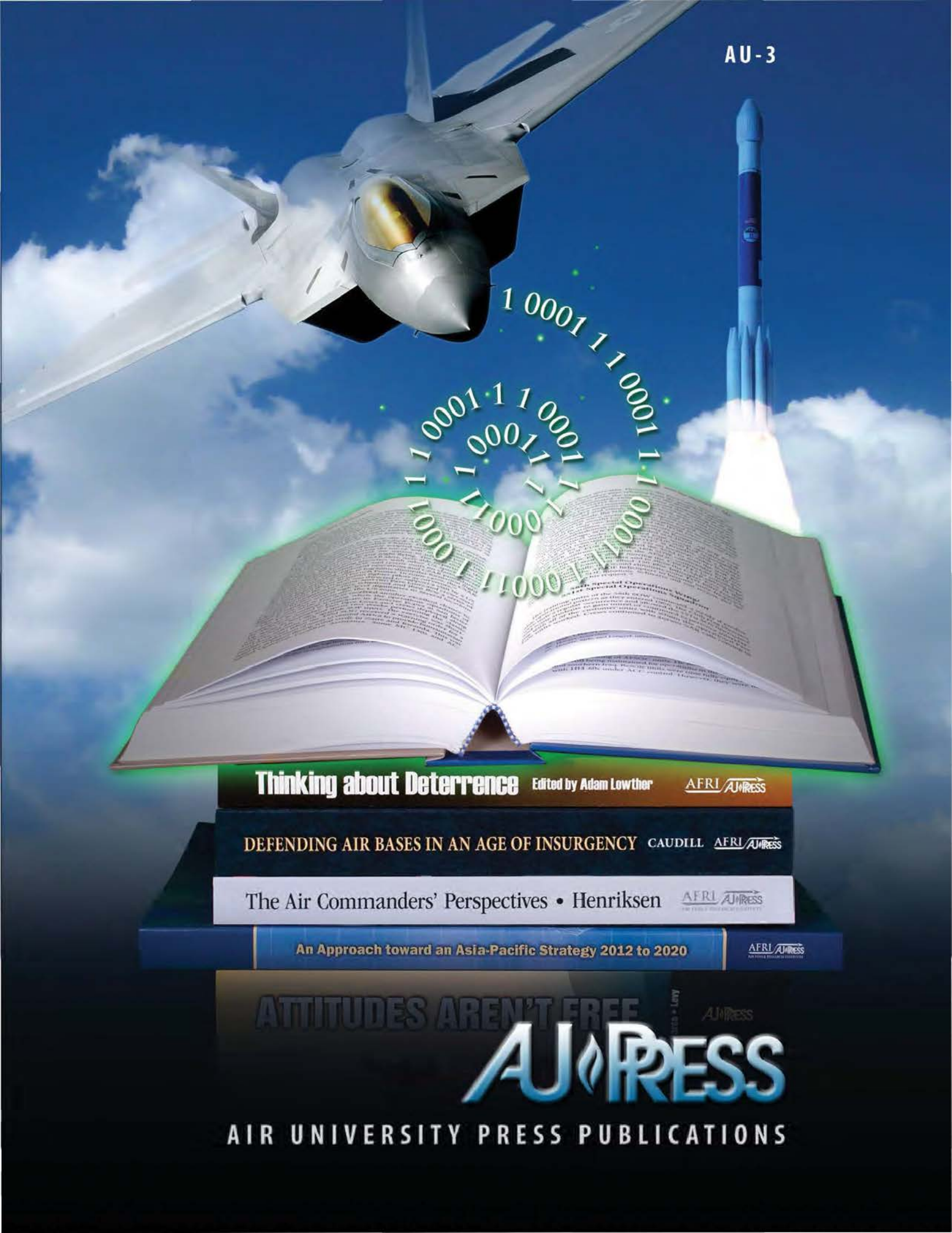


AU-3



Thinking about Deterrence

Edited by Adam Lowther

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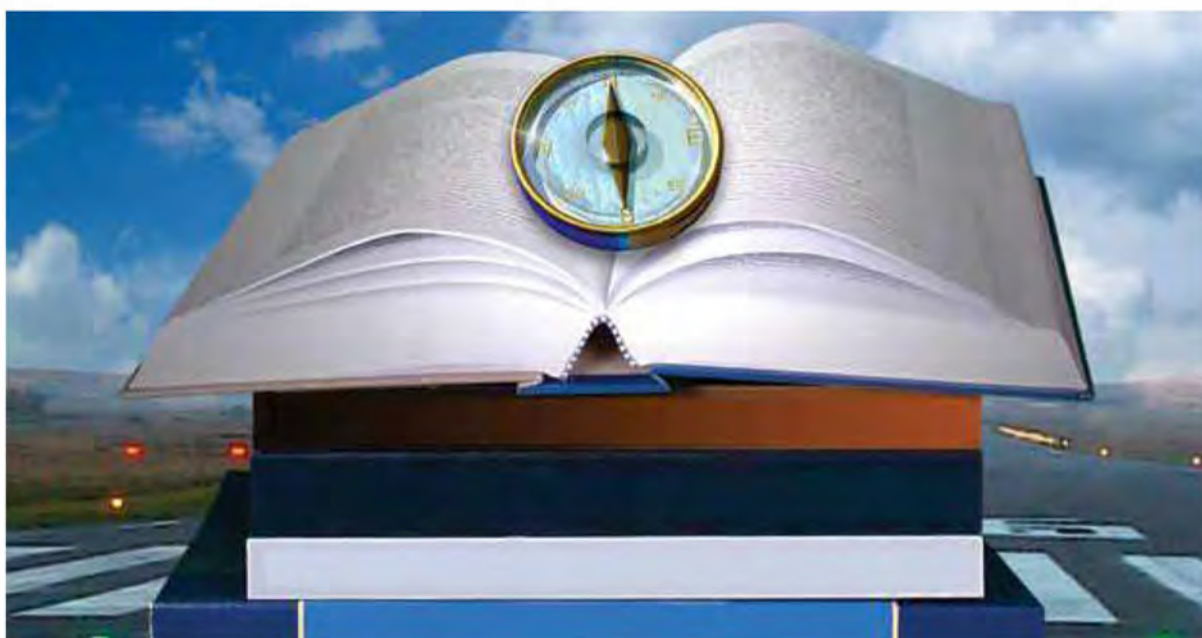
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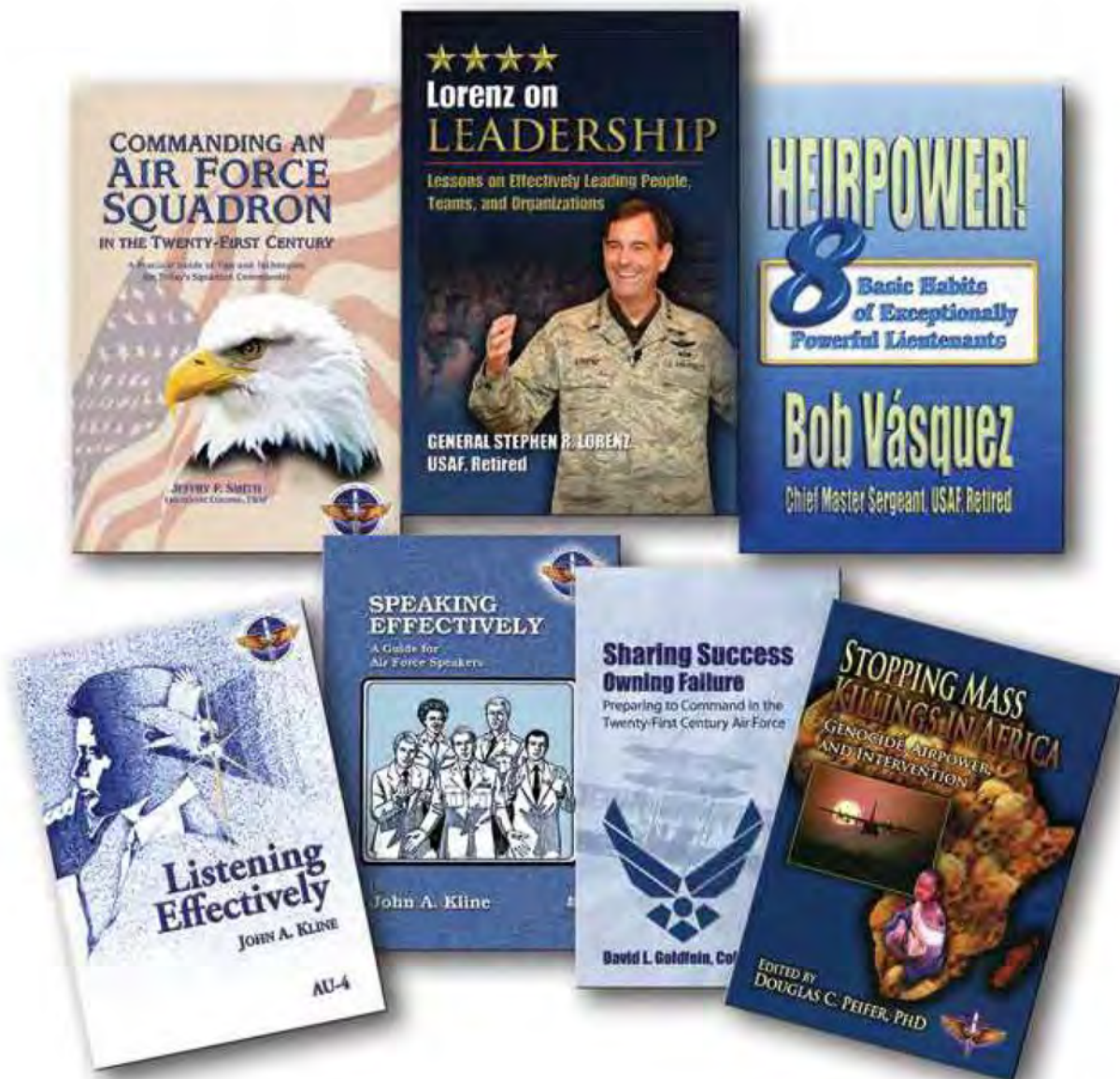
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AU-1

Air University Style and Author Guide

Bassett, Dr. Marvin, Editor

AU-1, *Air University Style and Author Guide*, helps ensure that the form and style of Air University (AU) scholarship are as impressive as the substance. Like its predecessor, the second edition of AU-1 will be indispensable to the university's faculty, staff, and students. Part 1 of this publication, "Air University Style Guide for Writers and Editors," provides guidance on such matters as grammar, mechanics, and documentation of sources. Part 2, "Air University Press Author Guide," offers instructions for authors who wish to submit manuscripts for possible publication by AU Press, the Air Force's airpower publisher. The latest version of the guide offers both new guidance and changes to existing principles occasioned by additional experience dealing with writers and by the appearance of the 16th edition of the *Chicago Manual of Style*, AU-1's authoritative source in matters of style. With this second edition, the *Air University Style and Author Guide* continues to fulfill its objective of meeting the needs of Air Force writers by providing the most recent and pertinent stylistic guidance available.

April 2015. Second edition. 240 pages.

ISBN 978-1-58566-254-8



AU-2

Guidelines for Command, Second Edition

Prepared by Air Command and Staff College

The intent of this book is to advance the practice of command. Advice and experiences from prior commanders together with useful resources create a go-to reference to help incoming commanders be more effective leaders.

March 2015. 272 pages.

ISBN 978-1-58566-251-7



AU-3

Air University Press Publications

Prepared by Air University Press

This catalog describes Air University Press publications available in print, e-reader, PDF, and/or audiobook formats. Two indexes list publications by author and title.

September 2015. 118 pages.

ISBN 978-1-58566-171-8



AU-4

Listening Effectively

Kline, Dr. John A.

Using the concepts of what we think, feel, and do about listening, Dr. Kline explains the need for better listening—including higher productivity, faster learning, increased safety, and better relationships—and practical techniques for doing so more effectively.

April 1996. 70 pages. ISBN 978-1-58566-009-4 Audio downloadable



AU-5

Speaking Effectively

A Guide for Air Force Speakers

Kline, Dr. John A.

Dr. Kline brings his accumulated wisdom of decades of speaking experience to this essential resource for anyone faced with any kind of speaking situation. He presents time-proven techniques on how to speak successfully, with examples and pointers for both the novice and skilled speaker. He leads the reader through the steps a speaker would follow: preparing, organizing, choosing support material, deciding how to begin and end, and presenting the talk. December 1989. 86 pages. ISBN 978-1-58566-031-5

Audio downloadable



AU-10

Air University Catalog [Online Only]

Academic Year 2018–2019

Prepared by the Air University Registrar

This is the official Air University publication for disseminating information on Air University educational programs, including professional military education. It serves as both a source and a planning document for Air University schools and staff.



AU-18 [Online Only]

Space Primer

**Air Command and Staff College
Space Research Electives Seminars**

A wide range of space-related topics are covered—from the history, theories, and doctrine of space power to orbital mechanics, satellites, and the space surveillance network. This primer is useful to those who want a broad introduction to military space issues or need to deepen their expertise in a specific facet of space capabilities and operations.

September 2009. 335 pages.

ISBN 978-1-58566-194-7



AU-24

Concepts for Air Force Leadership

Lester, Dr. Richard I., Editor

By examining the latest thinking on the art of leadership, this book gives readers a better understanding of the process, allowing them to improve their leadership effectiveness. The text provides a guide for what leaders should be, know, and do.

August 2008. 540 pages.

Limited distribution

BOOKS



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The Evolution of Air Force Special Tactics

1953–2003

Marion, Forrest L.

This work explores the evolution and contributions of the “Battlefield Airmen” assigned to Air Force Special Operations Command (AFSOC) special tactics units over 50 years. “Their story deserves telling within the US Air Force and to the general public,” notes Gen John Jumper, USAF, retired. Battlefield Airmen core competencies include performing duties primarily on the ground, often “outside the wire,” and under austere conditions—all skills needed for carrying the fight to the enemy on the ground. The AFSOC special tactics community is a small brotherhood of highly trained and equally dedicated warriors consisting of special tactics officers and combat controllers, combat rescue officers and pararescuemen, and officer and enlisted special operations weathermen. They have proven themselves as force multipliers time and time again throughout their history in places like Somalia, Serbia, and the battlefields of Afghanistan and Iraq.

B-149

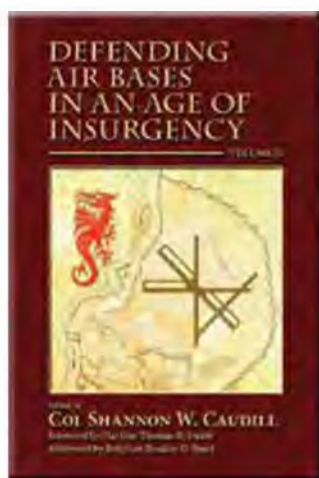


Resilient, Effective, Adaptable Leadership

Sawtelle, Maj Jonathan D., USAF

Adaptation is required to stay ahead of the competition or an adversary, remain relevant, or increase effectiveness. Military leaders must self-evaluate and confront any barriers inhibiting their growth in this area. Sawtelle provides opportunities to reflect on leadership in an uncommon context. Self-reflection—made more credible by a certain level of discomfort—can shed light on personal and cultural blind spots. There are six common blind spots in modern military culture inhibiting the comprehensive development of more advanced leaders to achieve resilient intent: trust, risk, investment of time, ownership, technology dependence, and personal adaptability. These elements can serve as catalysts for reflection and dialogue to aid in the evolution of modern leadership culture to best prepare for surprise, disruption, and crisis.

