historical legacy of the Army. When requirements became unclear in the 1960s, civilian-leadership theories and concepts provided some comfort to the men and women responsible for training the service’s leaders. The consequences of the Air Force’s appropriation of civilian leadership and management practices during the 1970s and 1980s remain the subject of ongoing debates, but one must recognize that the tendency to borrow and integrate is a practice initiated in the late 1940s with the publication of AFM 35-15. The use of civilian theory and method, in fact, reflected part of the service’s effort to emphasize the uniqueness of airmen and the Air Force—a service that became increasingly decentralized as institutional requirements changed with the international security environment. Recognizing this fact is important to the future development of the service’s leadership doctrine.

Today, the Air Force finds itself struggling with issues that parallel those faced by the service after it won its independence from the Army in 1947. The integration of new platforms, systems, and doctrine; the definition of emerging missions; the identification of opponents; fiscal austerity; and competition with the other services for money and technology were among the challenges airmen confronted in the 1940s and early 1950s. The same holds true today. A service-specific leadership manual that emphasized the uniqueness of airmen served as an important doctrinal declaration of independence from the Army, as well as the beginnings of what some have called the “airman’s mind-set,” defined as an individual’s deep understanding of the mission, capabilities, and limitations of air and space power, coupled with a sense of dedication to the Air Force. A modern leadership doctrine document—written around institutional requirements, employing appropriate

theory, and embracing the legacy of the service—can promote and strengthen this mind-set.

If we are to draw a lesson from the past, it is that the Air Force would do well to formulate leadership doctrine that acknowledges uncertainty and encourages the development of innovative leadership and followership practices—themes that appear in the service's earliest doctrine and leader-development publications. The Air Force's practice of borrowing useful civilian leadership constructs remains a viable approach to the doctrine-development quandary, but such appropriation should not detract from the ultimate goal of leader development: cultivating airmen who can understand, articulate, and execute the service's overarching mission—whatever

form that mission may take in the coming decades. Although some civilian leadership writings are certainly useful and appropriate for the task at hand, the Air Force cannot risk the development of twenty-first-century leaders on an unstructured and happenstance approach. Contemporary doctrine should be much more than a formal statement of traits, principles, and styles; it must reflect the dynamic nature of air and space power while recognizing, celebrating, and encouraging the unique characteristics of airmen. Regardless of its influences or sources, Air Force doctrine should provide an intellectual foundation for cultivating an airman's mind-set and should help prepare the Air Force member—whether officer, enlisted, or civilian—for any leadership role. □

Notes

1. Maj Steve Michael, "Air Force Doctrine and Leadership," *Aerospace Power Journal* 15, no. 2 (summer 2001): 87.

2. Army Field Manual (FM) 100-22, *Command and Employment of Air Power*, has been called the "Magna Carta" of American airpower. The document is also widely recognized as the foundation of Air Force basic doctrine. Drawing on experiences in North Africa, it concluded that air forces are most effective when placed under the centralized and integrated control of an airman. See Lt Col Stephen J. McNamara, *Air Power's Gordian Knot: Centralized versus Organic Control* (Maxwell AFB, Ala.: Air University Press, 1994).

3. One can find a draft (with annotations) of AFM 35-15, *Leadership*, December 1948, in the Air University Library at Maxwell AFB, Ala. See *Revision of Proposed USAF Manual, Air Force Leadership*, Special Study no. 5, Air War College Class 1947-1948 (Maxwell Field, Ala.: Air War College, Air University, 1948).

4. AFM 35-15, 66. For the record, one should note that Air Force personnel are identified throughout this manual as *soldiers*, not as *airmen*. The term *airmen* came into common usage in the years that followed.

5. *Ibid.*, 60-81. Over half of the books and articles cited as principal sources in the comprehensive bibliography at the end of the doctrine section of AFM 35-15 are industrial and organizational psychology texts.

6. *Ibid.*, 8.

7. *Ibid.*

8. *Ibid.*, 37-44.

9. These are notable omissions. See note 16 for the source of Gen Curtis LeMay's articulation of the principal mission of the service's "aerospace forces."

10. FM 22-10, *Leadership*, March 1951, 8-9.

11. For a more detailed discussion of the study of leadership traits and the beginnings of the scientific study of leadership, see John E. Adair, "New Trends in Leadership and Management Training," *Journal of the Royal United Services Institute* 62 (November 1967), reprinted in Dewey E. Johnson's *Concepts of Air Force Leadership* (Maxwell AFB, Ala.: Air Force ROTC, Air University, 1970), 20-31. In this article, Dr. Adair summarizes academic

trends in the study of leadership, outlining the state of the literature through the late 1960s. See also Psychological Services, Inc., *Bibliography on Military Leadership: Annotations of Selected Studies from Scientific, Technical, and Related Publications* (Maxwell AFB, Ala.: Air Research and Development Command, Human Resources Research Institute, 1953).

12. FM 22-10, 10-18. For leadership techniques appropriate for use in combat zones, communications zones, mobilization and demobilization situations, and with occupation forces, minority groups, and female auxiliaries, see pages 17-36.

13. *Ibid.*, iii.

14. See FM 22-10; and FM 22-100, *Military Leadership*, June 1961.

15. Air Science, *Principles of Leadership and Management* (Montgomery, Ala.: Air University, Air Force ROTC, 1954), 11.

16. Quoted in AFM 50-3, *Air Force Leadership*, 1 July 1964, 10.

17. See Dr. Donald A. Laird and Dr. Eleanor C. Laird, *The New Psychology for Leadership, Based on Researches in Group Dynamics and Human Relations* (New York: McGraw-Hill, 1956).

18. See "A Case of a B-50 Aircrew," an excerpted study in *Principles of Leadership and Management*. This report was based on the findings of an Air Force-sponsored study conducted by the Ohio State University Personnel Research Board. It sought to determine "(1) new methods for the assignment of individual members to specific crews in such a manner as to lead to the greatest number of crews meeting minimum standards of satisfactory performance, (2) new methods for the composition of a limited number of crews capable of meeting the most exacting standards of performance, (3) what training and experience led to more effective crew performance, and (4) what attitudes and personal habits of crew members are associated with crew 'spirit' or morale and willingness to work together. . . . This material is presented as a realistic appraisal of a poor crew, so that you as a leader will know what NOT to do" (emphasis added, 162).

19. AFM 50-3, 11.

20. See Air Force Pamphlet (AFP) 50-2-26, *Human Relations for the Air Force Manager*, October 1965; AFP 50-2-27, *Human Relations—Basic Concepts*, October 1962; AFP 50-2-28, pt. 1, *Human Be-*

havior: What's "Human" about Human Relations? October 1962; and AFP 50-2-29, pt. 2, *Human Understanding: What's "Human" about Human Relations?* October 1962.

21. See *Principles of Leadership and Management*; and AFM 50-3, 22-26.

22. See Daniel Katz and Robert L. Kahn, *The Social Psychology of Organizations* (New York: Wiley, 1966). For an example of leadership and power flowcharts developed to express organizational relationships, see Johnson, fig. 1, "Some Assumed and Deduced Relations of the Theory of Leadership and Group Behavior," 419. Later examples of systems theory that were applied to the study of leadership include Elliott Jaques's *A General Theory of Bureaucracy* (London: Heinemann, 1976); and J. G. Miller's "Living Systems: The Group," *Behavioral Science* 16 (1971): 302-98.

23. For an overview of several survey-based leadership studies, see David G. Bowers and Stanley E. Seashore, "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership," *Administrative Science Quarterly*, September 1966, 238-63; see also J. K. Hemphill and Alvin E. Coons, "Development of the Leader Behavior Description Questionnaire," in *Leader Behavior: Its Description and Measurement*, ed. Ralph M. Stogdill and Alvin E. Coons, Research Monograph no. 88 (Columbus, Ohio: Bureau of Business Research, College of Commerce and Administration, Ohio State University, 1957), 6-38. J. K. Hemphill, who was involved in Air Force combat-crew surveys in the early 1950s, developed questionnaires to support factor analyses of B-29 crew performance. For a description of some of his methods and findings, see Johnson, 462-67. This article reprint also appeared in the Air Force leadership text *Human Relations and Leadership* (Colorado Springs, Colo.: US Air Force Academy, 1968).

24. For a diagram of Hersey and Blanchard's 3-D Leadership Effectiveness Model, see Johnson, 441. See also Fred E. Fiedler, *A Theory of Leader Effectiveness* (New York: McGraw-Hill, 1967).

25. See Johnson, especially pages 421-45; Air Force Reserve, *Introduction to the Concepts of Air Force Leadership* (Robins AFB, Ga.: US Air Force, 1975); and Air University Leadership and Manage-

ment Development Center, *Tips for Commanders* (Maxwell AFB, Ala.: US Air Force, 1977).

26. Johnson, 483-500.

27. See, for example, Air Force Reserve, *Styles of Leadership* (Robins AFB, Ga.: US Air Force, 1975).

28. The Human Goals credo, adopted during the tenure of Secretary of Defense Melvin R. Laird, emphasized the need for DOD to provide opportunities, facilitate postservice adjustments for service members, and "contribute to the improvement of our society" in order to "increase the attractiveness of a career in Defense so that the serviceman and the civilian employee will feel the highest pride in himself and his work, in the uniform, and the military profession." See "Department of Defense Human Goals," reprinted in Johnson, 8.

29. *Ibid.*, 7.

30. Definition taken from Marshal Sashkin and William E. Rosenbach, "A New Vision of Leadership," in *Military Leadership: In Pursuit of Excellence*, ed. Robert L. Taylor and William E. Rosenbach (Boulder, Colo.: Westview Press, 2000), 52; see also James MacGregor Burns, *Leadership* (New York: Harper and Row, 1978).

31. See Richard I. Lester, ed., AU-24, *Concepts for Air Force Leadership* (Maxwell AFB, Ala.: Air University, 1983); and Richard I. Lester and A. Glenn Morton, eds., *Concepts for Air Force Leadership* (Maxwell AFB, Ala.: Air University, College of Aerospace Doctrine, Research, and Education, 1996).

32. Richard I. Lester and A. Glenn Morton, eds., *Concepts for Air Force Leadership* (Maxwell AFB, Ala.: Air University Press, 2001).

33. AFP 35-49, *Air Force Leadership*, 1 September 1985; see also FM 22-100, especially pages 16-37.

34. AFDD 1, *Air Force Basic Doctrine*, 1 September 1997, 43.

35. Maj Gen Charles "Chuck" Link, USAF, retired, director, Developing Aerospace Leaders Support Office, interviewed by James T. Hooper and Shannon A. Brown, Crystal City, Va., 3 December 2001.

36. Michael, 89.

Thoughts lead on to purposes; purposes go forth in action; actions form habits; habits decide character; and character fixes our destiny.

—Tryon Edwards

The Barling Bomber

ASPJ STAFF



In 1920 the Army Engineering Division issued specifications for a large triplane bomber to the Wittman-Lewis Company of Teterboro, New Jersey. Commonly referred to as the NBL-1 (night bombardment, long distance) or Barling Bomber (after



its inventor, Walter Barling) and designated the Wittman-Lewis XNBL-1, it was the Army's first long-range night bomber. The aircraft was designed in Ohio and partially fabricated and assembled in New Jersey. Each section not exceeding 13 feet, six inches in length traveled by rail to Ohio for final assembly and testing at Wilbur Wright Field (now part of Wright-Patterson AFB, Ohio).

The Barling featured a triwing, a box tail, and six Liberty 12-A engines—four tractors (pullers) and two pushers mounted midwing, directly behind the inboard tractor engines. At the close of World War I, the Army owned Liberty aircraft engines far in excess of its airframes. Consequently, Congress mandated that the World War I surplus be used before the service could purchase new equipment. The Barling was one of many aircraft that featured government-furnished engines. The Barling's wingspan of 120 feet (the exact distance of the first sustained heavier-than-air flight and longer than the B-17's wingspan of 104 feet) made it unwieldy and underpowered, yet it needed only 320 yards to take off. The maximum speed of 96 miles per hour and range of 170 miles were far less than Army-aviation enthusiasts had hoped to achieve with the design. Initially costing \$375,000, the aircraft carried a final price tag of \$525,000, excluding its special hangar, which cost more than \$700,000.

Although aviators considered the Barling inadequate from the day it rolled down the grassy field on its first flight, its design included some futuristic features, such as material resistant to anti-aircraft attack (wood and alu-

minum construction in the fuselage) and separate compartments for each crew position (pilot/copilot, navigator, and radio operator). The cockpit featured a single control knob for all six engines, revolution indicators for each engine, and an electric clock; the flight-engineer station was positioned directly behind the pilot/copilot. The revolutionary landing gear featured an adjustable, multiwheeled (10 of them) chassis, concepts still incorporated in large aircraft designs.

Frequently characterized as "Mitchell's Folly" (after Brig Gen William "Billy" Mitchell), the aircraft had "disappointing speed, load and endurance" (Wagner, 29). Later in the decade, Air Service personnel disassembled the Barling and stored it at Wilbur Wright Field. In 1928 Maj Henry H. "Hap" Arnold discovered it during an inspection and requested permission to dispose of it. Because congressional interest regarding the investment in the huge airplane remained high, his request was disappointed. Nevertheless, Arnold persisted in his efforts to eliminate the Barling from the Air Service's Table of Equipment by asking to liquidate a warehouse of excess material, conveniently omitting the fact that this material included the Barling. Congress approved his request. Thus, the Barling ended its existence after a disappointing history as the nation's largest interwar-era bomber. All that remains are two of the 10 large tires from its revolutionary landing gear, currently housed at the United States Air Force Museum at Wright-Patterson AFB.

To Learn More . . .

Haulman, Daniel L. *One Hundred Years of Flight: USAF Chronology of Significant Air and Space Events, 1903–2002*. Washington, D.C.: Air Force History and Museums Program, in press.

Swanborough, Gordon, and Peter M. Bowers. *United States Military Aircraft since 1909*. Washington, D.C.: Smithsonian Institution Press, 1989.

Tilford, Earl H., Jr. "The Barling Bomber." *Aerospace Historian*, June 1979, 91–97.

Wagner, Ray. *American Combat Planes*. 3d, enl. ed. Garden City, N.Y.: Doubleday, 1982.

Wittman-Lewis XNBL-1 Barling Bomber. On-line. Internet, 4 October 2002. Available from <http://www.wpafb.af.mil/museum/research/bombers/b1-10.htm>.

The Oath of Office

A Historical Guide to Moral Leadership

LT COL KENNETH KESKEL, USAF

Editorial Abstract: The oath of office as we know it has withstood the test of time. Although its words have gone through many transformations, the significance placed upon it by the founding fathers has remained the same. Lieutenant Colonel Keskkel provides a brief historical background for the oath, followed by an examination of its specific wording and the ways it has changed over time. His insightful analysis will help military officers fully understand the moral implications of their actions.



I swear by Apollo the physician, and Aesculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath.

—Hippocrates, 400 B.C.

THE FIRST LAW of the United States of America, enacted in the first session of the first Congress on 1 June 1789, was statute 1, chapter 1: an act to regulate the time and manner of administering certain oaths, which established the oath required by civil and military officials to support the Constitution.¹ The founding fathers agreed upon the importance of ensuring that officials promised their allegiance; indeed, very little debate occurred before the first Congress passed this statute.² Although the wording of the military officer's oath has changed several times in the past two centuries, the basic foundation has withstood the test of time. The current oath is more than a mere formality that adds to the pageantry of a com-

missioning or promotion ceremony—it provides a foundation for leadership decisions.³

One finds numerous oaths in our nation. Just before commissioning or enlisting, every officer candidate and enlistee recites an oath. The president of the United States takes an oath before assuming duties. Senators, congressmen, judges, and other government officials take oaths of office. New citizens of the United States take a naturalization oath. Many schoolchildren take an oath or pledge allegiance to the flag. Although its members are not required to swear or affirm before going into combat, the US military developed a code of conduct to guide servicemen. When an officer is promoted, the promotion ceremony often includes a restatement of the officer's oath.

The military officer's oath is a combination of constitutional requirement, historical influence, and centuries-old custom. To better appreciate the oath, one must understand its history. Toward that end, this article first provides a brief, historical background on the oath of office and then examines its specific wording as well as the ways in which it provides guidance, including moral direction, to military officers.⁴

A Brief History of the Oath

According to one reference work, an oath is "a solemn appeal to God to witness the truth of a statement or the sincerity of a promise, coupled with an imprecation of divine judgment in the event of falsehood or breach of obligation."⁵ This definition is captured in the Hippocratic oath, one of the world's oldest and most famous: "I swear . . . according to my ability and judgment, I will keep this Oath. . . . With purity and with holiness I will pass my life and practice my Art. . . . While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!"⁶ Several concepts in this oath still resonate in the one taken by today's military officer—a call to a higher power, a statement to perform to the best of one's ability, a sense of honor, and an acknowledgement of the consequences of failing to live up to one's word.

Military oaths date back to ancient Rome, where soldiers pledged loyalty to a specific general for a specific campaign. After the campaign ended, the oath no longer applied. By 100 B.C., Rome had established a professional military, and the oath became effective for the soldier's full 20-year service.⁷ Since then, this custom has continued and expanded. For example, the kings of England in the 1500s (Henry VIII), 1600s (James I), and 1700s (George III) established oaths requiring subjects to swear loyalty to their specific king.

In the United States, oaths were a part of life from the early colonial days. In 1620, when the *Mayflower* landed, the Pilgrims established the

Mayflower Compact—which served as an oath, a covenant, and a constitution—and then pledged allegiance to King James, agreeing to work together as a "civil body politic" for their betterment and preservation.⁸ As settlers established colonies, they developed their own version of an oath of allegiance to English royalty.

While developing the oath of office for US officers, the founding fathers had serious concerns about pledging allegiance to any specific person. For example, during the Revolutionary War, Gen George Washington issued a general order on 7 May 1778 that required all officers to take and subscribe to an oath renouncing King George III and supporting the United States.⁹ Even prior to the 1789 constitutional requirement to take an oath, this general order had significant weight. On 1 October 1779, Washington court-martialed Benjamin Ballard for "selling rum, flour, pork, hides, tallow and other stores the property of the public without any orders or authority for doing so and *contrary to the tenor of his bond and oath of office*" (emphasis added).¹⁰ This example shows that the oath represented more than a simple, ceremonial formality; rather, it provided overarching guidance and a standard of moral conduct, as opposed to dictating specific, limited criteria.

The first official oath of office for US military officers under the Constitution was established on 1 June 1789. The law implemented the requirement in Article 6 of the Constitution that "Senators and Representatives before mentioned, and the members of the several state legislatures, and all executive and judicial officers, both of the United States and of the several states, shall be bound by oath or affirmation, to support this Constitution."¹¹ This first oath was short and to the point: "I, A.B., do solemnly swear or affirm (as the case may be) that I will support the Constitution of the United States."¹²

During a 60-year period in our history, both officers and enlisted personnel took the same oath, as required by Congress in April 1790. The oath used the wording "to bear true faith and allegiance to the United States

of America” rather than “to support the Constitution,” but it retained the concept of allegiance to the nation as a whole. It constituted one of 16 sections in an act that regulated the military establishment—the forerunner of today’s “authorization” acts.¹³ Congress periodically updated these authorization acts although the oath remained constant (with one minor addition in 1795).

The officer oath became separate from the enlisted oath again in 1862, when the 37th Congress passed an all-encompassing 176-word oath for all government officials (including military officers) to verify their loyalty during the Civil War. This “Ironclad Test Oath” included (1) a “background check” to ensure that government officials were not supporting, or had not supported, the Confederacy and (2) a part that addressed future performance, much of whose wording remains in today’s oath.¹⁴ In addition, this legislation

specified that failure to comply with the oath constituted perjury and that violators would incur the associated penalties, thus formalizing the implied concept that officers are accountable for failing to live up to their oath. In 1884, after several years of multiple oaths that applied to different subsets of people (depending upon which side they fought on during the “late rebellion”), the 48th Congress amended a revised statute of 1873 that eliminated the first half of the Ironclad Test Oath and established the wording that has carried over into modern times.

At least 19 pieces of legislation address the oath—11 affect the officer oath, three address the enlisted oath, and five address both. One notes four key variations in the wording of the officer and enlisted oaths over time (table 1).¹⁵ The other changes are either administrative or concern the application of the oath.

Table 1
Key Variations of US Military Oaths

Date/Statute	Oath	Comments
1 June 1789 1st Cong., 1st sess., statute 1, chap. 1	Officer Oath: I, A.B., do solemnly swear or affirm (as the case may be) that I will support the Constitution of the United States.	The very first law of the United States identified the requirement for government officials to take an oath or affirmation according to Article 6 of the Constitution.
29 September 1789 1st Cong., 1st sess., statute 1, chap. 25	Enlisted Oath: I, A.B., do solemnly swear or affirm (as the case may be) to bear true faith and allegiance to the United States of America, and to serve them honestly and faithfully against all their enemies or opposers whatsoever, and to observe and obey the orders of the president of the United States of America, and the orders of officers appointed over me.	This statute separated the military oath from the oath for other public officials. It also created an oath for enlisted personnel distinct from the officer’s oath, with an allegiance to the United States rather than the Constitution and a requirement to obey the orders of their chain of command. The officer’s oath mirrored the oath specified in statute 1, sec. 1 for members of Congress.
30 April 1790 1st Cong., 2d sess., statute 2, chap. 10	Officer and Enlisted Oath: I, A.B., do solemnly swear or affirm (as the case may be) to bear true faith and allegiance to the United States of America, and to serve them honestly and faithfully against all their enemies or opposers whomsoever, and to observe and obey the orders of the president of the United States of America, and the orders of the officers appointed over me, according to the articles of war.	This statute, passed as the means to continue the military establishment, required both officers and enlisted personnel to take the same oath. On 3 March 1795, the last phrase changed to “according to the rules and articles of war.” Each new Congress would repeal the previous Congress’s act and pass a new statute creating the military establishment, including a section on the oath. In 1815 (13th Cong., 3d sess.), Congress no longer duplicated the previous military-establishment act and identified changes only to previous law establishing the military.

2 July 1862 37th Cong., 2d sess., chap. 128	Officer Oath: I, A.B., do solemnly swear (or affirm) that I have never voluntarily borne arms against the United States since I have been a citizen thereof; that I have voluntarily given no aid, countenance, counsel, or encouragement to persons engaged in armed hostility thereto; that I have neither sought nor accepted nor attempted to exercise the functions of any officers whatever, under any authority or pretended authority in hostility to the United States; that I have not yielded a voluntary support to any pretended government, authority, power or constitution within the United States, hostile or inimical thereto. And I do further swear (or affirm) that, to the best of my knowledge and ability, I will support and defend the Constitution of the United States, against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion, and that I will well and faithfully discharge the duties of the office on which I am about to enter, so help me God.	The intent of this Civil War statute was to ensure that government officials were not supporting, or had not supported, the Confederacy. This "Ironclad Test Oath" greatly expanded and contained more detail than previous oaths. The statute also separated the officer oath from the enlisted oath, once again making the officer oath consistent with the oath of public officials.
11 July 1868 40th Cong., 2d sess., chap. 139	Officer Oath: I, A.B., do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter. So help me God.	This statute was the first post-Civil War change to the oath. The new oath deleted the "background check" of the 1862 version and established the exact wording of the current officer's oath. Future legislative changes addressed the application of the oath but not the wording.
5 May 1950 81st Cong., 2d sess., chap. 169 (Public Law 506)	Enlisted Oath: I, ____, do solemnly swear (or affirm) that I will bear true faith and allegiance to the United States of America; that I will serve them honestly and faithfully against all their enemies whomsoever; and that I will obey the orders of the president of the United States and the orders of the officers appointed over me, according to regulations and the Uniform Code of Military Justice.	This statute was the first post-World War II legislation on the oath, establishing the Uniform Code of Military Justice to unify, consolidate, revise, and codify the Articles of War, the Articles of Government of the Navy, and the Disciplinary Laws of the Coast Guard. Section 8 identified a standard oath for all enlisted personnel.
5 October 1962 87th Cong., 2d sess. (Public Law 87-751)	Enlisted Oath: I, ____, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; and that I will obey the orders of the president of the United States and the orders of the officers appointed over me, according to regulations and the Uniform Code of Military Justice. So help me God.	This legislation was enacted to make the enlisted oath more consistent with the officer oath, using the phrase "support and defend the Constitution" and adding "So help me God" at the end. This was the last legislative change to the wording of either oath. Subsequent legislation on the oath addressed administrative issues.

The Oath's Message

Some people may think that the focus on the oath and our founding fathers is merely patriotic, feel-good rhetoric and may question the significance of the oath in today's environment.¹⁶ However, during Operation Allied Force, Gen Wesley Clark encountered a dilemma that very much involved the oath. As combatant commander of US European Command, he had allegiance to the United States. But he also served as supreme allied commander, Europe, with responsibility to the countries of the North Atlantic Treaty Organization (NATO). In his book *Waging Modern War*, General Clark alludes to his dilemma. Who should have priority—the United States or NATO? Upon initiating the air campaign, Clark first called Javier Solano, NATO's secretary-general, before he called Gen Hugh Shelton, chairman of the Joint Chiefs of Staff. Explaining his predicament, he notes, "I was the overall commander, but represented a nation that didn't want to participate."¹⁷ Interestingly, rather than choosing a term such as *worked for* or *served*, he uses *represented*, which connotes a lesser degree of responsibility and a passive relationship instead of an active allegiance. Indeed, Clark dedicated his book to Solano and NATO's leaders and armed forces—not to the United States and its military.¹⁸

Although General Clark did not renounce his allegiance to the US Constitution in favor of the NATO alliance, he struggled with the question of where his responsibilities and priorities lay. Despite the differences of opinion between the United States and NATO regarding interests, goals, and methods, both parties had the same overarching objective—stopping the ethnic cleansing in Kosovo. Consequently, Clark did not have to make an either-or choice.¹⁹ However, this example shows how the complexity of modern war and the problems generated by working with alliances can cause even a great American like General Clark to struggle. The act of reaffirming the oath of office should serve to guide all officers when they find themselves in difficult situations.

This brief history of the oath makes the significance of its wording more apparent. The

oath provides enduring guidance for military officers. Each part carries its own history and message:

I, A.B., Do Solemnly Swear (or Affirm)

The oath begins with an option to *swear* or *affirm*. Although current common law places less religious connotation on the word *swear*, the term *oath* clearly had such a connotation in the late 1700s. In fact, the original legislation referred to an "oath or affirmation." Recognizing that some religious groups, such as the Quakers, might object to "swearing" to a Supreme Being or that someone might not believe in a Supreme Being, Congress provided the option to *affirm*. This wording is also consistent with the option for the president to swear or affirm, as prescribed in Article 2 of the Constitution. Either way, the oath signifies a public statement of personal commitment. Officers must take personal responsibility for their actions.

That I Will Support and Defend the Constitution of the United States

To understand the opening pledge, one should know and understand the Constitution. Prior to taking their oath upon commission or reaffirming it upon promotion, too few officers take the time to read and study the document they swear to support and defend. The oath requires officers to support and defend the Constitution—not the president, not the country, not the flag, and not a particular military service. Yet, at the same time, the Constitution symbolizes the president, the country, the flag, the military, and much more. The preamble to the Constitution succinctly highlights the ideals represented by that document.²⁰ Because the Constitution was built on a series of checks and balances that distribute power across the executive, legislative, and judicial branches, officers must give their allegiance to all three entities—despite the fact that the chain of command leads to the president. These checks and balances create an inefficiency inherent in America's democratic system that often proves frustrating for mili-

tary officers, whose environment tries to provide the most efficient and effective fighting force available.²¹

The original oath of 1789 mentioned only that one must *support* the Constitution. Although many people may at first consider the phrase *support and defend* as a single thought, each word carries a slightly different connotation. George Washington conveys the notion of *support* in his farewell address: "The basis of our political systems is the right of the people to make and to alter their Constitutions of Government. But the Constitution, which at any time exists, till changed by an explicit and authentic act of the whole people, is sacredly obligatory upon all. The very idea of the power and the right of the people to establish Government presupposes the duty of every individual to obey the established Government."²²

The words *and defend* were added in 1862, during the Civil War, when defense and preservation of the nation became paramount.²³ The passive pledge to support was expanded to include an active requirement to defend. The phrase *support and defend the Constitution* is purposely vague, allowing better minds to interpret and improve, within certain guidelines.²⁴ To understand the significance of the wording, one should compare the US oath to the Soviet version, the latter requiring officers "unquestioningly to carry out the requirements of all military regulations and orders of commanders and superiors."²⁵ It is a true blessing that America does not require its officers to obey "unquestioningly" but gives them the opportunity and flexibility for innovation. But with that flexibility come both responsibility and accountability for one's actions.

