

America's Air Force

The Nation's Guardian



U.S. Air Force (Lee O. Tucker)

By T. MICHAEL MOSELEY



War Department (Underwood and Underwood)

World War I ace Captain Eddie Rickenbacker, USAAF, was credited with downing 26 enemy planes

Nations nearly always go into an armed contest with the equipment and methods of a former war. Victory always comes to that country which has made a proper estimate of the equipment and methods that can be used in modern ways. —Billy Mitchell

I am deeply honored to contribute this essay to *Joint Force Quarterly*. It is altogether fitting for the Chairman's journal to dedicate an issue to airpower, especially so close to the 60th anniversary of an independent U.S. Air Force. I will leave it to others featured in this issue to discuss the contributions of American airpower as it has evolved over the past 100 years, from the creation of the Aeronautical Division in August 1907, through the establishment of an independent Air Force in September 1947, to the mighty organization that I am privileged to lead today.

Instead, I want to use this opportunity to acquaint our brothers and sisters in arms—the entire joint team serving our great

nation—with the strategy I have charted for America's Air Force. This strategy defines the Air Force's indispensable role in promoting and defending the national interest and outlines the urgent actions necessary to cope with today's and tomorrow's challenges. Consider this essay a definitive statement of your Air Force's intent to maintain its role as the Nation's guardian—America's force of first and last resort. Consider it also a tribute to Airmen—those who have gone before me and those I lead today.

Since the days of Kitty Hawk, airpower has been viewed through the lens of

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its awesome technology: beautiful flying machines streaking effortlessly across the sky; mighty rockets flawlessly lifting satellites into orbit; and persistent electronics sensing, signaling, connecting, transmitting, processing, and controlling integrated, cross-dimensional effects in air, space, and cyberspace. Yet it is the *Airmen* who transform hunks of metal, buckets of bolts, microprocessors, and circuitry into the Nation's warfighting edge. Taking care of Airmen—America's sons and daughters, brothers and sisters, husbands and wives—means much more than just providing them with the training, equipment, and quality of life they deserve. Taking care of Airmen calls for leadership they can trust with their lives. It also requires a concerted effort to uphold their pride, foster their warrior ethos, and safeguard their rightful position in the pantheon of the Nation's defenders.

As the youngest of America's five Services, our battle traditions are less than a century old. Yet we are heirs to a proud legacy of leading by example, from the front, assuming the full measure of risk and responsibility. This heritage has been forged by airpower's early pioneers; by the first air combat heroes of Lafayette's Escadrille; by the Tuskegee Airmen who racked up an impressive combat record against overwhelming odds, fighting both the Nazis abroad and racial prejudice at home; by pilots and navigators who flew into harm's way in two World Wars, Korea, Vietnam, Iraq, Yugoslavia, Afghanistan—and Iraq again; by astronauts who blasted into space and walked on the moon; by crews of HH-3 Jolly Green Giant rescue helicopters who risked their lives so others might live; by prisoners of war who continued to fight from a prison cell; and many, many others.

Airmen fly and fight in inherently dangerous domains. Schweinfurt and Ploesti are our Iwo Jima and Omaha Beach—though we were in those fights, too. Than Hoa Bridge and the Hanoi Hilton are our Khe Sanh and Ia Drang Valley—though we were over those battlegrounds as well. This heritage obligates us to honor the sacrifice by recommitting ourselves to the common touchstone of warrior virtues and a single, unifying purpose: *fly, fight, win.*

Airmen are America's cross-dimensional, global maneuver force. The power that we wield is at once tactical, operational, and strategic. We are indeed democracy's sword and shield—its guardians

and avengers. America's Airmen are ever faithful to an ethos that unifies warriors across centuries and warfighting domains. At this time of war, America could ask no more and no less from its youngest Service.

History shows that military advantage is fleeting. In the wake of Operation *Desert Storm*, America's global reach and global power were the sole arbiter of world affairs. A *Pax Americana* replaced the Cold War nuclear standoff, until that deadly September 2001 morning when 3,000 people were killed on American soil.

