

Executive Summary

In its first decade, the U.S. Air Force School of Advanced Air and Space Studies (SAASS) required students to develop and present personal theories of airpower. After over 300 attempts by its carefully screened student body, the faculty discontinued the effort. The school's Dr. Hal Winton asserted that "there simply does not exist any body of codified, systematic thought that can purport to be called a comprehensive theory of air power." More than one airpower theorist has suggested that a comprehensive theory of airpower is no more useful than a theory of "north"; it has no meaning independent of the other points of the compass, which include land, maritime, and space power. Certainly, any sound theory of airpower should be able to stand up to the same demands as a theory of war writ large; it should be able to define its essence, and that definition should be flexible enough to encompass all the variables related to it. What then is the central proposition of airpower? Undeniably, air, space, and cyberspace are the most efficient lines of communication today. Does dominance of these domains confer maximum influence at an acceptable cost while minimizing risk? The articles in this issue's Forum may lead readers to precisely this conclusion.

In the final analysis, air, space, and even cyberspace power are simply means of exerting national will, and success or failure depends upon how well their application helps to achieve the political objectives sought. Many military analysts and media pundits make the mistake of presuming that a particular type of conflict (conventional, counterinsurgency, cyber, and so forth) is the blueprint for the near future and overemphasize the need to procure and train for a narrow threat or point on the spectrum of conflict. A beneficial outcome of the competition for ideas and resources among the military Services—which all employ airpower—is that the United States develops, upgrades, and fields a wide variety of assets and capabilities, ensuring experimentation, innovation, and operational flexibility while reducing strategic vulnerability. No one knows what the next war will be like, and debates over airpower command, control, and procurement strategies are best resolved in hindsight. Nevertheless, the long-term success of airpower depends upon foresight, and for this reason, our Forum begins with the views of a

Rather than pitting one variant of air power against the other . . . Enduring Freedom convincingly demonstrated that such 20th-century interservice rivalries have no place in the 21st-century U.S. warfighting establishment. The operation was remarkable for its degree of seamless interoperability between the U.S. Air Force and the Navy–Marine Corps team's sea-based aviation . . . In short, aircraft carriers and [land-based] bombers should not be viewed as competitors for resources, but as partners able to leverage unique synergies on the modern battlefield.

—Vice Admiral John J. Mazach¹
Commander, Naval Air Force
U.S. Atlantic Fleet



F-16s conduct training mission over South Korea

U.S. Air Force (Quinton T. Burns)

leader who commands the most powerful air, space, and cyberspace organization on Earth.

In "America's Air Force: The Nation's Guardian," General T. Michael Moseley speaks to the strategy that he has implemented for the Air Force and his assessment of the challenges that will face America tomorrow. His top priorities are winning the war on terror, developing and caring for Airmen, recapitalizing the fleet, and preparing for an uncertain future. His approach to this future is the integrated domination of three core competency domains, at least one of which (the cyber domain) is seriously challenged by potential adversaries. The highlight of General Moseley's article is his tour of the future strategic environment, including the character of 21st-century warfare and his assertion that airpower is no longer the sum, but rather the *product*, of air, space, and cyberspace superiority. His plan for preserving and enhancing these strategic domains to achieve prompt, persistent, and decisive effects is essential reading for the joint Service professional.

Technological innovation produces the qualitative advantages that allow U.S. airpower to overmatch superior adversary numbers while

minimizing the exposure of military personnel to casualty and capture. The most recent example of this central feature of airpower is now being exhibited in the assault support mission performed for decades by helicopters. The first combat deployment of the MV-22 Osprey in Operation *Iraqi Freedom* is the point of departure for the second Forum article, which focuses on a revolutionary aircraft that has entered the airpower arsenal against long odds. Test pilot and former Osprey squadron commander Glenn Walters outlines the struggle that Marine Corps and special operations community proponents of tiltrotor technology waged against those with a different vision of airpower priorities and requirements. Colonel Walters cites a continuous reference to the principles of war as a means of mitigating the risk of an obsolete debut following the long lead time from conception to deployment of major weapons systems. He makes the case that the MV-22 has exceeded expectations in the first iteration of an aircraft that is undoubtedly destined to produce numerous variants and commercial spinoffs into the future.