Against All Enemies, Foreign and Domestic

This phrase was added in 1862 as a direct result of the Civil War—specifically, to address the possibility of Union soldiers joining the Confederacy (most notably the forces commanded by Gen Robert E. Lee). That is, people who had previously sworn allegiance to the United States were now fighting against it.

Although people now have little concern about another civil war, our military must still

prepare for all enemies and contingencies. The terrorist attack of 11 September 2001 caught many Americans off guard. The response to the launching of fighter escorts shows how the nation's leadership faced the dilemma of flying combat air patrols over the United States (defending the Constitution) while trying to comply with current laws on posse comitatus (supporting the Constitution).²⁶ Military officers cannot simply maintain the status quo—they must look toward the future, identify emerging trends, and develop capabilities to counter the entire range of threats. Apparently, our current capability to respond to and, more importantly, prevent a future asymmetric attack is inadequate. Officers must ensure that they address *all enemies* and not merely advocate service-centric needs at the expense of national requirements. For example, we have long known about the shortage of intelligence from human sources that we need if we are to analyze the capability and intent of emerging nonstate actors; yet, the Air Force intends to purchase over 300 F-22 aircraft at a cost of \$63 billion to replace existing fighters that can already counter the air forces of any major state actor for the foreseeable future.²⁷ We must think hard about making improvements to an existing service strength instead of funding a known national shortfall.²⁸ Our oath demands that we support and defend against all enemies—not just high-profile or high-profit threats.

That I Will Bear True Faith and Allegiance to the Same

The phrase *faith and allegiance* dates back at least to 1606, when King James required an oath of "utmost faith and allegiance to the King's majesty" from everyone leaving for America to work in the Virginia Company.²⁹ However, the officer's oath ensures allegiance to the Constitution as a whole, not just the president. Officers should pledge allegiance to the nation as a whole rather than their military service or organization, an idea reminiscent of the Air Force core value of "service before self." However, officers must not construe *service* as *US Air Force*. The Army's core value of "selfless service" provides a clearer connota-

tion of the notion of serving others.³⁰ Furthermore, the Air Force's guide on core values discusses maintaining "faith in the system," which includes not just the military system but the system of democratic government embodied in the Constitution.³¹

Even though the Constitution built a system of checks and balances to embrace multiple branches of government, the founding fathers cautioned against counterproductive parochialism. In his inaugural address, Washington warned, "I behold the surest pledges, that as on one side, no local prejudices, or attachments; no separate views, nor party animosities, will misdirect the comprehensive and equal eye which ought to watch over this great assemblage."³² Officers' allegiance compels them to work together to develop the best solutions for the nation, rather than engage in interservice competition to obtain the biggest piece of the defense budget.

That I Take This Obligation Freely, without Any Mental Reservation or Purpose of Evasion

This passage also originated during the Civil War. Congress and President Abraham Lincoln, wanting to ensure that soldiers not defect, expanded the oath in an attempt to guarantee loyalty.³³ In the final analysis, however, loyalty depends upon the integrity of the individual.

This notion corresponds to the Air Force's core value of "integrity first," the Marine Corps and Navy's core value of "honor," and the Army's core values of "integrity" and "honor."³⁴ Integrity is a learned trait. Whether that learning is based upon a religious upbringing or an embracing of acceptable norms of society, honor and integrity are part of the core of all military services. Maintaining integrity is implicit in the oath and must guide officers when they face conflicts of interest and hard choices.³⁵

And That I Will Well and Faithfully Discharge the Duties of the Office on Which I Am about to Enter

This wording has its genesis in the first statute of 1789. In addition to the standard oath, the secretary of the Senate and the clerk of the

House of Representatives had to take an additional oath to "solemnly swear or affirm, that I will truly and faithfully discharge the duties of my said office, to the best of my knowledge and abilities."³⁶

This clause epitomizes the Air Force core value of "excellence in all we do," the Marine Corps and Navy's value of "commitment," and the Army's core value of "duty." We must be proactive and perform our duties to the best of our abilities, mastering our specialties while we are junior officers and then gaining breadth as we advance in rank. The progress of the nation depends upon our doing so.

So Help Me God

Controversy over the separation of church and state sometimes clouds this final phrase; nevertheless, it is the most important one in the oath. Our actions have moral and, for those who believe in a Supreme Being, even religious implications. Sometimes military officers seem hesitant to embrace their religion publicly or acknowledge the significance of divine guidance.³⁷ However, American history is replete with examples of public appeals to a higher being for guidance and protection. The Declaration of Independence includes an appeal "to the Supreme Judge of the world," and, although the Constitution does not include the phrase *so help me God* in the president's oath, Washington added those words when he took the first oath.³⁸ President Lincoln openly addressed the concept of divine guidance in the Gettysburg address: "This nation, under God, shall have a new birth of freedom." When the pledge of allegiance added the phrase "under God" in 1953, President Dwight Eisenhower commented, "In this way we are reaffirming the transcendence of religious faith in America's heritage and future; in this way we shall constantly strengthen those spiritual weapons which forever will be our country's most powerful resource in peace and war."³⁹

So help me God became part of the officer oath in 1862, but the enlisted oath did not add these words until 1962. The *Congressional*

Record provides superb insight into their meaning:

The words, “So help me God,” are not a part of the obligation assumed upon taking the oath. They constitute rather an assertion of sincerity to undertake the duties of military service in good faith and with the aid of the highest power recognized by the enlistee. It is directed solely to his or her personal conception of the almighty, whatever that may be or whatever it may not be. There is no effort to impose on the enlistee any established religious conception, or even to require his acknowledgement of any religious conception. . . . For the vast majority of the persons taking the oath, however, this addition will assure a unique degree of personal conviction not otherwise attainable, and will thus prove a welcome source of both personal and national strength.⁴⁰

Even atheists have a moral obligation from a societal perspective. One finds this concept as far back as 400 B.C., when Sun Tzu, in *The Art of War*, starts his first chapter with the statement “War is a matter of vital importance to the State. . . . Therefore appraise it in terms of five fundamental factors. . . . The first of these factors is moral influence.”⁴¹ Clearly,

one of the greatest military minds of all time understood the moral implications of our actions and their importance for success.

So help me God also implies retribution if officers do not keep their word. Compare the part of the Soviet oath that ends with “If I break this solemn vow, may I be severely punished by the Soviet people, universally hated, and despised by the working people.”⁴² Although that is quite a condemnation, in actuality it is less severe than the potential consequences for someone who has a strong moral or religious foundation. *So help me God* acknowledges that no stronger commitment exists.⁴³

Conclusion

By studying the key documents and events in America’s history, military officers can gain better insight into their oath of office and the moral implications of their actions. Junior officers should focus on how to well and faithfully discharge the duties of their office. For senior officers, the oath should carry even greater significance as they use a more indirect style of leadership to instill in their followers the service’s core values (table 2).

Table 2
Comparison of the Oath of Office to Core Values

Oath of Office	Core Values		
	<i>Air Force</i>	<i>Navy/ Marine Corps</i>	<i>Army</i>
I will support and defend the Constitution of the United States against all enemies, foreign and domestic.	Service before Self	Courage	Selfless Service Personal Courage Loyalty
I take this obligation freely, without any mental reservation or purpose of evasion.	Integrity First	Honor	Integrity
I will well and faithfully discharge the duties of the office upon which I am about to enter.	Excellence in All We Do	Commitment	Duty Respect

Officers must develop the skills to make the appropriate leadership decisions when guidance may be vague on how best to support and defend the Constitution. They must take the time to identify capabilities for addressing the entire spectrum of conflict and wrestle with ways of resolving conflicting priorities in coalition warfare. Individuals at all

levels must focus on the needs of the nation rather than on the desires of their services. Finally, officers must embrace the moral foundation symbolized in the phrase *so help me God* since it is the heart and soul of the success of future generations of soldiers, sailors, airmen, and marines. □

Notes

1. Richard Peters, ed., *The Public Statutes at Large of the United States of America*, vol. 1 (Boston: Charles C. Little and James Brown, 1845), 23.

2. See Joseph Gales Sr., ed., *Annals of Congress: The Debates and Proceedings in the Congress of the United States*, vol. 1, March 3, 1789 to March 3, 1791 (Washington, D.C.: Gales and Seaton, 1834). Although the *Congressional Record* contains hundreds of pages on topics such as public credit, public debt, and duties on tonnage, one finds only three pages on the oath that are worthy of discussion.

3. The Air Force's Air War College includes the officer and enlisted oath on the inside back cover of its textbook on leadership and ethics. The code of conduct is on the inside front cover. In his book *True Faith and Allegiance: The Burden of Military Ethics* (Lexington: University Press of Kentucky, 1995), James H. Toner includes the officer and enlisted oaths on the page that precedes the table of contents.

4. Due to limitations of space, this article focuses on the officer's oath. Many of the same themes and ideas apply to the dedicated professionals in our enlisted force.

5. *American Peoples Encyclopedia*, 1956 ed., s.v. "oath." According to *Merriam-Webster's Collegiate Dictionary*, 10th ed., an oath is "a solemn [usually] formal calling upon God or a god to witness to the truth of what one says or to witness that one sincerely intends to do what one says (2): a solemn attestation of the truth or inviolability of one's words."

6. *American Peoples Encyclopedia*, 1956 ed., s.v. "Hippocrates."

7. Lt Col Thomas H. Reese, "An Officer's Oath," *Military Review*, January 1964, 25.

8. Harold Melvin Hyman, *To Try Men's Souls: Loyalty Tests in American History* (Berkeley: University of California Press, 1959), 12–13.

9. John C. Fitzpatrick, ed., *The Writings of George Washington from the Original Manuscript Sources, 1745–1799*, vol. 11 (Washington, D.C.: Government Printing Office, 1931–1944), on-line, Internet, 13 January 2002, available from <http://www.memory.loc.gov>. (Click on "search"; search on "George Washington, May 7, 1778, General Orders.") Washington's oath for commissioned officers is as follows:

I . . . do acknowledge The United States of America to be Free, Independent and Sovereign States and declare that the People thereof owe no Allegiance or Obedience to George the Third, King of Great Britain and I renounce refuse and abjure any Allegiance or Obedience to him, and I do swear (or affirm) that I will to the utmost of my Power support, maintain and defend the said United States against the said King George the Third, his heirs and Successors and his and their Abettors, Assistants and Adherents and will serve the said United States in the office of . . . which I now hold with Fidelity according to the best of my skill and understanding.

10. Ibid. In another example, on 28 December 1780, Washington court-martialed Thomas Dewees, finding him guilty of two offenses: (1) not taking the oath of office and (2) "selling public word to the prejudice of the service." Here we see that not taking the oath is not simply an administrative error. In fact, the practice at the time was to publish the sentence in a newspaper "to prevent in future the commission of such crimes." Today's 24-hour worldwide media coverage continues to publicize military indiscretions and has an impact on how the public perceives the military.

11. Mortimer J. Adler provides a superb analysis of the Constitution in *We Hold These Truths: Understanding the Ideas and Ideals of the Constitution* (New York: Macmillan, 1987).

12. Peters, 23. Using the initials "A.B." is a legislative format to identify a place filler for the person's first and last names.

13. Ibid., 119–21. As is the case today, separate "appropriate" acts specified the budgets.

14. The oath of 1862 is as follows:

I, A.B. do solemnly swear (or affirm) that I have never voluntarily borne arms against the United States since I have been a citizen thereof; that I have voluntarily given no aid, countenance, counsel, or encouragement to persons engaged in armed hostility thereto; that I have neither sought nor accepted nor attempted to exercise the functions of any officers whatever, under any authority or pretended authority in hostility to the United States; that I have not yielded a voluntary support to any pretended government, authority, power or constitution within the United States, hostile or inimical thereto. And I do further swear (or affirm) that, to the best of my knowledge and ability, I will support and defend the Constitution of the United States, against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion, and that I will well and faithfully discharge the duties of the office on which I am about to enter, so help me God.

See *An Act to Prescribe an Oath of Office, and for Other Purposes*, 37th Cong., 2d sess., chap. 128.

15. To trace legislation relating to military oaths, one should understand the basic organization, structure, and four major changes to legislation in the United States. The original laws, starting in June 1789, were identified as statutes, organized by chapters and sections. On 1 December 1873, Congress enacted the Revised Statutes, a single act that codified all the permanent laws in force. These statutes superseded all the previous ones from 1789 through 1873. The Revised Statutes were organized by title and section. The next overall effort to better organize the laws of the land occurred in 1926, when the *United States Code (USC)* replaced the Revised Statutes. The laws were organized into 50 titles and divided into sections. Title 5 dealt with the Ex-

executive Department (including military officers); Title 10 dealt with the Army (and the Army Air Forces within the Army); Title 32 concerned the National Guard; and Title 34 dealt with the Navy/Marine Corps. The most recent (and ongoing) version of the USC began in 1946, with a comprehensive project of revising and enacting all of the USC into "positive law," which did away with the need to refer back to previous statutes to clarify the current law of the land. The current USC is organized by title and section but also includes subtitles, chapters, and parts to further divide and organize the legislation. The current Title 10 consolidates the military services (except the National Guard) into a single title, although there is still legislation relating to the Department of Defense, a department in the executive branch, in Title 5. At least 19 pieces of legislation address military oaths. For a more detailed description of the legislative history of the oath of office, contact the author by E-mail: kdkkeskel@hotmail.com.

16. In a highly publicized confrontation between Gen Douglas MacArthur and President Harry S. Truman during the Korean War, MacArthur openly criticized the administration's handling of the war effort, even threatening to invade China and thus defy the civilian leadership's policy. As a result of the general's actions, on 11 April 1951 President Truman relieved MacArthur as supreme commander, United Nations Command. Truman explained how, from his perspective, MacArthur did not support the requirements of the Constitution and did not faithfully discharge his duties: "Full and vigorous debate on matters of national policy is a vital element in the constitutional system of our free democracy. It is fundamental, however, that military commanders must be governed by the policies and directives issued to them in the manner provided by our laws and Constitution. In time of crisis, this consideration is particularly compelling." "Truman Dismisses MacArthur," *CNN Interactive*, on-line, Internet, 14 October 2002, available from <http://www.cnn.com/SPECIALS/cold.war/episodes/05/documents/macarthur>.

17. Wesley K. Clark, *Waging Modern War: Bosnia, Kosovo, and the Future of Combat* (New York: Public Affairs, 2001), 154.

18. Although it is well understood that the United States is a NATO member and therefore a part of Clark's dedication, he consciously seems to focus on NATO rather than the United States.

19. One could also argue that Clark's support of NATO over current US policy is consistent with the Constitution, which provides the authority for the executive branch to make treaties; thus, the NATO alliance, ratified by Congress according to the Constitution, is consistent with that document.

20. According to the preamble, "We the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America."

21. Maj Larry A. Helgeson has similar thoughts in his article "Moral Obligations from our Oath to the U.S. Constitution," in *United States Air Force Academy Journal of Professional Military Ethics*, 1988, 3-19.

22. *George Washington's Farewell Address to the People of the United States*, 17 September 1796, on-line, Internet, 4 January 2002, available from <http://www.earlyamerica.com/earlyamerica/milestones/farewell/text.html>.

23. Part of President Abraham Lincoln's justification for the Emancipation Proclamation demonstrates the thinking of the era: "I felt that measures, otherwise unconstitutional, might become lawful, by becoming indispensable to the preservation of the constitution, through the preservation of the nation." See Helgeson, 15.

24. Even Washington understood that the Constitution was not perfect. Prior to the Continental Congress, he observed, "Let us raise a standard to which the wise and honest can repair. The

event is in the hand of God." John Romain Rood, *The History of Building the Constitution of the United States* (Detroit: Detroit Law-Book Co., 1948), 13.

25. Helgeson, 4. Many countries today require an allegiance to a king or head of state. For example, the following countries require officers to swear allegiance to an individual:

- Great Britain: "I swear by Almighty God that I will be faithful and bear true allegiance to Her Majesty Queen Elizabeth the Second, Her Heirs and Successors, and that I will as in duty bound, honestly and faithfully defend Her Majesty, Her Heirs and Successors, in Person, Crown and Dignity against all enemies, and will observe and obey all orders of Her Majesty, Her Heirs and Successors, and of the Air Officers and other Officers set over me."
- Jordan: "I swear to be loyal to God, country, and the king, and conduct all my job requirements with honor and dignity, with no discrimination or bias, and to obey all military orders issued to me from my superiors."
- Brazil: "As I incorporate to the Brazilian Air Force, I promise to obey strictly the orders given by the authorities, respect my superiors in hierarchy, and be good to my comrades/subordinates; dedicate myself entirely to the service of my country, defending honor, institutions and duties with the sacrifice of my own life."

Information provided by international officers attending the US Air War College, Maxwell AFB, Ala., spring 2002.

26. The concept of posse comitatus is based on an act of Congress (20 stat. L., 145, chap. 263, sec. 15, 18 June 1878). Sec. 15 starts with the following statement: "From and after the passage of this act it shall not be lawful to employ any part of the Army of the United States, as a posse comitatus, or otherwise, for the purpose of executing the laws, except in such cases and under such circumstances as such employment of said force may be expressly authorized by the Constitution or by act of Congress." The law was passed as a result of 15 years of perceived "military occupation" of the South after the Civil War. See *The Posse Comitatus Act of 1878*, on-line, Internet, 22 August 2002, available from http://www.dojgov.net/posse_comitatus_act.htm.

27. Jim Garamone, "F-22 Gets Green Light for Low-Rate Production," *American Forces Information Service News Articles*, on-line, Internet, 4 April 2002, available from http://www.defenselink.mil/news/Aug2001/n08162001_200108161.html.

28. In fact, the F-22 Web site highlights how our new-generation fighter will take us from air superiority to air dominance. The site actually has a clock that counts down the seconds to air dominance. See *F-22 Raptor Team Infonet*, on-line, Internet, 4 April 2002, available from <http://www.f22-raptor.com>. Another example of a neglected shortfall is strategic lift.

29. Hyman, 5.

30. The Army has seven core values: integrity, honor, loyalty, respect, duty, personal courage, and selfless service.

31. *United States Air Force Core Values* (Washington, D.C.: Department of the Air Force, 1 January 1997).

32. *National Archives and Records Administration: Washington's Inaugural Address*, 30 April 1789, on-line, Internet, 4 January 2002, available from http://www.archives.gov/exhibit_hall/american_originals/inaugtxt.html. Washington reiterated this warning against parochialism in his farewell address eight years later: "In the most solemn manner against the baneful effects of the spirit of party, generally." See *George Washington's Farewell Address*. The problem of parochialism is also highlighted in the New Testament of the Bible: If a kingdom is divided against itself, that kingdom cannot stand (Mark 3:24).

33. It is ironic that even patriots like George Washington and John Adams initially took an oath and swore allegiance to the king of England and later, as clearly stated in the Declaration of Independence, acknowledged that sometimes one must go against that pledge: "Governments are instituted among Men, deriving their just powers from the consent of the governed, That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government." In another piece of irony, immediately after the chancellor of New York swore in George Washington as president of the United States (during which Washington pledged to preserve, protect, and defend the Constitution), the chancellor proclaimed, "Long live George Washington, president of the United States," rather than proclaiming long life for the Constitution. See Gales, 27.

34. The Navy and Marine Corps share the core values of honor, courage, and commitment.

35. Vice Adm James B. Stockdale said that "a person's integrity can give him something to rely on when his perspective seems to blur, when the rules and principles seem to waiver, and when he's faced with hard choices of right and wrong." Quoted in Maj Mark A. Hyatt's "Honor and Ethics Must Be Reflected in the United States Air Force Officer's Oath of Office," *United States Air Force Academy Journal of Professional Military Ethics*, 1988, 25.

36. Peters, 24.

37. In the State of the Union Address of 1987, President Reagan remarked, "Finally, let's stop suppressing the spiritual core of our national being. Our nation could not have been conceived without divine help." See "Ronald Reagan: State of the Union Address, 27 January, 1987," *This Nation*, on-line, Internet, 14 October 2002, available from <http://www.thisnation.com/library/sotu/1987rr.html>.

38. Washington's farewell address highlighted the link between religious values and the success of this experiment in democracy: "Of all the dispositions and habits, which lead to political prosperity, religion and morality are indispensable supports." See *George Washington's Farewell Address*.

39. *The Original Pledge of Allegiance*, on-line, Internet, 25 September 2002, available from <http://www.usflag.org/the.pledge.of.allegiance.html>. The pledge of allegiance originated in 1892, when Francis Bellamy published a few words in *The Youth's Companion* magazine for schoolchildren to recite on 12 October 1892, the 400th anniversary of Columbus's discovery of America. Over 12 million children recited the initial version of the pledge that day: "I pledge allegiance to my flag and the Republic for which it stands—one nation indivisible—with liberty and justice for all." On 14 June 1943, the first National Flag Conference changed the words "my flag" to "the Flag of the United States," and in 1942 Congress formally recognized the pledge. One year later, the Supreme Court ruled that students could not be forced to recite it. In 1953, after lobbying from the Knights of Columbus, the pledge saw its final change, adding the phrase "under God." Unfortunately, that phrase recently came under scrutiny when the 9th US Circuit Court of Appeals in San Francisco ruled that the pledge constitutes an unconstitutional endorsement of religion because it contains the phrase "under God." On the bright side, it is encouraging to see so many public officials actively working to reverse that decision.

40. House, *Armed Forces Oath of Enlistment, Report to Accompany H.R. 218*, 87th Cong., 1st sess., 25 July 1961, 4. The Constitution guarantees that "no religious test shall ever be required as a qualification to any office or public trust under the United States." Both Congress and the Supreme Court have ruled that including the words *so help me God* is not unconstitutional.

41. Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (Oxford: Clarendon Press, 1963), 63.

42. Helgeson, 4.

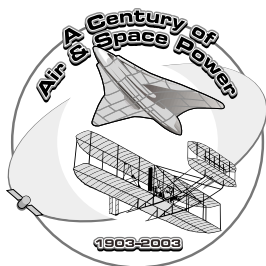
43. The Bible includes references to oaths. For example, Matthew quotes Jesus as saying, Again, you have heard that it was said to the people long ago, Do not break your oath, but keep the oaths you have made to the Lord (Matt. 5:33).

No problem can be solved in the same consciousness that created it. We must learn to see the world anew.

—Albert Einstein

Mexican Punitive Expedition

ASPJ STAFF



In 1911 the Mexican government was overthrown, and the country descended into civil war. Cross-border raids by Mexican revolutionaries and assaults on American citizens and property in Mexico heightened tensions. In January 1916, forces loyal to the bandit/revolutionary Pan-



cho Villa killed 18 Americans in Mexico, and in March they crossed the border to attack the town of Columbus, New Mexico, killing eight soldiers and eight civilians. President Woodrow Wilson ordered American forces under the command of Gen John J. Pershing to pursue and attack Villa's forces in Mexico. On 15 March 1916, American troops crossed the Mexican border. Pershing's force included the newly formed 1st Aero Squadron, including eight aircraft, 10 pilots, 84 enlisted men, 10 trucks, one automobile, and six motorcycles. The air expeditionary era had begun. A few officers (e.g., Capt Benjamin D. Foulois and Lt Carl Spaatz) would gain important experience from this expedition.

Unfortunately, the early aircraft, training, and equipment were not up to the harsh operating environment. The 1st Aero Squadron's Curtiss JN-3s proved adequate as trainers but could not cross the 10,000-foot mountains in that part of Mexico; nor could they handle the frequent strong winds. The aircraft could carry a payload of only 265 pounds and had neither instruments nor weapons. Given the conditions under which it had to op-

erate, the JN-3's high accident and incident rates came as no surprise. Maintenance was also a problem since the aircraft's wooden and canvas components suffered from the desert climate (especially the wooden propellers). After a month of operations, only two of the eight original aircraft were still operational, and even they were eventually condemned as unfit for service.

The squadron eventually received newer aircraft, guns, bombs, and cameras. The pilots benefited from a great deal of on-the-job training, but the squadron's main contribution to the campaign entailed carrying dispatches and mail. It recorded its most significant accomplishment when it located a lost cavalry column. The weaknesses of the US air arm rapidly became evident, as did many of the requirements for conducting a sustained air campaign. Steps taken to remedy these problems bore fruit less than two years later when the 1st Aero Squadron and the rest of the American Air Service entered World War I.

To Learn More . . .

Finley, James P. "Military Intelligence in the American Southwest: Pioneering Aerial Reconnaissance." *Huachuca Illustrated* 1 (1993). On-line. Internet, 10 October 2002. Available from http://www.ku.edu/~kansite/ww_one/comment/huachuca/HI1-21.htm.

Foulois [sic], Capt Benjamin D. *Report of the Operations of the First Aero Squadron, Signal Corps, with the Mexican Punitive Expedition, for Period March 15 to August 15, 1916*. On-line. Internet, 10 October 2002. Available from <http://www.cavalry.org/pershingtext.htm>.

Hennessy, Juliette A. *The United States Army Air Arm, April 1861 to April 1917*. Washington, D.C.: Office of Air Force History, 1985.

Nalty, Bernard C., ed. *Winged Shield, Winged Sword: A History of the United States Air Force*. Vol. 1, 1907–1950. Washington, D.C.: Air Force History and Museums Program, 1997.

Saltzman, Capt B. Chance, and Thomas R. Searle, eds. *Introduction to the United States Air Force*. Maxwell AFB, Ala.: Airpower Research Institute; College of Aerospace Doctrine, Research and Education; and Air University Press, 2001.

Train Like We Fight, Fight Like We Train

Establishing the Air and Space Expeditionary Force Training Center

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Editorial Abstract: As the air and space expeditionary force concept of operations transforms the Air Force, training must evolve to meet new operational requirements. Lieutenant Colonels Spacy and Trapp offer a detailed proposal for an Air and Space Expeditionary Force Training Center that would change training, evaluation, and certifying concepts to better prepare expeditionary air and space forces to support joint force commander taskings. In order to shift to the proposed new paradigm, the Air Force must undergo a series of fundamental changes in how, when, and where training is conducted and focus on building a cohesive expeditionary team from start to finish.



Because Air Force people will know well in advance to what air expeditionary force their unit is attached and when that AEF is scheduled to deploy, they will be able to plan for and train with other units in their AEF prior to deployment. Before, units trained with other units, but not necessarily the units they would deploy with.

—Gen Michael E. Ryan, USAF
Chief of Staff, 1998

AS THE AIR FORCE transformed itself from a containment-focused Cold War force into a responsive twenty-first-century force, the air and space expeditionary force (AEF) operational concept emerged. It is a team-focused organization designed to better posture the Air Force

for quick-reaction deployments while adding stability and predictability to an increasingly heavy deployment schedule. The next step in this evolution is to revise the methods we use to train and certify these new AEFs for combat operations. While the AEF radically changed the way the Air Force organizes for war, it still

trains and exercises much the way it always has—piecemeal and often by Air Force specialty. Much of the potential gain in team cohesion that could be provided by the AEF construct is lost to airmen who don't train together and who first see each other when they arrive in the deployed area of responsibility (AOR). To fulfill General Ryan's vision of "a unifying structure that brings all our people together in shared challenges, shared goals, and shared successes," the Air Force needs to create an Air and Space Expeditionary Force Training Center (AEFTC) where a particular AEF's forces can train and exercise together as an air and space expeditionary wing (AEW).¹ In addition to the benefits of team training, the AEFTC could also give deploying AEWs and AEFs a solid capabilities-based certification along the lines of those used by the US Navy and US Marine Corps. A reliable certification not only will give regional combatant commanders confidence in an AEF's and AEW's capabilities, but also will add credibility to the overall vision of the expeditionary air and space force. The AEF is an evolution in the way the Air Force goes to war; it is now time for a revolution in how we prepare that force to meet the challenge!