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That very day, the U.S. Air Force spread its wings over America's cities in an extraordinary operation aptly named *Noble Eagle*. The Air Force continues to provide this combat air patrol with about 100 aircraft committed daily, all while serving as the Nation's ultimate nuclear backstop, acting as its global eyes and ears, and flying and fighting in Iraq and Afghanistan. In these theaters, Air Force precision targeting kills insurgent leaders, saving American and coalition lives; airlift transports troops and supplies, moving 3,500 convoys and some 8,600 people per month off deadly roads; aeromedical evacuation accounts for the highest survival rate (97 percent) of any conflict in history; space-based capabilities provide precise global timing and navigation, weather, and secure communications indispensable to all operations; and other intelligence, surveillance, and reconnaissance assets find and track enemies, enabling precise targeting and near-real-time assessment of effects.

Fighting and winning the war on terror, developing and caring for America's Airmen, recapitalizing and modernizing our aging fleet, and preparing for an uncertain future are my top priorities. My sacred obligation, however, is to the men and women of the Air Force. Given the stakes, I will never falter and I will not fail.

The Strategic Imperative

Since the Nation's birth, it has been the constitutional duty of our military to ensure national survival, defend lives and

property, and promote vital interests at home and abroad. The Air Force's mission is to "deliver sovereign options for the defense of the United States of America and its global interests—to fly and fight in Air, Space, and Cyberspace." The Air Force exists to dominate the atmosphere, space, and the electromagnetic spectrum on a global scale, unhindered by time, distance, or geography. Thereby, we underwrite the national strategy of defending the homeland and assuring allies, while dissuading, deterring, and defeating enemies.

The Air Force is charged with safeguarding America by dominating the ultimate vantage of air, space, and cyberspace. We provide the entire joint team with global vigilance, global reach, and global power in and through these domains:

- *Global vigilance* is the persistent, worldwide capability to keep an unblinking eye on any entity—to provide warning on capabilities and intentions, as well as to identify needs and opportunities.

- *Global reach* is the ability to move, supply, or position assets—with unrivaled velocity and precision—anywhere on the planet.

- *Global power* is the ability to hold at risk, or strike, any target, anywhere in the world and project decisive, precise effects.

The Air Force's ability to fulfill its missions is already being tested. This is particularly true in cyberspace, seen by potential adversaries as a relatively inexpensive venue to offset our traditional advantages in air and space. Since the air, space, and cyber domains are increasingly interdependent, loss of dominance in one could lead to loss of dominance in all. Thus, superiority and freedom of action—the historically proven predicate of all ensuing operations—cannot be taken for granted.

The Air Force must be better postured to contend with both today's and tomorrow's challenges. To promote and defend America's interests through global vigilance, global reach, and global power, the Air Force must attain *cross-domain dominance*, which integrates systems, capabilities, operations, and effects to gain competitive advantage in any and all domains. It transforms our operational concepts to maximize synergy, thus generating a new array of simultaneous, synchronized effects.

Moreover, through cross-domain dominance, the Air Force preserves the necessary freedom of action and permits joint freedom of maneuver in all warfighting domains. This, in turn, allows the joint force commander to achieve desired outcomes across the full range of military operations. Without the ability to wield—and capitalize on—this full spectrum of effects in peace, crisis, and war, America would be in grave peril.

History is replete with examples of militaries that failed due to their inability to transform organizations and culture, adopt new operational concepts, or leverage breakthrough technologies. *But militaries do not fail by themselves.* Failure occurs in the context of an overall, national debacle, caused by systemic problems that fall into three distinct but related categories: failure to anticipate, failure to learn, and failure to adapt. In contrast, victory comes to those who foresee, recognize, and act on changes in the strategic environment.

Today's confluence of global trends already foreshadows significant challenges to our organization, systems, concepts, and doctrine. The future strategic environment will be shaped by the interaction of globalization, economic disparities, and competition for resources; diffusion of technology and information networks whose

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very nature allows unprecedented ability to harm and, potentially, paralyze advanced nations; and systemic dislocations impacting state and nonstate actors, and, thereby, international institutions and the world order. The following are salient features of this increasingly complex, dynamic, lethal, and uncertain environment:

- violent extremism and ethnic strife
- proliferation of weapons of mass destruction and empowering technologies
- rising peer competitors with voracious appetites for resources and influence
- predatory, unpredictable regional actors
- increasing lethality and access of terrorists and criminals
- systemic instability in key regions
- unprecedented velocity of technological change and adaptation
- availability of advanced weapons in a burgeoning global marketplace
- exponential growth in volume, exchange, and access to information
- surging globalization, interconnectedness, and competition for scarce resources
- dislocating global climate, environmental, and demographic trends.