The third Forum offering begins with the premise that the joint community has been

unable to provide adequate unmanned aircraft system (UAS) coverage to Army forces engaged in tactical operations. The U.S. Army Training and Doctrine Command system manager for UAS argues that when ground units are in contact with the enemy, continuous sensor coverage is not a convenience; it is an imperative. Colonel Jeffrey Kappenman asserts that Army UAS are organic assets and should not be subject to the allocation decisions of central controllers from other Services. In his words, a “strategic concept of centralized control, in which UAS allocation is perceived to have scheduled predictability, does not operationally support [tactical] ground commanders.” He goes on to claim that the teaming of manned and unmanned platforms is becoming the standard in Army operations at the division level and below, leading to habitual relationships and more efficient mission planning and execution. He concludes that the joint UAS that meet requirements at corps echelon and above do not alleviate the deficiency in real-time dedicated combat information needed by ground commanders at lower levels. *JFQ* readers should compare Colonel Kappenman’s views with those of General Deptula’s in the eighth Forum feature.

In the longest essay that *JFQ* has ever published, Dr. Mark Clodfelter argues that the past 80 years of American thought about airpower reveal an enduring faith in bombing as a just, rational instrument of military force that makes wars quicker, cheaper, and less painful for all sides than a reliance on surface combat. This conviction, he claims, is the central premise of progressive airpower. Originally developed by visionary airmen such as Billy Mitchell, the belief stems from America’s Progressive Era and has been embraced by wartime Presidents. Although it has complemented the messianic tendencies of American foreign policy since Woodrow Wilson, it has frequently undercut Washington’s political objectives and helped to achieve the antithesis of the desired results. It has done so for two reasons: (1) it neglects the impact of “friction”—the combination of uncertainty, chance, danger, and exertion that makes actual conflict very different from “war on paper”; and (2) it is ill suited to unconventional and stagnant conventional types of limited war. Friction-induced collateral damage has often undermined war aims, especially in unconventional conflicts to win “hearts and minds”—which Dr. Clodfelter claims are the most likely types of wars that the United States will face in the years ahead. Accordingly, he

argues that American leaders should jettison airpower’s progressive notions and the rhetoric that accompanies them.

The fifth Forum contribution addresses the space domain from where General Moseley left off. General C. Robert Kehler traces the importance of space systems from victory in Operation *Desert Storm*, through the establishment of the Space Warfare Center and the training contributions of the 328th Weapons Squadron at the Nellis Air Force Base Weapons School, to today’s Joint Space Operations Center. Speaking to General Moseley’s point about the myriad products of space superiority, General Kehler identifies terrestrial developments such as low-yield precision munitions, combat search and rescue, and Blue Force Tracking devices. In an overview of space power’s future, he asserts that the Air Force knows for the most part what capabilities it will have in the year 2033 and emphasizes the need for recapitalization and modernization to keep pace with warfighting requirements. Technology is blurring the boundaries between warfighting domains, perhaps most notably in the realm of intelligence, surveillance, and reconnaissance (ISR) activities. Foreseeable threats demand progress in the integration of new capabilities across all military power domains.

As the Integrated Global Presence and Basing Strategy eventually returns over 50,000 U.S. military personnel from foreign bases, the role of strategic air mobility increases in prominence and will remain a critical pillar of military power indefinitely. In the sixth Forum installment, General Arthur Lichte, commander of U.S. Air Force Air Mobility Command (AMC), takes *JFQ* on a historical survey of ever-shrinking crisis-to-employment timelines, from World War I to Operation *Enduring Freedom*. An AMC aircraft takes to the air somewhere in the world every 90 seconds, and dependence upon host nations for en-route basing support has led the command to establish expeditionary organizations that efficiently link points of origin to destinations. Future requirements such as the Air Force’s number-one acquisition priority, the KC-X aerial tanker, are addressed alongside examples of operational adaptation to support national strategic efforts that range from diplomacy to combat. Success and victory in peace and war go to those who arrive “the fastest with the mostest,” and air mobility is the indispensable catalyst for the deployment, employment, and sustainment of global U.S. combat and soft power.