Paradigm Shift—A New Culture?

With many of the AEF structural changes in place, the Air Force has seen improvements in force utilization, force packaging, and deployment predictability. It hopes these enhancements will translate into an increase in personnel retention. The expeditionary vision was also intended to change the Air Force culture.² According to General Ryan, its success depends on "men and women with an 'expeditionary mind-set' who understand our mission is global. Bold, Decisive Leaders who excel in austere, unpredictable environs."³ Gen John P. Jumper, former commander of the United States Air Forces in Europe (USAFE) and one of the AEF's original designers, described this new Air Force culture:

This new generation of air and space warriors has to be tougher minded. It has to get back to

the mentality of the old composite air strike force, where they used to live under the wing—they fly in, set up the tent city and live off of Meals Ready to Eat for a week or so before sustenance airlift starts. . . .

In this culture, you have to get back to some basic institutional values: every airman is a warrior, every airman is a sensor. These basic institutional values say we will be qualified on a weapon. We will be able to keep up and maintain mobility bags; we will understand force protection, right down to the task level.⁴

However, the envisioned expeditionary culture may be difficult to create because at the core of the AEF cultural change is the need to become a cohesive, team-oriented force. The current Air Force culture developed around its technical nature and has long suffered from the lack of a unifying cohesion.⁵

Cultural Challenge

Over time, the lack of cohesion became institutionalized in the Air Force as it evolved into a confederation of technical specialties and specialized subcultures. Airmen today tend to identify more with their individual specialty than with a shared Air Force vision and mission.⁶ The lack of cohesion is not just the result of functional specialization, but it is also caused by the way the Air Force goes to war. Dr. Arnold Kanter saw "the USAF as the least cohesive of the services. . . . The operational Air Force mixes assets within operations, but units live apart and work in isolation until they join up en route to the operational target."⁷ If the Air Force is to develop the cohesive teams that are central to the new culture the AEF concept depends on, then these teams "must be built, reinforced, and employed—as a team, not just its parts."⁸

Building a Cohesive Team

It has been suggested that for the Air Force to change its culture, it must address three basic areas. First, it must carefully align the Air Force concept of its task environment with how that environment is perceived in the general, political environment—this is the clear vision re-

quired from senior leadership. Second, Air Force strategy and structure must be realigned to be able to achieve the critical operational tasks, roles, missions, and functions at the heart of the vision. Third, the service must socialize the desired cultural changes and revised priorities across the organization to create a culture that encompasses a cohesive team focus around which the diverse subcultures and specialties will want to coalesce.⁹

The Air Force has made some progress in laying the groundwork for cultural change. *America's Air Force Vision 2020* provides a solid, unifying mission and vision foundation. Additionally, Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine* and AFDD 2, *Organization and Employment of Aerospace Power*, build on *America's Air Force Vision 2020* and show how those broad concepts translate into strategic and structural applications. These and other doctrinal publications are part of aligning strategy and structure to achieve the expeditionary tasks, roles, missions, and functions.¹⁰

With this foundation in place, the final step is to socialize these changes throughout the Air Force. It cannot be done overnight, and perhaps it will also be the most difficult step. It must start with initial training and continue throughout an Air Force career. Training will be key, but the effort must be extensive and pervasive. It must also focus on day-to-day, unit-level efforts to live the team concept. Again, the Air Force has made some progress with this most important step—to socialize the translation of vision and doctrine into day-to-day life.¹¹

As General Jumper described, socializing the expeditionary culture begins in Basic Military Training, during which airmen now receive field training and get a taste of the expeditionary lifestyle. During basic training, airmen receive instruction in how to build defensive fighting positions and erect field tents; they also learn how to protect themselves against a nuclear, biological, chemical, or terrorist attack. This training is combined with a weeklong field-training exercise called Warrior Week and sets the tone for an expeditionary career.¹² Air Force Academy cadets get a similar experience in their Global En-

agement program, during which they receive both academic and field training in a simulated bare-base environment and are exposed to situations like those found in Warrior Week.¹³ For newly commissioned officers, Air University's Air and Space Basic Course is designed to provide a focused and detailed indoctrination into the full scope of expeditionary missions and applications.¹⁴ Finally, expeditionary lessons are also included in all professional military education courses. However, beyond these educational efforts lies the most difficult part of the expeditionary socialization challenge—getting airmen to live the cohesive expeditionary principles the Air Force espouses. Since airmen don't have any day-to-day affiliation or contact with other members of their assigned AEF, they miss many socialization opportunities during the formal expeditionary classroom and other educational experiences.

Opportunity Missed

The AEF's team focus is the ideal tool with which to build the new expeditionary culture. Indeed it seems that Air Force leaders had always intended to capitalize on the AEF's team orientation to bring about the needed cultural change. General Ryan pointed out in *America's Air Force Vision 2020* that the AEF construct "provides a unifying structure that brings all our people together in shared challenges, shared goals and shared successes. Airmen from all across the Air Force contribute to our expeditionary capabilities—from those who provide the deterrent umbrella under which we operate, to those who deploy, to those who operate the fixed facilities on which we depend when we reach back for support."¹⁵

Since the members of each AEF are drawn from geographically separated bases, AEF training activities would have to be designed to bring these separate units together. In 1999 F. Whitten Peters noted the importance of AEF team training in his *Report of the Secretary of the Air Force*: "Training as a team during their spin-up cycle, AEFs will form a fully integrated air and space unit, one that com-

bines the capabilities of the Service's weapons systems to create a powerful composite force. Knowing AEF schedules in advance will allow the Air Force to structure training programs to put these units at the peak of readiness as they enter their vulnerability period."¹⁶

This theme is also carried out in the *Commanders' Playbook* developed by the AEF Center (AEFC). In detailing its AEF concepts, rules of engagement, and operating philosophies, the playbook makes clear that "one of the objectives of the AEF construct is to match and deploy expeditionary combat support (ECS) unit type codes (UTC) with their aircraft so they can train, deploy and return as a team on a stable and predictable schedule."¹⁷ A key concept in the *Commanders' Playbook* is associating ECS personnel with the operations resources they support.

Training as a team in an AEF field-training exercise would certainly reinforce expeditionary classroom lectures and lessons, as well as fill the void between formal education and what airmen experience in actual deployments. Additionally, these exercises would provide important opportunities for members of multifunctional UTCs to meet (likely for the first time), get to know each other, and practice the often complex interoperability skills. While numerous Air Force leaders and publications refer to the entire AEF as one team forming "a fully integrated air and space unit,"¹⁸ the expeditionary force has remained a virtual team. Instead of providing General Ryan's unifying structure, AEFs continue to represent only "buckets of capability."¹⁹ Although expeditionary forces deploy as AEW teams, they do not prepare or train together, and AEF training philosophies still support training along functional lines.

The Air Force not only is failing to reinforce the AEF construct of cohesive teams by relying upon segregated functional training, but also may be hindering necessary cultural change. That training approach perpetuates the core obstacle to cohesive teams. Arguably, without AEF/AEW training as teams, and in the process of building cohesion, the Air Force will be unable to completely socialize the cul-

tural change required to make the expeditionary concept a success. Without that cultural change, the vision of a truly expeditionary air and space force may never be fully realized.

Force Certification

Another change associated with the advent of the AEF construct was the need to certify this new force for combat. However, that certification does not address the AEF/AEW's ability to fight together; instead it addresses a fundamental need to ensure that personnel complete their individual skills and mobility training prior to deployment. The scope of the current certification was an effort to fix a historical problem of airmen reporting to the AOR without having their required qualifications and "warrior skills."

The development of the AEF certification process allowed the AEFC to better track AEF members' warrior skills. That process had two objectives: (1) to hold the commanders at each level accountable for organizing, training, and equipping UTCs and (2) to inform the combatant commanders on the status of the forces being deployed to their AOR. Accordingly, the new AEF certification process requires commanders to continually assess the readiness of all UTCs postured for AEF deployment, but to certify only those UTCs actually tasked to deploy or those sourced in a prepare-to-deploy order (PTDO) for contingency response.²⁰ The certification is not the result of an inspection or graded exercise; it is based upon reported readiness data and paints a general picture of overall AEF health.

The AEF certification process may indeed help track myriad deployment requirements. However, the basic and perhaps risky assumption that readiness of the pieces equates to the readiness of the whole AEF raises an important question—Is the AEF certification a "combat" certification?²¹ That premise ignores the complex interoperability required to create a synergistic team from geographically separated forces that do not see each other until they are deployed to a forward operating location. Thus, UTC team certification is based

upon a compilation of individual qualifications and equipment availability, not on that team's ability actually to perform its wartime mission together or as part of the larger AEF team. It does not measure the AEF's ability to provide a "unifying structure that brings all our people together in shared challenges, shared goals and shared successes."²² AEF certification remains a paperwork exercise that misses the opportunity to render a comprehensive, capability-based certification and further socialize the expeditionary culture.

Sister-Service Approaches

While the Air Force continues to train different members of its AEF team separately, the training/certification programs of the US Army, Navy, and Marine Corps all share a combat-team orientation—one not found in the current AEF preparation process.

The National Training Center

For the Army, the National Training Center (NTC) is perhaps the best known of its combat training centers. The NTC was born when forward-thinking leaders asked the questions "What if the Army had a place where large units could fight an established, well-trained, professional enemy—an enemy trained better than any in the world? What if the fight was executed under stressful, demanding, relevant conditions while observed by doctrinal experts who could elicit lessons from each fight?"²³ The NTC today answers those questions by providing an extensive, simulated combat environment where brigade-sized units train and exercise against a dynamic and realistic opposing force: "The realism is absolute, within timelines, to the point of needing to plan to replace used supplies and repairing vehicles . . . in short everything you would have to do in real life."²⁴

The Carrier Battle Group

The Navy prepares its carrier battle group (CVBG) differently, but teamwork and realism are also paramount. During the 18-month in-

terdeployment training cycle, the various CVBG components work to meet prescribed mission-area performance metrics. They are then evaluated, both internally and externally, through established "bite-sized" exercises, training missions, and simulations.²⁵

About 180 days from the certification event or planned deployment, the various CVBG players enter "tailored ship training availabilities" (TSTA I, II, and III) and work toward "blue water certification"—the ability to conduct sustained operations without divert airfields. The TSTA's key focus is to bring all members of the CVBG to the same proficiency level so that the next step of bringing the forces together can be done safely and effectively.

Finally, the entire CVBG is graded during a certifying event by the numbered fleet to tell the gaining combatant commander and forward numbered fleet that they are getting a well-trained and battle-ready product.²⁶ This certifying event is usually a joint-task-force exercise (JTFEX). Capt Tom Culora sees three key benefits in the Navy method of preparing CVBGs for deployment:

First, the "individuals" meet, and the CVBG commander can get to know his people and commanders. This makes imparting the commander's intent easier and clearer . . . and directly aids communication. Second, any shortfalls in the battle group, based upon projected missions, can be identified, addressed, and corrected. Finally, the tempo of operations is gradually increased. . . . This gets people ready, both physically and psychologically, for a deployment that routinely extends to six months.²⁷

Marine Expeditionary Unit (Special Operations Capable)

The Marine Corps does not have a training center on the scale of the National Training Center; instead it has a Marine expeditionary unit (special operations capable) (MEU [SOC]) building-block training program to prepare its units for embarkation and duty. This program begins with individual training and ends with a combined-arms, multiple-scenario certification exercise. The Marines refer to their spin-up period as the predeployment

training program (PDP), which is divided into initial, intermediate, and final phases.

The initial and intermediate phases focus on individual and collective specialty training, respectively, and prepare the MEU for the final phase of training, formal evaluation, and special-operations-capable certification. During the final phase, all MEU elements embark with marines and equipment and work through a series of tactical problems. The Marine expeditionary exercise (MEUEX) is considered the formal evaluation and can be conducted within a JTFEX, special operations exercise (SOC²EX), or a number of other events. After the MEUEX, the commander will learn either that his or her unit has successfully completed certification or that certain corrective actions must be accomplished or reaccomplished to earn it.²⁸

Lessons for the AEF

While sister-service training and certification programs cannot be directly applied to preparing an AEF/AEW for deployment, the Air Force still could borrow elements of each. The Army's NTC demonstrates the feasibility and value of bringing large combat forces to a single, consolidated training center to conduct combat operations against an established, well-trained, professional "enemy." The NTC also represents a service-level model to test large combat forces in their entirety by providing a realistic battlefield, a highly capable and viable threat, a complete infrastructure, and skilled observer controllers. Both CVBG and MEU training and certification programs are designed to recognize that their true combat power is drawn from the synergistic capabilities of their respective constituent forces. They also show that combat certification must be based upon the ability of those forces to fight as integrated teams.

If the Air Force is to expect that its AEF/AEW certifications will have the same credibility to the gaining combatant commanders as those of the CVBG or MEU, it must show that AEF forces can fight together as effectively as their sister-service counterparts. As good as Air

Force training programs are, as well as the AEF reporting-tool records data, none give the AEF/AEW the type of "hard" certification provided by both the Navy and Marines.

Revolutionary Training Concept: The AEFTC

To create a new expeditionary culture and complete the paradigm shift to an expeditionary air and space force, the Air Force must fundamentally change how it trains and certifies its forces for combat. That leap forward in training is the AEFTC.

Mission

The AEFTC mission will be to train and certify all individuals, UTCs, and flying units assigned to an AEF—together at one center and just prior to deployment. It will do this by utilizing functional experts from every specialty to conduct standardized expeditionary readiness, expeditionary skills, and specialty training. That training will be to a standard that meets all functional UTC, AEF, and Status of Resources and Training System (SORTS) training and certification requirements. Additionally, an AEFTC rotation will centralize the application of lessons learned, significantly reduce home-station training requirements, provide a test bed for initiatives from the battle laboratories, and provide contingency practice for AEF leaders. Most importantly, the AEFTC will prepare a truly combat-ready force.

Location

Tonopah Test Range (TTR) is the ideal choice to be the core of the AEFTC. It is situated in the desert approximately 200 miles north of Nellis AFB, Nevada, and has the state-of-the-art facilities that were used by the F-117s until 1993. With the TTR as its foundation, the AEFTC complex would also include two additional "expeditionary air bases" located within its ranges—the Security Forces (SF) Expeditionary Readiness Training (ExpeRT) and Certification Center located at Indian Springs

Auxiliary Airfield (ISAAF), and what is currently the Red/AEF Flag training program located at Nellis AFB. Surrounded by almost three million acres of air and ground ranges at Nellis, this complex represents the AEF training venue of the future.

Concept of Operations

AEFTC rotations would be two weeks long (10 training days and four deployment-redeployment days), and each AEF pair would normally be scheduled to attend during the two-month “spin-up” period of the 15-month AEF cycle. AEF One, for example, would be scheduled to attend during the first two weeks of the spin-up phase. There would be a one-week “down time” for the AEFTC to reconstitute and prepare for the next rotation. AEF Two, the second part of the first pair, would rotate in at the beginning of the fourth week of the spin-up phase. This allows the members of AEF One six weeks after they return home from the AEFTC to prepare for their AOR deployment. Home-station deployment prep time for participants in AEF Two would be divided evenly, three weeks before and three weeks after their AEFTC training. Personnel in both AEFs would have a total of six weeks at home for additional preparation for their AOR deployment.

An AEFTC rotation will be conducted in four phases: deployment, AEF training, field training exercise (FTX), and redeployment. AEFTC rotations will be considered “field conditions” and run consecutively without days off. A 12-hour training day will be the norm for the AEF training phase, while the four-day FTX will run nonstop for 96 hours.

Phase One—Deployment. The deployment phase mirrors an actual deployment into an AOR and takes place in two stages: home-station preparation (Stage I); and deployment into the AEFTC (Stage II). Stage I includes packing personal equipment and completing the many predeployment and mobility line actions normally accomplished by home-station units prior to deployment into an AOR. In order to lighten deployment loads and save wear and tear on real-world logistics detail

(LOGDET) equipment, all weapons and equipment needed for an AEFTC rotation will be maintained and issued by the AEFTC. Additional predeployment requirements include those items typically maintained in an individual’s mobility folder. AOR predeployment requirements will differ somewhat from the AEFTC items, since most of the ancillary training items will have already been accomplished during the AEFTC rotation.

Deployment Stage II involves actual deployment from the home station into the AEFTC. All personnel will deploy in two days via either commercial airlift into nearby McCarran International Airport or by military airlift directly into the AEFTC. The flying units and associated maintenance personnel assigned to the Nellis portion of the AEF Flag exercise will deploy directly into Nellis AFB, as is normal for AEF Flag participation.

Phase Two—AEF Training and Certification. Training and certification at the AEFTC are based on the concept that “every airman is a warrior; every airman is a sensor.”²⁹ Instruction and skill certification are provided in three blocks: Expeditionary Readiness, Expeditionary Skills, and Specialty Training specific to each UTC. These training blocks replace or expand upon many current home-station and Regional Training Center (RTC) activities; furthermore, they are designed to train and certify airmen as individuals, as part of their UTCs, and lead to certification as an integrated AEW. After the training phase is complete, UTCs will come together for a 96-hour FTX and be certified as an integrated AEW.

Expeditionary readiness training (ERT) is currently referred to as ancillary predeployment training. It is taught in a variety of methods and venues, often by agencies stretched thin by operational deployments. ERT includes subjects currently required throughout the Air Force on a semiannual, annual, or biannual basis, with some training required within a specific window prior to deployment; the requirements vary, reflecting the needs of the projected AOR. The AEFTC will combine these requirements and train all personnel during the AEFTC rotation every 15 months

within the AEF cycle. ERT subjects include the Law of Armed Conflict (LOAC), Rules of Engagement (ROE), Self-Aid and Buddy Care (SABC), and Level I Force Protection training.

Expeditionary skills training (EST) borrows from the USMC philosophy that says "every marine is a rifleman" before he or she is a functional specialist. This approach helps prepare airmen for contingency operations by providing them with tactical skills beyond their functional area. The goals of EST are threefold: (1) give airmen "warrior skills" that enable them to operate in a wide range of contingency environments and threats; (2) provide both the home station and deployed commanders with a pool of fully trained and certified base defense augmentees; and (3) bring all airmen together as a cohesive force with a common set of combat skills. EST includes general field skills, advanced weapons training, and detailed SF augmentee training.

General field skills are designed to give each airman a basic understanding of how to work and survive in a high-threat environment. The training includes cover and concealment, tactical communications, building and using defensive fighting positions (DFP), basic fire fighting, and squad movement and tactics.

Advanced weapons training adds to the "warrior skill" foundation by providing weapons training targeted to give members of each rank the appropriate experience with the weapon they are most likely to carry during a deployment. For example, aircrew members, officers, and senior noncommissioned officers (NCO) will receive training on the M-9 (9 mm) handgun, while junior enlisted personnel will train with the M-16A2 rifle. Advanced weapons training at the AEFTC will begin with basic Air Force qualifications but will also include practice on tactical firing courses, live fire within a squad, and even heavy weapons training for selected personnel. Advanced weapons training not only fills the weapons qualification requirement, but also increases an airman's overall level of firing skill and confidence.

In addition to the warrior skills mentioned above, airmen and NCOs will receive detailed

instruction in skills that will qualify them as SF augmentees. This certification not only will help with deployed base-defense requirements, but also will give home-station commanders a trained pool of SF augmentees. Some of these skills include arming and use of force, basic SF procedures, challenge procedures for vehicles and individuals, and physical-restraint techniques. As AEFTC operations progress, the pool of airmen trained to support the home station's SF resource augmentation duty (READY) programs would grow significantly.

All airmen will also develop an identity as members of their assigned AEF during their expeditionary readiness and skills training. This AEF identity will be the foundation for the socialization of the cultural change required for the successful evolution of the expeditionary Air Force.

Specialty Training is the final block of instruction before the FTX and is designed to give individuals and teams of each UTC the basic competencies needed to perform their expeditionary and wartime missions. The curriculum is based on common core occupational competencies that each specialty requires and emphasizes the critical tasks in a deployed environment. That environment could be grounded either in built-up areas or in a bare base made operational with Harvest Eagle or Harvest Falcon assets—or something in between. Since most wings have neither the equipment nor space to train in these skills, they are currently most often taught in the RTC. The AEFTC will consolidate these centers under one roof and provide that specialty training.

Phase Three—Field Training Exercise.

The FTX is designed to build on individual and UTC training-phases certifications, train as a team, and certify the AEF as an integrated AEW. The FTX is a three-stage exercise that begins with airmen moving to the exercise sites during Stage I deployment operations. At the same time, the TTR transitions from a training area into an expeditionary air base (EAB). Exercise combat operations initiated in Stage II include the generation of combat

sorties, resupply, and force protection. Stage III focuses on tactical redeployment, transition, and “end of the exercise” (ENDEX). Throughout all phases of the FTX, scenarios gleaned from lessons learned, recent deployments, and postulated threats are used to exercise the skills that are trained and certified in expeditionary readiness, expeditionary skill, and specialty-training programs.

Phase Four—Redeployment. The final phase of an AEFTC rotation is redeployment, which allows two days for personnel to pack personal equipment and return to home station. Redeployment schedules will be arranged to allow members of the Air Reserve component (ARC) to leave in the first loads to help ensure they stay within allotted training days. Upon return to home station, personnel should be complete with all AEF “spin-up” requirements and be able to spend time with families and/or take predeployment leave.

AEW Certification

During the AEFTC rotation, all personnel will be certified on ERT, EST, and specialty skills. Additionally, AEF members would perform as an integrated team during the FTX and be certified as an AEW. At the end of the FTX, the AEW commander (deployed lead wing commander) will certify in person to the numbered air force commander and air commander, Air Combat Command (COMACC), that the AEW is “certified ready for deployment.” Based on this certification, the AEF/AEW would have a “hard” certification much like the Navy’s and USMC’s. COMACC would then send the certification message to the regional combatant commanders through the commander, United States Joint Forces Command.

Force Development

In addition to the comprehensive training and capabilities-based certification, the AEFTC could also be an excellent place to certify a variety

of competencies under the force-development initiative. During an AEFTC rotation, leaders of all ranks not only will be trained in their core occupational competencies, but also will enhance their leadership skills in a dynamic expeditionary environment populated by a broad range of other specialties. In addition to the functional and universal competencies certified during an AEFTC rotation, ERT and EST areas could be combined to create a new “AEF competency” category. AEF competencies would apply by rank to all personnel assigned to an AEF and would help chart a path toward a goal of a truly “expeditionary airman.” The AEFTC would play a major role in giving leaders a place to learn, practice, and certify these new skills.

Summary

The proposed AEFTC is a training complex that takes AEF deployment preparation to a new level by combining the world-class training currently found in Air Force RTCs with the best sister-service training practices. It also builds upon expeditionary cultural change initiatives by training, exercising, and certifying entire AEFs/AEWs as integrated combat teams. This new approach to training is focused on skill certification and molding the hundreds of AEF UTCs and flying units into one AEW team. Hopefully, by training and certifying as a team, these airmen will develop a strong allegiance to their AEF, making it a more cohesive and effective combat force.

Although AEF team-oriented training includes a host of benefits, perhaps the biggest will be realized on the battlefield through the synergistic effects of a cohesive team whose members are trained and certified together. While the Air Force is not required to take this next training step, it will need a methodology to form that AEF team if it truly desires to become an expeditionary air and space force—the AEFTC is simply the most logical choice. □

Notes

1. "The Expeditionary Aerospace Force: What Does New Air Force Structure Mean for the Reserve?" *Citizen Airmen*, October 1998, n.p., on-line, Internet, 3 September 2002, available from <http://www.afrc.af.mil/HQ/citamn/Oct98/EAF.htm>.
2. Lt Gen Donald G. Cook, Col Robert Allardice, and Col Raymond D. Michael Jr., "Implications of the Expeditionary Aerospace Force," *Aerospace Power Chronicles*, December 2000, n.p., on-line, Internet, 3 September 2002, available from <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj00/win00/cook.htm>.
3. Aerospace Expeditionary Force Center (AEFC), "Quarterly AEF Update," PowerPoint briefing, Langley AFB, Va., 2 May 2001.
4. Gen John P. Jumper, "Expeditionary Air Force: A New Culture for a New Century," address to the Air Force Association Symposium, Orlando, Fla., 26 February 1998, n.p., on-line, Internet, 3 September 2002, available from <http://www.aef.org/pub/ol19.asp>.
5. Dr. James M. Smith, "USAF Culture and Cohesion: Building an Air and Space Force for the 21st Century," INSS Occasional Paper no. 19 (USAF Academy, Colo.: Institute for National Security Studies, June 1998), 13, on-line, Internet, 3 September 2002, available from <http://www.usafa.af.mil/inss/ocp19.htm>.
6. *Ibid.*, 17.
7. *Ibid.*, quoting Dr. Arnold Kanter's research, 52.
8. *Ibid.*, xiii.
9. *Ibid.*, 48.
10. *Ibid.*, 49.
11. *Ibid.*, 50.
12. MSgt Todd R. Barrow, "Talking Paper on Warrior Week," (Talking paper presented to the 737th Training Support Squadron, Lackland AFB, Tex., January 2002).
13. United States Air Force Academy, 34th Training Squadron Web site, "programs," n.p., on-line, Internet, 3 September 2002, available from <http://www.usafa.af.mil/wing/34trg/34trs/programs.htm>.
14. Smith, 50.
15. USAF, *America's Air Force Vision 2020*, 5, on-line, Internet, 3 September 2002, available from <http://www.af.mil/vision/vision.pdf>.
16. Secretary of the Air Force F. Whitten Peters, *Report of the Secretary of the Air Force*, 1999, 6, on-line, Internet, 3 September 2002, available from <http://www.defenselink.mil/execsec/adr1999/afstat.html>.
17. AEFC, *Commanders' Playbook* (Langley AFB, Va.: AEFC, 23 June 2001), 6, on-line, Internet, 14 December 2001, available from <http://www.aefcenter.acc.af.mil>.
18. Peters, 6.
19. John A. Tirpak, "The EAF Turns One," *Air Force Magazine* 83, no. 10 (October 2000): 22.
20. Air Force Instruction (AFI) 10-244, *Reporting Status of Expeditionary Aerospace Forces*, 19 February 2002, 18.
21. Gen John P. Jumper, "AEF Certification," PowerPoint briefing, Langley AFB, Va., 13 February 2001, 3.
22. USAF, *America's Air Force Vision 2020*, 5.
23. Col Mark P. Hertling and Lt Col James Boisselle, "Coming of Age in the Desert: The NTC at 20," *Military Review*, September–October 2001, 64–65, on-line, Internet, 9 October 2002, available from <http://www.cgsc.army.mil/milrev/english/SepOct01/hertling.asp>.
24. Maj Bryan L. Lee and Maj James Lampton, Davis Center for Russian Studies, Harvard University, Cambridge, Mass., interviewed by author (Trapp), December 2001; and N. Van Taylor, "Why the Marine Corps Needs the NTC," *Marine Corps Gazette*, June 1999, 1–3.
25. Capt Thomas Culora, Olin Institute for National Security Studies, Harvard University, Cambridge, Mass., interviewed by author (Trapp), November 2001–March 2002.
26. Capt Timothy J. Doorey, College of Naval Warfare, Newport, R.I., interviewed by author (Trapp), February–March 2002.
27. Culora interview.
28. Col David J. Mollahan, Center for International Studies, Massachusetts Institute of Technology, Cambridge, Mass., interviewed by author (Trapp), February 2002; and Kennedy, October 2001, 31.
29. Jumper, "Expeditionary Air Force: A New Culture for a New Century."