The Character of 21st-century Warfare

These global dynamics are intertwined with the changing character of 21st-century warfare. Having experienced—or vicariously learned—the cost of challenging the United States head-on, would-be adversaries are developing new approaches to attack vital levers of U.S. power. Their strategies seek to circumvent our core advantages and exploit

vulnerabilities, while undermining international support and domestic resolve.

Airpower's unprecedented lethality and effectiveness deter opponents from massing on the battlefield, thus forcing them to adopt distributed and dispersed operations. They find maneuver space and sanctuary in dense urban areas, ungoverned hinterlands, and loosely regulated information and social networks. These enemies pose a significant challenge to our freedom of action and threaten our interests at home and abroad. Their operations are difficult to constrain with traditional force-on-force approaches, compelling all Services to think anew about the challenges of irregular warfare.

Meanwhile, ascendant powers—flush with wealth and hungry for resources and status—are posturing to contest U.S. superiority. These competitors are translating lessons from recent conflicts into new warfighting concepts, capabilities, and doctrines designed to counter our strengths and exploit vulnerabilities. They have demonstrated advances in all domains, such as:

- large numbers of “generation 4-plus” fighter aircraft that challenge America's existing “4th-generation” inventory—and thus, air superiority with overwhelming numbers and advanced weaponry; sophisticated integration of electronic attack and advanced avionics; low-observable technologies; and progressive, realistic networked training
- increasingly lethal, integrated air defense systems that threaten both the aircraft and the weapons used to suppress or destroy them



U.S. Air Force (J.W. Holms, Jr.)

USAF C-119s at Yonpo, Korea, prepare for cargo airdrop to 1st Marine Division at Chosin Reservoir, 1950



U.S. Air Force (Jerry Morrison)

A-10As on mission over Afghanistan, November 2002

- proliferation of surface-to-surface missile systems with growing range, precision, mobility, and maneuverability capable of delivering both conventional and nonconventional warheads

- proliferation of unmanned aerial systems capable of conducting low-observable, persistent, intrusive missions in both lethal and nonlethal modes

- resurgence of offensive counterspace capabilities—as evidenced by China’s early 2007 antisatellite test

- cyberspace attacks creating operational and strategic effects at low cost and with relative impunity

- increasing ability of even marginal actors to surveil the disposition of U.S. and allied assets through commercially available and widely accessible means.

Even if we continue to dissuade and deter major competitors, their advanced equipment is proliferating worldwide. We are bound to confront these weapons systems

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wherever America engages to promote and defend its interests. All Services must be vigilant to adversary breakthroughs in fields such as cybernetics, nanotechnology, biotechnology, electromagnetic spectrum physics, robotics, advanced propulsion, and so forth. We cannot assume that the next military revolution will originate in the West. Indeed, the center of gravity in science and engineering education has shifted eastward. Therefore, we must discern and counter innovative combinations of traditional and new concepts, doctrines, weapons systems, and disruptive technologies.

A Strategic Crossroads

As a consequence of these global dynamics and shifts in the character of 21st-century warfare, we are at a strategic crossroads. The Air Force has aggressively pursued air dominance through focused, sizable investment in Airmen, aircraft, weapons, training, and essential support structure to include fundamental and applied research. It has also harnessed space and cyber capabilities as the catalysts of precision, stealth, speed, reach, and persistence that became the hallmarks of late 20th-century warfare. In the

process, we became increasingly dependent on space and the electromagnetic spectrum as the indispensable pillars of our ability to deliver desired effects. Airpower in the 21st century is no longer the *sum* but the *product* of air, space, and cyberspace superiority. Consequently, loss of dominance in any one of these domains risks across-the-board degradation, if not outright failure. Our freedom of action, let alone superiority, is not assured.