An excellent and stimulating example of contemporary Air Force institutional thought is presented in our seventh Forum offering entitled “Domain Expertise and Command and Control.” This article restates Air Force Service philosophy vis-à-vis a longstanding debate that attracted great attention following the Korean War when Lieutenant General Ned Almond, then commandant of the Army War College, criticized Air Force priorities in the employment of airpower. The question of airpower expertise is just as thought-provoking and strident today, especially regarding command relationships: “Is airpower so unique as to require central control of each Service’s organic and integrated aviation assets?” The authors, Lieutenant General Raymond Johns and Lieutenant Colonel Bruce Hanessian, claim a link between effective command and control and domain expertise, concluding that this link is the foundation for intelligent employment of military forces. What has contextually changed over the years is the cost of individual aviation assets, making them increasingly scarce and valuable. The essay argues that only Air Force domain experts possess the vision to guide aviation development for the mid and long term. Additionally, joint force commanders should rely on these domain experts to command and control air and space forces efficiently in a joint military campaign. *JFQ* encourages its readers to comment on the arguments presented in this essay. Each Service develops uniquely integrated aviation assets and employs associated tactics, techniques, and procedures in training for combat operations. Does centralized command and control of all aviation assets in joint operations support the ability of the land and sea Services to fight as they train? Is this assertion of single-Service expertise the blueprint for improved joint military efficiency and long-term success?

Lieutenant General David Deptula picks up the thesis of the previous article and brings it to bear on the transformational incorporation of UAS by all Services. He worries that “the evolution of UAS capabilities has outpaced the development and implementation of an overarching concept of operations to govern their use.” His proposed remedy is consonant with General Moseley’s goal of integrated domination of Air Force core competency domains: an employment strategy that purports to ensure UAS integration and optimizes their use in joint force operations. The justification for this strategy is that it will increase capability for joint forces, promote Service interdependence, and maximize the return on taxpayer dollars. In

addition to these benefits, the author points to dramatically increased risks should the United States not employ such effectively integrated UAS before facing an adversary presenting a credible air threat.

A natural result of the proliferation of unmanned aircraft systems, on-orbit assets, and emerging technologies is the vast amount of battlespace information to be indexed, accessed, and processed. Our ninth essay, authored by Lieutenant General Michael Peterson, addresses the Air Force's implementation of the Department of Defense Net-Centric Data Strategy initiative, which aims to provide decisionmakers at all levels with authoritative data and reduce friendly fog and friction. The Data Transparency initiative exploits metadata technologies and business rules to reduce manual communication processes and thereby shorten decision cycles. The ability to access the right information at the right time is prerequisite to observing and responding faster than adversaries and keeping them firmly planted on the horns of serial dilemmas delivered by deftly choreographed joint forces.

The tenth Forum contribution is a good news story from RAND's Dr. Benjamin Lambeth. Despite the glaring budget and command and control differences to be overcome by the Services in regard to airpower, in the realm of fixed-wing strike operations, integration is now truly part of joint culture. This fairly recent development is convincingly traced by Dr. Lambeth to *Desert Storm*, where Service friction and pernicious interoperability challenges shocked naval aviation into rapid transformation. Change did not come overnight, but the 10-year experience of Operations *Northern* and *Southern Watch*, enforcing no-fly zones over northern and southern Iraq, served as a "real-world operations laboratory." With Air Force, Marine, and Navy strike warfare assets operating interchangeably in the daily air tasking order, the Services were unusually well poised for Operations *Enduring Freedom* and *Iraqi Freedom*. Indeed, the author believes that Air Force and naval aviation should regard one another as natural allies, rather than as competitors in the roles and resources arena. The highlight of this article is the final segment, wherein the author identifies future challenges and details a number of joint ventures and investments in equipment and hardware to improve the already impressive state of joint strike warfare.