Being expeditionary is more than what you call yourself. When you get right down to it, it's a mind-set and a complete orientation on how you prepare for war . . . reflected in your doctrine and in your training exercises. It is how you think about everything you do.

—Lt Gen John Rhodes, USMC

Command and Control of Air and Space Forces Requires Significant Attention to Bandwidth

LT COL KURT A. KLAUSNER, USAF

Editorial Abstract: Apportioning limited assets and resources is one of the most critical functions of command in a wartime scenario. With the technological advent of unmanned aerial vehicles and their use in new war-fighting concepts like the global strike task force, the allocation of bandwidth has become a much more critical and complex undertaking. Lieutenant Colonel Klausner addresses the issues of bandwidth, citing specific examples from recent conflicts, and advocates an additional role that the joint force air component commander must play in the future.



JOINT VISION 2020 asserts that a steady infusion of new technology is required to obtain the goal of full spectrum dominance.¹ Information superiority is a key enabler for much of that new technology. In a positive sense, the *Quadrennial Defense Review Report (QDR)* identifies the rapid advancement of military technologies and other key military-technical trends that will provide that infusion.² However important these trends and capabilities are to full spectrum dominance, one must remember that the complexity of the war fighter's mission increases as each new weapon system or technology is added to

the battle space. Currently mission planners optimize air refueling assets, electronic warfare (EW) capabilities, and airspace management to satisfy operational demands. Many of the new technologies will compete with current systems for the same limited bandwidth, and technical issues previously taken care of by mission planners and functional communities (communications, intelligence, and battle management) will require more attention by air and space commanders.

New weapon systems will place a significant strain on the finite bandwidth (limits in the radio-frequency [RF] spectrum and its associ-

ated data throughput or capacity) available within the battle space. As an example, the Office of the Secretary of Defense's (OSD) *Unmanned Aerial Vehicles Roadmap 2000–2025*, published in April 2001, identified 57 requirements associated with 15 related mission areas for unmanned aerial vehicles (UAV).³ Weapon-system developers and campaign planners must analyze these requirements to integrate UAV capabilities effectively into the overall theater concept of operations. As their unique capabilities are recognized, the number of UAVs employed in future joint campaigns will continue to increase and drive a significant increase in required bandwidth. To the degree this need is not fully satisfied, commanders will be forced to make choices and trade off various systems when employing future forces.

War-fighting concepts will also place a significant strain on the finite battle-space bandwidth. The global strike task force (GSTF) concept of "reachback" leaves much of the support operations behind in an effort to reduce the forward-deployed footprint. In addition to reachback, Air Force Doctrine Document (AFDD) 2-8, *Command and Control*, describes distributed operations as independent or interdependent nodes that participate in the operational planning and decision-making process to accomplish missions for engaged commanders.⁴ A split operation is a type of distributed operation usually used to describe a single command and control (C2) entity that is physically split between two or more geographic locations. The commander must have the same degree of control over these operations as if they were collocated. The communications between the forward-deployed forces and their C2 and support centers place a heavy demand on C2 systems—particularly communications capabilities. The employment of these new war-fighting concepts, like that of UAVs, is possible only if they have access to sufficient bandwidth. For instance, the federated intelligence support for Operation Allied Force (OAF) required connectivity between American key centers of excellence throughout Europe and the United States. Each of these centers contributed a portion

of the total support requirement, and all pulled together through robust communications systems. At a more tactical level, reconnaissance systems like the U-2 aircraft collected data in-theater, which was transmitted stateside, processed, and returned to the theater as information for the appropriate C2 and operational nodes.⁵

A commander must have a good understanding of what "bandwidth" represents to make trade-off decisions on different types of capabilities. However, for purposes of this discussion, one needs to understand only the basic concept. Logisticians, for example, express the number of short tons of logistic throughput as C-5 aircraft equivalents. The vision of a C-5 conjures up three important aspects of transportation: capacity (an aircraft load), overall capability (total number of available airframes and sortie rates), and cost. Using this analogy, a commander immediately understands what it takes to move his or her requirement forward in terms of time, cost, and level of effort. Unfortunately, a similar analogy does not exist for bandwidth although one could use the airlift comparison to illustrate some aspects of bandwidth. For example, the complexities of getting diplomatic flight clearances are very similar to those of getting host-nation or several nations' approval to use specific signals and frequencies. Likewise, the maximum number of aircraft allowed on the ground is similar to the restriction on ground-terminal communications capabilities. Simply put, the greater the volume of information to be transmitted, the larger the requirement for bandwidth to move it—higher bandwidth allows faster transmission of information. To help understand the discussion below, one should consider a megabit per second (1 Mbps) as a bandwidth yardstick to represent data throughput in much the same way the C-5 equivalent analogy is used to quantify logistic throughput.

UAV Bandwidth Issues

Combatant commanders identify and prioritize their war-fighting shortfalls and requirements on the integrated priority lists (IPL):

“Of the 146 requirements submitted in the combined 1999 Integrated Priority Lists for funding in the FY02–07 Future Year Defense Plan (FYDP), 57 (39 percent) identified

needed capabilities that have previously been associated in some form . . . with UAVs. . . . These 57 requirements can be organized into 15 mission areas”⁶ (fig. 1).

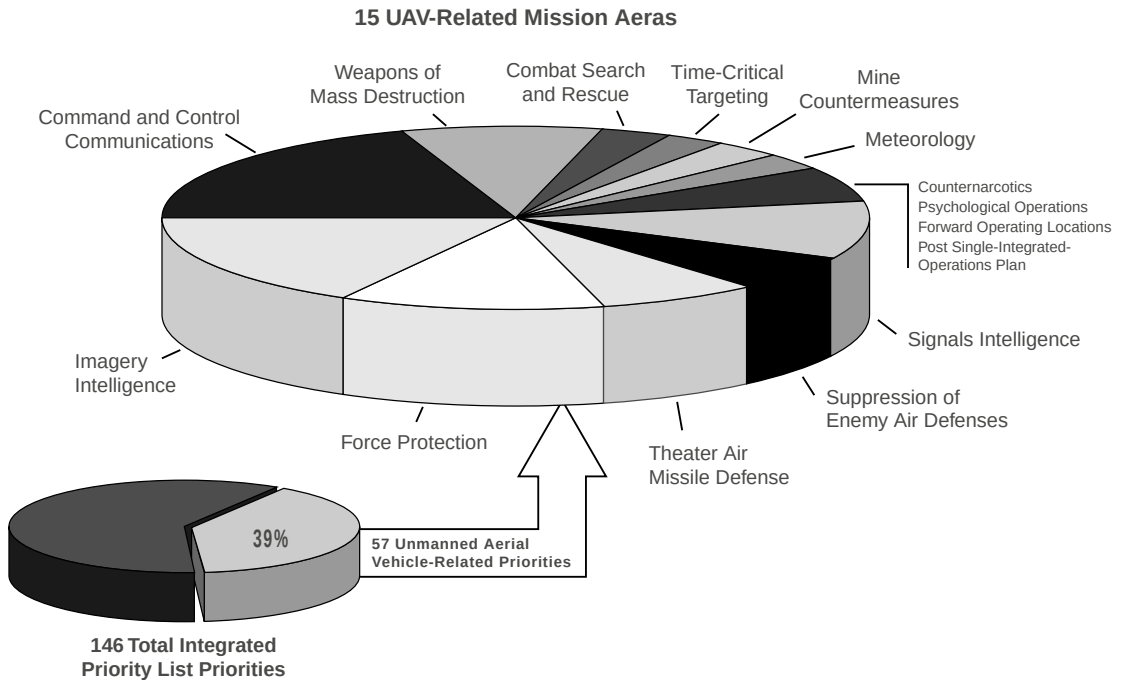


Figure 1. IPL Priorities Link to UAV Missions (From *Office of the Secretary of Defense Unmanned Aerial Vehicles Roadmap 2000–2025* [Washington, D.C.: Department of Defense, 6 April 2001])

UAVs will clearly become critical weapon systems in the future. Mission-area proponents will compete for UAV capabilities, and all will need bandwidth to support vehicle operations and payload processing. Likewise, UAVs will compete with other systems for their place in the battle space.

European Command (EUCOM) operated two Predators simultaneously from Bosnia during OAF. Each needed 6 Mbps to support video dissemination within the theater and the United States, a requirement that severely

stressed the Defense Information Systems Network architecture and necessitated preemption of lower-priority channels while the UAVs were in flight. Maintaining a quality link with Beale AFB, California (the site where the Predator achieved its initial operational capability), remained problematic throughout the campaign.⁷ In addition to Predator, two Hunter UAVs flew from Macedonia, and each one required an additional 6 Mbps of bandwidth. When both Predator and Hunter moved from reconnaissance to tar-

getting roles, communicators scrambled to increase the reliability of the Very Small Aperture Terminal (VSAT), a satellite communications system that handles data, voice, and video signals.⁸ Even with only a few UAVs operating in Kosovo, communications systems were stressed to the point that operational trade-offs were required and some activities had to be delayed or cancelled.

The combatant commander of US Central Command (CENTCOM) deployed both the Global Hawk and Predator systems to support Operation Enduring Freedom (OEF). Because the operation is ongoing, details of the supporting architecture are classified. However, one can conclude that bandwidth requirements are far greater than those required for Kosovo operations. Lt Gen Harry Raduege Jr., director of the Defense Information Systems Agency (DISA), observed, "Today, in Operation Enduring Freedom, we're supporting one-tenth the number of forces deployed during Desert Storm with eight times the commercial SATCOM bandwidth."⁹ Additionally, "Global Hawk consumed five times the total bandwidth used by the entire US military in the Gulf; and operations in Kosovo used 2.5 times what was used in the Gulf War."¹⁰ The *OSD UAV Roadmap* adds support for additional bandwidth: "The shortage in long haul, wideband over-the-horizon communications will be exacerbated as future intelligence, surveillance, and reconnaissance (ISR) platforms, manned and unmanned, are fielded. . . . This shortage takes two forms, insufficient bandwidth and lack of coverage in some geographic areas, which can directly constrict global UAV deployment. This infrastructure needs to be increased as these platforms, including UAVs, are fielded."¹¹

The frequency spectrum is a battleground between competing interests. Governments who control the use of the spectrum are under increasing pressure to "sell off" additional bandwidth to commercial interests. The remaining smaller portions of the spectrum have become more difficult to deconflict. One such conflict exists between the Federal Aviation Administration (FAA) and the De-

partment of Defense (DOD), the latter successfully obtaining 51 channels within the 960–1215 megahertz (MHz) band from the former to use for the Joint Tactical Information Distribution System (JTIDS). These channels, located within the L-band of the spectrum, were normally reserved for aeronautical radio navigation equipment.¹² The bandwidth capacity at this frequency range is limited between roughly 600 bits per second (bps) and 300 kilobits per second (Kbps) (roughly a C-130 aircraft equivalent if one uses the C-5 analogy) and, therefore, is not capable of fully supporting UAV ISR payloads.¹³ Competition within DOD for the same limited bandwidth, particularly to support each service's JTIDS, indicates that the network will be near saturation when key weapon systems are deployed (fig. 2).

Frequency management also plays a critical role when one supports operations that rely on using the RF spectrum. During OAF, frequency coordinators deconflicted 44,000 frequencies—a monumental task.¹⁴ Additionally, the Kosovo campaign revealed that the safe and effective employment of UAVs required that they fly at the same time, be able to adjust their mission timing and targeting (rolexing), and expand the UAV sensor's field of view to give the operator greater situational awareness.¹⁵ Deconflicting frequencies becomes even more problematic when the bandwidth requirements to support these operational needs are added together. Anticipating the increasing number of possible UAV and unmanned combat aerial vehicles (UCAV) missions in the future, planners must place special emphasis on dynamic bandwidth management.

Kicking Down the Door Requires Bandwidth

Providing sufficient bandwidth to support forward operations has always been a challenge. Communications satellites have become the workhorses in this area due to their effectiveness and efficiency. The Defense Satellite Communications System (DSCS) serves as the mainstay of DOD satellite communications by

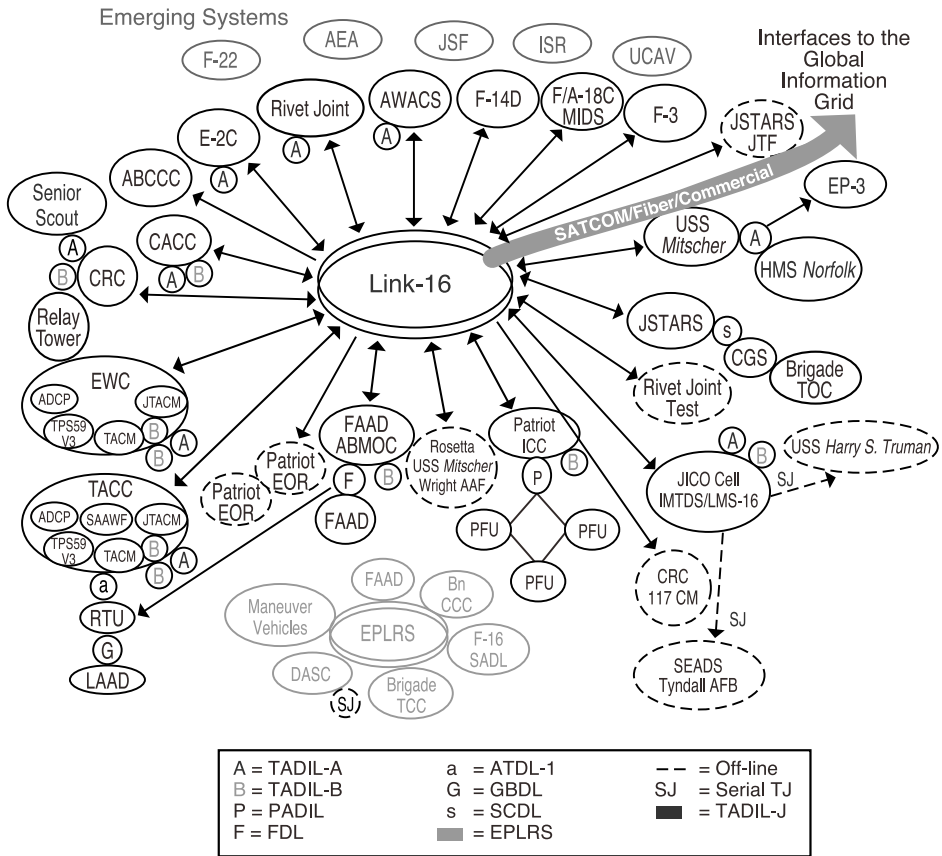


Figure 2. Proliferating Data Links, Protocols, and Systems (From briefing, Col Michael B. Leahy, PhD, USAF, subject: Unmanned Combat Aerial Vehicle [UCAV] Day-in-the-Life, UCAV C4ISR Overview, May 2001)

providing dedicated superhigh frequency (SHF) capacity. Geostationary ultrahigh frequency (UHF) satellite systems also play heavily in DOD's C2 arena. Despite these impressive military systems and capabilities, many of today's requirements can be met only by the use of leased commercial satellite systems.¹⁶

Operation Desert Storm

Satellites were the most important factor in extending communications to the Persian Gulf area of operations. During peak capacity, DSCS provided 75 percent (68 Mbps), and

NATO furnished an additional 5 percent of the SHF bandwidth. The final 20 percent of the required bandwidth needed to support the theater's over 2,000 ships, submarines, aircraft, and ground forces was leased from commercial systems.¹⁷ The key point is that very little communications infrastructure existed in the theater prior to initiation of the conflict.

Operation Allied Force

Communications systems supporting the combat operations in Central Europe remained sat-

urated throughout the conflict. Kosovo air operations required more than twice the bandwidth used to support all the forces in Operation Desert Storm. The growth in these demands required extensive coordination among all participants to optimize the allocation of the available bandwidth. Just as Desert Storm was dubbed the “first information war,” so OAF was labeled the “first video war” by the European Command’s director of Command, Control, Communications, and Computer Systems (ECJ6). OAF extensively used video teleconferencing and videotaped Predator operations.¹⁸ To provide the data throughput to make this possible, DISA contracted for over \$20 million worth of commercial bandwidth during the 87-day conflict.¹⁹

Operation Enduring Freedom

Current OEF operations in the CENTCOM’s area of responsibility (AOR) have similarities to OAF, Desert Shield, and Desert Storm. As in OAF, OEF operations have elements of forward deployed operations, distributed operations, and reachback operations. Global strike missions that originated from the continental United States (CONUS) also required connectivity. As was the case in the Persian Gulf conflict, the Afghan theater had little existing bandwidth capacity or satellite infrastructure. The requirement to support extensive video and ISR data rates challenged the responsible parties.

The GSTF concept provides a lethal joint-battle-space capability by combining stealthy aircraft employing advanced weapons with a multisensor command and control constellation (MC2C). The MC2C is a horizontally integrated architecture of C2 and ISR capabilities.²⁰ Bandwidth is a key enabler for communications connectivity and fundamental to the GSTF concept. Coupling this MC2C requirement with the considerable amount of bandwidth consumed by UAVs, makes apparent the fact that bandwidth allocation and management are now as operationally important as airspace control and the allocation of tanker, jamming, and defense-suppression assets.

The USAF concept “One Air Force, One Network” envisions an information-transport capability that integrates the links—from the kill chain to reachback for the expeditionary air and space force.²¹ In addition, the concept seeks to enhance the connectivity from the last switch to the actual end user, the *last aerospace mile*, with improved data links to weapon and ISR systems. This concept’s objective is to provide a seamless, streamlined communications infrastructure that uses bandwidth efficiently.²²

Operational concepts and new systems have been developed with the assumption that adequate bandwidth will be available. The emerging employment concepts for UAVs and the GSTF reflect this assumption and reinforce the need for commanders to become more aware of the demands being placed on bandwidth and the finite frequency spectrum. Unfortunately, commanders will have to establish priorities, oversee bandwidth allocation, make decisions on trade-offs, and understand the operational consequences.

Bandwidth and the JFACC

The joint force air component commander (JFACC) orchestrates the theater air campaign to support the combatant commander’s overall campaign plan. To help understand why the JFACC must help shape the bandwidth architecture, the reader should be aware how this service is provided today. Once that picture is clear, it should be easy to understand why it is necessary for the JFACC to be involved in the trade-offs necessary to reconcile future bandwidth requirements and limitations, and how that process should become an integral part of the planning routine.

The senior representative of the communications and information community (A-6) makes today’s bandwidth available to the JFACC, just as other specialists make other capabilities available. Numerous supporting organizations facilitate this process, but the overall architecture is handled mainly within the communications channels. Fortunately, most of the current issues regarding limited

bandwidth can be worked at lower levels. One JFACC, commenting on his recent war-fighting experience, suggested that he never had to worry about trade-offs because his senior communications (A-6) and intelligence (A-2) representatives figured it out at their level.²³ Unfortunately, the complexity of future bandwidth requirements will not be so easily dismissed.

The A-6 serves the JFACC or the commander, Air Force forces (COMAFFOR) by providing communications as well as electronics and automated information systems. One significant responsibility of the A-6 includes establishing the theater architecture to support operational and command requirements. Other critical responsibilities include coordinating with representatives of other command and supporting organizations such as the joint force commander's director of command, control, and communications systems (J-6) and DISA. The A-6 must ensure that users of allocated and assigned bandwidth are deconflicted, that they meet technical parameters, and that interface requirements are satisfied. In addition to advising the air operations center (AOC) on communications architectures that support the joint air operations plan, the A-6 extends required communications to subordinate units and other components.²⁴ Thus, the A-6 performs vital roles throughout the planning and execution processes, but he or she is not typically part of the joint air operations plan and master-air-attack-plan development process—which is currently not a limitation.

Providers of communication systems form a key joint air operations center (JAOC) support team and are organized as the communications focal point, help desk, JAOC networks and system administration, and communications equipment support. This support team typically provides not only systems and services to the JAOC divisions but also helps select the frequencies to be used in the air tasking order, air control order, and the communications tasking order. The team coordinates all JAOC command, control, communications, and computer (C4) requirements; manages C4 activa-

tion, restoration, and performance; interfaces with all JAOC C4 system users; controls network functions; and keeps the Theater Battle Management Core Systems (TBMCS) running. Requests for more bandwidth, additional frequencies support, or other C4 support are made to the communications focal point, who then forwards the requests to the responsible agencies.²⁵

Several additional issues associated with JAOC operations should be considered in the discussion of bandwidth. One must give some thought to managing the increasingly complex data-link architecture as additional types and numbers of assets are added to the networks. The current manager—the joint interface control officer—has his or her hands full reconciling the requirements associated with providing situational awareness throughout the system (see fig. 2). Likewise, successful management of intelligence-collection processes ensures that the right resources look at the right targets at the right times, deconflicts unnecessary overlap, and fills gaps in coverage. The increased resolution and fidelity of future collection systems not only will require greater bandwidth but also will compete for access to the limited number of common ground stations. While communications architectures perform best when they are stable, the reality is that technology is very dynamic and that the current electronic environment (as well as software) does not appear structured to cope with the inevitable change.

Additionally, bandwidth and frequency requirements are increasingly global in nature as evidenced by the nonstop Global Hawk flight from the CONUS to Australia. This significant capability and mission duration can also exceed the current Air Tasking Order 24-hour day. JAOC processes should be changed to accommodate the long flight times associated with UAV mission capabilities.

Recommendations

Bandwidth and infrastructure must be expanded or used more efficiently (by changing processes and organizations) to implement

new technologies and war-fighting concepts successfully. Currently, UAVs represent challenges and incredible opportunities, while new operational concepts such as the GSTF also create paradigm-changing possibilities.

However, both require bandwidth resources and infrastructures that exceed current capabilities. Adding more bandwidth through the use of satellites is expensive at best and still might not solve all the problems associated with GSTF and UAV operations (landing rights and so forth). Making trade-offs to accommodate UAV operations within the current bandwidth is a technical challenge. The fact that multiple UAVs will need to share the same frequency bands over time forces the JAOC to trade one mission for the next. Because only a finite number of UAVs can be operated at the same time, to get an additional UAV mission airborne, one has to be terminated. Actually, there is nothing new here other than advising the JFACC of the limitations and providing recommendations on how best to manage these resources to increase the effectiveness of the JFACC's efforts to meet the joint force commander's objectives. Another approach might be to develop a dynamic frequency and transponder allocation plan that would allow transfer of resources for different purposes. For instance, the commander could choose to allocate bandwidth to a UCAV mission and hold off on the video teleconference until the UCAV no longer needs the bandwidth. Finally, one could conceive of a JTIDS-type structure to support multiple UAVs, but it would have to be at a much higher frequency range to allow for adequate data rates. An ongoing effort by the Defense Airborne Reconnaissance Office (DARO) may overcome some of the obstacles associated with finding a frequency spectrum and agile communications equipment. That office sponsored a study to integrate a common data-link, high-bandwidth capability for airborne platforms. Possible solutions include laser communications technology that has transmission speeds in the 1-gigabit-per-second realm.²⁶ In addition, DARO is looking at a program to lease more satellite communications capacity and is attempting to develop an onboard UAV

moving-target indicator that can be used to cue other onboard sensors, thereby reducing the demand for bandwidth.

Automation tools should be developed to help planners orchestrate the allocation of available bandwidth to achieve the best possible result. These tools would be similar to the airspace deconfliction tool used in TBMCS. The bandwidth-allocation tools would help planners to "what if" various hypothetical scenarios and to point out problems (conflicting frequency assignments, not enough capacity, etc.). This capability not only is needed at the JAOC but also could be used at higher planning echelons where theaterwide—even worldwide—bandwidth allocations must be planned.

Increasingly, war-fighting capabilities depend on bandwidth for success. As GSTFs deploy and engage an enemy, greater coordination will be required between the communications and information professionals, the joint interface control officer, battle-management specialists, and the collection-management community. JFACCs must be aware of all of their forces' vulnerabilities as they integrate this knowledge into their planning and execution efforts. For example, the loss of a satellite that provides bandwidth could have a devastating impact on the ability of an engaged GSTF to operate UAVs. The commander must weigh these risks in much the same way he or she would assess the risks associated with EW vulnerabilities.

While Mbps correctly specifies data-transmission rates, it does not readily translate an understanding of operational capability to the layman. It would be helpful to have a simple, well-understood unit with which to convey bandwidth requirements so that even those without an electrical engineering degree can readily understand them. The search should continue for an analogy similar to the logistics "C-5 equivalent" expression of capability.

Conclusions

New weapon systems and war-fighting concepts, like UAVs and the GSTF, place significant demands on future battle-space band-

width. Commanders must be aware of this growing dependence on bandwidth and the limitations in the RF spectrum and data-throughput capacity. As a consequence, significant trade-offs may be required when employing forces in the future. Developers of new weapon systems that will require bandwidth should also design tactics and techniques to minimize the demands on this limited resource. New organizational processes

and tools are required to manage the complexity of optimally allocating bandwidth. JFACCs must also understand the risks and the opportunities involved with operations that depend heavily on bandwidth.

Successful employment of military force in the future will require the optimum use of bandwidth. Now is the time to put the bandwidth tools and processes in place that will make victory a certainty. □

Notes

1. Chairman of the Joint Chiefs of Staff Henry H. Shelton, *Joint Vision 2020* (Washington, D.C.: Department of Defense, 30 May 2000), 3, n.p., on-line, Internet, 4 October 2002, available from <http://www.dtic.mil/jv2020/jv2020a.pdf>.

2. Secretary of Defense Donald Rumsfeld, *Quadrennial Defense Review Report* (Washington, D.C.: Department of Defense, 30 September 2001), 6, on-line, Internet, 4 October 2002, available from <http://www.defenselink.mil/pubs/qdr2001.pdf>.

3. David R. Oliver and Arthur L. Money, *Office of the Secretary of Defense Unmanned Aerial Vehicles Roadmap 2000–2025* (Washington, D.C.: Department of Defense, 6 April 2001), 13, on-line, Internet, 23 September 2002, available from <http://www.acq.osd.mil/usd/road.doc>.

4. Air Force Doctrine Document (AFDD) 2-8, *Command and Control*, 16 February 2001, 31–32, on-line, Internet, 24 September 2002, available through a secure connection from <https://www.doctrine.af.mil/Main.asp>.

5. Air War College class discussion, Maxwell AFB, Ala., 30 October 2001.

6. Oliver and Money, 13.

7. Brig Gen Charles E. Croom, *A United States European Command J6 Communications Perspective of the Kosovo Crisis*, n.d., available from HQ USEUCOM ECJ6-O, Unit 30400, Box 1000, APO AE09128A, 40.

8. Ibid., 42.

9. Lt Gen Harry D. Raduege Jr., director, Defense Information Systems Agency, letter to author, 4 August 2002.

10. John M. Donnelly, "Panel Probes Military's Fight for Radio Waves," *Defense Week*, no. 17 (22 April 2002): 3.

11. Oliver and Money, 47.

12. Naval Electromagnetic Spectrum Center, *JTIDS/MIDS Spectrum Users Guide*, 1–2.

13. Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence, *C4ISR Handbook for Integrated Planning*, revised April 1998, 6, 90–91.

14. Croom, xii.

15. Oliver and Money, 47.

16. Alan D. Campen, *The First Information War* (Fairfax, Va.: AFCEA International Press, 1992), 122.

17. Ibid., 2, 122–23.

18. Ibid., 1; and Croom, x–xi.

19. Croom, 39.

20. Gen John P. Jumper, "Global Strike Task Force: A Transforming Concept, Forged by Experience," *Aerospace Power Journal* 25, no. 1 (spring 2001): 29; and US Air Force RDT&E Budget Item Justification Sheet (R-2 Exhibit), 0207449F *Multi-sensor Command and Control Constellation (MC2C)*, February 2002, 1, on-line, Internet, 27 September 2002, available from <http://www.dtic.mil/descriptivesum/Y2003/AirForce/0207449F.pdf>.