From this point forward, the joint team should expect to be challenged in all warfighting domains. In January 2007, China demonstrated the ability to hold satellites at risk and the willingness to contest the space domain. State and nonstate actors are already exploiting cyberspace to gain asymmetric advantage. In April 2007, Estonia was the victim of a well-coordinated cyber attack that brought its technologically sophisticated government to a virtual standstill. Insurgents in Iraq, Afghanistan, and elsewhere exploit the electromagnetic spectrum to kill and maim through improvised explosive devices,

while propagating their message of hate to the world. Thus, perhaps for the first time in the history of warfare, the ability to inflict damage and cause strategic dislocation is no longer directly proportional to capital investment, superior training, or technological prowess.

The war on terror is a generational struggle that we must win. The Air Force will continue to fly and fight in the various theaters of this war. However, we owe the Nation a holistic approach that balances today’s exigencies with the far-reaching, long-term implications of looming threats. America’s Air Force will succeed in the 21st century only by developing and resourcing a coherent strategy that closes the gap between ends and means. The window of opportunity is shutting fast. Time is not on our side.

Redefining the Air Force

The Air Force strategy is framed in terms of the ends/means/ways/risk equation. The *ends* are the objectives we must achieve. The *means* are capabilities and resources. The *ways* define how we employ the means. The essence of our strategy is to use available and

programmed means in innovative ways to attain the desired ends with acceptable *risk*.

Ends: Protect Democracy and Guard Freedom. The Air Force’s nonnegotiable commitment to America’s joint team is to provide forces proficient across the full spectrum of military operations to protect the United States, its interests, values, and allies; deter conflict and prevent surprise; and, should deterrence fail, prevail against any adversary. Airmen deliver global surveillance, global command and control, and the requisite speed, range, precision, persistence, and payload to strike any target, anywhere, anytime, in any domain—and to assess the results. Global vigilance, global reach, and global power grant joint and combined force commanders the ability to safeguard the homeland, assure allies, dissuade opponents, and inflict strategic dislocation and paralysis on adversaries—all while minimizing the loss of life associated with land warfare.

Ways: Global Vigilance, Reach, and Power through Cross-domain Dominance. Innovation, flexibility, and integration are the hallmarks of all successful strategies. Airmen must develop creative solutions (ways) to dominate air, space, and cyberspace, exploiting the synergies of cross-domain dominance to attain a quantum leap in mission effectiveness. To this end, we must refocus our organization and culture on the warfighting mission; implement advanced operational

Lockheed Martin



F-22 flies at sunset

concepts to fly, fight, and win in all domains; leverage game-changing technologies; and recapitalize our aging equipment.

Any organizational renaissance begins with people. We must prepare our Airmen for a future fraught with challenges, fostering their intellectual curiosity and ability to ask the right questions. To this end, we are reinvigorating the warrior ethos, revitalizing the world's most advanced training system, and expanding educational opportunities. Our expeditionary Airmen must be prepared to deploy and ready to fight. While we enrich our Airmen's culture, leadership, training, education, and heritage, we will care for their families and provide for their future.

We are committed to enhancing Total Force integration. We are developing concepts, strategies, force management policies and practices, and legal authorities to access sufficient Air Reserve Component forces without the need for involuntary mobilization. Though the Air Force is already the model for melding its Active duty elements with its Guard, Reserve, and civilians, we can and will push this synergy to new levels.

We must continue to inject the Airman's global, inherently three-dimensional perspective into all levels of planning and execution. We will better prepare our officers for key joint leadership positions by bolstering cultural, language, and academic skills—as well as practical experience—to ensure that they are articulate airpower advocates, capable of fully integrating our distinctive capabilities into joint and coalition arenas.

In an era of intense competition for resources, we must avoid unnecessary duplication and overlap in acquisition, procurement, manning, and operations. To this end, we will continue a series of cross-Service initiatives already under way with the aim of generating new joint synergies across all warfighting domains. We will also enhance collaboration and interoperability with the Department of Homeland Security, Department of State, the Intelligence Community, law enforcement agencies, and other interagency partners to facilitate a more effective orchestration of all elements of national power.