B-146



Defending Air Bases in an Age of Insurgency Volume 2

Caudill, Col Shannon W., USAF, Editor

Since the release of the first volume in 2014, “there has been a groundswell of support for a second project designed to add more depth and fill gaps in the literature,” according to Maj Gen Thomas Deale. This second volume examines current topics in base defense like modern air support, counterintelligence enablers, commander responsibilities, the Afghanistan theater of operation, and projected technological advances. It also discusses the unique air base defense challenges found in the beginning (getting in) and ending of conflicts (getting out). This volume will serve to document and elevate the thinking on base defense, provide fodder for the policy and resource debate, and influence future generations of Air Force and joint leaders on the subject.

B-154



Discourse on Winning and Losing

Hammond, Grant, Editor

John Boyd’s initial focus was a 193-slide summation of military history in the “Patterns of Conflict” brief, and his effort soon expanded dramatically. His insights led him to introduce the theory of maneuver warfare as critical to military success in general. Among his series of briefings, the larger “Discourse” ends with his summation titled “Revelation.” To this is added a four-slide brief on “The Essence of Winning and Losing,” produced in 1995. It is an effort to compress all that he had learned into a simple, yet elegant and comprehensive, conclusion embedded in his concept of O-O-D-A Loops (observe, orient, decide, and act), what they mean, and why they are important.

B-151



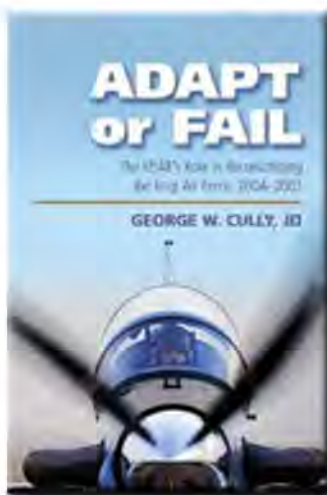
Brown Bag Lessons [Online Only]

The Magic of Bullet Writing

Jaren, Eric, Chief Master Sergeant, USAF, Retired

This book teaches how to write powerful bullets by unlocking secrets that have transformed organizational recognition and promotion processes and outcomes. These principles are taught from the opposite point of view—from the evaluation side. These methods help Airmen to articulate their strongest competencies and capabilities so promotion boards can fully assess their potential. The author also presents a fair and consistent process for evaluating recognition packages that provides feedback in mentoring and maintains integrity with promotion and award processes. This system not only has the potential to revolutionize how we approach bullets but also our entire merit-based system. It is universal in its application to any business and culture. The Air Force recognized the forcewide value and inculcated the concepts into the Senior Noncommissioned Officer Academy and Squadron Officer School curricula from 2011 to 2014.

B-150



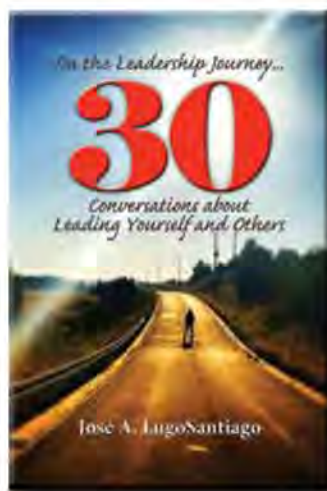
Adapt or Fail

The USAF's Role in Reconstituting the Iraqi Air Force, 2004–2007

Cully, George W., JD

The US Air Force has not had much experience in helping to create an air force for a partner nation. Usually the partner nation would already have an air force and the requisite infrastructure, only needing better airplanes, more training, or additional spare parts for the equipment already on hand. In Iraq, however, the Coalition Provisional Authority (CPA) officially disbanded the country's air force and the other branches of its armed forces. During the transitional period pending the formal return of sovereignty to the Iraqi people, the CPA re-created the national institutions deemed essential, including a defense force. A handful of USAF advisors deployed to help the Iraqis reconstitute their air force in January 2004. This book summarizes the essentials of that complex sequence of events. This is a story about the ingenuity, flexibility, and perseverance of the USAF Airman-advisors who deployed to Iraq and the Iraqi patriots they trained, mentored, and befriended.

Forthcoming, 2016.



On the Leadership Journey

30 Conversations about Leading Yourself and Others

LugoSantiago, CMSgt José A.

These conversations represent Chief LugoSantiago's boots-on-the-ground framework of leadership study and philosophy. Although tightly woven in timeless leadership tenets, this book is not about leadership acquired in the quietness of a classroom. What you find in his writing and leadership talks are proven answers in response to questions many people are asking about leading themselves and others. Regardless of your background—civilian, military, community organizer, or business leader—consider this book your personal leadership coach.

B-145



The Green Eyeshades of War

An Examination of Financial Management during War

Spencer, Gen Larry O., USAF, retired

Military financial management during war is put on trial. Fiscal performance and readiness are scrutinized during various conflicts: World War II, Vietnam, Operations Desert Shield / Storm, and Operations Enduring Freedom / Iraqi Freedom. Each of these conflicts is unique, yet each situation validated the critical need for sound fiscal management and controls. General Spencer demonstrates how the United States has repeatedly failed to learn from its past combat financial management experiences and then offers sound suggestions for remedying that recurring mistake.

August 2016 .

ISBN 978-1-58566-261-6 B-144



The Human Side of Cyber Conflict [Online Only]

Organizing, Training, and Equipping the Air Force Cyber Workforce

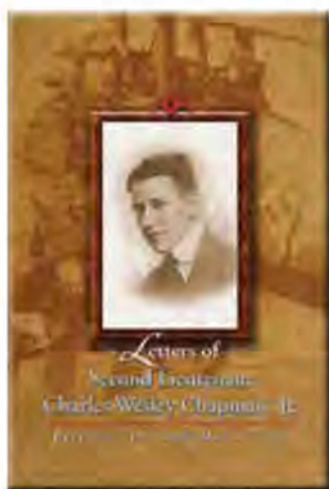
Yannakogeorgos, Panayotis A., and John P. Geis II, Colonel, USAF, retired (team leaders); Stephen Hagel, Colonel, USAF, retired; Chad Dacus; John L. Conway III, Colonel, USAF, retired; Adam B. Lowther; and Steven Drinnon, Lieutenant Colonel, USAF (contributors)

In response to a tasking from the Air Force chief of staff, the Air Force Research Institute conducted a review of how the service organizes, educates/trains, and equips its cyber workforce. The resulting findings were used to develop recommendations for how the Air Force should recruit, educate, train, and develop cyber operators from the time they are potential accessions until they become senior leaders in the enlisted and officer corps. This study's discoveries, analyses, and recommendations are aimed at guiding staff officers and senior leaders alike as they consider how to develop a future cyber workforce that supports both Air Force and US Cyber Command missions across the range of military operations.

June 2016. 260 pages.

ISBN 978-1-58566-259-3

B-143



Letters of Second Lieutenant Charles Wesley Chapman, Jr.

Chapman, Charles

In May 1918 Chapman was wearing the wings of an American aviator when he was shot down over German territory, becoming the first member of the famed 94th Aero Squadron to be killed in combat. Carl Chapman captured his impressions of flying and the Great War in the air in a series of letters and diary entries that comprise this volume. They and other supporting materials were originally compiled and printed in 1919 by his parents as a memorial to the fallen hero. What may be the only existing original copy of this book was presented to the US Air Force by the Lafayette Escadrille Memorial Foundation for safekeeping at the Air Force Historical Research Agency at Maxwell AFB. Readers will find Chapman to be a gifted storyteller with an unconventional perspective on the war. Within the censor's rules, he tried to tell the folks back home just how serious things were. At the same time, he shared news of his adventures as an innocent abroad and commentary on his progress as a fledgling Airman with grace and self-deprecating humor. His was a story of discovery.

April 2016. 160 pages.

ISBN 978-1-58566-255-5

B-141



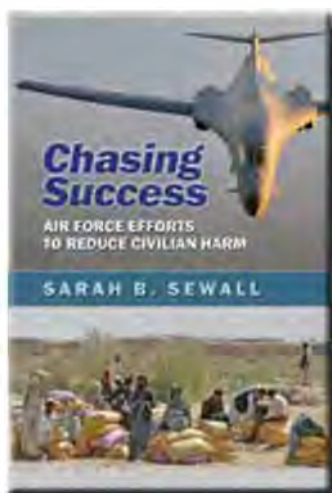
Unity of Mission

Civilian-Military Teams in War and Peace

Gundersen, Jon, and Melanne A. Civic, Esq., Editors

While much has been written about provincial reconstruction teams (PRT) and civilian-military teams in general, the subject has not been addressed in a single, comprehensive, integrated publication containing historical context and reflecting a broad diversity of views. It is the editors' intention that *Unity of Mission* will fill this gap. This book reviews past American involvement where civilian-military units have played a role—from the Philippines to Vietnam. The editors and authors examine what was and was not successful and why. They review in depth both American and allied PRTs in Iraq and Afghanistan and look further to operations in Africa and Latin America. In addition, they discuss the role of other key players from allies to the UN to nongovernmental organizations (NGO) and address "humanitarian space," state and nonstate actors, capacity building in corrupt societies, and more. Finally, the authors offer practical advice on how to work in US interagency environments and with international partners, NGOs, and—perhaps most importantly—the local population.

April 2016. 584 pages. ISBN 978-1-58566-247-0 B-139



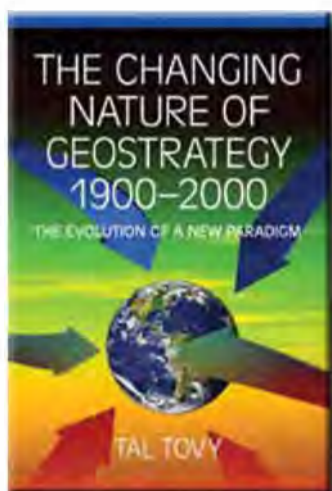
Chasing Success

Air Force Efforts to Reduce Civilian Harm

Sewall, Sarah B.

This author examines how international expectations intersected with the USAF's fight for autonomy and utility, explains how the USAF began to change, and asks how airpower—and the US military as a whole—might further deepen its efforts in limiting civilian casualties. Sewall expands perspectives on assessing and directing the use of airpower and encourages further work to maximize both mission accomplishment and civilian protection. The recent evolution of US airpower offers inspiring, if incomplete, evidence that the conduct of war can become more humane while remaining effective. Technology, adversaries, and the goals of armed conflict will continue to evolve, but the central challenge of humanizing war will endure. This volume is a first, tentative draft of a story that today's USAF has yet to finish.

March 2016. 240 pages. ISBN 978-1-58566-256-2 B-142



The Changing Nature of Geostrategy 1900–2000

The Evolution of a New Paradigm

Tovy, Tal

Military history is rife with examples of operational successes and failures stemming from the geographical environment. However, are twenty-first-century military operations also contingent on the geographical-physical dimension? Major technological advances during the last hundred years have led to a change in the concept of the physical line of operations. These developments led to the gradual contraction of this line, bringing about its near extinction or virtualization. Dr. Paul Springer observes in the book's foreword that "the notion that lines of communication might be made irrelevant to modern warfare revolutionized the concept of geostrategy and led to many modern American military practices, including the ability to base attack forces within the continental United States but still threaten enemy forces worldwide." He adds that "Dr. Tovy's work promises an interesting examination of whether the principles of geostrategy, which have governed human conflict for millennia, might have receded in importance or even ceased to matter at all."

December 2015. 148 pages. ISBN 978-1-58566-253-1 B-140



Future Trends and US National Security

Ackerman, John T., and Kathleen Mahoney-Norris

The study of the future is difficult. Political, social, economic, technological, environmental, and military trends create enormous pressures that drive the patterns and currents that shape the future. A variety of research methods—quantitative or qualitative—are necessary to expand what we know about the present to help us understand what the future may bring. The research theses attempt to develop future visions offering insights into long-range strategies, policies, and plans to augment and prepare US national security policy for a spectrum of uncertain futures. These perspectives further our ability to anticipate opportunities and threats and consider how to address them.

January 2015. 302 pages. ISBN 978-1-58566-242-5 B-137



Airpower in Afghanistan 2005–10

The Air Commanders' Perspectives

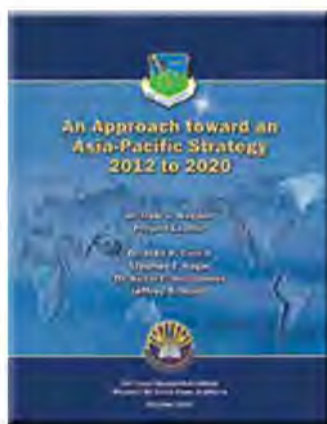
Henriksen, Lt Col Dag, Royal Norwegian Air Force, Editor

This compendium presents a candid and comprehensive commentary on what worked and what did not work during NATO air operations in Afghanistan. The key to the book's value is revealed in its subtitle. Editor Dag Henriksen has compiled the perspectives of nine general officers who served in top airpower leadership positions in Afghanistan during the 2005–10 time frame. Since most were retired at the time of their writing, they were free to call it as they saw it. The result is not a condemnation of any particular group or strategy but rather an objective review of lessons learned and recommendations for how joint and combined forces can better work together in a counterinsurgency or counterterrorism environment. Henriksen compiled this work while serving as an exchange officer to the US Air Force Research Institute (AFRI), Maxwell AFB, Alabama, in 2012.

November 2014. 330 pages. ISBN 978-1-58566-235-7 B-135

I am particularly pleased that this [book] is not merely a tactical evaluation but rather sees airpower in the context of broader political goals, military strategy, and operational planning. The employment of modern military force must be seen in light of the broader context of politics (legitimacy), international law (legality), and strategy as being but one of many sources of power to influence the situation at hand.

JAAP DE HOOP SCHEFFER, Minister of Foreign Affairs, The Netherlands, 2002–3
11th Secretary General of NATO, 2004–9



An Approach toward an Asia-Pacific Strategy 2012 to 2020

Hayden, Dale L. (project leader); John P. Geis II; Stephen J. Hagel; Kevin C. Holzimmer; and Jeffrey B. Hukill

In response to a request from USAF chief of staff Gen Norton A. Schwartz, the Air Force Research Institute conducted a study on airpower's role in achieving national strategic objectives in the Asia-Pacific region through the end of the decade. Based on their employment of three alternative paths, the researchers offer options and actionable recommendations for how Air Force leaders should organize, train, equip, and present forces for combatant commanders to accomplish the full range of missions that may emerge. Starting with the United States' established national interests, the paths identify what would serve its best and worst interests and what will most likely occur. The three paths create a possible range of future events and establish the construct for actionable recommendations that give the Air Force the greatest opportunity for success through this decade.

October 2014. 283 pages. ISBN 978-1-58566-243-2 B-138



US Interagency Regional Foreign Policy Implementation

A Survey of Current Practice and an Analysis of Options for Improvement

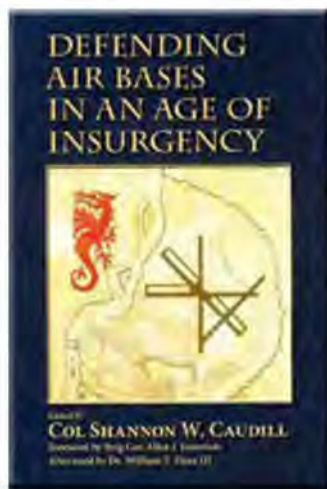
Pope, Col Robert S., USAF

This is a must-read for those involved in developing foreign policy or directing contingency and/or peacekeeping operations in the field. Colonel Pope applies his experience with the CIA and USCENTCOM, among other assignments, to inform his examination of the multiagency structure that plans, synchronizes, and executes US foreign policy at the regional level. He wades through the myriad of interagency structures to analyze current practices and how they are viewed internally by the agencies and individuals involved as well as how they appear to those most affected—our friends and foes in the respective regions. The need for process improvement is well illustrated through his analysis of how the interagency worked or did not work during contingency operations from Vietnam through the Iraq and Afghanistan wars. The author proposes a reform model and discusses how it can best be implemented.