21. House Armed Services Committee, *USAF Information Assurance*, statement of Lt Gen John L. Woodward, 107th Cong., 1st sess., 17 May 2001, n.p., on-line, Internet, 3 October 2002, available from <http://www.house.gov/hasc/openingstatementsandpressreleases/107thcongress/01-05-17woodward.html>.

22. Lt Gen John L. Woodward, "One Air Force . . . One Network: Combat Power of the Network to Every Airman" (paper, Deputy Chief of Staff, Communications, and Information, Headquarters USAF, Washington, D.C., June 2001), 4–5.

23. Former JFACC, lecture, Air War College, Maxwell AFB, Ala., fall 2001, nonattribution applies.

24. Air Force Doctrine Document (AFDD) 2, *Organization and Employment of Aerospace Power*, 17 February 2000, 65.

25. Air Force Instruction (AFI) 13-1AOC, vol. 3, *Operational Procedures—Aerospace Operations Center*, 1 July 2002, 84.

26. Clarence A. Robinson Jr., "Unmanned Aerial Vehicles Help Block, Evade Military Assaults: Commercial Satellite Communications Links Crucial in Moving Sensor Information around the Battlefield," *Signal Magazine*, April 1998, n.p., on-line, Internet, 4 October 2002, available from <http://www.us.net/signal/Archive/April98/unmanned-april.html>.

The DeHavilland DH-4

Workhorse of the Army Air Service

ASPJ STAFF



Airmen consider the DeHavilland DH-4 the workhorse of the US Army Air Service both during and following World War I. The Aviation Section of the Signal Corps selected this aircraft over competitors such as the French-built Spad XIII, the Italian Caproni Bomber, and the British SE-5 because of its compar-



atively simple construction and its adaptability to mass production. The DH-4 could carry six 11-kilogram (25-pound) Mark II bombs, two DeRam DR-4 cameras, a wireless transmitter, and two wingtip flare holders. Defensive armament consisted of two fixed, forward-firing .30-caliber Madsen machine guns, along with two flexible .30-caliber Lewis machine guns at the observer's position. The American version of the aircraft included the newly developed 400-horsepower V-12 Liberty engine. With a maximum speed of 198 kilometers per hour (124 miles per hour), the Liberty-powered DH-4 matched, and often surpassed, the speed of most other fighters of the time.

The Air Service used the DH-4 primarily for day bombing, observation, and artillery spotting. The first American-built DH-4 arrived in France in May 1918, and the 135th Aero Squadron flew it in combat for the first time in early August of that year. Aircrews criticized the DH-4's design, dubbing it the "flying coffin" because of the 254-liter (67-gallon) main fuel tank that separated the pilot and observer compartments. This feature not only made communication between the crew members difficult, but also proved hazardous if the aircraft went down. Although actual mishap figures indicated that the aircraft was no more susceptible to a fiery crash than any of its contemporaries, the nickname stuck with the DH-4 throughout the interwar years.

Although a total of only 1,213 DH-4s eventually served in France, in less than four months after the first ones arrived, they had proved their worth. Pilots and observers who flew DH-4s received four of the six Medals of Honor awarded to aviators during World War I. Lt Harold Goetz-

ler and Lt Erwin Bleckley earned medals posthumously for flying numerous missions over enemy lines to drop much-needed supplies to the survivors of the "lost battalion." Sacrificing their lives, they completed the first successful American combat-airlift operation. The other Medal of Honor recipients who flew the DH-4 included 2d Lt Ralph Talbot and Gunnery Sgt Robert Robinson of the First Marine Aviation Force.

The DH-4 continued in military service for many years after the war, serving in the 1920s at McCook Field, Ohio, as a flying test bed for turbosuperchargers, propellers, landing lights, engines, radiators, and armament, in addition to routing flying operations with tactical units. The DH-4 made a number of notable flights, such as the astounding trip from New York to Nome, Alaska, in 1920; Jimmy Doolittle's record-breaking transcontinental flight in 1922; and the first successful air-to-air refueling in 1923. The US Army Air Service—later the Army Air Corps—operated these aircraft until 1932.

The US government used the DH-4 as its principal aircraft for airmail service, which began in 1918. For night flying, engineers added special flame-suppressing exhaust stacks to it to prevent night blindness in crew members. After 1927 a number of airmail DH-4s entered service as forest-fire patrol aircraft and long-range patrol aircraft, covering the expansive western wilderness. A few transferred to the new airlines that took over the mail services in 1926–30. Innovative private pilots adopted the DH-4 for various purposes when large numbers of them became available as government surplus in the 1920s, using them as crop dusters, transport aircraft, air ambulances, and barnstormers at county fairs. Indeed, by the time it finally retired from service, the DH-4 had evolved into over 60 variants.

To Learn More . . .

- Boyer, Walter J. *De Havilland DH-4: From Flaming Coffin to Living Legend*. Washington, D.C.: Published for the National Air and Space Museum by the Smithsonian Institution Press, 1984.
- Hudson, James J. *Hostile Skies: A Combat History of the American Air Service in World War I*. Syracuse, N.Y.: Syracuse University Press, 1968.
- Jackson, A. J. *De Havilland Aircraft since 1909*. Annapolis: Naval Institute Press, 1987.
- Smithsonian Air and Space Museum. *de Havilland DH-4: Dayton Wright*. On-line. Internet, 8 October 2002. Available from http://www.nasm.edu/nasm/aero/aircraft/dehavill_dh4.htm.
- USAF Museum. *De Havilland DH-4*. On-line. Internet, 8 October 2002. Available from http://www.wpafb.af.mil/museum/early_years/ey11c.htm.
- US Centennial of Flight Commission. *De Havilland DH-4*. On-line. Internet, 8 October 2002. Available from <http://www.centennialofflight.gov/essay/Dictionary/DH4/DI74.htm>.

Valuing Air Force Education and Training

Faculty Duty and Leader Development

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Editorial Abstract: Understanding the relationship between learning and the development of senior leadership skills is vital to the success of Air Force efforts to provide the best and most qualified future leaders. Dr. Smith and Colonel Murray take a close look at this relationship (particularly for those who serve as instructors) and discuss how education and training programs provide the opportunity to develop and practice strategic planning skills—a valued ability, critical to the profession of arms. They also emphasize the broadened perspectives of individuals who serve with representatives of other specialties, services, and agencies in that learning environment. The authors conclude by outlining 10 ways Air Force personnel who serve as faculty develop the foundation necessary to become effective strategic and transformational leaders.

JOHN F. KENNEDY liked to say that learning and leadership are indispensable to one another.¹ Unfortunately and until recently, the Air Force had failed institutionally to recognize and appreciate the significance of this relationship. In fact the Air Force had exhibited an enduring ambivalence toward learning and the education and training processes that comprise it. Officers were encouraged to obtain an advanced degree for promotion purposes, but the value of that degree to leadership development was

not recognized. This was a remarkable circumstance, since the nature of the service and its mission require a depth of technical knowledge that can be gained only through continued education and training. Further, the rapid pace of technological change dictated that individuals periodically return to education for the essential updates necessary to comprehend the changed scope, pace, and complexity of operational conflicts and the post-Cold War geostrategic context in which they occur.

The Air Force did not fully value training and education experiences, including advanced academic degrees and professional military education (PME), as beneficial to the service or its members. At the same time, the dual requirements of honing highly technical skills and meeting the seemingly unending demands of a high operations tempo have reduced our future leaders' opportunities to broaden their expertise and leadership experience in the wider Air Force arena beyond their primary specialty. PME attendance is often the only route to a broader perspective and set of experiences. Ironically, within this environment an assignment to an Air Force educational or training institution or program (referred to hereafter as learning institutions and programs) as a full-time student or as a member of its faculty was too often viewed as a diversion away from the "real Air Force," one's core mission area, and a "correct" career path. In this sense, service learning was viewed at best as a nonessential luxury, and at worst as a distant ivory tower with little or no direct value. The "elective" side of learning—faculty assignment—was seen most negatively by the service.

Fortunately, a small cadre of visionary leaders has begun to question this enduring ambivalence toward learning. They have commissioned the first-ever strategic plan for Air Force education and training. Certain fundamental principles lie at the heart of this draft plan:

- Education, training, and experience are indispensable components of the Air Force profession, critical to the successful accomplishment of the Air Force mission, and the bedrock of performance and leadership development.
- The biggest return on education and training occurs when they are linked to experiences and job satisfaction.
- Education and training processes are not distinct and separate activities, but they are integrated endeavors on a single learning continuum.²

This article supports these principles. It focuses on the status that learning can, should, and indeed must hold within the Air Force today and into the future—a relevant and valued adjunct to the service's core operational mission. The underlying belief here is that the assignment of service members to learning institutions and programs puts them on a desirable and reliable path to enhanced knowledge, skills, perspectives, and leadership abilities. Those enhancements improve their ability to carry out the Air Force mission and advance the interests of national security. In making this case, we first describe the two products of USAF learning—the graduating student and the graduating faculty member—and then highlight the unique and significant contributions to Air Force leader development that accrue to an individual serving an assignment in Air Force learning institutions and programs. We close by affirming the importance of uniformed leadership and management of Air Force learning programs to enhance and ensure the continuation of these benefits.

Education's Two Products: Students and Faculty

While few in the Air Force question the necessity and value of a well-educated and trained force, their appreciation has been for the immediate and not the long-term impact on leadership development. The benefits from an academic program include an increase in technical or disciplinary knowledge, and from PME and training programs they include exposure to the "big picture" of USAF operations and networking with other members of the joint and service team. Increasingly, PME offers deliberate broadening into new arenas of operations related to the individual's narrower specialty by way of elective courses and research efforts. The Air Force expects graduates of all learning institutions and programs to gain increased knowledge, broadened perspectives, and renewed enthusiasm. This benefits not only the individuals, but also their specialty and the larger Air Force.

More intangible benefits accrue from the learning process and are missed or underappreciated by the Air Force; they are often missed even by the graduating student. Those benefits go beyond the specialty and center on the career and profession. The Air Force student, consciously or unconsciously, integrates that increased knowledge into the context of its application within USAF operations. Further, the learning process imparts a deepened intellectual curiosity and commitment to a lifelong pursuit of learning, both of which will extend and multiply the full slate of benefits well into the future. The learning process also hones communications skills, and it develops the ability to frame and solve ill-defined problems. These skills are critical to the Air Force in its uncertain and dynamic operational environment. Finally, the learning process provides an in-depth experience in working and solving problems in team settings—another transferable set of skills. Therefore, education and training provide graduating students with both increased knowledge and other less tangible outcomes of direct benefit to their performance in future USAF assignments. The students—the first product of this process—gain markedly from that experience.

The “graduating instructor” who returns from a faculty assignment—the second product—derives all of the same benefits, but in greater depth. In addition, he or she will have other experiences that further enhance performance and leadership potential. Education and training produce better-equipped leaders, period. Faculty duty adds even more quality outcomes to that calculus.

A faculty tour in an Air Force learning institution or program provides a unique opportunity to deepen and improve an individual’s technical knowledge and competency. That is the “icing on the cake” for those who have already practiced their technical academic specialty during the course of their careers. From a continuous exposure to a wide variety of Air Force professionals, those people will at the same time develop a broader understanding of how their specialty contributes

to the total Air Force mission. A faculty tour could also become a transition to an academic specialty for those operational personnel who have had to defer that direct application thus far in their careers. It is more often an opportunity for people to mix their academic disciplines with their military specialties to better prepare themselves for future senior positions of leadership and program management. Further, a faculty tour provides extensive opportunities for practical professional-leadership applications, particularly peer, task-group, and program leadership. The intangible benefits derived from education and training accrue to the graduate faculty member just as they do to the more traditional student, just deeper and broader. The faculty tour is an opportunity for talented Air Force members to transition from narrow specialties, whether technical or operational, to a broader mastery of applications within the total Air Force context and continue their preparation for more responsible command and staff positions. This suggests that officers returning from faculty assignments will make an important contribution to senior Air Force leadership and have a significant, positive impact on national defense.

The Transformational Leader and Air Force Faculty Duty

What do two former Air Force chiefs of staff (Gen Ronald R. Fogleman and Gen Charles A. Gabriel); a deputy commander in chief, European Command (Gen James P. McCarthy); a commander of Strategic Air Command (Gen George Lee Butler); and a commander of Tactical Air Command (Gen Jerome F. O’Malley) have in common? All of these four-star generals were transformational leaders, and each served a faculty tour at an Air Force learning institution. The relationship between transformational leader and a faculty tour is no more coincidental than is the leader/learning relationship defined by President Kennedy. The idea that “all leaders are instructors” is well supported by the careers of these five officers. A good leader is

one who instructs his or her subordinates, and many of the critical traits of leadership can be developed and shaped by serving as a faculty instructor. General Fogleman, besides being a chief of staff, was also a history instructor at the Air Force Academy and made this point emphatically:

I am a strong believer that a tour at the Academy as an AOC [air officer commanding] or faculty member can contribute to the development of aerospace leaders. In my own case, the benefits started with the Academy's sponsorship of me for an advanced degree at a civilian institution. Through this experience I established lifelong friendships with people in the academic and policy-making arenas. I was credited with a set of credentials that allowed me to move in circles I would not have otherwise experienced. As a faculty member I was forced to not only concentrate on an area in depth, but also got exposure to officers from all segments of the Force who were teaching with me. This gave me a better appreciation for all the skill sets required to make the Air Force function.³

Faculty tours help Air Force personnel develop the skills and experience necessary to become transformational leaders in at least 10 ways.

1. *The universal and occupational competencies of the transformational leader are best internalized through the teaching process.* This reflects the old adage that one never knows a subject better—is able to comprehend the complexity and nuances of a discipline and the methodologies of learning it—than when one teaches it. Today's transformational leader must understand a wide variety of complex subjects and be able to integrate them toward a common purpose. This is particularly true during the transition to and the execution of an expeditionary concept, both of which demand an understanding of global and regional political, economic, and military affairs for mission success. A faculty instructor who studies these subjects in civilian graduate and military PME schools and then returns to impart that knowledge

to other military and civilian professionals, reinforces his or her own understanding of the competencies required of the transformational leader.

2. *The learning world is a risk-free environment that fosters creativity.* An effective strategist must be comfortable with the ambiguity associated with new possibilities but should also recognize the risks that accompany those possibilities. The strategist must be a risk taker, courageous enough to challenge the conventional, to expand horizons, to test new ideas, and to be undaunted in this pursuit by a fear of failure. The strategist must be a "paradigm pioneer," always willing to press the envelope and to ask, "What is it that we cannot do today that if we could do tomorrow would significantly enhance our ability to meet the mission?" This culture or mind-set for unconventional creativity must be cultivated in an environment that encourages such thinking by removing risk. Such an environment exists in the classroom, where students and instructors are free to propose and challenge new ideas without concern for reprisal. Because the stakes are less, instructors can develop a practice of thinking outside the envelope. That practice becomes a habit, and the habit becomes an inherent part of their personal operational code for life.
3. *The feedback process is an inherent component of learning and leadership.* The practice of teaching and training entails frequent and constant critical feedback, by both instructor and student. "How" a teacher provides feedback to a student on his or her performance can either encourage or discourage continued commitment by that student. Similarly, instructors must be able to accept constructive criticism from their students and peers and adjust their performance accordingly. The same traits are required of a commander. A transforma-

tional leader must be able to provide and even encourage constructive feedback and harness it for the good of the mission. The education and training environment is a perfect place to develop and practice this ability.

4. *The diversity of the faculty in a military learning institution mirrors that of today's command structure.* A faculty tour in any military learning institution and program requires a close association with members, whether students or faculty, from all segments of the total force—military and civilian; officer and enlisted; reserve and guard; sister services; and, frequently, other government agencies. Springing from this association is a deeper and more explicit understanding of the diverse aspects and contributions of the Air Force mission and knowing how that mission relates to those of other services and national security agencies. The result is an individual better equipped to function and lead in the joint- or coalitional-warfare arena—the operational environment of the transformational leader.
5. *Teaching and training promote reflection—the basis for vision.* Today more than ever, military leaders must be visionaries. Unfortunately a person cannot achieve that ability overnight. It must be nurtured over time and in an environment that encourages reflection—perhaps the most critical ingredient in strategic-vision development. Faculty instructors are essentially removed from the traditional time-sensitive suspenses driven by positions requiring immediate decisions with global impact. Their tours, by contrast, provide the opportunity to develop the art of reflection and include numerous occasions that require its exercise. A former secretary of state once remarked that the effective policy maker benefits from brief respites in academe.⁴ One major reason is simply to have the time to reflect.
6. *Learning institutions and programs are leadership laboratories.* Gen Douglas MacArthur, a former superintendent at the US Military Academy, commented that “upon the field of friendly strife are sown the seeds that on other fields, on other days, will bear the fruits of victory.”⁵ Whether it is on an athletic field, a parade ground, or in the classroom, leadership is present. The instructor—whether teacher, trainer, mentor, drill instructor, or coach—is the individual who inculcates the elements and meaning of leadership into the student. The literature suggests that effective leaders cultivate four unique personality traits: dependability, sociability, stability, and surgency. Instructor duty develops all four traits. Dependability is essential to learning effectiveness. Similarly the daily interactions in the classroom, parade field, and athletic fields develop a graciousness and sociability within instructors—skills that are so critical to the transformational leader's ability, on other fields, to achieve policy consensus with allied and coalitional leaders. Stability in the development of courses, the scheduling of classes, or the process of evaluation and assessment is likewise critical to effective learning. Equally important is surgency, the propensity to be assertive without being arrogant or aggressive. There is no place for arrogance or aggressiveness in the learning environment—a lesson that every new instructor quickly comes to understand.
7. *The Air Force is a lifelong learning organization.* The vision statement of the Air Force's recently drafted strategic plan for education and training commits to “lifelong learning through education, training and experience.”⁶ A learning organization is one that promotes and values individual competitive effort and accomplishment on the one hand, yet extols teamwork and group success on the other. The result is an environment that has a creative and flexible atmo-

sphere, challenges the conventional, and develops people who are comfortable working with uncertainty. To the extent that the Air Force promotes similar values, it is a learning organization. Instructors live and work in such organizations daily and are best suited to help communicate and institutionalize these learning-institution characteristics and values when they complete their faculty tours and return to the larger Air Force.

8. *New pedagogical changes enhance strategic planning.* Instructors today must become intimately familiar with a set of new pedagogical techniques and concepts that go beyond the traditional classroom-lecture format. Major changes have occurred in educational technology and distance learning that have had a profound impact on what is taught and how it is taught. This progress in the art and science of education has required instructors to teach and guide learning in classrooms that are no longer bounded in space (the four walls of a traditional classroom) or time (the traditional 50- or 90-minute periods). These new methods have enhanced instructors' ability to research, solve problems, and reflect on options before making a decision or committing resources to uncertain outcomes. In short, faculty members' learning and instructional experiences make them better strategic planners.
9. *Instructor duty empowers future strategists.* As attested by the careers of the five generals identified earlier, faculty duty can provide instructors with a set of skills that better prepare them to be strategic thinkers—a vital requirement for the transformational leader. These skills include the ability to frame ill-defined problems and formulate solutions. Faculty duty forces instructors to develop and exercise analytical abilities, judgment, and communication skills. One critical competency of a strategist is the ability to gather all necessary and rele-

vant data surrounding an issue, break it apart into workable and understandable components, analyze each part, aggregate the parts back into a whole in a way that makes sense, and then frame the issue so that it can be universally understood. All successful instructors must use this same process as they remain current within their discipline and identify the important ideas, concepts, and themes of the courses they develop and teach. All instructors find that in teaching research methodologies for problem solving, they are also fine-tuning their own analytical skills—the very skills critical to the strategist. One who knows how to analyze in order to achieve understanding is a good strategist and a good instructor. Sound judgment is necessary to choose the right course of action once the problem is understood and is indispensable to the strategist and the instructor. History is replete with examples of poor judgment by leaders formulating responses to significant national-security threats. Instructors constantly exercise disciplined judgment, particularly in a military education or training environment, as they continually evaluate the academic performance of their students. They must determine who deserves special recognition or who needs help. Sound judgment is essential for instructors, just as it is for leaders, in determining the truth involving cases of honor, cheating, or other unethical conduct as they exercise their responsibilities to uphold high professional standards. The strategist and the instructor must develop and perfect their ability to articulate clearly and precisely all aspects of their processes and objectives. Instructors must become adept at seizing “teachable moments” to articulate concepts and themes, rephrasing questions for better comprehension, and fostering useful discussions in their classes. Their duties require that they perfect their verbal and writing skills. Likewise, the strategist must

be able to articulate all aspects of the strategy and the process that created it. What value is there in an accurate assessment of the situation, a comprehensive understanding of each of the contributing factors, and sound judgment in developing a recommended course of action if the strategist cannot communicate all of this to the decision maker?

10. *Instructor duty enhances a professional identity.* Recent studies of the officer profession suggest the existence of a continuing identity issue within the Air Force.⁷ The authors of these studies imply that many Air Force officers have replaced a professional identity with an occupational one. Individuals who see themselves as pilots or missileers rather than as Air Force officers exemplify such an occupational identity. One important way this problem has been addressed institutionally is by incorporating lessons and exercises into our learning institutions and programs that highlight the contributions of all aspects of our service. These exercises help individuals develop an appreciation of and a commitment to a larger Air Force professional identity. Students who conduct Air Force-relevant research, as part of the course completion requirements, develop a direct appreciation for multiple elements of our service. The instructor who mentors and guides numerous students in their research gains similar insights, only more so. In both cases the learning process is significant in enhancing their sense of institutional identity. During a faculty tour, an instructor becomes a change agent who promotes an appreciation for the many and unique aspects of the Air Force. Those new understandings help students develop a commitment to the larger profession and an identity with it. This contribution continues as the instructor returns to operational duties and

influences his or her peers and subordinates in much the same way.

This list of 10 ways that instructor duty helps an individual develop the competencies required to be a transformational leader is not all-inclusive. Nor do we suggest that these competencies could be acquired only during a faculty tour. However, we do believe that these links between the education and training instructor of today and the transformational leader of tomorrow are valid and that the critical attributes of a future successful strategic leader are not as easily developed outside the learning environment. Operational requirements for the doers and the in-baskets for the staffers often get in the way.

Uniformed Leadership of Air Force Learning Programs

The senior leaders overseeing USAF learning programs, staff, and faculty are the key to the success of developing the two products of learning institutions and programs—the graduate student and the graduate instructor. They provide leadership, facilitate synergy across program elements, and ultimately serve as the architects and guarantors of the USAF learning experience. The supervisory staff and faculty must shape the programs to meet USAF needs, ensuring their professional relevance and real-time linkage to the field. This senior cadre also mentors, guides, and develops the rotating faculty, thus ensuring their competence and professional broadening. This critical team provides the strategic guidance and the mentored opportunities for the staff and faculty to implement that guidance. The insights into the larger Air Force, as well as the joint and international environments, that are required to develop and provide appropriate strategic guidance call for experience and perspective that can best come from the uniformed service. The Air Force must be willing to assign some of its best to oversee and lead the development of its future force if it is to realize the potential of that force.

One of the most time-honored military traditions has been the practice of “growing and grooming” replacement so that the service moves forward and upward with each passing generation. Air Force education and training is all about that tradition. The service will ultimately reflect the abilities of the future leaders we are preparing today. Their ability to bring the Air Force forward and improve upon the foundations that our and past generations have built will depend in part on the

learning programs we provide for that challenge. Today’s Air Force leaders must not overlook or undervalue the contribution that education and training make to leader development and its force-multiplier effect. Today they should make an investment of resources and an assignment of high-quality officers to support the development of tomorrow’s senior leaders. Education and training—students, faculty, and administrators—are all integral to that effort. □

Notes

1. Perry M. Smith, *Rules and Tools for Leaders* (New York: Berkeley Publishing Group, 1998), 3.
2. USAF Education and Training Review Council (ETRC), *The USAF Education and Training Strategic Plan*, draft, 2002, 2.
3. Gen Ronald R. Fogleman, former Air Force chief of staff, to Col Douglas J. Murray, E-mail, subject: “RE: Developing Aerospace Leaders,” 7 February 2001.
4. Henry Kissinger, former secretary of state, conversation with Col Douglas J. Murray, USAF Academy, Colorado Springs, Colo., 1985.
5. “MacArthur’s Opinion of Athletics,” *Bugle Notes: Learn This!* n.p., on-line, Internet, 9 September 2002, available from [http://www.west-point.org/academy/malo-wa/inspirations/bugle notes.html](http://www.west-point.org/academy/malo-wa/inspirations/bugle%20notes.html).

www.west-point.org/academy/malo-wa/inspirations/bugle notes.html.

6. ETRC, 2.
7. William H. Rhodes, *Professional Identity and the Future of the Air Force: Revitalizing Military Education* (USAF Academy, Colo.: USAF Institute for National Security Studies, 2001); and James M. Smith, *USAF Culture and Cohesion: Building an Air and Space Force for the 21st Century*, INSS Occasional Paper 19 (USAF Academy, Colo.: USAF Institute for National Security Studies, 1998), on-line, Internet, 10 September 2002, available from <http://www.usafa.af.mil/inss/ocp19.htm>.

Airpower is like poker. A second-best hand is like none at all—it will cost you dough and win you nothing.

—Gen George Kenney

Fodder for Your Professional Reading

The Officer as a Teacher

DR. DAVID R. METS*

To any other Nation the loss of a Nelson would have been irreparable, but in the British Fleet off Cadiz, every Captain was a Nelson.

—Adm Pierre Charles de Villeneuve after the death of Adm Horatio Nelson at the Battle of Trafalgar



HARDLY ANY STUDENT of British or naval history needs instruction on the role of Horatio Nelson as a teacher. One of the major keys to his greatness was his battle preparation. He carefully gathered his captains aboard his flagship to nurture them and make them understand his own intentions in the uncertain world of battle under sail. He knew that, amid the smoke and thunder of such battles, centralized command was out of the question. Britain's desire to prevail in its struggle against Napoléon Bonaparte rested upon these captains—Nelson's "band of brothers"—who knew what he intended and were educated to take the initiative and achieve the goals in any way possible.¹ Admiral Nelson, then, provides only one example from another day and another medium to suggest that Air Force officers are inevitably teachers. The purpose of this article is to provide readers with some fodder for their own professional reading program that may help them increase their effectiveness as teachers.

A number of books would prove helpful to air-warrior mentors, especially two by US military teachers of the first rank: Col Roger Nye's *The Challenge of Command: Reading for Military Excellence* and Maj Gen Perry McCoy Smith's *Taking Charge: Making the Right Choices*, both of which contain essays on the role of a military leader as a teacher.² In an effort to explore some of the ways that air-warrior mentors might enhance their teaching capabilities, this article reviews two new, important books on the subject: Theodore J. Crackel's *West Point: A Bicentennial History* (Lawrence, Kans.: University Press of Kansas, 2002), which takes the institutional or macro point of view, and William F. Trimble's *Jerome C. Hunsaker and the Rise of American Aeronautics* (Washington, D.C.: Smithsonian Institution Press, 2002), which takes the individual or micro point of view. Like the other articles in this "fodder" series, this one provides a sampling of books for readers who wish to delve more deeply into the topic.

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Why Study This Subject?

Instructors in the Air Force Reserve Officer Training Corps (AFROTC) program; in the training programs at Lackland AFB, Texas; at the Air Force Academy; at Air University; or in the technical and flying schools are not the only Air Force people who must teach—perhaps they are not even the primary ones. Rather, the entire purpose of the military in peacetime is teaching and learning. The classical definition of a profession asserts that it is a field of endeavor that (1) commands special expertise deeper and wider than that of a mere occupation or trade, (2) demands a sense of responsibility to society which transcends that of the ordinary citizen, and (3) features a “corporateness” that implies a special set of standards and internal enforcement of those standards.³ Specialized knowledge is delivered to practitioners in two ways: (1) through an established, professional school system and (2) through lifelong self-education that includes such activities as reading new literature and professional journals as well as participating in professional meetings. Although the corporateness of the old Air Corps days may seem lost in the huge Air Force of today, it is clear that continuing education must nevertheless remain a responsibility of all officers—both for themselves and for the people who work for them.