America's strategic partnerships are more important than ever. Our Air Force will strengthen and broaden coalitions, capitalizing on the global community of like-minded Airmen, while attending to interoperability between allies and partners. Building these relationships not only expands, extends, and

strengthens global vigilance, global reach, and global power, but also leverages airpower's value as an instrument of America's diplomacy in an increasingly interconnected world.

The Air Force is formulating innovative operational concepts to anticipate, adapt to, and overcome challenges. We are transforming our thinking from considering the space and cyber domains as mere enablers of air operations to a holistic approach that factors in their interdependence and leverages their unique characteristics. We must continue to push this conceptual envelope—and expand the boundaries of existing tactics, techniques, and procedures—to fully exploit the synergies of cross-domain dominance.

We will accelerate the deployment of evolutionary and disruptive technologies as we address the urgent need to recapitalize and modernize. We must bolster our advantage through continued investment in our own science and technology, as well as outreach and integration with industry, academia, and think tanks. We will reform our procurement and acquisition system to ensure full transparency, open competition, and adherence to operational timelines.

Means: Revitalizing the Air Force.

The U.S. Air Force has been in continuous combat since 1990—17 years and counting—taking a toll on our people and our rapidly aging equipment. While we remain globally

engaged, we recognize the imperative of investing in the future through recapitalization and modernization. We must field flexible systems, capable of providing full-spectrum effects across the entire range of military operations, from a catastrophic attack on the homeland, to major theater contingencies, to irregular warfare and humanitarian relief.

We must position the Air Force to secure America's primacy in all domains, including appropriate mixes of standoff capabilities, penetrating manned aircraft, enhanced cyber capabilities, advanced unmanned combat systems, operationally responsive space, and breakthrough innovations in such fields as electromagnetic spectrum physics, directed energy, nanotechnology, bioengineering, superstealth, and hypersonics.

The U.S. nuclear arsenal continues to serve as the ultimate backstop of our security, dissuading opponents and reassuring allies through extended deterrence. To meet current and future challenges, it is a credible nuclear deterrent that convinces potential adversaries of our unwavering commitment to defend our nation, its allies, and its friends.

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General Moseley announces new training mission for Tennessee Air National Guard



U.S. Air Force (Ernie Hickman)

As the demand for global intelligence, surveillance, reconnaissance, and communications continues to grow, our reliance on assured access to space will increase exponentially. The challenge is to find an affordable pathway to secure space—striking the right balance among hardening, countermeasures, and reconstitution. We need to deploy high-altitude, high-speed systems to mitigate risks to space-based capabilities. The Air Force will continue to provide the entire joint team with exacting intelligence, surveillance, and reconnaissance. We will also develop new concepts that merge sensors and shooters into a seamless, ubiquitous force that can permeate adversary defenses.

Throughout history, warfighters at all levels have operated with limited information and constrained situational awareness. With advances in sensors, information-sharing, and network-centric systems, our operators are suffering an embarrassment of riches—they are, quite literally, drowning in information delivered at a velocity far exceeding human

ability to process and absorb. We must develop and field systems that are not only network-centric but also *knowledge-centric*. These systems process, filter, and integrate data, presenting only the most pertinent information in a format that enables quick, logical decisions. To this end, we will develop self-forming, self-healing networks that harness the power of machine-to-machine interfaces, freeing up human resources for activities where intellect and warrior spirit are indispensable.

In September 2007, the Air Force stood up Cyber Command to provide combat-ready forces trained and equipped to conduct sustained operations in and through the electromagnetic spectrum, fully integrated with air and space operations. We will continue to develop and implement plans for maturing cyber operations as an Air Force core competency. Our objective is to provide flexible options to decisionmakers to deter, deny, disrupt, deceive, dissuade, and defeat adversaries through destructive and nondestructive, lethal and nonlethal means.

Soldiers, Sailors, Marines, and Coast guardsmen share a sacred bond with Airmen: we will not leave a comrade behind. We are modernizing combat search and rescue forces to fulfill the moral imperative to locate, support, and recover our joint warriors. The Air Force is committed to fielding a new combat search and rescue aircraft; advancing our rescue concepts of operation; and enhancing survival, evasion, resistance, and escape training—all to ensure that the Air Force remains the premier combat search and rescue force for the entire joint team.