In our eleventh essay, Lieutenant Colonel Price Bingham, USAF (Ret.), insists that Service culture has undermined the "immense poten-

tial" of the E-8 Joint Surveillance Target Attack Radar System (Joint STARS). He argues that absent major changes in Service doctrine and force structure, Joint STARS should be transferred to a joint organization with the authority to establish requirements, fund upgrades, and improve force structure. Sparing neither the Army nor the Air Force criticism, he claims that Airmen value the system primarily in its battle management role and that Soldiers treat Joint STARS as fundamentally a ground surveillance system and fail to exploit real-time information on movement during a battle. The author appeals to Congress in the spirit of Goldwater-Nichols to require the Department of Defense to treat advanced ISR systems as above Service parochialism. Last year, the Chairman of the House Armed Services Committee, Representative Ike Skelton, created a roles and missions panel that is due to publish a study in April 2008. Panel member Representative Joe Sestak has been advocating Joint Staff control of funding for command, control, computers, communications, intelligence, surveillance and reconnaissance. "C'ISR is common to all of the services and key to precision strike," said Sestak, a former Navy vice admiral.

Our twelfth Forum installment returns to space and the ambitious challenge of laying the foundation for an empirical theory of space power. If, as this editor believes, an independent theory of space power is not practical, Colonel Charles Lutes, USAF, is perceptive in his views of its themes as regards national security. This essay begins with a survey of space ages—from 1957 to present—and their products—prestige and information. If Colonel Lutes' hypothesis that the next space age will produce wealth (from tourism, energy, mining, and manufacturing) is correct, "the next space age will be marked by a boom in the economic value of space itself." He surveys the international system before addressing national security and eight basic strategies toward space security. He concludes with the warning that "understanding of the essence of space power, and the ways in which other actors will approach it, is an essential first step for policymakers as they seek to ensure the tranquility of the final frontier while maximizing space activity for national good."

Our final printed entry in the Forum returns to the beginning of this Executive Summary: to the School of Advanced Air and Space Studies. Despite its name, SAASS does not produce aviation theorists or planners, but rather strategists concerned with the use of military force in support of statecraft. Its small pool

of graduates is in high demand throughout the Armed Forces and includes 18 flag officers, as well as the two most recent editors of *JFQ*. The strength of SAASS is that it teaches students to think, and it equips them with tools to support that effort. These tools are important because the students in residence normally read a book every night. At the end of the course, all students must present and defend a thesis. It is a tribute to the rigorous liberal education imposed by the superb SAASS faculty that the thesis topics often appear offbeat and challenge traditional ways of doing business. SAASS is an education for the balance of a lifetime, and proof can be found in the fact that its graduates enjoy long careers and frequently second careers closely connected to strategy and policy. Regrettably, SAASS produces a small number of graduates annually, and even if the institution were expanded tenfold, we would lament that it is still too small.

JFQ calls readers' attention to the eleventh-hour arrival of an excellent article by Lieutenant General John A. Bradley, USAF, chief of Air Force Reserve, which can be viewed in the online edition of this issue at ndupress.ndu.edu. General Bradley speaks to building a viable Total Force while remaining operationally engaged. This article is also intended to assist policymakers in examining the recent history, current challenges, and likely future of the Reserve Components.

Contemporary U.S. airpower has no peer because its strength and flexibility are products of competition, debate, and conflict. Undeniably, this dominant form of military power projection is increasingly costly, even as it produces multiplying benefits that are internalized by every military Service as prerequisite for mission success. The competition for airpower ideas and resources can only grow more intense over time. The challenge before us is to preserve the benefits of Service competition while reducing the attendant inefficiencies. As an efficient investment of your time, we hope that you find this issue of *JFQ* thought provoking. We encourage your feedback, hopefully in the form of manuscripts delineating *your* lessons learned in joint, integrated, air, space, and cyberspace operations. **JFQ**

—D.H. Gurney

NOTE

¹ John J. Mazach, "The 21st-Century Triad: Unconventional Thinking about the New Realities of Conventional Warfare," *Sea Power* (March 2002), 53.