June 2014. 214 pages. ISBN 978-1-58566-232-6 B-134

Superimposing a State-led regional interagency headquarters constitutes a form of shock therapy that could lead to questions about the role of traditional vehicles of US diplomacy such as State, the US Agency for International Development, our embassies, and other agencies.

TOM COUNTRYMAN, Assistant Secretary, Bureau of International Security and Nonproliferation, US State Department (2014)



Defending Air Bases in an Age of Insurgency Volume 1

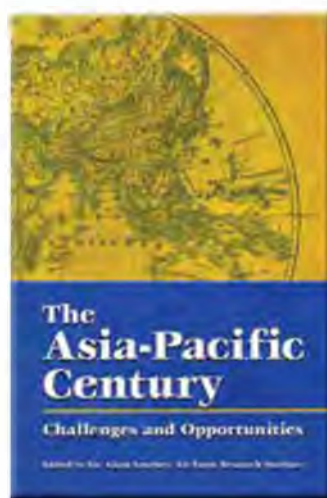
Caudill, Col Shannon W., USAF, Editor

This anthology discusses the converging operational issues of air base defense and counter-insurgency and explores the diverse challenges associated with defending air assets and joint personnel in a COIN environment. The authors are primarily Air Force officers from security forces, intelligence, and the Office of Special Investigations but also include a career academic, an Air Force pilot, and a Canadian air force officer. Lessons from Vietnam, Iraq, Afghanistan, and other conflicts are examined as they relate to securing air bases and sustaining air operations in a high-threat COIN environment. Capabilities, doctrine, tactics, and training needed in base defense operations are also reviewed. The authors not only convey approaches for building a strong, synchronized ground defense partnership with joint and combined forces but also for developing combat leaders with the depth of knowledge, tactical and operational skill sets, and COIN mind-set necessary to be effective in the modern asymmetric battlefield.

May 2014. 471 pages. ISBN 978-1-58566-241-8 B-136

Sound air base defense ensures that America and its allies can project combat airpower when and where it's needed against a broad range of threats. Leaders and Airmen of all backgrounds will benefit from the lessons in this book, which are based on our hard-won experiences in Iraq and Afghanistan.

GEN MIKE HOSTAGE, Air Combat Command, Commander; Former Commander, Air Forces Central (2014)

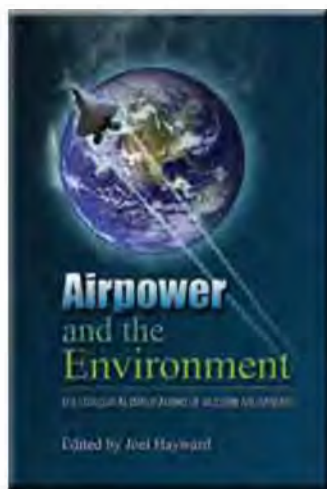


The Asia-Pacific Century Challenges and Opportunities

Lowther, Adam B., Editor

When Secretary of State Hillary Clinton published "America's Pacific Century" in *Foreign Policy* magazine in November 2011, the administration was clearly indicating to domestic and international audiences that the United States was beginning a pivot toward the Asia-Pacific. Clinton's article served as a spark for renewed interest in the nation's Asia-Pacific strategy and American interests in the region. This work looks to the future of the Asia-Pacific and examines a broad range of questions that focus on diplomatic, economic, and military challenges facing the region's key players, with a particular focus on their relevance to the US military.

March 2014. 270 pages. ISBN 978-1-58566-224-1 B-132



Airpower and the Environment

The Ecological Implications of Modern Air Warfare

Hayward, Joel, Editor

With insightful and innovative chapters written by experts in various disciplines, this book chronicles and analyzes the effects of airpower on the environment. It also highlights the fact that military forces now take far more care of the environment than ever before and that many militaries, even in less developed regions such as central Africa, have established strategies to minimize all harm and even to promote environmentally beneficial activities. Some military forces—utilizing the speed, reach, and intelligence-gathering capabilities of air assets—are providing highly positive contributions to conservation efforts and the maintenance and protection of ecological protection zones. The chronicling of these heartening stories brings richness and variety to this collection of essays.

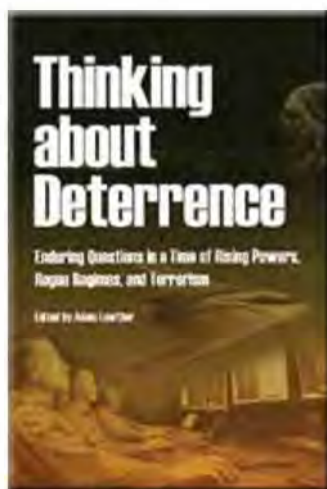
July 2013. 542 pages.

ISBN 978-1-58566-223-4

B-131

\$27.00

Library Journal and American Library Association selection for the 2013 Notable Government Documents list



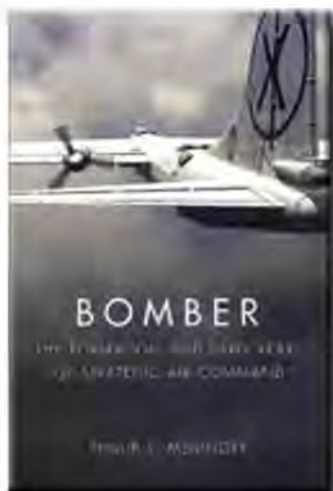
Thinking about Deterrence

Enduring Questions in a Time of Rising Powers, Rogue Regimes, and Terrorism

Lowther, Adam, Editor

To shed new light on deterrence—moving beyond the Cold War—contributors were asked to address specific questions about one or more of its many applications or characteristics. While their broad consensus was that deterrence will remain relevant throughout the twenty-first century, their perspectives diverge concerning the prospects of successfully deterring peer competitors, rogue regimes, and nonstate actors across all domains with conventional and nuclear forces. The central theme of this work is simple: deterrence remains relevant.

December 2013. 345 pages. ISBN 978-1-58566-227-2 B-133



Bomber

The Formation and Early Years of Strategic Air Command

Meilinger, Col Phillip S., USAFR, Retired

Bomber traces the development of Strategic Air Command in parallel with a fledgling independent Air Force amid the drama of the Cold War. In this well-documented history, noted historian and retired USAF colonel Phillip Meilinger captures not only lessons learned in strategy, leadership, and management of budgetary crises but also the personalities and politics that made the Air Force what it is today. More than 50 historic photos help bring this exciting story to life.

November 2012. 375 pages. ISBN 978-1-58566-219-7 B-127

A beautiful, historical-literary journey.
Défense et Sécurité Internationale, July/August 2014



On A Steel Horse I Ride

A History of the MH-53 Pave Low Helicopters in War and Peace

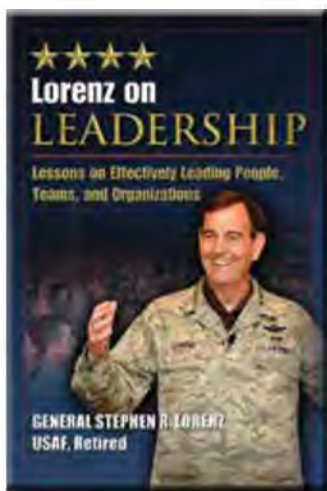
Whitcomb, Col Darrel D., USAFR, Retired

Born of necessity in the long war in Southeast Asia, the US Air Force fleet of 52 HH-53s and 20 CH-53s were developed for search and rescue and special operations missions. Recognizing the need for a night, all-weather aircraft, the Air Force modified nine of the helicopters under the Pave Low program. After Desert One, these aircraft—and eventually the entire remaining US Air Force fleet of HH- and CH-53s—were further modified, redesignated, and reassigned specifically to support special ops forces. The MH-53Js/53Ms subsequently flew in every major US military action until their inactivation in Iraq in September 2008. But the story is not just about the helicopters. It is also about the great Airmen who conceptualized, created, operated, maintained, loved, and, yes, sometimes cursed their Steel Horses. They and their great aircraft were the reality of Any Time, Any Place. This is their story, the men and machines, from first to last, presented with deepest appreciation and respect.

September 2012. 776 pages. ISBN 978-1-58566-220-3 B-128

I don't think it's an exaggeration to say that *On a Steel Horse I Ride* is worthy of a Pulitzer Prize based on the depth and breadth of its research, the quality of its writing and the importance of its subject. . . . It definitely sets the bar much higher for aviation authors.

WALTER J. BOYNE, *Aviation History*, July 2013



Lorenz on Leadership

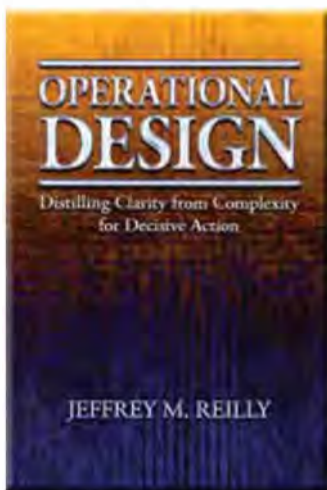
Lessons on Effectively Leading People, Teams, and Organizations

Lorenz, Gen Stephen R., USAF, Retired

If you want to learn about leadership, ask an experienced leader. Gen Stephen R. Lorenz, who retired as the commander of Air Education and Training Command, was always interested in leadership. He began writing about it while at the Air Force Academy and has now written numerous articles. He believes that today's leaders need to reflect on the principles that guide them. This practice gave him insights into his own leadership style and fed his knowledge about the foundations of leadership. He shares his knowledge in this compilation.

August 2012. 205 pages. ISBN 978-1-58566-222-7 B-130 Audio downloadable

One of our most popular downloads!



Operational Design

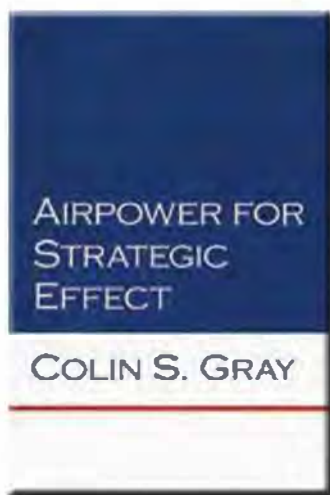
Distilling Clarity from Complexity for Decisive Action

Reilly, Jeffrey M.

This study provides a theoretical framework for understanding design and applying it to major combat operations as well as counterinsurgencies. It also examines the elements of operational design and shows how design facilitates decision making to reduce operational risks and increase the likelihood that a military plan survives first contact. Numerous historical and hypothetical examples show how operational design influences the outcome of military engagements.

August 2012. 150 pages. ISBN 978-1-58566-221-0 B-129

2012 CSAF Reading List selection



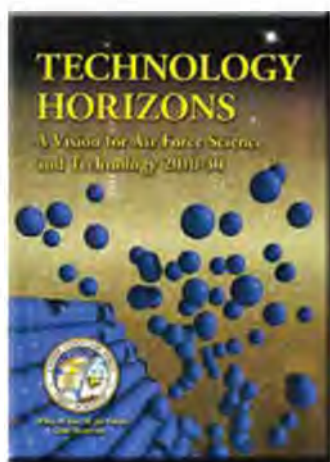
Airpower for Strategic Effect

Gray, Colin S.

Colin Gray takes an objective look—as only he can—at the use of airpower in warfare from World War I to the present. Airpower is not a strategy in and of itself but another tool in the strategist's arsenal. It is only useful for the effects it can deliver. Early proponents often did airpower a disservice by overpromising and raising false expectations. In the end, "Context rules!" according to the master strategist. This book is destined to become the seminal work on airpower strategy in the twenty-first century.

February 2012. 380 pages. ISBN 978- 1-58566-218-0 B-122

2011 CSAF Reading List selection



Technology Horizons

A Vision for Air Force Science and Technology 2010–30

Silkowski, Col Eric, USAF, Office of the US Air Force Chief Scientist

This research assesses what is credibly achievable from a technical perspective to give the Air Force capabilities suited for the strategic, technology, and budget environments of the next two decades. While visionary, the book's view is informed by the strategic context in which these technology-derived capabilities will be used. It has sought to envision not only US joint and allied opportunities for using technologies but also ways that adversary capabilities could be derived from them using entirely different concepts of operations or war-fighting constructs.

September 2011. 220 pages. ISBN 978- 1-58566-217-3 B-126



The Quest for Relevant Air Power

[Online Only]

Continental European Responses to the Air Power Challenges of the Post–Cold War Era

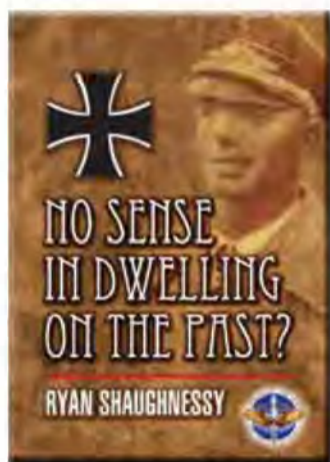
Anrig, (Reserve) Capt Christian F., Swiss Air Force

Air Vice-Marshal Tony Mason provides a more inclusive picture of Western airpower, the author reviews the responses of four very different Continental European air forces in the contemporary operating environment—those of France, Germany, the Netherlands, and Sweden. Former Air Vice-Marshal Tony Mason observes that the author's findings are “both

instructive and disheartening. . . . Anyone who is detailed to work alongside these air forces will benefit considerably from understanding how and why they do what they do. . . . Sadly, the author has only too clearly identified the national features which, with one or two exceptions, are likely to inhibit the creation of European air power in the foreseeable future.” September 2011. 426 pages. **ISBN 978-1-58566-216-6 B-125**

Anrig brings a unique and indispensable contribution to international awareness of twenty-first-century air power.

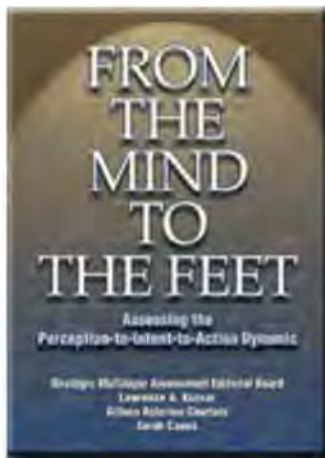
TONY MASON, Former Air Vice-Marshal, Royal Air Force



No Sense in Dwelling on the Past?

Shaughnessy, 2d Lt Ryan, USAF

This book examines the German air force monograph effort known as the Karlsruhe project, which involved the US Air Force employing former Luftwaffe generals to record the history of World War II from the German perspective. These monographs have proven useful to historians because of their high quality. The cooperative historical work was an inexpensive and unexpected way of cementing the critical West German–American military alliance, and both air forces came to value this aspect of the project more than the historical studies it produced. April 2011. 166 pages. **ISBN 978-1-58566-207-4 B-121**



From the Mind to the Feet

Assessing the Perception-to-Intent-to-Action Dynamic

Kuznar, Lawrence A., Allison Astorino-Courtois, and Sarah Canna

Twelve essays examine the concept of intent in defense, security, and foreign-policy contexts. They provide operational and academic perspectives on measuring the intent of adversaries, including nation-states and nonstate actors, and understanding the relationship of intent to behavior. The essays apply the insights and methods of multiple disciplines—anthropology, psychology, political science, neuroscience, and others—to the study of intent, for which there is currently no coherent body of research. To influence an adversary's behavior, we must understand the perception-to-intent-to-action dynamic that underlies his behavior.