Doctors have their schools, associations, and specialized journals—as do lawyers and the clergy. True, military officers have these things as well, but is the military profession the same? No. Doctors, lawyers, and priests are expected to respond to more than mere money by aiding and comforting the poor and unfortunate—even with no prospect of pay. But they are not expected to pay with their lives.

The military differs in that it is a violent profession. Although we (like Gen George Patton) prefer that the enemy sacrifice his life for his country, we are nevertheless expected to do so for ours should the situation demand it. Because it is a violent profession and because adversaries are not microbes of uniform behavior, its expertise is more than a mere science. The fog, friction, and uncer-

tainty of war exceed those of the other professions by a wide margin. According to Carl von Clausewitz and many others, then, the military profession is both a science *and* an art that demands more in the way of intuitive judgment than that required of many doctors, lawyers, and priests—and requires it under conditions of extreme danger and exhaustion.⁴

Implied in all that is the same problem Nelson faced at the Nile, Copenhagen, and Trafalgar: it is impossible to anticipate everything that happens in battles like those, as is the case in a war on terrorism. Too, the commander might be killed, as was Nelson on the deck of the HMS *Victory*, or isolated from his or her people in battle through, say, an attack on the command and control system. Thus, for this reason among many, a commander, like Nelson, has the obligation to educate his or her own band of brothers so that they can take the initiative and carry on in his or her absence. At all levels, then, the commander has the obligation to be a teacher.

How Military Teaching Evolved before Flight

Military training has occurred since the earliest times, even before the Greek Phalanx. In fact, the discipline that grew out of extensive instruction and very long practice was a strong suit for the Greek city-states in combat against their enemies. Military education and its associated teaching awaited the emergence of states and their standing armies. After artillery overcame wooden and stone fortifications, builders used science and engineering to improve the fortresses. This process reached maturity during the eighteenth century and led to the foundation of permanent military schools, which were often dedicated to mathematics and civil engineering. Meanwhile, although artillerymen were usually civilian contractors (the art proved too complex for the dilettantes commissioned because of their nobility), that field gradually became a military function. A knowledge of ballistics involved a grasp of mathematics, and that too became a factor in changing military education. In-

A Timeline for the American Air-Warrior Teacher

1777	Arrival of Frederick William von Steuben in America to train Washington's army
1802	Founding of the US Military Academy (USMA)
1845	Founding of the US Naval Academy
1873	Creation of the US Naval Institute
1874	Initiation of Naval Institute <i>Proceedings</i>
1881	Founding of the US Army School of Infantry and Cavalry (now Command and General Staff College)
1885	Founding of the Naval War College
1903	Founding of the Army War College
1911	Founding of the first Army Flying School at College Park, Maryland
1919	Founding of the Air Corps (Air Service) School of Engineering
1920	Founding of the Air Service Field Officers School (later the Air Corps Tactical School)
1922	Initiation of <i>Military Review</i>
1924	Founding of the Army Industrial College (now the Industrial College of the Armed Forces)
1931	Founding of the Centralized Flight Training Center at Randolph Field, Texas
1946	Founding of the National War College Establishment of Air University, including Squadron Officer School, Air Command and Staff College, and Air War College Founding of the Air Force Institute of Technology
1947	Initiation of <i>Air University Quarterly Review</i>
1948	Initiation of <i>Naval War College Review</i>
1954	Establishment of the USAF Academy by Congress
1991	Establishment of the School of Advanced Air and Space Studies at Maxwell AFB, Alabama

creasingly, admission to and promotion within the European officer corps came to be based less on family connections and more on merit; thus, officers had to acquire the requisite skills and knowledge in part from

formal military education as provided, for example, by the French L'Ecole Polytechnique—one of the models for West Point.

The problems of surviving as a small nation in a world of large, predatory empires per-

sued the likes of George Washington and Alexander Hamilton of the need for formal military education. Such a system, however, did not come to fruition until the administration of Thomas Jefferson; even then, the motivation was as much the need to reduce the influence of family and wealth in the American officer corps as to develop a body of competent military engineers. Thus, in 1802 West Point was established as a school for engineers. A huge amount of literature exists on the history of the US Military Academy, punctuated recently by the appearance of a significant new work whose publication marks that institution's bicentennial celebration.

A Macroview of the Institution as Teacher: *West Point: A Bicentennial History*

One could hardly hope to find a better qualified author to do a two-century history of the Military Academy. Theodore J. Crackel, a retired soldier with teaching experience at the Military Academy, Army Command and General Staff College, and Army War College, knows what the Army and West Point are about. At the time of this writing, he is again at West Point as a visiting professor, as well as director of a National Endowment for the Humanities effort at East Stroudsburg University of Pennsylvania.⁵ Crackel, who has a bachelor's degree from the University of Illinois and a doctorate from Rutgers, is widely published on diverse subjects, having done previous books and studies on West Point, the Army under President Jefferson, and the Civil Reserve Air Fleet. He is a military teacher who deserves our attention.

Clearly, Dr. Crackel has enormous respect for West Point, yet perhaps a fair assessment is that he has written a better balanced judgment than many USMA graduates might have. Although he respects this great national institution, Crackel nevertheless deals with some of its warts in an evenhanded way.

Bicentennial History explains that for some years after its founding, West Point was not a

full-fledged civil-engineering school—indeed, none existed in America at the time. The academy focused on mathematics from the beginning and only gradually blossomed into a professional school for engineers. Some of its graduates, such as Robert E. Lee and Ulysses S. Grant, distinguished themselves as early as the Mexican War of the 1840s and later assumed pivotal roles in the American Civil War. The school belonged to the Army Corps of Engineers for the greater part of its first century of existence but gradually evolved into an institution with a wider focus. Its corps of teachers included the permanent professors, almost all of them distinguished Army officers and engineers of very long tenure, as well as many returned graduates still in the company grades. As Crackel explains, instructional methods were rigorous (as they were when he and I were on the faculty). In the nineteenth century, they entailed daily graded recitations, usually at the blackboards. In very large part, the cadets taught themselves while the instructors corrected their mistakes and kept score. Academic attrition was substantial.

Dr. Crackel effectively elucidates a perennial problem at the Military Academy—the fact that a cadet's day encompasses only 24 hours. Competition for those hours has remained intense from the beginning, when academics vied with military training. But well before the end of the nineteenth century, the competition expanded to factions within the faculty itself. Generally, this has taken the form of tension between the need to teach prospective officers the hard sciences and engineering subjects central to the day-to-day activities of junior officers and the need to broaden cadets' horizons with more work among such liberal-arts subjects as languages, social sciences, and humanities. These tides have ebbed and flowed, but mathematics and the other hard sciences have remained prominent in the curriculum.

For a long time, as Crackel demonstrates, West Point was the leading engineering institution in the country. But after the Civil War—and especially at the turn of the century—increasing numbers of civilian institutions over-

came that lead, even surpassing the Military Academy. But West Point stuck to its traditional teaching methods, only in recent times reducing the emphasis on frequent graded recitations and a rote approach to learning. Gradually, after the founding of the Air Force Academy (largely on the West Point model), USMA has followed the younger institution by adopting electives, majors, more graduate education for its faculty, and other features common to civilian universities.

Bicentennial History also speaks to some other perennial problems of the Military Academy, especially the tension between one group made up of tenured, long-term permanent professors who constitute the Academic Board (usually colonels in modern times) and superintendents and commandants (in modern times, usually generals on temporary assignments), and another group consisting of non-tenured faculty (usually captains and junior field-grade officers—until recent times, when civilian professors were added to the mix). Observers often perceive this situation as a contest between stability and reform—between tradition and modernity. Too, since the dawning of the twentieth century, rising demands for physical conditioning through intramural and intercollegiate athletics have further complicated the contest for the hours in cadets' days.

One of the glories of West Point that Crackel dwells upon is the natural beauty of the site, complemented by the architecture of the academy's buildings and achieved through great patience and the passage of time—despite continual congressional parsimony. The academy's setting seems to have a mystical quality that can long affect its graduates. For example, Gen Carl Spaatz headed the Air Force Academy's site-selection committee four decades after he graduated from West Point. His widow told me that his first choice for the site of the new institution was the confluence of the Mississippi and Ohio Rivers, not only because of its location near the center of the US population, but especially because it so resembled the location of his alma mater.⁶ Generations of Army officers have practiced great

patience and care in building up this place, and the results are impressive—as readers can see from the many fine photos in Crackel's text.

The title of the last chapter—"The Years of Turmoil"—which covers the period since 1960, is apt, due in part to Vietnam, advancing technology, great social and cultural changes in America, and substantial evolution in American higher education. In the end, although Crackel's admiration of the institution is clear, his book is more descriptive than judgmental. He thinks that the country got a good return on its investment in the Civil War and both world wars, but the question of whether or not taxpayers are still getting their money's worth from the academies is a subject for another book.

So What?

Why should air-warrior mentors concern themselves with the subject of West Point? Although most modern airmen probably would not care to admit it, the Military Academy had a good deal more to do with the foundations of American airpower than has the Air Force Academy. Time alone accounts for that fact. The Air Force was already at its pinnacle by the time the first class emerged from that service's academy in 1959. Veterans of the Air Service and Air Corps likely considered their branch superior to the others precisely because it was less dominated by West Pointers—a conceit that may still be with us. The chief of the Air Service / Air Corps during the six long, formative years from 1921 to 1927 was himself a distinguished graduate of the Military Academy. More than is commonly recognized, Mason Patrick's ideas were very similar to those of Billy Mitchell—undoubtedly, both of them had gotten those notions in part from the West Pointers around them. Some commentators have argued that Patrick did more for airpower because of his nonconfrontational, patient, and persuasive methods than did Mitchell himself.⁷ Their staffers included such West Pointers as William C. Sherman, Edgar Gorrell, Thomas DeWitt Milling, Carl Spaatz, and Oscar Westover. Hap Arnold,

who learned flying from the Wright brothers themselves, was a West Pointer. Although he was one of Mitchell's protégés, he arguably had greater influence on the development of airpower—perhaps because he was in charge from 1938 to 1946, when the Air Corps transformed itself from a flying club into the greatest air force the world has ever seen. Still under his leadership, air forces fought the greatest tactical and strategic air campaigns in the history of air warfare.

If all that were not enough, 10 of the first 13 chiefs of staff of the Air Force were West Pointers, the Air Force Academy itself was built on the West Point model, and Military Academy graduates dominated the Air Force Academy's key positions for decades after its founding.⁸ Thus, in order to know where the Air Force is going, we must know where it started.

While all that was going on at the undergraduate level, Army and Navy postgraduate professional institutions emerged, establishing precedents for the Air Force. Even before the conclusion of the Indian wars, the Army had its School of the Infantry and Cavalry established at Fort Leavenworth, Kansas, as early as 1881. It evolved into the Command and General Staff School and then into today's Command and General Staff College. Coming out of World War I, airmen were permitted to found the Air Service Field Officers School at



Cadets on parade at the Air Force Academy. Although the academy did not exist until after America had already founded airpower and the Air Force, it is now a major influence on Air Force culture—just as West Point exerted enormous influence on the development of the Air Force Academy for many decades.

Langley Field, Virginia, which evolved into the famous Air Corps Tactical School and thence to Air University at Maxwell AFB, Alabama. The performance of the Army in the Spanish-American War proved such a fiasco that it provided a powerful incentive for the establishment of the Army War College at what now is Fort Lesley J. McNair in Washington, D.C. The Army schools were especially important to airmen because the usual process in the early years called for attendance at the Air Corps Tactical School. Along with the airfield and classroom facilities, one found a stable for training pilots in horseback riding so they would not find themselves at a disadvantage on staff rides when they moved on to Command and General Staff School—a two-year program up until the mid-1930s.⁹ Many airmen thought the practice old-fashioned and a distraction from flying, doing anything they could to avoid it. For example, Spaatz, then a major, managed to delay his attendance until it was reduced to one year—even then, he graduated next to last in the class.¹⁰ Although Spaatz did not go on to the Army War College, many others took this last step in the professional education program for Air Corps officers.

Back in the “from here to eternity” Army, senior officers commonly mentored their juniors:

As a newly commissioned second lieutenant, Omar N. Bradley recalled his first mentor after his graduation from West Point in 1915. Shortly after his arrival at Fort Yuma, [Arizona,] he fell under the tutelage of Lt. Forrest Harding, “a man of rare wit, ability, intelligence and professionalism” who organized a weekly study group at his home to provide the younger officers with an opportunity to discuss practical small-unit tactical problems and other military questions.¹¹

Among their colleagues in the Air Corps, mentoring was seldom as well structured as all that, taking the form of “hangar flying” if it occurred at all. Yet, Mitchell clearly had his group of protégés, principally Arnold, Spaatz, and Ira Eaker. Any such teaching expired when Mitchell resigned in 1926, but these three men remained close forever after.



Encircling the Air University Library are the Air War College, Ira C. Eaker College for Professional Development, Squadron Officer College, and Air Command and Staff College.

The Navy, whose school system developed throughout the nineteenth and twentieth centuries, was also a major contributor to the growth of American airpower. Many captains in the sailing-ship Navy had their own shipboard mentoring programs for junior officers. Even confined largely to ship management, handling, and navigation, such programs required a good deal of instruction. In the nineteenth century, officers had to take formal examinations to qualify for each succeeding promotion, another reason the teaching of juniors became an imperative. When steam propulsion emerged in the years before the Civil War, the process became simply too complex for shipboard instruction, so the US Naval Academy began in 1845, charged with the professional development of mechanical engineers to run the power plants. Only toward the end of the century did it expand its mission to the development of professional officers. Like West Point in those days, its curriculum focused heavily on technical subjects

but gradually broadened to the extent that the same kind of competition for hours in the midshipmen's days (naval cadets at first) ensued—and remains so today. The Naval War College became part of the educational scheme to deal with subjects on the strategic level, leaving the technical and tactical subjects to the academy and unit-training programs.

The major technological revolutions in naval warfare that occurred after the Civil War generated a need for postgraduate education in engineering. For a while, the Navy met this need by sending its officers to American or British graduate schools but then chose to establish the Naval Postgraduate School in Annapolis (now in Monterey, California) in 1909 with a curriculum largely focused on engineering and management. The Navy started its flying school in Pensacola, Florida, even before World War I, and some preliminary flight training began at the Naval Academy in the 1920s.

The Navy initiated a professional journal somewhat earlier than did the Army. Soon after the founding of the Naval Institute, it began a publishing effort that quickly evolved into the Naval Institute *Proceedings*, a journal that still appears under that name. During the first three decades of the twentieth century, many of its articles were technical, tactical, and even strategic in character. Carl Builder described the Navy as the most “traditional” service, a characterization that doubtless contains more than a grain of truth.¹² Many of those articles indeed looked back at Jutland and Trafalgar, but just about as many of them in the 1920s addressed aviation and the ways in which it might make the naval service more effective. Then and long after, midshipmen clearly understood that getting published in *Proceedings* should be one of their early career goals.

A Microview of the Officer as Teacher: Jerome C. Hunsaker

One often hears the West Point class of 1915 (that of Eisenhower and Bradley) described as the “class the stars fell on” because of the number of its graduates who became generals. Among sister services, the Naval Academy class of 1908 is certainly in the running for that title, 32 of its graduates having attained flag rank.¹³ But that group does not include the class’s number-one graduate—Jerome Hunsaker—who nevertheless became just as renowned as any of its eventual admirals. Resigning after 22 years in the Navy, he went on to fame and fortune in business, government, and academia.¹⁴ Earning his doctorate at the Massachusetts Institute of Technology (MIT) before World War I, Hunsaker later established America’s first college program in aeronautical engineering at that university. He also served as a vice president of Goodyear Corporation and, most importantly, as the chairman of both the executive committee and the main committee of the National Advisory Committee for Aeronautics (NACA) all the way up to 1957. In at the ground floor of aviation, Hunsaker became a pillar in the

structure of US aeronautical leadership by serving as a teacher, researcher, manager, and policy maker for several decades.

Dr. William Trimble has worked on the Hunsaker story for many years; his earlier books on the Naval Aircraft Factory and on Adm William Moffett both are foundation stones for *Jerome C. Hunsaker and the Rise of American Aeronautics*. Trimble, who earned his PhD from the University of Colorado in 1974 with a dissertation on the Geneva Naval Limitation Conference of 1927, is a prominent professor in the History Department of Auburn University in Alabama. He publishes extensively in aviation and technology journals and has served repeatedly as a visiting professor at the Air War College.

Born in 1886, Jerome Hunsaker earned his doctorate in engineering at MIT at the tender age of 26. Most of us in the Air Force are quick to assert that ours is the most technological of the services, but the Hunsaker story should be enough to temper that view somewhat. The Navy was sufficiently broad minded not only to send him to MIT for a graduate degree while he was still a very junior officer, but also to send him back again to teach there for three years. During that time, he set up MIT’s pioneer course in aeronautical engineering—and constructed the most advanced wind tunnel in America. As if that were not enough to generate a bit of humility among us, Hunsaker translated Alexandre Gustave Eiffel’s book on aerodynamics from French into English and published it during the same period.¹⁵ Furthermore in 1919, during World War I, among many other accomplishments, he designed the NC-4—the first aircraft to fly across the Atlantic.¹⁶

In 1919 Hunsaker rode back from Europe on the SS *Aquitania* in the company of Brig Gen Billy Mitchell of the US Army Air Service. He was treated to all of Mitchell’s vision for the future of aviation in America. The vision at that point was not much centered on any idea of strategic bombing, but it did look toward the immediate creation of a separate air force with all of American aviation under its control and with the resulting three services

under a central department of defense. This did not promise much for naval aviation, and Hunsaker carried his alarm back to the General Board of the Navy. The admirals of the board invited Mitchell in that spring, and the good general did not modify his vision much for them, which prompted them to move quickly on the creation of a Bureau of Aeronautics within the Navy. Certainly, the whole experience could have done little to endear Billy to either the Navy in general or Hunsaker in particular.

Hunsaker already favored lighter-than-air aircraft since they seemed to promise a cheap way to provide scouting for the fleet and to enable the Navy to overcome its disadvantage in numbers of cruisers compared to the British and Japanese navies. Hunsaker himself designed the *Shenandoah*—the first US-built rigid airship. General Mitchell had done nothing to improve his popularity with the Navy in the battleship-bombing tests against the *Ostfriesland* in 1921,¹⁷ and Mitchell's reaction to the crash of Hunsaker's *Shenandoah* hardly two years after it first flew threatened complete alienation between the services. His public implication of treason on the part of the Navy and Army high commands led to his court-martial and conviction that fall. Soon after that, in 1926, Hunsaker resigned from the Navy but retained his enthusiasm for airships.

The point of all this is that Trimble admires his subject for many reasons, but he is not blind to Hunsaker's limitations—witness his remarks that Hunsaker stuck with the lighter-than-air idea far longer than he should have, given the evidence of its impracticality and of the ability of airplanes to perform many of the functions envisioned for airships. Clearly, Trimble believes that Jerome Hunsaker was indeed a brilliant engineer and manager; however, he also acknowledges his subject's conservative streak—which made him less willing to embrace desirable change.

Hunsaker officially left the service in 1926 but served the Navy (and the air forces of the other services as well) long after—even beyond his retirement from NACA in 1957—and proved instrumental in establishing MIT as a



In the summer of 1917, Jerome Hunsaker pushed hard for the creation of the Naval Aircraft Factory, which produced many flying boats for World War I. In the early 1930s, he also promoted the N3N, shown here, in which midshipmen at Annapolis took flight training as late as 1960.

leader in the development of aeronautical science and education. In the late 1920s, he took a job with Bell Laboratories, where he helped develop US airways and the air-traffic-control system so essential to the progress of commercial aviation and flying safety in general. Later, in the 1930s, he worked for a while as a vice president of Goodyear-Zeppelin Corporation but with only limited success. The death of Adm William Moffett in the crash of the Navy airship *Akron* in 1933 and the burn-



Curtiss scout aircraft aboard the battleship Tennessee. From the earliest times, people recognized that air superiority over a sea battle would yield an enormous advantage in spotting the fall of shot from observation aircraft flown from catapults on battleships. Jerome Hunsaker did vital work in developing practical catapults for this purpose.

ing of the German zeppelin *Hindenburg* at Lakehurst, New Jersey, in 1937 killed the rigid-airship business for good.

Meanwhile, Hunsaker had returned to MIT, this time as chair of the Mechanical Engineering Department. He later headed a new Aeronautical Engineering Department, and, serving both as a teacher and an administrator, he remained one of the pillars of American airpower development. As noted, he served as well with the NACA for many years through World War II until 1957, although not always with splendid results. Trimble cites Dr. Alex Roland's argument in the latter's history of NACA that Hunsaker gradually got overly cozy with both industry and the military—a relationship that sacrificed too much of NACA's autonomy, to the detriment of its function of research in basic science. Trimble does not contest that judgment.

Through it all, Hunsaker continued to contribute to the development of professional expertise by authoring many books and articles.¹⁸ He also contributed through his many lectures and speeches to professional organizations and frequent testimony to Congress. In 1934 President Franklin Roosevelt appointed him to the Howell Board, which allowed him again to make a contribution in the nonacademic environment. Hunsaker actively participated in several professional societies and was one of the founders and the first president of the Institute of the Aeronautical Sciences in 1932, also serving as the editor of that organization's journal. Although he became fairly wealthy, he offered his services either for no pay or for mere honoraria. Thus, even though he was not a flyer, one might argue that Hunsaker indeed came close to being a true professional. If revolutions in military affairs do in fact reflect some combination of technological change, doctrinal adjustment, and organizational adaptation, arguably Trimble's man was a major contributor to the airpower portion of that revolution in all three areas.¹⁹

Hunsaker retired from MIT in 1952, and his function at NACA expired in 1957. He lived until 1984, gradually suffering a decline in health until he died almost 50 years after Billy

Mitchell's passing. The current Air Force warrior-scholar can read Trimble's short biography with great profit. The author's writing style is effective, and he handles his subject admirably but evenhandedly. Reading this book might well help the serving airman realize that there is more to airpower than merely delivering lethal force through the sky. Clearly, air transport, the aircraft industry, science, academia, and even the US Navy are important parts of the whole. All of these elements have merged—and continue to merge—in many ways to yield aeronautical leadership for America.

Conclusion

Some identity seems to exist between the terms *officer* and *teacher* in the US Army. In spite of the Air Force's roots in the Army and West Point, is it possible that no similar identity exists in the Air Force? One indicator might be that Bradley, Eisenhower,²⁰ Patton,²¹ and many other Army officers spoke of deliberate mentoring programs run by their seniors to educate their own band of brothers. Based on my own study of Air Force memoirs and biographies (and my line experience), such programs have not been nearly as common in the post-World War II Air Force. Bradley, Tasker Bliss, Douglas MacArthur, and William Westmoreland all served tours at West Point and still reached the pinnacle of the Army. Bradley and Bliss served more than one tour there. MacArthur and Westmoreland both served as superintendent and went on to become chief of staff. However, the only faculty member of the Air Force Academy to become chief of staff so far is Gen Ron Fogleman, who had only a two-year tour at the academy.²² There, as at the Naval Academy, the superintendent's job is almost always a "sunset tour,"²³ and for many years that has frequently been the case for AFROTC professors and war college teachers.

As noted, writing for publication in journals and elsewhere is often considered part of what one does as a professional. Air Corps and Army Air Forces officers did not entirely ignore that task. Billy Mitchell himself wrote

several books and many articles.²⁴ Henry Arnold and Ira Eaker were handy with the pen.²⁵ George Kenney was a writer as well.²⁶ Still, one suspects that such work was much more common in the prewar Army and Navy than it has ever been in the air arm. Patton's writings are a case in point. Before World War II, he published service-journal articles that were much more of a professional, technical nature than those of most airmen although he, like many other Army officers, also found a lucrative market for his wartime memoirs.²⁷

Compared to the situation of officers in the prewar Army, at least, it appears that service as a teacher at the Air Force Academy is more likely to derail most folks from the fast track. Perhaps the same can be said for professional military education (PME), Air Education and Training Command, and AFROTC teachers.²⁸ Until Vietnam, at least, writing for publication was not particularly a feather in the cap for fast movers.²⁹ Notwithstanding the fact that most rated people do some work as instructor pilots or navigators before reaching the middle ranks, one wonders whether anecdotal evidence suggests that a difference exists between the two service cultures that may not prove beneficial to the Air Force. Must we believe that teaching experience reduces one's competence as a leader?

How might teaching experience enhance one's potential for leadership? First, it is quite clear that the ability to speak and write well is essential to a leader. Teaching certainly improves one's comfort in speaking before a group and, hopefully, enhances one's ability to explain things. And there is no better method for improving one's own writing than correcting that of others. Furthermore, getting the message across and conserving time are critical attributes for most commanders. Repeated lesson planning can certainly help organize one's thinking to convey material in a finite amount of time. Above all, leadership is a matter of motivation. Some theories of learning suggest that it is an individual process—that it can't be forced upon someone. Thus, perhaps a teaching tour helps develop one's ability to motivate other people. A classroom

setting provides instant feedback—if students' eyelids start drooping, the teacher is not motivating them. Practically all leadership models also include the ingredient of courage—both physical and moral. For example, some people of unquestionable physical courage have trouble standing up to the boss. In a small way, preparing to face a classroom full of students without making a fool of oneself becomes a bit of a moral challenge. Too, assigning someone a failing grade, knowing that doing so can result in a career disappointment for that student, is a daunting prospect. Many a heroic aviator has had trouble “telling it like it is” on officer evaluation reports.

Further, practically all leadership models demand excellence in professional knowledge. Either in training or education, the best way to learn material and retain it is to teach it. Having flown the Instrument Landing System at the Midland-Odessa airport in Texas with students a couple of million times, I'll never forget the procedure.³⁰ But once aspiring leaders gain competence in the technical and tactical dimensions of the profession, they need to move on to the operational, the strategic, and even the political levels—something one can do only at the educational level of teaching. Perhaps it is time for our profession to reduce the career penalty for teaching in the training, AFROTC, Air Force Academy, and PME environments.

Hopefully, it is more than mere parochialism in a journal published at Air University to assert that mentoring is a vital part of the function of all officers—in many circumstances, perhaps, the most vital part. How are they to fulfill that function? Perhaps the reader will conclude that it is only partially with tongue in cheek that I offer the following:

Mentor's 10 Commandments

- Honor thy mentorees as thou wouldst have thy mentorees honor thyself.
- Thou shalt not kill thy mentorees whose ideas do not agree with thine own.
- Thou shalt not do all the talking.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Thou shalt learn PowerPoint immediately, if not sooner. • Thou shalt eschew obfuscation in both speech and letters.³¹ • Thou shalt not go into the classroom, briefing room, hangar, or O Club bar less prepared than thy mentorees. • Thou shalt understand that promptitude is next to godliness for thyself as well as thy mentorees. | <ul style="list-style-type: none"> • Thou shalt not consider a sense of humor sinful. • Thou shalt always be mindful that examples speak louder than words. • Thou shalt be ever mindful that bad examples speak even louder. • Thou shalt never forget that inflexibility is sinful in mentoring, as it is in love and war.³² □ |
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A 12-Book Sampler on the Officer as a Teacher*

Two for an Overview

The Challenge of Command: Reading for Military Excellence by Roger H. Nye. Wayne, N.J.: Avery Publishing Group, 1986.

The author is one of America's greatest military teachers.

Neither Athens Nor Sparta? The American Service Academies in Transition by John P. Lovell. Bloomington, Ind.: Indiana University Press, 1979.

The author is an experienced teacher from the Naval Academy.