The war on terror has highlighted the importance of specialized airpower (special operations forces). We will continue to provide aircraft, unmanned aerial vehicles, agile combat support, and trained personnel to meet combatant commanders' special operations requirements. Air Force Special Operations Command is establishing a new base with world-class training ranges and facilities to accommodate its growth. In addition, the Air Force continues to refine tactics, techniques, and procedures to enhance the synergies between airpower and joint special operations forces.

An enduring element of our national security strategy is to engage forward in peace, crisis, and war. Accordingly, we must maintain a sufficient rotational base to sustain our forward-deployed and forward-based posture, as well as enhance our ability to project and

protect those forces—a moral imperative as well as a military necessity. The Air Force will work with combatant commanders and partner air forces to secure basing and counter potential antiaccess strategies. We must continue to develop new ways of projecting power without projecting vulnerabilities and design systems that facilitate reachback, thus maximizing effects while minimizing forward presence.

Risk: Failure to Anticipate, Learn, and Adapt. All strategic planning is based on a set of assumptions. Surprise occurs when core assumptions are proven wrong. To succeed, we must continually validate our strategy across the ends/means/ways/risk equation. We should not assume that future conflicts will resemble the current fight in Iraq or Afghanistan lest we lose the ability to project global

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power, inflict strategic paralysis, deter nation-states, destroy their fielded forces, and defend our homeland, its allies, and friends.

For a nation whose security is predicated on an enduring strategy of deterrence and dissuasion, the most fundamental risk is failure of deterrence. Insofar as deterrence is a function of capability, will, and credibility, and is thus in the eye of the beholder, its success—or failure—is measured only in the breach. To mitigate the risk, we must retain a modern, secure, and well-trained force and evolve new deterrence concepts. In particular, it behooves us to rethink such concepts as extended deterrence and conceive new ways to deal with actors who might be deemed “undeterrable” in the traditional Cold War construct.

Strategic risk can also mount through the accumulation of shortfalls in recapitalization and modernization, stale operational concepts, and failure to revitalize the warrior ethos. Recapitalization is about more than replacing aging aircraft; it is about ensuring the combat effectiveness of all forces. The success of the Air Force and the joint team depends upon the ability of our people and organizations to adopt new, relevant operational concepts suitable to the dynamics of the strategic environment. Cross-domain dominance is essential to victory.

From Heritage to Horizons

Complacency breeds failure. In the 1920s and 1930s, when our political and military leaders assured the Nation that we were appropriately postured for the future, we failed to anticipate the coming crucible. Despite the vocal objections of a few, we entered World War II unprepared for the demands of total war. Likewise, we engaged in both Korea and Vietnam unprepared for the challenges of limited war. America paid a heavy price in blood and treasure for this strategic myopia. Through determination, ingenuity, and innovation—as well as our industrial might—we learned from mistakes. We adapted in the midst of these fights to win decisively in World War II, restore the status quo ante bellum in Korea, terminate the conflict in Southeast Asia, and, having exorcised the ghosts of Vietnam, deliver a swift victory in Operation *Desert Storm*.

However, planning to adapt on the fly is not a strategy for success. We will have neither the buffer of time nor the barrier of oceans in future conflicts. The Air Force is smaller in April 2008 than it was in December 1941. We cannot suffer attrition rates of the magnitude we did in World War II, Korea, or Vietnam. The Nation now expects its military to win quickly and decisively. The character, tempo, and velocity of 21st-century warfare already severely test our ability to adapt. We can no longer manufacture complex weapons systems in short order. Therefore, recapitalization and modernization are urgent national security requirements—not discretionary luxuries that we can defer. If we are to defend America and promote its interests, the Air Force must continue to provide the joint team with prompt, persistent, decisive effects—massed and brought to bear anywhere, anytime.

The Air Force is often first to the fight and last to leave. We give unique options to all joint force commanders. The Air Force must safeguard its ability to see anything on the face of the Earth; range it; observe or hold it at risk; supply, rescue, support, or destroy it; assess the effects; and exercise global command and control of all these activities. Rising to the challenge is not a choice. It is our *responsibility* to bequeath a dominant Air Force to America's joint team that will follow us in service to the Nation. **JFQ**