February 2011. 194 pages. ISBN 978-1-58566-212-8 B-123

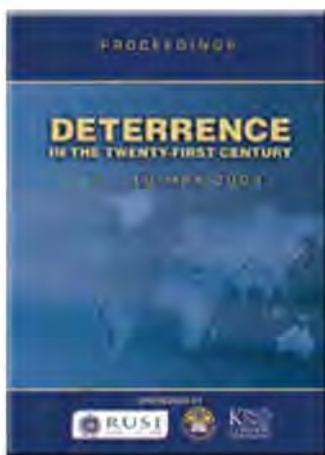


Air Force Strategy Study, 2020–2030 [Online Only]

Shaud, Gen John A., USAF, Retired

In November 2009, Gen Norton A. Schwartz, the Air Force chief of staff, tasked the Air Force Research Institute (AFRI) to answer the following question: What critical capabilities—implied by the combatant commanders—will the nation require of the Air Force by 2030? AFRI identified the nation's vital interests: commerce; secure energy supplies; freedom of action at sea, in space, in cyberspace, and in the skies; nuclear deterrence; and regional stability. The team analyzed four future world scenarios—a peer competitor, resurgent power, failed state, and jihadist insurgency—in relation to the nation's vital interests and the 12 Air Force core functions. The resulting analysis led to a synthesis of the core functions into five critical capabilities designed to meet the Air Force's strategic challenges in 2030: power projection; freedom of action in air, space, and cyberspace; global situational awareness; air diplomacy; and military support to civil authorities.

January 2011. 138 pages. ISBN 978-1-58566-210-4 B-124



Deterrence in the Twenty-First Century [Online Only]

Proceedings

Cain, Anthony C.; John Gearson; and Lee Willett, General Editors^{rs}

Sponsored by the Air Force Research Institute (AFRI) and the Royal United Services Institute, the conference was held in London on 18–19 May 2009 and focused on deterrence “to help understand and begin to develop policy frameworks that fit the current and emerging security context.” Assembling some of the best minds on deterrence, the conference afforded speakers an opportunity to “invigorate this essential tool for today's policy community.”

September 2010. 327 pages. ISBN 978-1-58566-202-9 B-118



A Companion for Aspirant Air Warriors

A Handbook for Personal Professional Study

Mets, David R.

This work traces the evolution of military airpower from its infancy through Operations Enduring Freedom and Iraqi Freedom. Designed to introduce company-grade Airmen to the ideas, people, and materiel associated with military airpower, this volume and its suggestions for further reading can aid a lifetime study of the knowledge and expertise that define the profession of an Airman. It discusses the role of airpower in each major conflict of the twentieth century, including the Cold War, and twenty-first-century operations in Iraq and Afghanistan. The author also examines topics such as diversity in American airpower, remotely piloted vehicles, and expeditionary airpower. A foldout timeline provides a helpful chronological overview of important airpower concepts, events, and texts.

May 2010. 181 pages. ISBN 978-1-58566-206-7 B-119



Following the Flag

An Air Force Officer Provides an Eyewitness View of Major Events and Policies during the Cold War

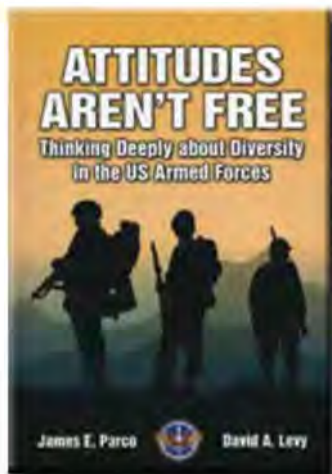
Leavitt, Lt Gen Lloyd R. "Dick," USAF, Retired

General Leavitt's career coincided with much of the period comprising the Cold War era. The path he took through the military provides a rare behind-the-scenes view of events that are in turn startling, unpredictable, sobering, and entertaining. These accounts weave together a unique chronicle of the decades from the mid-1940s until the early 1980s. He had a front seat not only to the people and incidents that made headlines but also to conversations and episodes to which only a few were privy. His accounts will enlarge the perception of this distinctive time span in our military-political history. General Leavitt's flying assignments included fighters, bombers, and the U-2. His final assignment was vice-commander in chief, Strategic Air Command.

March 2010. 660 pages. ISBN 978-1-58566-205-0 B-114

This is not the typical autobiography of a retired senior officer. During a career that spanned the era of the Cold War, Dick Leavitt was at the center of the action. This book should be read by both senior officers working policy and leadership issues as well as junior officers trying to make sense out of the changing world and the potential they have to help solve the outcome.

Gen RONALD R. FOGLEMAN, USAF, Retired, Former Chief of Staff

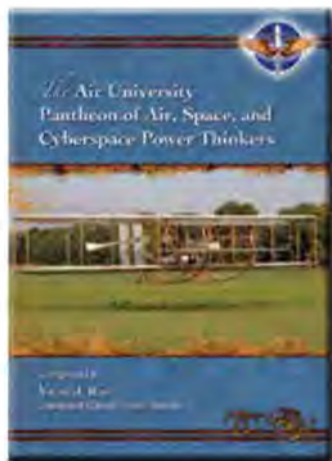


Attitudes Aren't Free

Thinking Deeply about Diversity in the US Armed Forces

Parco, James E., and David A. Levy

This collection of essays—most written for this volume—and speeches are on the themes of religious expression, homosexuality, gender, race, and ethics in the military. The contributors include activists, military members, academics, and other experts. *Attitudes Aren't Free* does not promote one view on these contentious issues but allows the writers to advocate for their diverse positions with thoughtful, well-reasoned arguments. This volume offers a framework for critical thought and candid discussions about important social policy issues in the military. February 2010. 560 pages. ISBN 978-1-58566-204-3 B-120

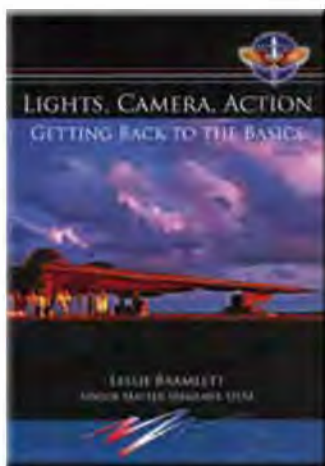


The Air University Pantheon of Air, Space, and Cyberspace Power Thinkers [Online Only]

Rast, Lt Col Vicki J., USAF, Retired

This compilation provides a framework for understanding the evolution of Air University (AU) and its powerful legacy in offering a forum for academic discourse. AU has been graced with individuals possessing imagination and keen intellect and the fortitude to bring their vision to reality, contributing to dramatic changes in the employment of airpower. In part because AU serves as a forum for innovative thought and discussion, the United States continues to be the preeminent air, space, and cyberspace power.

August 2009. 126 pages. ISBN 978-1-58566-192-3 B-117



Lights, Camera, Action

Getting Back to the Basics

Bramlett, SMSgt Leslie, USAF

SMSgt Leslie Bramlett calls the USAF enlisted corps to return to the basics of leadership, traditions, and discipline taught in basic military training (BMT). He delineates how the Air Force's senior corps of noncommissioned officers recognizes discipline problems among the enlisted Airmen that have caused degradation in mission support and adherence to standards. Sergeant Bramlett identifies how failure to maintain the attitudes and behaviors learned in BMT has contributed to these problems. He argues that Airmen leave basic training and then enter the "real" Air Force and find a culture that does not reinforce the lessons taught in BMT. The author constructs a case for reinvigorating these lessons to help remedy this situation. February 2009. 52 pages. **ISBN 978-1-58566-191-6 B-116**



In Service to the Nation

Air Force Research Institute Strategic Concept for 2018–2023

Shaud, Gen John A., USAF, Retired

This study provides the Air Force Research Institute's perspective on what the United States Air Force should look like in 2018–23. It offers a detailed discussion of the attributes of the Air Force today in order to develop a framework for understanding how the USAF will serve the nation in the future. The USAF will remain the world's preeminent air force, prepared to fly, fight, and win in service to the nation.

January 2009. 124 pages. **ISBN 978-1-58566-189-3 B-115**



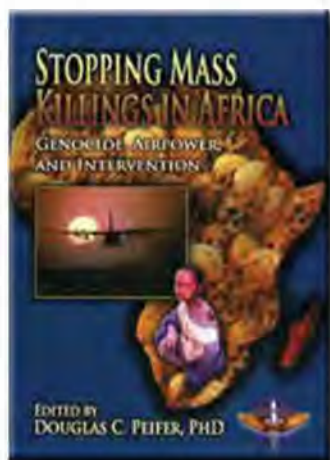
Engineering the Space Age

A Rocket Scientist Remembers

Brulle, Lt Col Robert V., USAF, Retired

Few people have experienced as much air and space history as Bob Brulle, and fewer still possess his meticulous recall and research skills. The P-47 fighter pilot turned engineer, inventor, educator, and author found himself immersed in the Cold War race to the moon, developing cutting-edge technology, instructing future astronauts in aerodynamics and orbital mechanics, perfecting high-performance fighter aircraft to meet the Soviet challenge, overseeing the procurement of new weapon systems, and exploring alternative energy sources. Here he shares his unique personal insights into the triumphs and tragedies of one of the most exciting eras in American history.

July 2008. 290 pages. ISBN 978-1-58566-184-8 B-113



Stopping Mass Killings in Africa

Genocide, Airpower, and Intervention

Peifer, Douglas C., Editor

This compendium of case studies seeks to describe the best uses of military power, particularly airpower, in response to genocide. The writers examine recent instances of genocide in Somalia, Rwanda, and Côte d'Ivoire to draw out useful generalizations concerning its nature, international reactions to it, and effective responses to its occurrence and possible manifestation. July 2008. 188 pages.

ISBN 978-1-58566-182-4 B-112 Audio downloadable



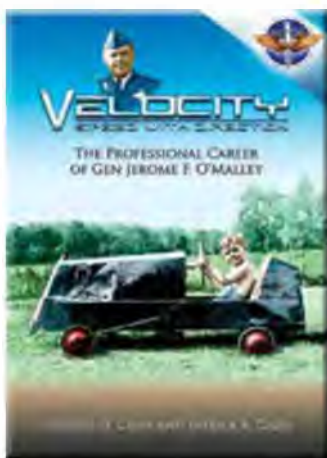
Democracy and Deterrence

Foundations for an Enduring World Peace

Sharp, Walter Gary, Sr.

Dr. Sharp argues that two fundamental strategies are necessary to create lasting peace in the world: facilitating the spread of democracy and maintaining comprehensive deterrence mechanisms targeted at individual world leaders. Surveying conventional approaches to avoiding war, he presents evidence to validate the democratic peace principle (the notion that democracies are inherently more peaceful than nondemocracies) and the incentive theory of war avoidance formulated by John Norton Moore. He also proposes a mathematical formula that can be used to predict the probability of peace for a given nation. Comprehensive tables collate data from multiple sources on freedom and human development in nations around the world. May 2008. 290 pages.

ISBN 978-1-58566-180-0 B-111



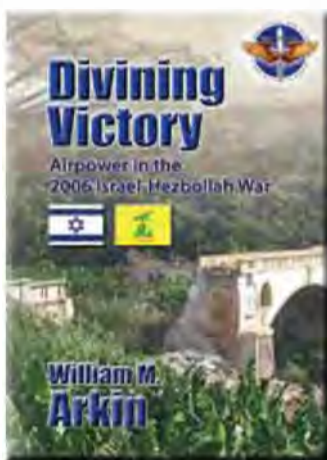
Velocity: Speed with Direction

The Professional Career of Gen Jerome F. O'Malley

Casey, Aloysius G., and Patrick A. Casey

This storyline addresses the only question mark on O'Malley's career—the Lavelle raids of February 1972. Using appropriate Nixon White House audio recordings and top secret messages (sent by the Joint Chiefs of Staff to Vietnam) acquired through the Freedom of Information Act, Aloysius and Casey rescue from character assassination the reputation not only of Jerry O'Malley but also of Gen John D. Lavelle. They reveal the real culprit in the matter—the Nixon White House.

September 2007. 294 pages. ISBN 978-1-58566-169-5 B-110



Divining Victory

Airpower in the 2006 Israel-Hezbollah War

Arkin, William M.

The 2006 Israel-Hezbollah War may well be a paradigm for twenty-first-century warfare. The technically sophisticated Israel Defense Forces (IDF) were confronted by a much smaller but well-armed and highly unconventional "state within a state" opponent. Israel launched an intensive 34-minute air assault designed to essentially disarm Hezbollah; it did not. Hezbollah's interspersed within the civilian population presented major targeting problems for the IDF, setting up condemnation of Israel's "overreaction" in the international press. Airpower became the big loser in the press and after-action reports. *Divining Victory* examines the decisions, effects, and lessons learned for those who must confront similar enemies.

August 2007. 326 pages.

ISBN 978-1-58566-168-8

B-109



Vantage Points

Perspectives on Airpower and the Profession of Arms

Westenhoff, Col Charles M., USAF, Retired; Col Michael D. Davis, USAF; Daniel R. Mortensen; and Col John L. Conway, USAF, Retired, Compilers

The aim of this pocket-size and shorter version of *Military Airpower: A Revised Digest of Airpower Opinions and Thoughts* is to supply Airmen with useful thought that might help them meet their known responsibilities and the unknown challenges their service will bring.

August 2007. 68 pages. ISBN 978-1-58566-165-7 B-108



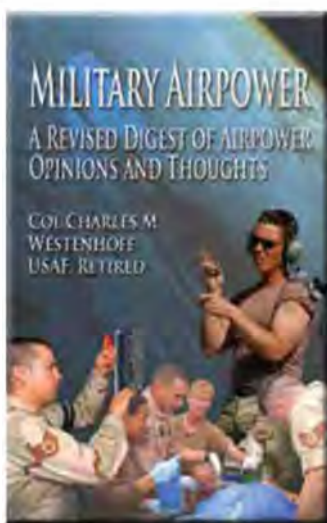
Command in Air War

Centralized versus Decentralized Control of Combat Airpower

Kometer, Lt Col Michael W., USAF

The validity of the tenet "centralized control and decentralized execution" is examined given the technological advances in the information age. Fascinating scenarios from recent operations, set in the context of a "complex air operations system," show the dilemmas presented by participants' increased access to information—and the resulting consequences of their decisions. With the uncertainty of war and the blending of diverse organizations, the author illustrates that commanders must balance empowerment with accountability by developing depth in command relationships among their subordinates.

June 2007. 345 pages. ISBN 978-1-58566-164-3 B-107



Military Airpower

A Revised Digest of Airpower Opinions and Thoughts

Westenhoff, Col Charles M., USAF, Retired, Compiler

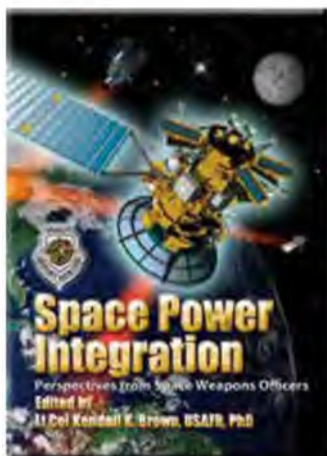
This collection of quotations supplies Airmen with useful thoughts to help them meet their responsibilities and challenges. The quotations are arranged by subject matter to show different views of each topic.

March 2007. 277 pages.