Ten for Depth and Mastery

The Wisdom of Eagles: A History of Maxwell Air Force Base by Jerome A. Ennels and Wesley Phillips Newton. Montgomery, Ala.: Black Belt Press, 1997.

Ennels is the official Air University historian, and Newton is a prominent professor emeritus at Auburn University.

History of the Air Corps Tactical School, 1920–1940 by Robert T. Finney. Washington, D.C.: Center for Air Force History, 1992.

This book is the best one available on the Tactical School.

Sailors and Scholars: The Centennial History of the U.S. Naval War College by John B. Hatten#dorf, B. Mitchell Simpson, and John R. Wadleigh. Newport, R.I.: Naval War College Press, 1984.

In many ways, Stephen B. Luce and Alfred Thayer Mahan pioneered in the field of senior-level PME at the Naval War College.

The Patton Mind: The Professional Development of an Extraordinary Leader by Roger H. Nye. Garden City Park, N.Y.: Avery Publishing Group, 1993.

Nye's book provides a model for professional self-teaching—although an extreme one probably seldom duplicated, even in the Army. Patton organized and taught at a tank

school in World War I and at a cavalry school afterwards. He also took his obligation to mentor younger officers seriously.

The Leavenworth Schools and the Old Army: Education, Professionalism, and the Officer Corps of the United States Army, 1881–1918 by Timothy K. Nenninger. Westport, Conn.: Greenwood Press, 1978.

The author is the current president of the Society for Military History.

The Quiet Warrior: A Biography of Admiral Raymond A. Spruance by Thomas B. Buell. Boston, Mass.: Little, Brown, 1974.

This book is a model military biography. Not only a teacher at the Naval War College from 1931 to 1932 and from 1935 to 1938, Spruance also served twice as head of the college, making a significant contribution to the intellectual life of the Navy.

George C. Marshall, vol. 1, *Education of a General, 1880–1939* by Forrest C. Pogue. New York: Viking, 1963.

George Marshall taught at Fort Leavenworth, Kansas, and at the Infantry School at Fort Benning, Georgia, for five years; he also served as a senior instructor with the National Guard.

A Soldier's Story by Omar Nelson Bradley. New York: Holt, 1951.Ä

Omar Bradley served as a professor at South Dakota State College; taught four years at West Point; spent four years at the Infantry School at Fort Benning, Georgia; and taughtÄ four more years at West Point, from 1934 to 1938. He then returned to the Infantry SchoolÄ for a year as its commandant.Ä

Bliss, Peacemaker: The Life and Letters of General Tasker Howard Bliss by Frederick Palmer. New York: Dodd, Mead & Company, 1934.

Once the chief of staff of the US Army, Bliss spent much of his life as a teacher. He graduated from West Point in 1875, and after only a year on the line, he returned to teach at the Military Academy for four years. After a tour as adjutant of the Artillery School, he proceeded to the Naval War College at Newport, Rhode Island, where he taught for three more years. Later, he assisted in planning the Army War College and became its first commandant. He went on to head the Army itself and followed that service with a distinguished career in diplomacy.

Of Responsible Command: A History of the U.S. Army War College, rev. ed., by Harry P. Ball. Dallas, Tex.: Taylor Publishing, 1994.

Partly in reaction to the failures of the Spanish-American War, Elihu Root established the Army War College in 1903, bringing senior-level PME to that service.

One for Good Measure

Professional Military Education in the United States: A Historical Dictionary edited by William E. Simons. Westport, Conn.: Greenwood Press, 2000.

This book would make a useful addition to any air warrior's/scholar's desk-reference set.

*This sampler is not intended as a definitive bibliography—only as a possible starting list for young officers who wish to pursue a personal professional-development program.

Notes

1. "The Battle of the Nile: Admiral Nelson to Admiral Earl Howe," on-line, Internet, 8 May 2002, available from <http://www.bandofbrothers.com>.
2. Roger H. Nye, *The Challenge of Command: Reading for Military Excellence* (Wayne, N.J.: Avery Publishing Group, 1986); and Perry M. Smith, *Taking Charge: Making the Right Choices* (Garden City Park, N.Y.: Avery Publishing Group, 1988). Colonel Nye served as a combat officer in armor during the Korean War, and General Smith as a combat fighter pilot in Vietnam. Nye, who did his dissertation on the history of USMA, had many years of service on the faculty of West Point; Smith had a tour in the Political Science Department at the Air Force Academy and later became commandant of the National War College. Both are West Pointers as well as warriors/teachers.
3. Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1957), 8–10.
4. Clausewitz himself was a longtime teacher in the Prussian system of formal education.
5. The project aims to restore the records, destroyed by fire, of the War Department for the last years of the eighteenth century.
6. Mrs. Carl A. Spaatz, Washington, D.C., interviewed by author, 25 March 1982 and 12 April 1984.
7. See James P. Tate, *The Army and Its Air Corps: Army Policy toward Aviation, 1919–1941* (Maxwell AFB, Ala.: Air University Press, 1998); and Robert P. White, *Mason Patrick and the Fight for Air Service Independence* (Washington, D.C.: Smithsonian Institution Press, 2001).
8. Until 1991, 10 of the first 11 Air Force Academy superintendents were USMA graduates. Until 1983, four of the five academic deans were USMA graduates, and the other one had served a tour on the faculty of West Point. Until 1978, nine of the first 10 commandants of cadets were USMA products. Four of the first five directors of athletics to 1975 were West Point officers. The only Naval Academy graduate in any of those positions was Col John Clune, who served as director of athletics from 1975 to 1991. (Although significantly more Naval Academy people than West Pointers came to the Air Force Academy from 1948 to 1959, they almost always held junior positions there.) Commandant of Cadets, US Air Force Academy, to Col Tom Ehrhard, School of Advanced Air and Space Studies, fax, 9 May 2002.
9. So argued Maj Thomas DeWitt Milling, assistant commandant of the Air Service Tactical School, who added that such training would also improve the hand-eye coordination so vital in the piloting business. "The Air Service Tactical School: Its Function and Operation," 1924, Air Armament Center History Office, Eglin AFB, Fla. The stables continued after the school moved to Maxwell Field, Ala., in the 1930s.
10. Maj Carl A. Spaatz to Lt Col Henry H. Arnold, March Field, Calif., letter, 5 February 1935, box 7, Spaatz Papers, Manuscripts Division, Library of Congress, Washington, D.C.
11. Carol Reardon, *Soldiers and Scholars: The U.S. Army and the Uses of Military History, 1865–1920* (Lawrence, Kans.: University Press of Kansas, 1990), 203.
12. Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: Johns Hopkins University Press, 1989), 18.
13. One of them was Maj Gen Hugh Knerr, USAF.
14. He served four years at the Naval Academy and 18 on the line of the Navy, retiring as a Naval Reserve O-6.
15. Eiffel is the same man who designed and built the famous tower in Paris.
16. The original belongs to the Smithsonian but is on loan to the National Museum of Naval Aviation at Pensacola, Florida. That exhibit alone makes a visit there worthwhile.
17. One can easily argue that both the Navy and Mitchell were trying to stack the deck in the tests to prove that each was right.
18. Examples include *Aeronautics at the Mid-Century* (New Haven, Conn.: Yale University Press, 1952); "Forty Years of Aeronautical Research," in *Smithsonian Report for 1955* (Washington, D.C.: Smithsonian Institution Press, 1955); "Europe's Facilities for Aeronautical Research," *Flying* 3 (April 1914): 75, 93; "The Navy's First Airships," *United States Naval Institute Proceedings* 45 (August 1919): 31–44; and "Progress in Naval Aircraft," *Society of Automotive Engineers, Transactions* 14, pt. 2 (1919): 236–77.
19. Hunsaker was never a fan of either Douhet's or Mitchell's approach to air war.
20. Dwight D. Eisenhower, *The Eisenhower Diaries*, ed. Robert H. Ferrell (New York: Norton, 1981), 6.
21. See Roger H. Nye, *The Patton Mind: The Professional Development of an Extraordinary Leader* (Garden City Park, N.Y.: Avery Publishing Group, 1993), 40, 42. Here we find that both Gen John J. Pershing and Maj Gen Fox Conner acted as mentors for Patton when he was a young officer and later when he was middle-aged.
22. I did four-year tours in the history departments of both the Air Force Academy and West Point. The departments were approximately the same size. Only one of my colleagues from the Air Force Academy ever went back to the line and became a general (Maj Gen Davis Rohr); at least seven of my Air Force colleagues returned to serve with the troops and rose to general-officer rank—two of them to lieutenant general.
23. This is the last tour before retirement.
24. His books include *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (1925; reprint, New York: Dover, 1988); *Memoirs of World War I: "From Start to Finish of Our Greatest War"* (New York: Random House, 1960); *General Greely: The Story of a Great American* (New York: G. P. Putnam's, 1936); *Skyways: A Book on Modern Aeronautics* (Philadelphia: J. B. Lippincott Company, 1930); and *Our Air Force, the Keystone of National Defense* (New York: E. P. Dutton and Company, 1921). Mitchell also wrote a host of articles, mostly on airpower advocacy or outdoor sporting life, usually published in popular magazines such as *Collier's* or *Saturday Evening Post*.
25. Gen Henry H. Arnold did considerable writing, sometimes including an advocacy character to inform the public about aviation. Perhaps his most significant book—*Global Mission* (London: Hutchinson, 1951)—appeared at the end of his life. With Ira Eaker, he coauthored *This Flying Game* (New York: Funk & Wagnalls, 1936, 1943); *Winged Warfare* (New York: Harper & Brothers, 1941); and *Army Flyer* (New York: Harper & Brothers, 1942). Early on, he wrote *Airmen and Aircraft: An Introduction to Aeronautics* (New York: Ronald Press, 1926).
26. Gen George C. Kenney wrote more after World War II than he did in his younger years: *General Kenney Reports: A Personal History of the Pacific War* (New York: Duell, Sloan and Pearce, 1949); *Dick Bong: Ace of Aces* (New York: Duell, Sloan and Pearce, 1960); *The Saga of Pappy Gunn* (New York: Duell, Sloan and Pearce, 1959); and *The MacArthur I Know* (New York: Duell, Sloan and Pearce, 1951).
27. Patton's writings include "The Form and Use of the Saber," *Journal of the United States Cavalry Association* 23 (March 1913): 95; "Comments on Cavalry Tanks," *Cavalry Journal*, 1921, 251–52; "Motorization and Mechanization in the Cavalry," *Cavalry Journal*, 1930, 331–48; and many other similar pieces, including a serialized set of wartime articles in the *Saturday Evening Post*. He was also a frequent contributor of book reviews to *Cavalry Journal*. He published his wartime memoirs under the title *War As I Knew It* (Boston: Houghton Mifflin Company, 1947).

28. A clear exception to that notion is teaching service at the Weapons School at Nellis AFB, Nevada, which is known to boost an officer's prospects.

29. That situation may be changing. In the early 1950s, hardly a third of the Air Force's officers were college graduates, although most officers in the prewar Army and Navy held degrees. By the 1970s, a college degree had become a prerequisite

for commissioning; that requirement appears to have had some effect.

30. This system provides a precise method for low approach and landing during adverse weather.

31. Lt Gen Truman Spangrud, USAF, former Air University commander, suggested this commandment.

32. We know that Moses got along with 10, but we will give you 11 anyhow.

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Ricochets and Replies

Continued from page 7

"EC-135 Rivet Joint," a platform that—to paraphrase his words—can somehow, from similar altitudes, mitigate line-of-sight "shortfalls" for the E-8 JSTARS (14).

Furthermore, the photograph on page 11 clearly portrays the RC-135 Rivet Joint, but the one on page 15 clearly does not. The latter appears to be an EC-18/EC-135—but it is not a Rivet Joint.

Maj Bill "Sweet" Tart, USAF

Washington, D.C.

Editor's Reply: The ASPJ staff tries to select photographs that match aircraft and type to enhance the presentation of each article. Occasionally we grab the wrong photo—or occasionally we do not have one of the exact aircraft we need and must substitute an image that comes close to the particular configuration. The latter was the case in Dr. Lambeth's article. The photo on page 11 correctly captures the aircraft in question. However, Maj "Sweet" Tart's eagle eyes detected something amiss in the photo on page 15, which shows the EC-135E Advanced Range Instrumentation Aircraft (ARIA) no. 374—nicknamed "Bird of Prey"—en route to the Air Force Museum at Wright-Patterson AFB, Ohio, from Edwards AFB, California. We aimed to illustrate the "hog-style" nose—but we missed. Good catch by Major Tart.

DOING A NOBLE JOB NOBLY

After 12 years of teaching ethics at the Air War College, Maxwell AFB, Alabama, I have learned a few lessons from the lieutenant colonels and colonels I've taught. These officers go on to positions of great responsibility in the US Air Force, and many spend considerable time during their year at the war college reflecting upon what they've committed their professional lives to. A pretty decent pay check? Extensive travel and educational op-

portunities? Medical benefits? Commissary or BX privileges? Retirement income? As the officers I have taught reflect upon their careers (usually about 18 years of service at that point), all of these things matter, for there are tangible benefits attached to being a senior officer in the Air Force, but those benefits rarely cause a person to devote a lifetime to serving the country.

There are also the "warm and fuzzy" feelings, I'm told, about the prestige of wearing an honored uniform, of having close friendships and sharing the camaraderie of the profession of arms, and, especially, of having the chance to lead and command. There are no material considerations here—just the pride and fulfillment of *doing a noble job nobly*. And that's what it means, I think, to be an Air Force professional—whatever rank you encounter.

Would you believe that many airmen are romantic or sentimental? They cling to certain pictures or letters or plaques that remind them, not so much of previous assignments, as of buddies they've known. They cherish scraps of paper, often kept in their wallets, which have their favorite quotations. They have little desk mementos with inspirational inscriptions—sometimes humorous, sometimes risqué, sometimes very deeply moving. If you get to know them and maybe have a couple of beers with them, they'll tell you, quietly and privately, that they have loved the airmen they have flown with and served with. There's nothing mawkish about this in their view. And there's nothing wrong with it in my view. *For they have done a noble job nobly.*

You know what? *I can't explain that feeling*. I'm a little envious because I have only a glimmer of it from my own short (four years) and very undistinguished tour of military service a long time ago. But I'm a baseball coach, and I know that sports can bring a bonding to team members that, well, maybe only a poet can explain. That's what my students often have—only multiplied. And that's the chief reason, truth be told, that they love the Air Force—the *feeling of doing a noble job nobly*.

Political scientists and sociologists can explain what a *profession* means in dull, desiccated

language, which serves useful academic ends. The professional airmen I know, however, seem largely to agree upon a single word to describe who they are and what they do—*vocation*. Just as someone is called to the priesthood or ministry, so do Air Force pros think they, too, are called to a life of service before self. In the end, they are professionals precisely because they love their country, their service, and their people. *They are doing a noble job nobly.*

They don't brag about it; they don't even mention it (unless I almost pry it out of them). They live it. They love what they do, and they do what they love. I urge those of you who have not yet committed to the profession to work to deserve that privilege of service, for privilege is exactly what it is—the privilege of service, *the privilege of doing a noble job nobly*. It's hard to explain that phrase "privilege of service." But if you've played baseball or basketball or football

or volleyball, you have a glimmer of its meaning, for you know what it means to work together toward victory. If you're a true Air Force professional, you feel a calling to serve and to *do a noble job nobly*.

When the officers I know retire—and I've been to many, many retirements—I often think of the scriptural verse that says, Well done, good and faithful servant (Matt. 25:21). These airmen have *done a noble job nobly*. They have been true professionals.

Over the top? Too maudlin? Excessively dreamy? Not to the people I've been honored to know for 12 years. And not, I hope, to the members of the air and space forces I will be privileged to know in the future.

James H. Toner

Colorado Springs, Colorado

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Net Assessment

Once mastery of the air was obtained, all sorts of enterprises would become easy.

—Sir Winston Churchill

Crimson Sky: The Air Battle for Korea by John R. Bruning. Brassey's Inc. (<http://www.brasseysinc.com>), 22841 Quicksilver Drive, Dulles, Virginia 20166, 2000, 224 pages, \$18.95 (softcover).

In *Crimson Sky*, John R. Bruning gives us a glimpse into the lives of US Air Force and Navy pilots who fought against North Korean, Chinese, and Soviet pilots during the Korean War (1950–53). At its heart, the book is about people rather than the strategy and tactics they used. The author's research and interviews with Korean War veterans and their families allow him to describe in detail many different individuals and their actions in 20 of the most interesting aerial operations during the war. These include the first kill by an American jet fighter and the first combat search and rescue mission by a helicopter. Bruning also answers many of the questions regarding the involvement of the Soviet Union in this conflict.

Although *Crimson Sky* covers some of the classic F-86 and MiG-15 battles over MiG Alley, it delves further into many of the lesser known, but no less important, aspects of the air battle over Korea. Bruning does an excellent job of detailing just how rapidly aerial combat changed between World War II and the Korean War. Fighters and bombers that were the best in the air in 1945 found themselves outclassed by the new jet aircraft in 1950. Particularly interesting is the fact that aircraft from three different eras of aviation all flew and fought in Korea—propeller-driven biplanes from the 1920s, fighters and bombers from World War II, and the first generation of jet aircraft.

My one criticism is that, rather than describing the aerial battles in chronological order, some chapters present an air battle from the perspective of one unit and then again from that of a different unit—a technique that I found rather disjointed. Nevertheless, *Crimson Sky* should be a welcome addition to any collection on the history of military

aviation. I recommend it to anyone interested in the personal stories, rather than technical details, of the air battles in the Korean War.

Capt Kevin D. Smith, USAF
Winnipeg, Canada

Reach for the Sky: The Story of Douglas Bader, Legless Ace of the Battle of Britain by Paul Brickhill. Naval Institute Press (<http://www.usni.org/usni.html>), 2062 Generals Highway, Annapolis, Maryland 21401-6780, 2001, 396 pages, \$17.95 (softcover).

Reach for the Sky first appeared in 1954, when Bader's name was still fresh. Unfortunately, this edition, part of the Naval Institute Press's Bluejacket Books series, includes no update; nothing that brings Bader's story to a conclusion; and nothing about his postwar career, humanitarian involvement, and knighthood. At his death in 1982, Sir Douglas Bader was a British legend—almost a saint.

Brickhill, who writes classic popular biography, defines the young Bader as a decent sort who got by with a little help from his friends—at least until he learned to fend for himself. As a child, he was a bit of an outsider, a loner. When his parents went to India, he was too small to accompany them. After they came back, his father went off to World War I and didn't return. Then his mother remarried, and as the stepson of a cleric, Bader had more talent than money. To prove himself, he developed a drive that attracted people who helped him, financially and otherwise, to fulfill his potential.

He was reasonably intelligent and a good student (when interested) but marginal in math, which he hated. Above all, Bader was a superb athlete, a star in all sports he chose. Although his first exposure to flying was casual, he quickly developed a passion for it and enrolled at Cranwell, the British military academy. Young Bader flourished in the clubby atmosphere typical of the Royal Air Force (RAF) between the wars, excelling at rugby, boxing, and cricket (in which he was scheduled to compete for England).

Then disaster struck. Not only an exceptional athlete, he also was a skilled pilot. But, like many

young men of his generation, he was a daredevil who enjoyed aerobatics, regardless of the official prohibition of this practice, and in 1931 he crashed. He survived but lost one leg immediately and the other shortly thereafter to life-threatening gangrene. His career was over, and his story could have ended there as well.

But it didn't. He refused to use a cane, teaching himself to walk unaided on his two metal legs, dance, play squash and golf, and drive a car. Above all, he taught himself to fly again. The RAF wasn't all that keen on having him back since there wasn't much of a market for completely disabled former pilots. So he retired, went to work for Shell Oil Company, and got married. But he stagnated—flying lingered in his blood. When the war came, however, a bit of maneuvering and help from the old-boy network got him back into a cockpit.

After triumphing over adversity and regaining his destined place, the legless pilot then excelled as leader, fighter, and innovator. Bader rebuilt a demoralized squadron, devised new fighter tactics and formations, and fought gallantly in the Battle of Britain. After colliding with a German Me-109, he sat out the remaining three years as a prisoner of war at Colditz Castle, near Leipzig, Germany, repeatedly testing the reputation of the fortress as an escapeproof prison. At the conclusion of World War II, Bader returned to Shell (the downsized RAF had lost the clubby atmosphere) and spent time with other people without one or more limbs, motivating them not to let a handicap become a disability. Brickhill's book became a movie, and Bader wrote his autobiography in 1973.

Bader's is really a good story of determination, courage, and refusal to accept what others define as the limits of the possible. The absence of footnotes or a bibliography, unsurprising in a popular biography, is acceptable, but the failure of the publisher to add at least a preface or some other update of Bader's life is quite disappointing. Nevertheless, Naval Institute Press has made another classic readily available. And that is significant because *Reach for the Sky* is a story that everyone should read.

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Suite 314, Boulder, Colorado 80301, 2001, 320 pages, \$57.00.

Since 1945, many people have theorized why the German army of 1939 swept across Europe from September 1939 to mid-1942, with the retreat from Moscow in December 1941 as its only major setback, and then conducted a relatively orderly retreat from various fronts back to Germany from mid-1943 to April 1945. In 1948 Edward A. Shils and Morris Janowitz believed that the primary factor was the cohesion of the basic units of the German army of 1939. Later, Omer Bartov gave greater importance to the bolstering effects of Nazi ideology in keeping the average German soldier fighting and the army units together, despite the horrible combat conditions on the eastern front. Condell and Zabecki's book provides another fundamental reason for the German army's success in combat: its operational and tactical doctrine, found in German Army Regulation 300, *Truppenführung* [Unit Command], written in 1933–34.

An English translation of this field manual on combat operations is the heart of *On the German Art of War*. *Truppenführung* represents the culmination of lessons learned from the army's operational experience in World War I, especially the shock tactics used in the offensive of March 1918, improvements through field exercises and maneuvers, and "General Staff" debate and discussion during the 1920s. Essentially, this manual is the equivalent of the US Army's FM 100-5, *Field Service Regulations: Operations* (1940); in fact, FM 100-5 drew heavily upon its German counterpart. In 1952 US Army Europe had several German generals, led by Franz Halder, formerly the German army's chief of staff, compare the two manuals. Their study, appendix E of *On the German Art of War*, revealed a strong correlation between the two.

James Corum's foreword and the editors' introduction cover the origins of the operational and tactical doctrine found in *Truppenführung* from before World War I through the early 1930s, especially the influence of Gen Hans von Seeckt, army commander from 1920 to 1926. The introduction also summarizes the strengths and weaknesses of the doctrine found in the manual. As the editors write, "Its purpose was not to give German military leaders a 'cookbook' on how to win battles, but rather it was designed to give them a set of intellectual tools to be applied to complex and ever-unique warfighting situations" (p. 9). The introduction gives *Truppenführung* a more favorable review than it warrants but still provides great back-

On the German Art of War: *Truppenführung* translated and edited by Bruce Condell and David T. Zabecki. Lynne Rienner Publishers, Inc. (<http://www.rienner.com>), 1800 30th Street,

ground into the manual's origins, theoretical basis, and impact.

From reading the manual itself, the reader gleanes a number of major doctrinal themes. It reiterates the importance of communication among various command levels and emphasizes the need for combat leaders to follow orders, but it also encourages flexibility, depending on the current combat situation. Furthermore, the manual contains many references to airplanes and tanks—even devoting a full chapter to each, although such weapons were still in their infancy because of treaty restrictions following World War I. Finally, the manual envisions the German army division as a combined infantry/artillery unit with various other subunits (e.g., antitank, reconnaissance, and services) attached. This organization would enable German armies in the Soviet Union to combine and recombine subordinate units into effective battle groups as the war of attrition devastated larger army units and then conduct a generally orderly retreat from the eastern front. Of special note are the many references to horse cavalry—the subject of a separate chapter—and horse-drawn artillery. (Despite progress in motorization, the German armies involved in Operation Barbarossa still required 500,000 horses.)

On the German Art of War is a must read for anyone with either a professional or casual interest in German military history, especially those who wish to understand how the German army enjoyed such success at the operational and tactical levels of warfare in World War II. It also provides some understanding of why the German army produced great field commanders, such as Erwin Rommel. At the same time, given the great effort expended on the operational and tactical levels of warfare, the German army of the 1930s produced only a handful of senior army commanders with a true knowledge of the strategic level of war. Although the reader can find occasional references to Clausewitz in *Truppenführung*, as well as indications of his influence on that document, the focus of the manual—and, therefore, that of German military education, training, and army leaders—is the actual conduct of combat at the lower levels of warfare. Unfortunately for Germany in both world wars, success at the strategic level of warfare mattered more than success at the operational and tactical levels.

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The Dynamics of Military Revolution, 1300–2050

edited by MacGregor Knox and Williamson Murray. Cambridge University Press (<http://www.us.cambridge.org/titles/catalogue.asp?isbn=052180079X>), 110 Midland Avenue, Port Chester, New York 10573-4930, 2001, 218 pages, \$28.00 (hardcover).

In the aftermath of Operation Desert Storm, Department of Defense (DOD) officials debated implications of the technological and operational changes manifested in that conflict, using terms such as *military-technical revolution*, *revolution in military affairs* (RMA), or simply *military revolution*. Current DOD fashion dictates *transformation* as the preferred moniker for describing revolutionary change. Like the originators of past dialogue regarding revolutions, however, “transformationalists” engaged in the current conversation regarding military change would do well to spend time studying lessons from history to guide them in their quest for decisive military advantage.

In *The Dynamics of Military Revolution, 1300–2050*, editors MacGregor Knox and Williamson Murray join six distinguished historians who have made it their professional business to think and write about how social, political, organizational, and technological change can produce shocking asymmetrical battlefield results. This volume carries on in the tradition of such military classics as the three-volume *Military Effectiveness* (Unwin Hyman, 1988), *Calculations: Net Assessment and the Coming of World War II* (Free Press, 1992), and *Military Innovation in the Interwar Period* (Cambridge University Press, 1996)—all efforts supported by the Pentagon's Office of Net Assessment. The separate chapters contain some of the best examples of analytical history available—the authors understand the importance of military revolutions and have the depth in their chosen subject areas to evaluate how such events occurred in the past. Taken as a whole, this book offers a cautionary tale for both military professionals and policy makers—no matter what era one chooses, history reveals that relying solely upon technological advances rarely guarantees revolutionary change (or even lasting battlefield success). Moreover, revolutions tend to destroy as much as they create; as such, revolutionary change may not be something that every generation should pursue—especially in an age of strategic, operational, and tactical ambiguity.

One characteristic of the debate surrounding revolutionary change in the late twentieth and early twenty-first centuries concerns settling on an accepted definition of what constitutes a military

revolution or RMA—and what distinguishes one from the other. This work places military revolutions within a broad context of “radical military innovation . . . that fundamentally changes the framework of war” (p. 6). By fundamental change, the authors mean that social, political, and military cultures and organizations become swept up in “uncontrollable, unpredictable, and unforeseeable” patterns of change that render former systems and methods obsolete or irrelevant (p. 7). Because they are truly cataclysmic events, they tend to occur infrequently—societies resist allowing such geniuses out of their bottles for obvious reasons. On the other hand, RMAs can occur either separately or within the context of a larger military revolution. As the authors argue, these “lesser transformations . . . appear susceptible to human direction, and in fostering them, military institutions that are intellectually alert can gain significant advantage” (p. 12).

Given these definitions, it comes as no surprise that of the eight cases chosen by the authors, only three—the French Revolution, the American Civil War, and World War I—qualify as military revolutions. The remaining cases—Edward III’s military accomplishments in the fourteenth century; Louis XIV’s operational and institutional reforms in seventeenth-century France; Prussia’s adaptation of the Dreyse needle gun, railroads, and expanded armies in the eighteenth century; the pre-World War I battle-fleet arms race between Great Britain and Germany; and the German quest to learn from defeat after World War I—all represent RMAs that conferred at least temporary advantages upon those who sought to incorporate new technologies, doctrines, and institutional reforms in eras of technological change and strategic uncertainty.