ISBN 978-1-58566-163-3

B-106

2009 CSAF Reading List selection



Space Power Integration

Perspectives from Space Weapons Officers

Brown, Lt Col Kendall K., USAFR, Editor

This book is the culmination of Gen Lance Lord's vision to initiate vigorous discussion about how best to integrate space to support the war fighter. From the first Space Weapons Officer Air and Space Integration Conference in 2005 come nine research papers that form the basis for this publication. The papers address issues across a spectrum of air- and space-integration topics at the operational level of war.

December 2006. 234 pages. ISBN 978-1-58566-158-9 B-105

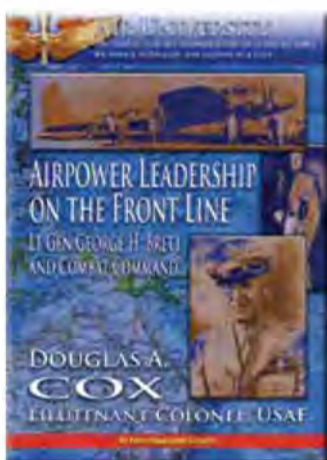


Making Twenty-First-Century Strategy **An Introduction to Modern National Security Processes and Problems**

Drew, Dennis M., and Donald M. Snow

This work defines national security strategy, its objectives, the problems it confronts, and the influences that constrain and facilitate its development and implementation in a post–Cold War, post-9/11 environment.

November 2006. 290 pages. ISBN 978-1-58566-160-2 B-104



Airpower Leadership on the Front Line

Lt Gen George H. Brett and Combat Command

Cox, Lt Col Douglas A., USAF

The command of Lt Gen George H. Brett in his wartime assignments is reviewed. The author looks at the reasons why Brett was not promoted to full general even though he began his wartime service second in command to Gen Henry “Hap” Arnold. His examination not only reveals Brett’s outstanding leadership and his limitations but also delves into the interplay of broader factors that ultimately affected General Brett’s career. Readers gain insight toward becoming an effective commander and leader.

September 2006. 114 pages. ISBN 978-1-58566-157-2 B-103

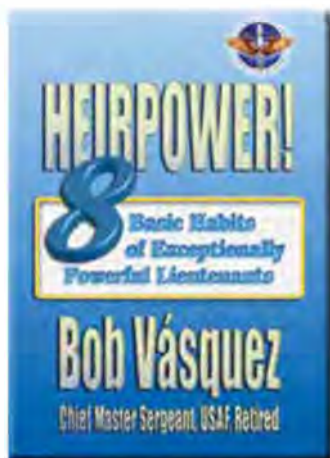


Combat Search and Rescue in Desert Storm

Whitcomb, Col Darrel D., USAFR, Retired

Budgetary, political, and organizational changes left the USAF unprepared for the combat search and rescue (CSAR) mission going into Desert Storm. Colonel Whitcomb relates his and others’ experiences from CSAR in Southeast Asia and examines the organization that was established to provide CSAR services in the Iraq-Kuwait theater of operations. He traces each aircraft incident from beginning to end along with the tactical and sometimes strategic implications. Scores of interviews, e-mails, and published works provide a compendium of lessons learned and recommendations gleaned from those who flew the missions and made the decisions in Iraq.

September 2006. 328 pages. ISBN 978-1-58566-153-4 B-102



Heirpower! [Online Only]

Eight Basic Habits of Exceptionally Powerful Lieutenants

Vásquez, CMSgt Bob, USAF, Retired

An Air Force veteran of more than 30 years, Chief Vásquez shares the views of the enlisted force in a powerful, humorous, anecdotal way that will educate and entertain. His eight habits will empower young officers to become “exceptionally powerful lieutenants”!

June 2006. 93 pages. ISBN 978-1-58566-154-1 B-100 Audio downloadable

Heirpower! is not just for new lieutenants, but for anyone in a position of leadership.

ROBERT D. GAYLON, Chief Master Sergeant of the Air Force, Retired



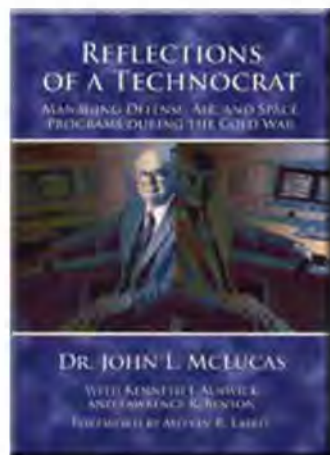
Bombing the European Axis Powers

A Historical Digest of the Combined Bomber Offensive, 1939–1945

Davis, Richard G.

The author provides a detailed chronological narrative of the Anglo-American strategic bomber offensive against Hitler's Germany, his European allies, and German-occupied territory. Several in-depth discussions cover such topics as the evacuation of Sicily, Allied airpower and the Holocaust, the bombing of Dresden, and overall Anglo-American policy concerning city-area bombing. An included CD-ROM contains a spreadsheet key and seven Excel worksheets detailing bombing data from 1939 through 1945.

April 2006. 610 pages. ISBN 978-1-58566-148-0 B-99



Reflections of a Technocrat

Managing Defense, Air, and Space Programs during the Cold War

McLucas, John L., with Kenneth J. Alnwick and Lawrence R. Benson;

Foreword by Melvin R. Laird

In documenting his wide-ranging career in science and technology, Dr. McLucas offers new information on and insights into the history of key private-sector and government agencies during the Cold War era—most prominently the US Air Force. The coauthors completed this book after Dr. McLucas's death in December 2002.

August 2006. 390 pages. ISBN 978-1-58566-156-5 B-101



Into the Unknown Together

The DOD, NASA, and Early Spaceflight

Erickson, Col Mark, USAF

The use of space exploration as a tool to secure international prestige and national pride is examined as part of the Cold War struggle with the Soviet Union during the Eisenhower, Kennedy, and Johnson administrations. The author looks at the creation of the National Aeronautical and Space Administration (NASA), the evolving NASA-DOD relationship, and the larger context in which this relationship was forged. He focuses on the human-spaceflight projects—Mercury, Gemini, Apollo, Dynasoar, and the Manned Orbiting Laboratory—by characterizing the geopolitical, domestic political, and bureaucratic environments in which decisions concerning these projects were made.

September 2005. 665 pages. ISBN 978-1-58566-140-4 B-98



A War of Their Own

Bombers over the Southwest Pacific

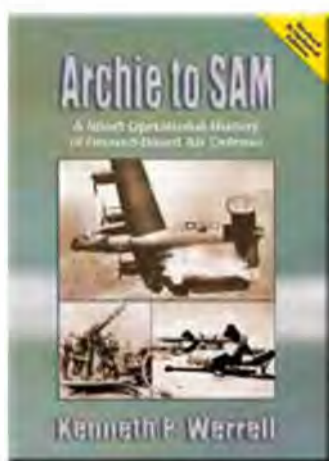
Rodman, Capt Matthew K., USAF

This work reviews the distinctive nature of Fifth Air Force's role in the air war over the Southwest Pacific Area during World War II. Especially notable is Gen George Kenney's innovative use of light attack aircraft as well as both medium and heavy bombardment aircraft, characterized by theater-specific tactics, ordnance, and structural modifications. The author also considers the free exchange of aircraft and missions in the Southwest Pacific—a hallmark of that theater—in terms of the conflict between doctrine and tactics that underlay Fifth Air Force's relationship to the prewar Army Air Corps and the postwar Air Force. Also highlighted is the relevance of the Fifth's experiences to modern airpower.

April 2005. 182 pages.

ISBN 978-1-58566-135-0

B-96



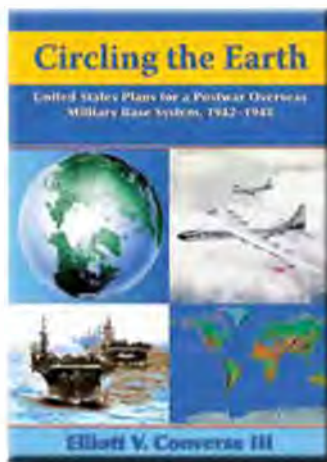
Archie to SAM

A Short Operational History of Ground-Based Air Defense

Werrell, Kenneth P.

Archie to SAM is an update to Kenneth Werrell's *Archie, Flak, AAA, and SAM*, published in 1988. He continues to study ground-based air defense systems, showing new events that include the Gulf War. In rescuing the topic of ground-based air defense systems from long neglect, Werrell delves into subjects such as tactics, leadership, change, and innovation.

August 2005. Second edition. 310 pages. ISBN 978-1-58566-136-7 B-28



Circling the Earth

United States Plans for a Postwar Overseas Military Base System, 1942-1948

Converse, Elliott V., III

In December 1942, barely a year after the United States had entered World War II, the American military establishment was already planning a postwar overseas base network. Although initially designed to support an international police force, the plans increasingly assumed a national character as the Grand Alliance dissolved into the confrontations of the Cold War. Dr. Converse illustrates how planners went about their work and analyzes the numerous factors influencing the nature, extent, and location of the projected base system. These included requirements for postwar US physical and economic security, rapidly changing technology, interservice rivalries, civil-military conflicts, and reactions by other nations to the prospect of American bases near or on their soil.

August 2005. 265 pages. ISBN 978-1-58566-141-1 B-97



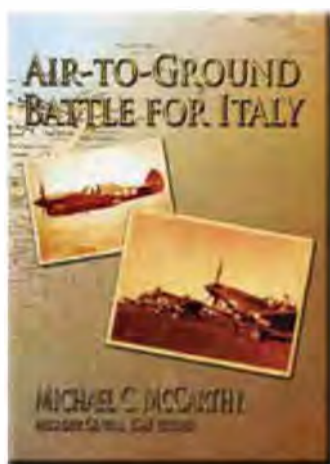
Creech Blue

Gen Bill Creech and the Reformation of the Tactical Air Forces, 1978-1984

Slife, Lt Col James C., USAF

The influence of Gen Wilbur L. "Bill" Creech—a leader, visionary, warrior, and mentor—is chronicled in the areas of equipment and tactics, training, organization, and leader development. This study serves both to explain the context of a turbulent time in our Air Force's history and to reveal where tomorrow's Airmen may find answers to some of the difficult challenges facing them today. Slife addresses such controversial topics as the development of the Army's AirLand Battle doctrine and what it meant to Airmen. Moreover, he describes what historians will surely see in years to come as the revolutionary developments of the late 1970s/early 1980s and General Creech's central role.

October 2004. 162 pages. ISBN 978-1-58566-125-1 B-95

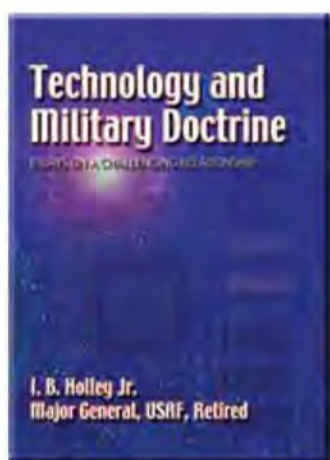


Air-to-Ground Battle for Italy

McCarthy, Brig Gen Michael C., USAF, Retired

General McCarthy wrote this World War II memoir from his perspective as a fighter pilot who flew two years with one squadron, first in the P-40 and then in the P-47. McCarthy progressed to major and acting squadron commander during the war, beginning training after Pearl Harbor in the Army Aviation Cadet program and continuing with P-40 training in Florida. With some of his classmates, he traveled through equatorial Africa, ferrying P-40s to Cairo and Cape Bon to join the 57th Fighter Group. This three-part story—set primarily in Italy—captures fears, uncertainties, and accomplishments of ordinary Americans involved in extraordinary events.

August 2004. 116 pages. ISBN 978- 1-58566-128-2 B-94



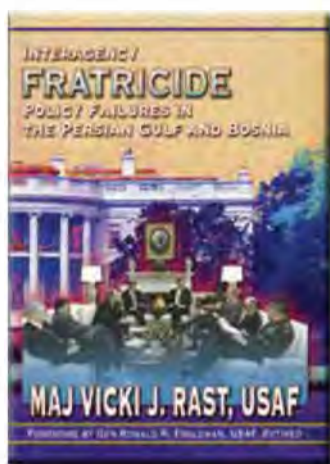
Technology and Military Doctrine

Essays on a Challenging Relationship

Holley, Maj Gen I. B., Jr., USAF, Retired

This compilation of essays includes copies of speeches and articles that Dr. Holley delivered and wrote throughout his career as a military officer and scholar of military history and thought. In these essays, Holley primarily addresses the need for the Air Force to adapt its doctrine, and the processes of formulating and disseminating that guidance, as the technology of air and space warfare improves. His message throughout is that the process of how the Air Force develops its doctrine and preaches and teaches that doctrine to its Airmen is as important as its content—or perhaps more so.

August 2004. 176 pages. ISBN 978- 1-58566- 127-5 B-93



Interagency Fratricide

Policy Failures in the Persian Gulf and Bosnia

Rast, Maj Vicki J., USAF

The US government promulgates national security policy through a complex, recursive negotiation process across multiple interagency players. When coercive intervention requires the use of force, it is imperative to understand the ways in which interagency conflict influences policies regarding conflict termination and withdrawal. Drawing upon the experiences of 135 interagency participants, the author examines the processes for developing US policy on conflict termination for the second Persian Gulf War (1990–91) and the Bosnia Conflict (1993–95). June 2004. 466 pages. ISBN 978- 1-58566-126-8 B-92



A Need to Know

The Role of Air Force Reconnaissance in War Planning, 1945–1953

Farquhar, Lt Col John Thomas, USAF, Retired

More than a tool of policy makers to gather intelligence, Air Force reconnaissance efforts shaped early Cold War doctrine and war planning. Dr. Farquhar argues that a lack of information on Soviet strategic capabilities dominated the organization, operational planning, and equipment of the postwar Air Force. To support his assertion, Farquhar traces the development of aerial reconnaissance from the first balloon ascents through early Cold War reconnaissance of the Soviet Union. The book serves as an excellent reference for air doctrine, intelligence, and electronic warfare in the formative years of the Cold War.

February 2004. 233 pages. ISBN 978-1-58566-124-4 B-34



Airpower

Myths and Facts

Meilinger, Col Phillip S., USAF, Retired

Since the US Army bought its first "aeroplane" in 1909, debates have raged over the utility, effectiveness, efficiency, legality, and even the morality of airpower and strategic bombing. Unfortunately, much of this controversy has been colored by accusations, misconceptions, in-accuracies, myths, and simple untruths. Colonel Meilinger raises points and counterpoints that attempt to clear some of the fog that obscures the subject, thus allowing more informed de-bate on the real issues concerning airpower and strategic bombing and giving our political and military leaders a better basis on which to form decisions in future conflicts.

December 2003. 147 pages.

ISBN 978-1-58566-162-6

B-91



A-10s over Kosovo

The Victory of Airpower over a Fielded Army as Told by the Airmen Who Fought in Operation Allied Force

Haave, Col Christopher E., USAF, and Lt Col Phil M. Haun, USAF

The NATO-led Operation Allied Force was fought in 1999 to stop Serb atrocities against ethnic Albanians in Kosovo. This war, as distinguished military historian John Keegan notes, "marked a real turning point . . . and proved that a war can be won by airpower alone." The authors have organized firsthand accounts of some of the people who provided that airpower—the members of the 40th Expeditionary Operations Group.

December 2003. 336 pages. ISBN 978-1-58566-122-0 B-90



Commanding an Air Force Squadron in the Twenty-First Century

A Practical Guide of Tips and Techniques for Today's Squadron Commander

Smith, Lt Col Jeffrey E., USAF

Lt Col Jeffrey Smith updates the earlier release of Col Timothy T. Timmons's *Commanding an Air Force Squadron* (1993). In this book, which includes a foreword by Gen John P. Jumper and an introduction by Colonel Timmons (USAF, retired), Colonel Smith relies on the vast "insights, experiences, and recommendations" of former and current commanders to identify the attributes of a successful commander at multiple levels. He identifies some issues commanders face regardless of the level of command, including personnel counseling, commander's calls, money management, and the roles of spouses and families.

August 2003. 194 pages. ISBN 978- 1-58566-119-0 B-9 Audio downloadable



Military Aviation

Ader, Clément; Edited and translated by Lee B. Kennett

Ader's *L'Aviation militaire*, notes Kennett, is a "remarkable treatise on military aircraft and their use ... even before the first warplane took to the air." First published in 1909, this work is presented here in its first English translation. Ader presents his ideas about flight formed in the last decade of the nineteenth century, including the development of airplanes based on creatures in nature. He details the design of bases for aircraft, runway construction, naval airplanes, vertical artillery, air lanes, schools of aviation, and strategy for waging war in the air. The original is reproduced in its entirety, with explanatory and

bibliographical notes from Kennett. July 2003. 112 pages. ISBN 978- 1-58566-118-3 B-11

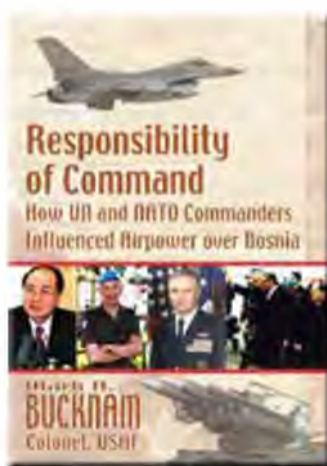


Airpower in Three Wars

Momyer, Gen William W., USAF, Retired

This reprint of General Momyer's book, originally published in 1978, offers the general's observations—many from personal experience—of airpower in World War II, Korea, and Vietnam. It is an account of the evolution of practical airpower through strategies and campaigns. The book examines strategy, command and control of airpower prior to and during the Vietnam War, air superiority, interdiction in all three wars, airpower and the ground battle, and experiences in using airpower to blunt an attack.

April 2003. 426 pages. ISBN 978-1-58566-116-9 B-89



Responsibility of Command

How UN and NATO Commanders Influenced Airpower over Bosnia

Bucknam, Col Mark A., USAF

This study examines the role that theater-level commanders in the UN and NATO played in influencing airpower over Bosnia between April 1993 and September 1995. Presented in a chronological order, it offers a coherent account of Operation Deny Flight. The author challenges popular assumptions about military leaders, their motivations, and the state of civil-military relations during the Bosnian conflict.

March 2003. 428 pages. ISBN 978-1-58566-115-2 B-88



Air Warfare

Sherman, William C., with introduction by Col Wray R. Johnson

Since this study was initially published in 1926, designers, engineers, pilots, and students of aviation have had an opportunity to discern its merits and to analyze its shortcomings. Still, in that historic year—with the public reeling from the outcome of the Scopes Monkey Trial, Charles Lindbergh's solo transcontinental flight, and the Billy Mitchell trial and verdict—Sherman advanced a need for aerial navigation and cogently spoke to the merits of flying. Coming at a time when flying was in its infancy, the book ushered in a new era in airpower historiography.

March 2002. Reprint edition. 306 pages. ISBN 978-1-58566-104-6 B-86



American Airpower Comes of Age

Volume 1, Gen Henry H. "Hap" Arnold's World War II Diaries

Huston, Maj Gen John W., USAF, Retired, Editor

Gen Henry H. "Hap" Arnold, US Army Air Forces chief of staff during World War II, maintained diaries for his overseas journeys throughout the conflict. He recorded the comments of historic Allied leaders from meetings he participated in, adding his own thoughts and wartime experiences. Volume 1 provides a biography of Hap Arnold, introduces the contextual setting for each of his first five trips, and presents the text of the associated diaries.

January 2002. 592 pages.

ISBN 978-1-58566-093-3

B-84



American Airpower Comes of Age

Volume 2, Gen Henry H. "Hap" Arnold's World War II Diaries

Huston, Maj Gen John W., USAF, Retired, Editor

Encompassing his final seven trips, this volume continues with General Arnold's account of his overseas journeys in the diaries he kept during World War II. The editor notes that "these journals represent [Arnold's] immediate thoughts and spontaneous reactions, ... reflective of [his] character, strengths, and shortcomings." He adds, "No other American senior officer has left such an extensive, revealing, and contemporary account of [this war]."

January 2002. 458 pages.

ISBN 978-1-58566-094-0

B-85



Sharing Success—Owning Failure

Preparing to Command in the Twenty-First Century Air Force

Goldfein, Col David L., USAF*

"It is from studying our failures that we learn, grow, and improve as officers and leaders," states Colonel Goldfein. To aid and inspire newly selected squadron commanders, he discusses themes central to a successful command tour and poses questions to spark an officer's imagination. He also shares captivating vignettes of both successes and failures through stories relayed by squadron commanders.

*General Goldfein is the current chief of staff of the Air Force.

October 2001. 130 pages.

ISBN 978-1-58566-098-8

B-81 Audio downloadable



Combat Operations C³I

Fundamentals and Interactions

Orr, Maj George E., USAF

Following an introduction of basic definitions, functions, and processes of command, control, communications, and intelligence (C³I), the author develops a conceptual model of the combat operations process based on the American approach to war. The study investigates the stochastic nature of combat operations and develops a guide to effective command. It concludes that a distributed C³I architecture designed to exploit the unpredictability of combat is best suited to the true nature of combat and the strengths of American fighting units. (Air University Press originally published this book in 1983 as Research Report No. AU-ARI-82-5.) August 2001. 122 pages. ISBN 978-1-58566-102-2 B-82



Aerospace Power in the Twenty-First Century

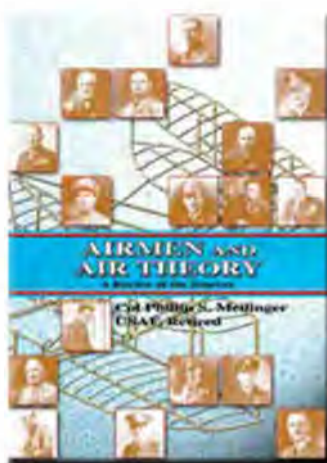
A Basic Primer

Chun, Clayton K. S.

Readers are exposed to aerospace capabilities, theories, and applications; elements of operational planning; and key issues in the twenty-first century and beyond. After introducing basic definitions and concepts, Chun uses case studies of both successful and unsuccessful applications of aerospace power to illustrate its functions and abilities. Designed primarily for readers new to the subject, this text also serves as a useful source of information about the strengths and weaknesses of air and space forces. July 2001. 356 pages.

ISBN 978-1-58566-091-9

B-80



Airmen and Air Theory

A Review of the Sources

Meilinger, Col Phillip S., USAF, Retired

Meilinger's intent is to "spin some gold, or at least some silver or bronze, to help overloaded researchers get started in their quest for good sources on airpower." A survey of prominent US Airmen in part one's "Biographies and Autobiographies" combines with part two's "Historiography of Airpower Theory and Doctrine" to provide researchers with valuable sources on the people who have shaped airpower and airpower theory.

2001. 176 pages. ISBN 978-1-58566-101-5 B-13



Introduction to the United States Air Force

Saltzman, Capt B. Chance, USAF, and Thomas R. Searle, Editors

Fascinating stories of the people, equipment, and operations of the Air Force help to promote understanding of how it became the force it is today. Organized chronologically, the first part groups significant operations and personalities into critical periods during the USAF's development. The second part covers air- and spacecraft by type, showing their advancement over time. Five appendices list the senior leaders of the early air forces, Air Force chiefs of staff, chief master sergeants of the Air Force, fighter aces, and Medal of Honor recipients.

2001. Revised edition. 190 pages. ISBN 978-1-58566-092-6 B-79



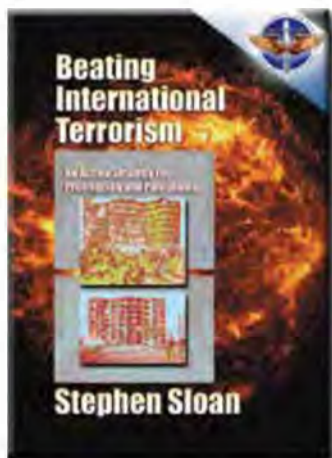
The World Wide Military Command and Control System

Evolution and Effectiveness

Pearson, David E.

In this comprehensive analysis of the World Wide Military Command and Control System (WWMCCS), the author takes three distinct themes—organization, technology, and ideology—and examines how each contributed to the development of WWMCCS. He explains how and why it developed the way it did, focusing on the system's computers and communications networks and using a number of illustrations. An interview with the chief technical officer of the system that replaced WWMCCS brings a contemporary flavor

to the study. June 2000. 414 pages. ISBN 978-1-58566-078-0 B-76



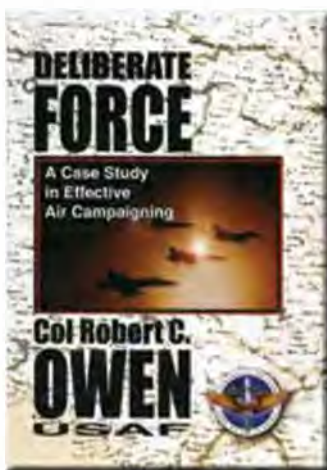
Beating International Terrorism

An Action Strategy for Preemption and Punishment

Sloan, Stephen

Dr. Sloan writes this book primarily for senior- and middle-level officials and officers who will be responsible for conducting war against terrorism. He examines several definitional problems, analyzes the factors involved in developing approaches to counter and preempt terrorism, and looks at the policy issues regarding the use of force.

April 2000. Revised edition. 110 pages. ISBN 978-1-58566-079-7 B-3



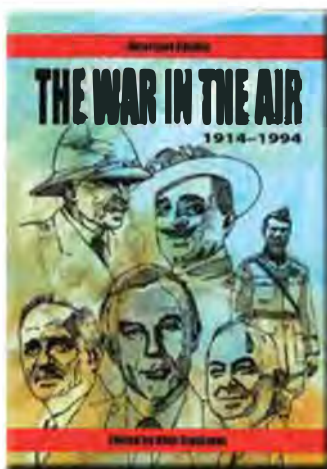
Deliberate Force

A Case Study in Effective Air Campaigning: Final Report of the Air University Balkans Air Campaign Study

Owen, Col Robert C., USAF, Editor

Conducted between 30 August and 20 September 1995, Operation Deliberate Force was the North Atlantic Treaty Organization's air campaign to advance the cause of peace in the Balkans region. This study examines how and with what considerations the planners and executors of Deliberate Force linked military operations with the goals they were charged to attain. In 16 essays, 11 contributors discuss the geopolitical, sociological, diplomatic, technological, and operational factors that shaped the characteristics and outcome of Deliberate Force and, in so doing, identify the implications of this air campaign for future conflicts.

January 2000. 560 pages. ISBN 978-1-58566-076-6 B-74



The War in the Air, 1914-1994

Stephens, Alan, Editor

This book contains the proceedings of a conference held by the Royal Australian Air Force (RAAF) in Canberra in 1994. Since its publication by the RAAF's Air Power Studies Centre that year, the book has become a widely used reference at universities, military academies, and other educational institutions around the world. This American edition is a somewhat short-ened version with minor editorial changes.

2000. 438 pages. ISBN 978-1-58566-087-2 B-78



Beyond the Paths of Heaven

The Emergence of Space Power Thought: A Comprehensive Anthology of Space-Related Master's Research

DeBlois, Col Bruce M., USAF, Editor

Major issues have plagued the US military space community for years. Foremost among these is the relationship between air and space. This work is a comprehensive examination of space power. Military space-lift-vehicle requirements, space architectures, and ground support infrastructure are major topics. Graduate students at the School of Advanced Airpower Studies researched and discussed a variety of these issues, and their efforts are brought together here as a collection of master's degree research theses.

September 1999. 572 pages. ISBN 978-1-58566-067-4 B-70



They Served Here

Thirty-Three Maxwell Men

Benton, Col Jeffrey C., USAF, Retired

The author offers a unique glimpse into the history of Maxwell Air Force Base, Alabama, by highlighting the careers of 33 Airmen who served there at some point in their military careers. Some were pioneers in the development of airpower and provided decades of military leadership. Others such as Glenn Miller, Clark Gable, and Bill Stribling were notable for their accomplishments in other fields. The stories told here also portray the critical, close interrelationships between the military and local society.

July 1999. 89 pages. ISBN 978-1-58566-074-2 B-71



The Air Force Role in Developing International Outer Space Law

Terrill, Col Delbert R., Jr., USAFR

Air Force thinking and action on the development of international law as it applies to outer space was an evolution. The author traces the Air Force's continual resistance to treaties and other conventions that would have defined the demarcation of the "boundary" between air-space and outer space. He shows that the Air Force position was grounded in an unwillingness to define outer space narrowly before the military had thoroughly researched and tested technological capabilities that could be employed in space.

May 1999. 155 pages. ISBN 978-1-58566-066-7 B-69



Biplanes and Bombsights

British Bombing in World War I

Williams, Col George K., USAF, Retired

This comprehensive study measures wartime claims against actual results of the British bombing campaign against Germany in the Great War. Williams contends that the official version of costs and results underplays the costs while overplaying the results. Supported by the postwar findings of both US and British evaluation teams, he argues that British bombing efforts were significantly less effective than heretofore believed. He also presents a strong argument that German air defenses caused considerably less damage to British forces than pilot error, malfunctioning aircraft, and bad weather.

May 1999. 330 pages. ISBN 978-1-58566-073-5 B-68



The Air Campaign [Online Only]

John Warden and the Classical Airpower Theorists

Mets, David R.

In light of the age-old belief of Confucius that no idea is new, Mets examines the role of Col John Warden in the Gulf War to determine if a revolution in military affairs had occurred. To evaluate Warden's ideas, he considers several twentieth-century antecedents to Warden, including Giulio Douhet, Hugh Trenchard, and Billy Mitchell to distill a pattern.

April 1999. Revised edition. 98 pages.

ISBN 978-1-58566-063-6

B-65



Inside the Cold War

A Cold Warrior's Reflections

Adams, Maj Gen Chris, USAF, Retired

General Adams reflects on his experiences in the Cold War, during which he served in both manned bombers and missile silos. He tells stories of famous and not-so-famous cold warriors, including some from the US Navy. Some stories are humorous; some stories are tragic. Having traveled extensively in Russia and some former Soviet Union states after retirement, General Adams tells us about his former adversaries, the Soviet cold warriors. In the process, he leaves no doubt about his respect for all who served so valiantly in the "Strategic Triad"—the strategic bomber force, the intercontinental ballistic missile force, and nuclear ballistic missile submarines.

1999. 195 pages. ISBN 978-1-58566-068-1 B-72



Middle East Security Issues

In the Shadow of Weapons of Mass Destruction Proliferation

Schneider, Barry R., Editor

These essays originated as a symposium at the US Air War College in August 1998. The authors provide insightful commentary on US perceptions of the Middle East as a continued international flashpoint post-Gulf War and before the dramatic events resulting from the 9/11 attacks. 1999. 146 pages. ISBN 978-1-58566-077-3 B-75



The Quest

Haywood Hansell and American Strategic Bombing in World War II

Griffith, Charles

This biography of Maj Gen Haywood S. Hansell Jr. provides an in-depth look at the life and career of one of airpower's pioneer thinkers. Hansell's professional life was devoted to the theory and practice of strategic airpower—the single most controversial military debate of the twentieth century.