I would be remiss if I failed to mention a significant gap in the coverage of the subject in an otherwise excellent work—the omission of a chapter on the air and space power RMA. To be sure, Brig Jonathan B. A. Bailey briefly discusses the importance of aerial observation and reconnaissance to the artillery revolution that occurred during World War I. Likewise, Williamson Murray employs his masterful familiarity with German combined-arms methods and doctrine to discuss how the Third Reich’s failure to link revolutionary tactical and operational successes to overarching strategies for winning the war gave the Allies time to turn the RMA back on the Wehrmacht and Göring’s Luftwaffe. The editors discount air and space power developments as an RMA, based upon the assertion that operations in the third dimension repre-

sent evolutionary developments rather than revolutionary changes in the conduct of war. In Brigadier Bailey’s words, “The tumultuous development of armor and air power in 1939–45 and the advent of the information age in the decades that followed amount to no more than complementary and incremental improvements upon the conceptual model laid down in 1917–18” (p. 132).

The editors also dismiss efforts by the Royal Air Force and US Army Air Corps to find a war-winning formula based upon unescorted strategic bombing. Nonetheless, post-World War II perceptions of air and space power’s dominating character permanently recast political and military perceptions regarding the utility and use of military power to accomplish national strategic aims. Conventional strategic air attack, nuclear strike forces, satellite surveillance and reconnaissance, rapid global air mobility, precision air-to-ground weapons innovations, and, finally, the integration of sensor and shooter systems previewed during the Gulf War could easily represent individual RMAs under the constructs advanced in this book. Viewed as a whole, air and space power certainly deserves at least equal treatment to that granted fourteenth-century longbows and seventeenth-century “modern military communities” in a discussion of RMAs.

The Dynamics of Military Revolution, 1300–2050 is a first-class work that should be on every professional’s reading list. It clearly describes conceptual boundaries of revolutions, tests hypotheses by applying concepts to relevant cases, and projects conclusions about revolutions into the future to provoke thought about the best course of action for planners and policy makers. Perhaps the editors omitted air and space power from their survey because few authors are willing to tackle the subject. If so, the ongoing quest to transform US military institutions affords an unparalleled opportunity for air and space power professionals to step up to the plate and place their profession within the historical context it deserves.

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Jungle Ace: Col. Gerald R. Johnson, the USAAF’s Top Fighter Leader of the Pacific War by John R. Bruning. Brassey’s (<http://www.brasseysinc.com/index.htm>), 22841 Quicksilver Drive, Dulles, Virginia 20166, 2001, 320 pages, \$26.95.

Jungle Ace is an engaging biography of an overlooked pilot in a seldom-covered conflict. Gerald Johnson served in the famous 49th Fighter Group and the 9th "Flying Knights" Fighter Squadron for most of the war; he also served in the 54th Fighter Group in Alaska. Johnson flew 265 combat missions, shot down 24 enemy planes, and became commander of the group after he rose to the rank of colonel. Tragically, he was lost in early October 1945, when his B-25 flew through a typhoon and disappeared without a trace.

These facts, however, fail to convey the full measure of the man whom Bruning depicts with much skill and flair. *Jungle Ace* differs from the many biographies that stress the combat flights or achievements of their subjects at the expense of their personalities. The author uses a wealth of personal effects, such as the letters between Johnson and his wife, his form-five reports, and the memories of 49th Group pilots and friends of the couple, as well as many unit records and some secondary sources. Unlike oral histories or books based upon wartime journals, *Jungle Ace* does not use numerous transcriptions or extensive quotations. Instead, the author weaves a narrative tale of Johnson's personality and actions as if he were writing a novel rather than a historical record.

Bruning examines a number of events from Johnson's youth that helped shape the future ace's personality and confidence, including the influence of his father. This background stood him in good stead later on, giving him the endurance to weather many difficult moments yet still function as an effective leader. The author also does an excellent job of depicting the men around Johnson, including his good friends James "Duckbutt" Watkins and Wally Jordan, as well as fellow fighter pilots such as Thomas McGuire Jr. and Dick Bong.

The book's one shortcoming, aside from editing errors of the *quite for quiet* variety, is the lack of emphasis on Johnson's method of leadership. His concern for his fellow pilots becomes obvious, and his morning pep talks soon become infamous, especially the one before a ground-attack mission against the Ipo Dam area. However, the reader does not get a good sense of Johnson's daily responsibilities, including the ways he dealt with personnel, planned missions, and so forth—in short, the activities that made him an outstanding flight or group commander. Many books cover ground leadership; one that gives us greater insight into what it takes to be an air commander would be very helpful.

Despite its flaws, *Jungle Ace* is both useful and entertaining, bringing to mind Robert Scott's *God Is My Co-Pilot* in that both deal with the character of World War II pilots who fought the Japanese, both cover a relatively unknown air campaign (Bruning covers Leyte especially well), and both give good accounts of the principal characters and the men with whom they flew. Gerald Johnson died because he gave up his parachute to a passenger on his plane—a tragic occurrence yet typical of the man the reader comes to know.

Garner Johnson
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Hit to Kill: The New Battle over Shielding America from Missile Attack by Bradley Graham. Public Affairs (<http://www.publicaffairsbooks.com>), 250 West 57th Street, Suite 1321, New York, New York 10107, 2001, 464 pages, \$27.50.

The Phantom Defense: America's Pursuit of the Star Wars Illusion by Craig Eisendrath, Melvin A. Goodman, and Gerald E. Marsh. Praeger Publishers (<http://auburnhouse.com/praeager.htm>), 88 Post Road West, Westport, Connecticut 06881-5007, 2001, 190 pages, \$24.95.

Following World War II, the United States and Soviet Union pursued ballistic missile defense (BMD), an effort America continued after the collapse of its arch rival. Thus far, BMD has generated high hopes and much cost but has delivered little militarily; at the same time, it has created unprecedented criticism. (One positive effect was the role that President Reagan's Strategic Defense Initiative played in the implosion of the Communist superpower.) The demise of the Soviet Union and the subsequent reduction of a nuclear threat have not dampened the American quest for BMD. On the contrary, at the moment, the United States is engaged in the broadest and most concerted effort yet attempted to produce defenses against ballistic missiles. If successful, such a defense will reorder strategic thinking. Regardless of success or failure, it will carry a considerable financial and political price. Therefore BMD is an important issue that will affect the military, country, and world order; clearly, it deserves the great number of books and studies thus far published.

One problem for any student or author concerned with this subject is the fast-moving pace of events. Both books under review talk about 11 September 2001, but events have moved forward rapidly since then. Both mention President George W. Bush's intentions but not his decision to abandon the Antiballistic Missile (ABM) Treaty, the agreement to further reduce US and Russian strategic nuclear weapons, Russia's entry into NATO as a junior "partner," or the massive increase in US military spending, particularly on BMD. Be that as it may, both books are important to the discussion because they collect the story in an easily accessible form.

Bradley Graham's study is a detailed narrative based on interviews with top decision makers, including former president Bill Clinton and current president Bush. The author gives adequate background and then focuses on the last 10 years of the story, primarily the Clinton legacy. He handles the technology well but is strongest when dealing with the political process and the players. The principal problem of *Hit to Kill* is its length—the story is literally buried in detail. This flaw is more annoying than fatal and is more than offset by Graham's major strength—his balance. *Hit to Kill* comes close to the center on this issue, a trait that sharply contrasts most of the writings on this subject. As Graham correctly observes, BMD "has aroused a fervor akin to clashes over theology. There is an almost religious ferocity to the intense partisan political wrangling, and religious terms are often invoked. Proponents talk of the morality of erecting a national defense. Opponents speak of the sanctity of the ABM Treaty" (p. xxxi). How true.

This type of emotion shows clearly in *The Phantom Defense*, which does not attempt to be evenhanded. It is a lawyer's brief for BMD critics, featuring the most notable of them, MIT professor Theodore Postel, described in the acknowledgments as "perhaps the nation's foremost authority on national missile defense" (p. xi). (An appendix includes three critical letters he wrote to the White House.) The book is hard hitting, sprinkled with some very harsh language. Eisendrath, Goodman, and Marsh do not disguise their views, writing in the introduction that "national missile defense, proposed against an exaggerated threat, incapable of being effectively deployed, destructive of arms control agreements, and likely to provoke a new arms race, destroys the national security it is designed to enhance. It is irrational as a policy, and inappropriate as a reward for self interested groups" (p. xix). The authors are clear in what they

espouse: multilateralism, arms control, and diplomacy.

Both books are detailed, yet students of the subject will be disappointed by their lack of scholarly apparatus. Graham provides citations (of a sort) for some (but not all) of his writing, a practice that is inadequate due to the considerable number of direct quotations. He does not include a bibliography. *The Phantom Defense* has no citations but does offer excellent and extensive bibliographic materials. Both cover the various perils of BMD (cost, feasibility, effect on allies, and a potential arms race). Nevertheless, for all their detail, neither discusses several important issues. Critics of BMD state that because deterrence has worked in the past, it will work in the future. The first assertion is true, albeit mainly against one superpower, but the second is questionable. If Hitler had possessed nuclear-tipped V-2s in 1945, would he have been deterred? If coalition forces had closed on Baghdad in 1991 and Saddam Hussein had had ballistic missiles armed with nuclear warheads, would he have been restrained? The books also fail to mention preemption, an alternative approach for dealing with a hostile power armed with nuclear ICBMs. What are the implications of such a policy? A third issue almost never mentioned by any authors, certainly not by critics, is that without BMD, countries armed with nuclear ICBMs could inhibit the actions of the United States. Is this why some countries, especially poor third world countries, spend precious resources procuring ballistic missiles and nuclear weapons? Graham briefly mentions this consideration, but Eisendrath, Goodman, and Marsh do not.

In brief, BMD is an important, fast-moving subject about which much has been written and on which much more will undoubtedly appear. Although some readers may fault these two books, with some justification, each is valuable in its own way. I recommend *Hit to Kill* as a balanced reference for events of the past 10 or so years, with the caveat that it is rather dense. *The Phantom Defense*, more limited and certainly one-sided, serves well as a reference for critics' objections to BMD. Both clearly demonstrate the problems of being so close to the events under study. In any case, they provide a starting point for a study of this important issue (see also the reviewer's *Hitting a Bullet with a Bullet: A History of Ballistic Missile Defense*, Research Paper 2000-02 [Maxwell AFB, Ala.: Airpower Research Institute, 2000]).

Kenneth P. Werrell
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Intelligence Services in the Information Age: Theory and Practice by Michael Herman. Frank Cass Publishers (<http://www.frankcass.com>), 5824 NE Hassalo Street, Portland, Oregon 97213-3644, 2001, 252 pages, \$59.50.

This collection of essays with a very British flavor addresses intelligence issues and challenges of the information age—subjects that will prove extremely useful as the US intelligence community grapples with its problems. The book's efforts at pointing out contrasts between British and American intelligence gathering, analysis, and recruitment of mid- and top-level managers make it valuable to both historian and practitioner alike.

Herman deals with three overarching issues: an information-rich world, national-level intelligence strategy, and the interaction of intelligence with ethical foreign policy. All of these topics are interesting, but the individual contributions prove harder to follow. Because scholarly research and writing in the area of intelligence are still relatively young, years will pass before we have conclusive works in hand. Thus, we must consider this set of essays a step in the right direction. One chapter, of great interest to this reviewer, deals with the constant debate within the intelligence community on the merits of single-source versus all-source intelligence by examining British estimates of Soviet weapons development. Its discussion of transatlantic relationships crucial to the United Kingdom since World War II should give pause to American intelligence researchers. However, the inclusion of memoirs of the British cabinet, although amusing, does not seem to add to the scholarly research of intelligence workings or capabilities.

The book examines intelligence as an input to national-security policy making, data gathered by diplomatic means, and the growth of battlefield intelligence that accompanies the emergence of a revolution in military affairs. A leading intelligence scholar, Herman has produced some new research here that readers should study closely, especially in the climate following the terrorist attacks of 11 September—specifically, who produces what, and what influence or relevance does it have as national policy is formulated or implemented? The book also challenges intelligence to transform itself from a national-security input for a nation state to a support for international bodies such as the United Nations, which currently has no information-gathering or analysis apparatus of its own. Notably, a long-standing European view holds that UN monitors in Iraq got into trouble when intelligence

for on-site inspections was supplied from one side and then revealed to the Iraqi leaders. In short, *Intelligence Services in the Information Age* is a valuable book and a must read for people who study intelligence policy and problems.

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Washington, D.C.

Controlling Non-Strategic Nuclear Weapons: Obstacles and Opportunities edited by Jeffrey A. Larsen and Kurt J. Klingenberger. USAF Institute for National Security Studies (<http://www.usafa.af.mil/inss>), US Air Force Academy, 2354 Fairchild Drive, Suite 5L27, Colorado Springs, Colorado 80840, 2001, 356 pages.

In November 2000, the National Security Policy Division of Headquarters US Air Force sponsored a conference in Warrenton, Virginia, to consider issues concerning nonstrategic nuclear weapons (NSNW), also known as theater or tactical nuclear weapons. The conference drew experts from the military, academia, and think tanks such as RAND. *Controlling Non-Strategic Nuclear Weapons* distills the fruits of their deliberations into 14 essays that address problems, objectives, and solutions related to NSNWs.

For example, Lewis Dunn focuses on how the Strategic Arms Reduction Treaties (START) have not kept pace with Russia's financial ability to destroy over 10,000 NSNW warheads. No longer equal to the United States in superpower status, Russia is beginning to look into how NSNWs can address deficiencies in its conventional forces, which are eroding from a lack of financial support. Furthermore, the US antiballistic-missile program tends to make Moscow less inclined to destroy NSNW stockpiles.

Andrea Gabbitis points out the crucial problem of NSNWs that are not equipped with permissive action links—locks that safeguard these weapons from being deployed by unauthorized persons. The absence of these links makes it easier for rogue states that are hungry to join the nuclear cartel to detonate or reverse-engineer these weapons. Gabbitis also highlights the difficulty of defining NSNWs. Mounting these tactical weapons on submarines or long-range bombers gives them strategic offensive capability. Simply defining NSNWs as nuclear weapons capable of striking the United States from Russia is too limiting; Turkey and Israel, for instance, argue that Syrian and Iraqi Scuds fitted with nuclear war-

heads are strategic weapons. Furthermore, Russia maintains that tactical warheads in Europe are strategic weapons capable of striking deep inside its territory. Gabbittas postulates that any meaningful discussion of the subject requires a definition of NSNWs that includes agreement on range, yield, target, national ownership, delivery mechanism, and capability.

Stanley Sloan looks at the North Atlantic Treaty Organization's (NATO) nuclear strategy in the current environment. France has proposed that its nuclear arsenal form the basis of a European Union (EU) defense policy. Another factor involves convincing Moscow that NATO expansion does not mean an extension of nuclear risks to Russia. Additionally, even though Great Britain's and France's tactical nuclear warheads could relieve the United States of much of the burden of responsibility for continental defense, Germany and other nations in NATO are uncomfortable entrusting nuclear policy to the British and French. In a related article, David Yost notes that Russia would be more amicable to destroying its NSNWs if the United States withdrew its remaining tactical weapons from Europe. He also takes a detailed look at the complexity of Russian arms control and the effect of Washington's agreements with Moscow on EU security.

Finally, James Smith, director of the USAF Institute for National Security Studies, examines how NSNWs will affect the US Air Force as the lead agent on this issue. Indeed, one of the factors contributing to the appointment of Gen Richard Myers, USAF, as chairman of the Joint Chiefs of Staff was his familiarity with space, missile, and nuclear technologies.

In sum, *Controlling Non-Strategic Nuclear Weapons* highlights the delicate issues President Bush faces in an area that has not received much attention due to the asymmetric war on terrorism in which we are currently engaged. I especially recommend this book to all readers involved in missile and space systems as well as to those who have concerns about nuclear proliferation.

Lt Youssef H. Aboul-Enein, USN
Washington, D.C.

Minuteman: The Military Career of General Robert

S. Beightler by John Kennedy Ohl. Lynne Rienner Publishers, Inc. (<http://www.rienner.com>), 1800 30th Street, Suite 314, Boulder, Colorado 80301, 2001, 291 pages, \$59.95 (hardcover).

Prof. John Kennedy Ohl's *Minuteman* makes a significant contribution to our understanding of the role of the National Guard in World War II. Using a few letters, interviews with relatives, and official reports, Ohl performs yeoman's work by piecing together the life of Gen Robert S. Beightler, a unique and interesting man. The author shows the National Guard at both its best and worst, highlighting the nature of America's militia.

Despite the voluminous number of books about World War II, we have few biographies of division commanders. Numerous biographies and autobiographies (in the case of Gen Omar Bradley, two autobiographies!) of corps, Army, and Army group commanders have appeared. Granted, many of these men, like Bradley, commanded divisions during their ascent to flag rank, but we have very few biographies and studies of the anonymous men who led the 89 divisions that mobilized during World War II. A book about Beightler (pronounced "bite-ler"), one of only two National Guard adjutant generals to command divisions in combat, is long overdue. He commanded the 37th "Buckeye" Infantry Division from mobilization in 1940 through demobilization in 1945.

In many ways, Beightler was a typical guardsman. He enlisted in the Ohio National Guard in 1911 for many of the same reasons as did other turn-of-the-century militiamen: adventure, camaraderie, and socializing. Like many who remained in the Guard, Beightler rose rapidly in rank after his first enlistment and dedicated as much time to the military as his civilian career allowed. During World War I, he became adjutant of the 166th Infantry Regiment, but after the war, his career diverged radically from those of other guardsmen. A successful civil engineer in civilian life, he could afford to take unpaid leaves of absence from work to attend the Army's Command and General Staff School in 1926 and the Army War College in 1930, as well as serve four years on the War Department staff, where he met many regular Army officers with whom he would work in World War II. Undoubtedly, this education helped him during mobilization, when he put theory into practice.

His active duty time during World War I and at the War Department did nothing to dampen his parochialism regarding the National Guard, however. Many times he fought decisions by the War Department that he felt adversely affected the "Ohio National Guard flavor" of his division. For instance, in 1942 the department assigned the 37th Infantry Division's 147th Infantry Regiment to garrison duty. To the War Department, regiments were

simply the building blocks of divisions—just as interchangeable as machine parts. But to guardsmen like Beightler, regiments were integral to the character and spirit of the division. He tried unsuccessfully for the rest of the war to regain his wayward unit. In other instances, Beightler hesitated to replace inefficient commanders due to his prewar association with them, and he often saw conspiracies by regular Army officers to overhaul the leadership of his division and replace his citizen-soldiers with West Pointers. Interestingly, the same charge could be levied against Beightler since he favored his own prewar Ohio acquaintances over more competent and experienced candidates.

Despite his shortcomings, Beightler proved a quick study and an efficient commander. Once during an exercise, the umpire quizzed him about the location of one of his battalions. Beightler, who at this time tended to tie himself to his headquarters and maps, was deeply embarrassed when no one could find the battalion. Thereafter, he went to the front frequently to check on his men, their conditions, and their commanders. He became one of the best division commanders in the war, leading his unit through the battles on New Georgia, Bougainville, and the Philippines, where the Buckeyes participated in the only true urban warfare

in the Pacific theater when they helped capture Manila.

One finds only a few flaws in this short, readable biography. First, the maps are horrible. It is unfortunate that the author did not avail himself of a number of good maps that show the 37th Infantry Division's movements and battles. Second, because Ohl relied heavily on Beightler's family for letters and interviews, one senses that perhaps he pulls a few punches. He certainly could have explored the tension between the National Guard and regular Army that seemed to permeate his subject's mind.

Professor Ohl has partially filled a void in our World War II scholarship, and one would like to see more biographies of division commanders—Gen Terry de la Mesa Allen and Gen Clarence Huebner, to name but two. *Minuteman* provides an answer to the question about why airmen should read biography: despite his parochialism, Beightler was successful due to his education, experience, leadership, and willingness to share his men's hardships—qualities that all military officers should take to heart.

Maj James Gates, USAF
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Touch and Go

In this section of "Net Assessment," you will find additional reviews of aviation-related books and CD-ROMs but in a considerably briefer format than our usual offerings. We certainly don't mean to imply that these items are less worthy of your attention. On the contrary, our intention is to give you as many reviews of notable books and electronic publications as possible in a limited amount of space. Unless otherwise indicated, the reviews have been written by an ASPJ staff member.

Fortune Favors the Brave: The Story of First Force

Recon by Bruce F. Meyers. Naval Institute Press (<http://www.usni.org>), 291 Wood Road, Annapolis, Maryland 21402, 2000, 256 pages, \$32.95.

In *Fortune Favors the Brave*, Col Bruce Meyers, USMC, retired, the first commanding officer of Force Recon and leader of Test Unit One, describes the developments and innovations in Marine Corps reconnaissance that he witnessed during his long career as a Marine officer. After acknowledging the underpinnings of Force

Recon—the amphibious reconnaissance of World War II—he describes the genesis of such techniques as parachuting from jet aircraft, deploying and redeploying recon marines from submarines, and developing aerial-extraction methods; he also examines their employment in Southeast Asia. The author's accessible narrative style makes for easy reading, and, for the most part, the concepts he discusses are easily comprehended. However, the book lacks a diagram showing the relationship of reconnaissance elements to the rest of the corps—something that would be especially helpful to readers not well versed in Marine Corps organization.

Despite that omission, *Fortune Favors the Brave* offers much insight into innovation and reconnaissance as practiced by the USMC.

Capt Rich Bellshot, USAF
McGuire AFB, New Jersey

The Wrong Stuff: The Adventures and Misadventures of an 8th Air Force Aviator by Truman Smith. University of Oklahoma Press (<http://www.oupress.com>), 1005 Asp Avenue, Norman, Oklahoma 73019-6051, 2002, 368 pages, \$17.95 (softcover).

No firsthand account of air combat can truly put the reader "in the cockpit," but *The Wrong Stuff* comes razor close. Lt Col Truman Smith, USAF, retired, writes about the life of a bomber pilot during World War II. During four months in the spring and summer of 1944, Smith flew his B-17 Flying Fortress on 35 grueling combat missions over France and Germany. Almost 60 years later, he describes each of those missions with remarkable clarity and blunt honesty, vividly describing how he faced down German fighters, flak, and his own intense fear in the skies over war-torn Europe. Not just a combat log, *The Wrong Stuff* also delves into daily life in a bomber squadron, relating humorous anecdotes from Smith's experience in wartime England. Now required reading at the US Air Force Academy, this excellent memoir will appeal to anyone interested in combat aviation during World War II.

Capt Rick Spyker, USAF
Aviano AB, Italy

China Pilot: Flying for Chennault during the Cold War by Felix Smith. Smithsonian Institution Press (<http://www.sipress.si.edu>), 750 Ninth Street NW, Suite 4300, Washington, D.C. 20560-0950, 2000, 336 pages, \$17.95 (softcover).

Exotic locations throughout post-World War II Asia; vivid, larger-than-life characters; adventures good enough for the next Indiana Jones movie: *China Pilot* promises all this and more! Felix Smith flew for Gen Claire Chennault's Civil Air Transport (CAT) for nearly 30 years, transporting supplies and troops for the Nationalists during China's civil war, and then flew in French Indochina, Korea, and Vietnam for the CIA. *China Pilot* describes Smith's experiences as a CAT pilot in amazing de-

tail, simultaneously providing the reader a memoir and history lesson. Smith introduces the reader to CAT's pilots, a unique mix of former military and civilian aviators, and describes their missions in harrowing detail. His unique cast of supporting characters kept me turning the pages—their exploits brought this piece of Cold War history to life. I recommend this entertaining and educational memoir to anyone interested in Cold War history or military aviation.

Maj Kristina M. O'Brien, USAF
Hurlburt Field, Florida

F-105 Thunderchiefs: A 29-Year Illustrated Operational History, with Individual Accounts of the 103 Surviving Fighter Bombers by W. Howard Plunkett. McFarland and Company, Inc., Publishers (<http://www.mcfarlandpub.com>), Box 611, Jefferson, North Carolina 28640, 2001, 336 pages, \$55.00.

The F-105 was a beautiful, high-performance aircraft designed to deliver nuclear weapons at low altitudes and high speeds. Unfortunately for its reputation, its test came in a much different kind of war in Vietnam, where it took heavy losses and gained little glory. Of the 833 aircraft built, 397 were lost in combat during that conflict.

F-105 Thunderchiefs is a large-format, well-illustrated tribute to this famous aircraft. Author W. Howard Plunkett provides a brief (19 pages) but adequate operational history of the aircraft; however, the core of the book is the 270 pages devoted to the 103 F-105s displayed throughout the world. The author presents each aircraft's history, primarily the unit assignments, in chronological order and includes a photograph of each aircraft in its present condition. One appendix indexes these aircraft by location, and a second offers a short entry for each of the 118 F-105s that were scrapped.

Clearly, Plunkett—a 20-year Air Force maintenance officer who served in a unit of F-105s for two years—was profoundly affected by his experience with this aircraft. *F-105 Thunderchiefs* is a labor of love, written by someone who loves the fighter for others who love it. Specialized as it is, though, this book is strictly for reference librarians and people interested in the existing F-105s. There is little here for others.

Kenneth P. Werrell
Christiansburg, Virginia

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Chasdi, Richard J. *Serenade of Suffering: A Portrait of Middle East Terrorism, 1968–1993*, reviewed by Lt Youssef H. Aboul-Enein, no. 2 (summer 2002): 106.

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Condell, Bruce, and David T. Zabecki, eds. *On the German Art of War: Truppenführung*, reviewed by Lt Col Robert B. Kane, no. 4 (winter 2002): 105–6.

Connelly, Mark. *Reaching for the Stars: A New History of Bomber Command in World War II*, reviewed by 1st Lt Jay Hemphill, no. 3 (fall 2002): 120.

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Dolman, Everett C. *Astropolitik: Classical Geopolitics in the Space Age* (review essay), reviewed by Lt Col Peter Hays, no. 3 (fall 2002): 103–4.

Donald, David, ed. *The Pocket Guide to Military Aircraft and the World's Airforces* (touch and go), reviewed by APJ staff, no. 1 (spring 2002): 124.

Eisendrath, Craig, Melvin A. Goodman, and Gerald E. Marsh. *The Phantom Defense: America's Pursuit of the Star Wars Illusion*, reviewed by Kenneth P. Werrell, no. 4 (winter 2002): 108–9.

Forsyth, Robert, with Jerry Scutts. *Battle over Bavaria: The B-26 Marauder versus the German Jets, April 1945* (touch and go), reviewed by APJ staff, no. 1 (spring 2002): 124–25.

Glines, Carroll V. *Around the World in 175 Days: The First Round-the-World Flight*, reviewed by Dr. David R. Mets, no. 2 (summer 2002): 117–18.

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Graham, Bradley. *Hit to Kill: The New Battle over Shielding America from Missile Attack*, reviewed by Kenneth P. Werrell, no. 4 (winter 2002): 108–9.

Guangqiu Xu. *War Wings: The United States and Chinese Military Aviation, 1929–1949*, reviewed by Paul Rexton Kan, PhD, no. 3 (fall 2002): 115.

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Smith, Truman. *The Wrong Stuff: The Adventures and Misadventures of an 8th Air Force Aviator* (touch and go), reviewed by Capt Rick Spyker, no. 4 (winter 2002): 113.

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———. "A Proposal for Homeland-Defense Organization" (vortices), no. 1 (spring 2002): 97–100.

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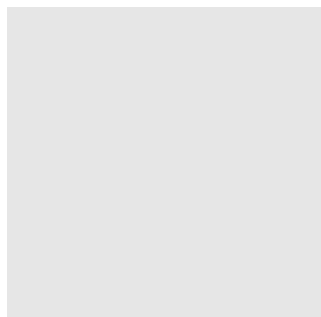
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