1999. 238 pages. ISBN 978-1-58566-069-8 B-73



The Development of Military Night Aviation to 1919

Fischer, Maj William Edward, Jr., USAF

The development of military night aviation is examined from its origins through the First World War. Emphasis is on the evolution of night flying in those countries that fought on the Western Front—namely, France, Germany, Great Britain, and the United States.

December 1998. 172 pages ISBN 978-1-58566-064-3 B-66



Battlefield of the Future

21st Century Warfare Issues

Schneider, Barry R., and Lawrence E. Grinter, Editors

These 10 essays examine strategy and war fighting in the midst of a revolution in military af-fairs as the world moves into the twenty-first century.

September 1998. Revised edition. 286 pages. ISBN 978-1-58566-061-2 B-64

2007 CSAF Reading List selection



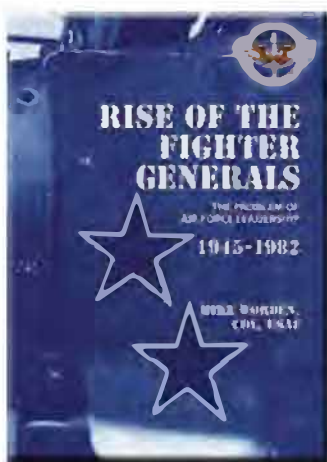
Beyond Horizons

A Half Century of Air Force Space Leadership

**Spires, David N.; George W. Bradley III, Senior Editor;
and Rick W. Sturdevant and Richard S. Eckert, Associate Editors**

This overview serves as an introduction and historical guide of the Air Force's space activities. The Air Force has a long involvement in initiating, developing, and applying the technology of space-based systems in support of the nation's security. Events recounted range from America's space and missile efforts prior to the launch of the Soviet sputniks in 1957 to the coming of age of military space employment in the Persian Gulf War of 1991. This is a slightly revised edition of a book originally published by Air Force Space Command in 1997.

July 1998. 406 pages. ISBN 978-1-58566-060-5 B-63



Rise of the Fighter Generals [Online Only]

The Problem of Air Force Leadership, 1945–1982

Worden, Col Mike, USAF

Colonel Worden relies on oral histories, personal interviews, military and social histories, quantitative data, and sociological research to show how fighter generals rose to domination in the Air Force. From the inception of the Air Force through the 1960s, bomber pilots comprised most of the leadership. Embracing an absolutist perspective, they struggled to maintain that status quo. In the 1960s, however, bomber pilots saw their positions of leadership slowly yielding to the experience, broader education, and pragmatism of fighter pilots. This study terminates in 1982 when the leadership changes with the selection of a string of generals with fighter backgrounds as Air Force chiefs of staff.

March 1998. 291 pages. ISBN 978-1-58566-048-3 B-51



Airpower and Ground Armies

Essays on the Evolution of Anglo-American Air Doctrine, 1940–1943

Mortensen, Daniel R., Editor

These four independent essays provide a perspective on US airpower doctrine development that was conceived on lessons from the British, hatched in Washington, tested in Africa, and matured in Europe. The first essay describes the organization, doctrine, operational practices, and personality of the air forces in the western desert from 1940 to 1943. The second essay describes and analyzes the events in northwest Africa during Operation Torch, while the third analyzes the machinations in policy development in Washington. The final essay analyzes the great tactical aviation exercise in northwest Europe, emphasizing the famous cooperation between George S. Patton and Otto P. Weyland.

1998. 224 pages. ISBN 978-1-58566-047-6 B-50



The Army and Its Air Corps

Army Policy toward Aviation, 1919–1941

Tate, Lt Col James P., USAF, Retired

From the armistice in 1918 to the late 1930s, controversy broiled over the place of aviation in the military establishment. Airpower visionaries—with varying degrees of tact—often risked charges of insubordination in preaching the gospel of airpower. As aviation technology advanced and Army leaders were educated in the capabilities of aircraft, they showed genuine interest in the potential of airpower. The author contends that their decisions often favored the Air Corps and that the air arm received a lion's share of the Army budget during a period of extreme austerity.

1998. 217 pages. ISBN 978-1-58566-059-9 B-62



The Development of the B-52 and Jet Propulsion

A Case Study in Organizational Innovation

Mandeles, Mark D.

National security decision makers face an uncertain world in which the accelerated growth of knowledge has changed the character of technological advance and destabilized long-standing relations within and among the military services. A case study from the early post-World War II period helps to separate the principles that guide decision making from the "proverbs." Mandeles also looks at the impact of organization on the invention and development of jet propulsion in the form of the B-52.

1998. 208 pages. ISBN 978-1-58566-036-0 B-38



Architects of American Air Supremacy

Gen Hap Arnold and Dr. Theodore von Kármán

Daso, Maj Dik A., USAF

The author chronicles the formation of the scientific and technological base of today's US Air Force. Henry H. "Hap" Arnold and Theodore von Kármán ensured that theoretical science rather than empiricism grew to dominate the Air Force research and development infrastructure. The author shows how personalities drive actions, institutions reflect personalities, and the interaction of these factors influenced—and continues to mold—the evolution of American air supremacy.

September 1997. 487 pages. ISBN 978-1-58566-042-1 B-44



Kenneth N. Walker

Airpower's Untempered Crusader

Byrd, Martha

This biography of Brig Gen Kenneth N. Walker presents an in-depth look at the career of one of airpower's pioneer thinkers. It traces Walker's emergence from one of the early converts to airpower to his key role in the formation of strategic bombardment doctrine. Byrd's look at his performance in the Southwest Pacific theater during World War II gives us a deep insight into Walker's place in history as an innovator in the employment of airpower. She not only highlights Walker's accomplishments but also provides a look at his often stormy relationships with fellow officers and in his personal life.

March 1997. 242 pages. ISBN 978-1-58566-020-9 B-22



The Paths of Heaven

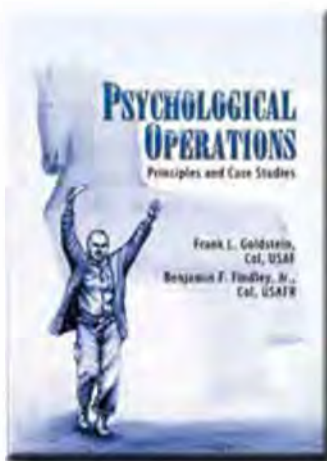
The Evolution of Airpower Theory

School of Advanced Airpower Studies;

Edited by Col Phillip S. Meilinger, USAF, Retired

By giving airpower thinkers their due, these essays counterbalance the Air Force's tendency to emphasize operational concerns at the expense of theory. Collectively, the authors trace the development of airpower theory from its origins with Giulio Douhet, through the formulation of airpower doctrine during the interwar years at the Air Corps Tactical School, to efforts to codify a cogent theory of space power. Most of the 15 contributors were faculty of the School of Advanced Airpower Studies (now the School of Advanced Air and Space Studies) at Maxwell Air Force Base, Alabama.

1997. 680 pages. ISBN 978-1-58566-027-8 B-29



Psychological Operations

Principles and Case Studies

Goldstein, Col Frank L., USAF; and Col Benjamin F. Findley, Jr., USAF,

Editors This compilation of 25 independent essays on military psychological operations are arranged in four sections: (1) Nature and Scope; (2) Policy and Planning; (3) Strategy, Tactics, and Operations; and (4) Case Studies. The authors make a strong case for the strengthening of psychological operations (PSYOP) in all aspects of US military operations. Among their recommendations is that PSYOP should be included in all phases of military training and professional military education.

September 1996. 376 pages. ISBN 978-1-58566-016-2 B-18



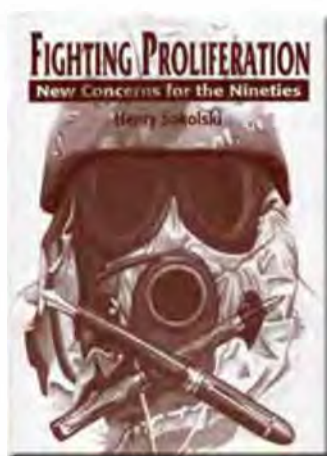
Global Security Concerns

Anticipating the Twenty-First Century

Magyar, Karl P., Editor; and Bradley S. Davis, Assistant Editor

Dr. Magyar has assembled a group of experts on military issues to ponder global security concerns for the twenty-first century. The contributors use lessons of the past to identify what issues propel states to rely on violent means instead of peaceful procedures to achieve their objectives. They also provide background on each topic, identify areas where conflicts might occur, and measure the possibility of a peaceful resolution of issues.

March 1996. 336 pages. ISBN 978-1-58566-006-3 B-7



Fighting Proliferation

New Concerns for the Nineties

Sokolski, Henry, Editor

This publication examines such issues as devising effective strategy against the proliferation of nuclear weapons, coping with the spread of space technology, and curbing Iran's and North Korea's strategic programs. Seventeen contributors address these challenges and their implications for US policy.

January 1996. 396 pages. ISBN 978-1-58566-017-9 B-19



Future War [Online Only]

An Assessment of Aerospace Campaigns in 2010

Barnett, Jeffery R.

Colonel Barnett projected the nature of state-versus-state war 15 years into the future to the year 2010 and compares these changes with those in the 15 years between World Wars I and II. He concluded that the developments between the two world wars may be dwarfed by those occurring through 2010. Through his theoretical scenarios, he proposed that communications and stealth technologies are keys to victory in future war.

January 1996. 196 pages. ISBN 1-58566-004-3 B-5



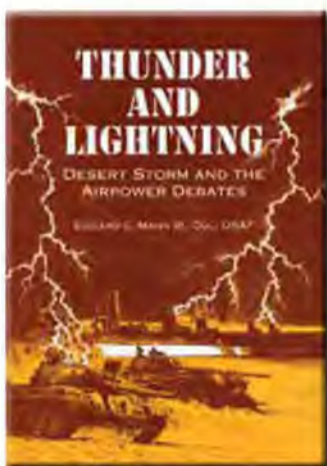
On Celestial Wings

Whitcomb, Col Ed, USAFR, Retired

The first Army Air Corps navigational class at Miami University graduated in November 1940. Colonel Whitcomb follows these first celestial navigators through their World War II trials. Twenty-five personal stories and a series of photographs paint the stories of these men as they fought. Combining the ancient art of navigating by the stars with the equipment on their B-17s, they became prisoners of war, lived through the Bataan Death March, escaped from Japanese captors, survived primitive conditions in the Philippines, died for their country, or later served the United States as navigators on the aircraft of presidents and dignitaries.

November 1995. 227 pages.
B-4

ISBN 978-1-58566-003-2



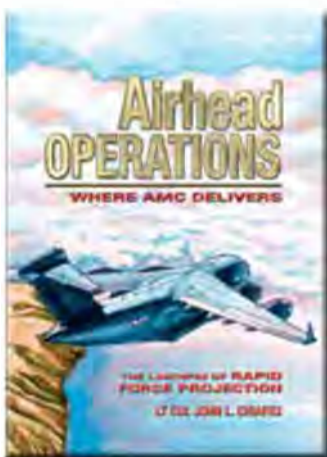
Thunder and Lightning

Desert Storm and the Airpower Debates

Mann, Col Edward C., III, USAF

The planning and waging of air and space warfare in Operation Desert Storm are analyzed. The author explores debates about airpower and its uses as they played themselves out before, during, and after the successes of the Gulf War. Colonel Mann compares the debates of the 1970s–90s with those of the 1920s–40s. He explores the underpinnings of successful warfare and observes that the warriors of the future must have a strong knowledge of the principles and concepts of war to apply information, training, and technological resources with the acumen needed to win future conflicts. *Thunder and Lightning* is a companion volume to Reynolds's *Heart of the Storm* (B-55).

April 1995. 240 pages. ISBN 978-1-58566-001-8 B-2



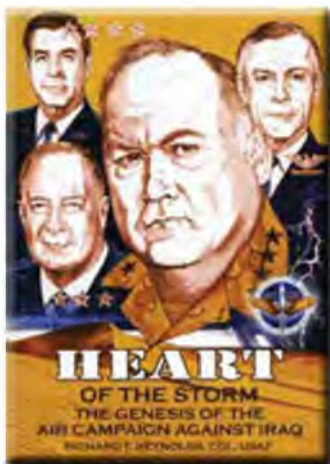
Airhead Operations

Where AMC Delivers: The Linchpin of Rapid Force Projection

Cirafici, Lt Col John L., USAF

The author reviews airhead activity in contingencies during World War II and in Operations Urgent Fury, Just Cause, Desert Shield/Storm, and Restore Hope. He examines the Air Mobility Command (AMC) structure within the theater and then discusses the Somali civil war as a case study to illustrate how airhead's air mobility forces fit into the overall scheme of force deployment, reassembly, employment, and sustainment. Colonel Cirafici identifies some critical lessons and recommends that AMC look beyond past successes and provide greater effort toward training and exercises to promote jointness at all operational levels.

March 1995. 109 pages. ISBN 978-1-58566-057-5 B-60



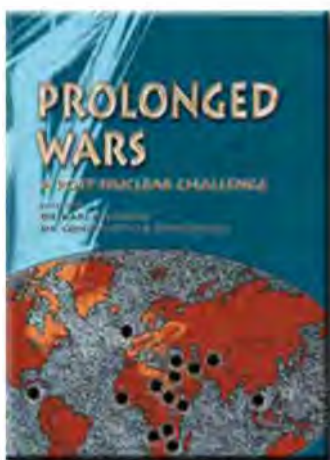
Heart of the Storm

The Genesis of the Air Campaign against Iraq

Reynolds, Col Richard T., USAF

Colonel Reynolds presents a firsthand account of the struggle to design and implement the air campaign that proved instrumental in defeating Iraq in the Gulf War. Through documentary research and dialogue from interviews with key players, he traces the evolution of the air campaign plan known as Instant Thunder from its origins in the mind of Col John A. Warden III to the decision by General Schwarzkopf to employ airpower as his weapon of choice against Saddam Hussein. *Heart of the Storm* provides behind-the-scenes insights into how future decisions to use airpower will likely be made. It is a companion volume to Mann's *Thunder and Lightning* (B-2).

January 1995. 169 pages. ISBN 978-1-58566-052-0 B-55



Prolonged Wars

A Post-Nuclear Challenge

Magyar, Karl P., and Constantine P. Danopoulos, Editors

The underlying impact of the cold war on protracted conflict in Africa and Asia is examined. Area specialists address factors that produced prolonged conflict, possible causes of these struggles, and reasons for "success" and "failure" in each of these regional conflicts.

October 1994. 475 pages. ISBN 978-1-58566-056-8 B-59



Challenge and Response

Anticipating US Military Security Concerns

Magyar, Karl P., Editor in Chief

McCrabb, Lt Col Maris, USAF; Lt Col Albert U. Mitchum, Jr., USAF; and Lewis B. Ware, Associate Editors

In this collection of essays the contributors examine the implications of the formal dissolution of the Soviet Union and the Warsaw Pact on planning for future military threats. They attempt to identify the nature and source of the most likely future threats to global security. Part 1 contains a broad review of the major determinants of international change. Part 2 analyzes specific situations, the changing nature of warfare, and potential responses to emerging challenges. August 1994. 444 pages. ISBN

978-1-58566-053-7 B-56



Air Power and Maneuver Warfare

Van Creveld, Martin, with Steven L. Canby and Kenneth S. Brower

The authors identify and discuss the fundamental concepts and principles of maneuver warfare, compare and contrast it to attrition-style warfare, and trace its origins and history. They examine the role of airpower in enhancing maneuver during the early German campaigns of World War II, in Germany's 1941 Russian campaigns, and in the Soviet version of maneuver warfare in World War II. They analyze the importance of airpower in the maneuver warfare employed by Israel in the 1967 and 1973 wars and by the coalition forces in the Gulf War. July 1994. 284 pages. ISBN 978-1-58566-050-6 B-53

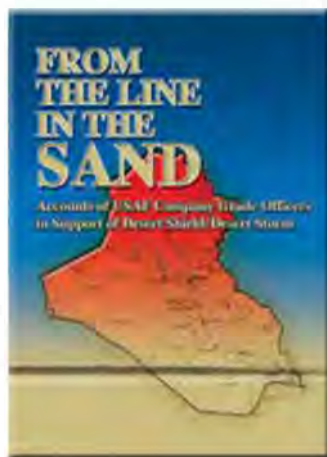


Setting the Context

Suppression of Enemy Air Defenses and Joint War Fighting in an Uncertain World

Brungess, Lt Col James R., USAF

Colonel Brungess proposes using joint suppression of enemy air defenses (JSEAD) to address the problem of reduced SEAD resources available to individual services. He contends that the demise of the Soviet Union presents the perfect transitional period for SEAD planners to create new approaches to countering the information-based integrated air defense system nets. He looks at the foundations and evolution of SEAD, identifies pertinent variables, and shows how they have changed. Colonel Brungess concludes that fiscal reality demands that the services forge JSEAD tactics and doctrine. June 1994. 244 pages. ISBN 978-1-58566-051-3 B-54

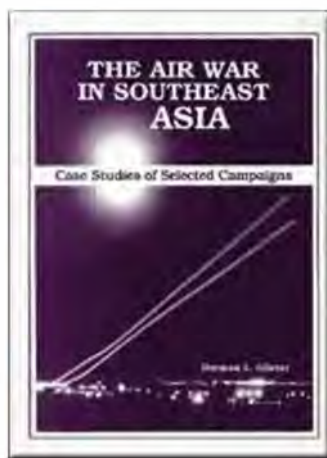


From the Line in the Sand

Accounts of USAF Company Grade Officers in Support of Desert Shield/Desert Storm

Vriesenga, Capt Michael P., USAF, Editor

These essays are the stories of 34 participants below the rank of major who contributed to the Gulf War. Their accounts focus on such topics as deployment, organizational patterns of units, delegation of authority and responsibility, emotions and psychology of combat, the impact of combat losses, airfield construction, medical care, and aircraft preparations. March 1994. 289 pages. ISBN 978-1-58566-012-4 B-14



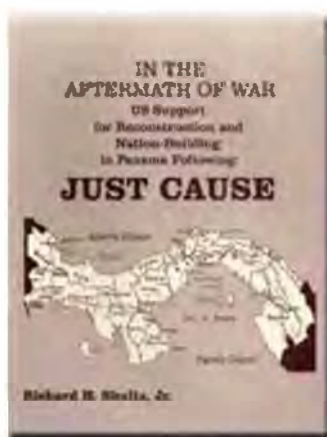
The Air War in Southeast Asia [Online Only]

Case Studies of Selected Campaigns

Gilster, Herman L.

The author rigorously analyzes five case studies of interdiction, close air support, and strategic bombardment, showing the relationship between the strike effort and target damage of several air campaigns during the Vietnam War.

October 1993. 152 pages. ISBN 978-1-58566-049-0 B-52



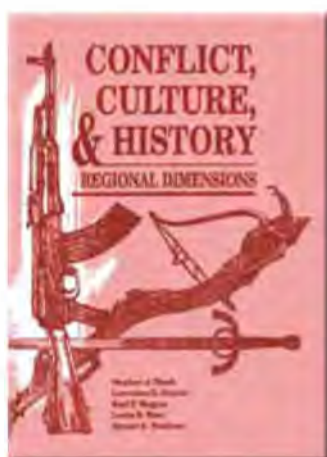
In the Aftermath of War

US Support for Reconstruction and Nation-Building in Panama Following Just Cause

Shultz, Richard H., Jr.

The December 1989 invasion of Panama and the effectiveness of American foreign policy implemented afterward are assessed. Focus areas include reconstruction, nation-building, and democratization following Operation Just Cause. Dr. Shultz discusses the Panamanian political environment and what went wrong with our contingency planning. He also examines the origins and future applications of the Military Support Group and concludes that future post-conflict situations will require the Department of Defense to create an interagency mechanism that can respond in an effective way to both civilian and military concerns.

August 1993. 88 pages. ISBN 978-1-58566-058-2 B-61



Conflict, Culture, and History

Regional Dimensions

Blank, Stephen J., Lawrence E. Grinter, Karl P. Magyar, Lewis B. Ware, and Bynum E. Weathers

Five specialists examine the historical relationship of culture and conflict in various regional societies. The authors use Adda B. Boze man's theories on conflict and culture as the basis for their analyses of the causes, nature, and conduct of war and conflict in the Soviet Union, the Middle East, Sinic Asia (China, Japan, and Vietnam), Latin America, and Africa. The authors conclude that non-Western cultures and societies do not reject war but look at violence and conflict as a normal and legitimate aspect of sociopolitical behavior.

January 1993. 370 pages. ISBN 978-1-58566-043-8 B-45



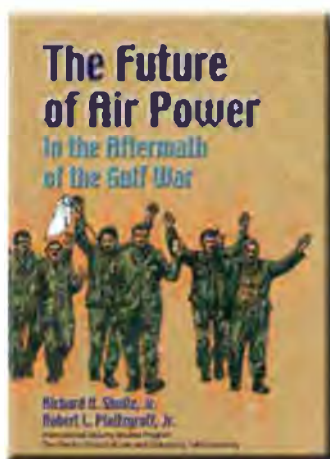
Joint Training for Night Air Warfare

[Online Only]

McLean, Lt Col Brian W., USAF

The history of joint air operations and night air operations from World War II through Operation Desert Storm is explored. Colonel McLean focuses on the need for increased training for joint operations at night and describes a hypothetical contingency in Korea to illustrate some of the challenges of conducting joint night operations. He offers recommendations for a building-block approach to improve training in joint night air warfare capability.

October 1992. 122 pages. ISBN 978-1-58566-044-5 B-46



The Future of Air Power in the Aftermath of the Gulf War

Shultz, Richard H., Jr., and Robert L. Pfaltzgraff, Jr., Editors

This collection of essays reflects the proceedings of "The United States Air Force: Aerospace Challenges and Missions in the 1990s," a conference sponsored by the USAF and Tufts University in 1991. The 20 contributors discuss the pivotal role of airpower in the war with Iraq and address issues and choices facing the USAF. Topics include factors that are reshaping strategies and missions, the future role and structure of airpower as an element of US power projection, and the air and space industry's views on what the Air Force of the future will set as its acquisition priorities and strategies.

July 1992. 386 pages. ISBN 978-1-58566-046-9 B-48



Setup [Online Only]

What the Air Force Did in Vietnam and Why

Tilford, Earl H., Jr.

American military professionals, especially those in the US Air Force, have had a difficult time understanding their role in this nation's defeat in Vietnam. Dr. Tilford provides a critical self-analysis and questions the underlying assumptions of the Air Force's strategy in Southeast Asia. He argues that we must understand what went wrong in Vietnam and why—and that we must not manipulate the record by painting failure as victory. He explains what led to the "setup," which not only resulted in a failure for airpower but also contributed to the fall of South Vietnam, Laos, and Cambodia to Communist forces in 1975.

June 1991. 328 pages. ISBN 978-1-58566-038-4 B-40



ANZUS in Revision

Changing Defense Features of Australia and New Zealand in the Mid-1980s

Donnini, Lt Col Frank P., USAF

The demise of the ANZUS (Australia, New Zealand, and the United States) alliance is analyzed along with shifts in Australian and New Zealand defense features. Colonel Donnini addresses many questions and issues dealing with changing the political situation and the impact of those changes on defense and security conditions in the South and Southwest Pacific regions. February 1991. 219 pages. **ISBN 978-1-58566-037-7 B-39**

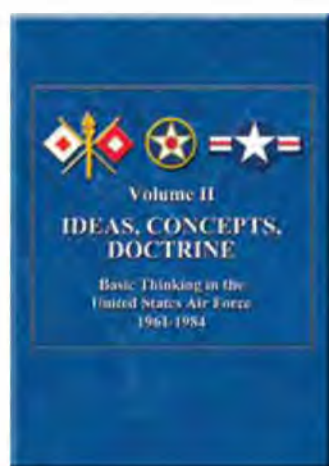


Ideas, Concepts, Doctrine

Volume 1, Basic Thinking in the United States Air Force, 1907-1960

Futrell, Robert Frank

In this first of a two-volume study, Dr. Futrell presents a chronological survey of the development of Air Force doctrine and thinking from the beginnings of powered flight to the onset of the space age. He outlines the struggle of early aviation enthusiasts to gain acceptance of the airplane as a weapon and win combat-arm status for the Army Air Service. He surveys the development of airpower doctrine during the 1930s and World War II and outlines the emergence of the autonomous US Air Force in the postwar period. December 1989. 683 pages. **ISBN 978-1-58566-029-2 B-31**

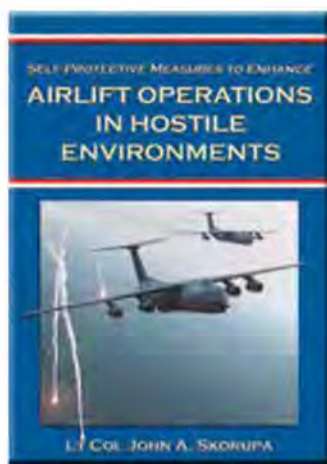


Ideas, Concepts, Doctrine

Volume 2, Basic Thinking in the United States Air Force, 1961-1984

Futrell, Robert Frank

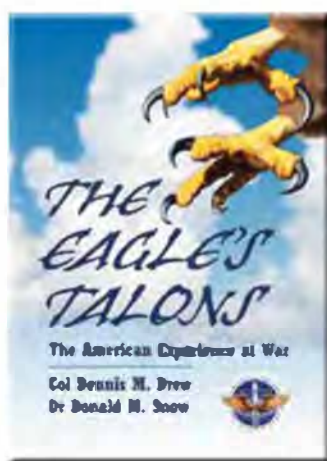
In this volume the author traces the new directions that Air Force strategy, policies, and thinking took during the Kennedy administration, Vietnam War, and post-Vietnam period. Futrell describes the Air Force's struggle with President Kennedy's redefinition of national security policy and Defense Secretary McNamara's managerial style and its argument for the use of airpower in Southeast Asia. Also chronicled are the evolution of doctrine and organization regarding strategic, tactical, and airlift capabilities and the impact that the air and space environment and technology had on Air Force thinking and doctrine. December 1989. 803 pages. **ISBN 978-1-58566-030-8 B-32**



Self-Protective Measures to Enhance Airlift Operations in Hostile Environments

Skorupa, Lt Col John A., USAF

Strategy, doctrine, forces, threats, and technological issues relating to airlift operations are considered. The author blends military art with industrial science, explaining threats to airlift and how electronic warfare and other technological applications would counter such threats. 1989. 201 pages. ISBN 978-1-58566-028-5 B-30



The Eagle's Talons

The American Experience at War

Drew, Col Dennis M., USAF, and Donald M. Snow

This survey of the American experience in war emphasizes the complex interactions between political and military affairs. The authors provide a key to understanding how and why the United States might employ its military power in the future. December 1988. 445 pages. ISBN 978-1-58566-025-4 B-27



The Role of Airpower in the Iran-Iraq War [Online Only]

Bergquist, Maj Ronald E., USAF

The author goes beyond simply describing what happened in the war between Iran and Iraq and instead attempts to discern why the countries used their airpower as they did. He shows how the combatants value airpower, what aspects of airpower appear most important to Iranian and Iraqi national leaders, and how their values and needs led them to use airpower in ways quite different than Western professional expectations. The results highlight considerations that affect the use of airpower by third world nations. December 1988. 108 pages. ISBN 978-1-58566-023-0 B-25



The US Air Force after Vietnam

Postwar Challenges and Potential for Responses

Mrozek, Donald J.

This book probes various groups of Americans as they come to grips with the consequences of the Vietnam War. Dr. Mrozek examines several areas of concern facing the United States Air Force, and the other services to varying degrees, after Vietnam.

December 1988. 133 pages. ISBN 978-1-58566-024-7 B-26



Low-Intensity Conflict in the Third World

Blank, Stephen; Lewis B. Ware; Lawrence E. Grinter; Jerome W. Klingaman; Thomas P. Ofcansky; and Bynum E. Weathers

A common thread ties together five case studies: the persistence with which the bilateral re-relationship between the United States and the Soviet Union continues to dominate American foreign and regional policies. The authors analyze the low-intensity conflict environment in Central Asia, the Middle East, Southeast Asia, Latin America, and sub-Saharan Africa.

August 1988. 189 pages.

ISBN 978-1-58566-022-3

B-24



Airlift Doctrine

Miller, Lt Col Charles E., USAF

Colonel Miller shows how the worldwide orientation of American foreign policy, numerous threats to free-world interests, and speed and complexity of modern warfare have combined with political and resource constraints to produce today's airlift doctrine and force structure.

March 1988. 447 pages.

ISBN 978-1-58566-019-3

B-21



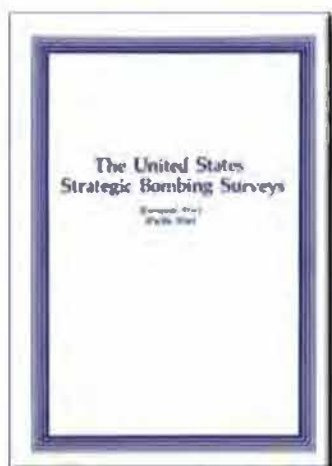
Air Power and the Ground War in Vietnam

Ideas and Actions

Mrozek, Donald J.

This study explores a neglected theme—the impact of airpower on the ground—and encourages further utilization of lessons drawn from the Vietnam experience. The author draws on that conflict to emphasize the effective role that airpower can have in a ground war, even without that technology's total exploitation, and its significant contribution to much lower-level conflict. He also observes that factors far beyond the battlefield influence the application of airpower.

January 1988. 204 pages. ISBN 978-1-58566-015-5 B-17



The United States Strategic Bombing Surveys:

European War, Pacific War

This publication reprints the summary reports—30 September 1945 (European War) and 1 July 1946 (Pacific War)—of the strategic bombing surveys conducted as World War II was coming to a close.

October 1987. 124 pages. ISBN 978-1-58566-018-6 B-20



The Air Force Role in Low-Intensity Conflict

Dean, Lt Col David J., USAF

The increasing importance of third world countries in global affairs is explored. Their vital natural resources and geostrategic locations make them the object of intense competition between the superpowers and a ripe target for a new category of conflict. Because of the high probability of US involvement in third world conflicts, we must adapt our resources to acquire the flexibility demanded by low-intensity conflict.

October 1986. 143 pages. ISBN 978-1-58566-014-8 B-16



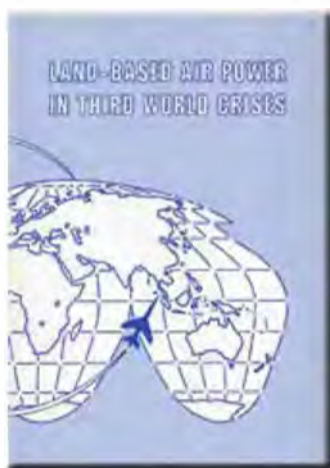
Aerospace Power

The Case for Indivisible Application

Myers, Maj Grover E., USAF

The author proposes an indivisible airpower concept, arguing that strategic and tactical classifications are transitory and depend on how a weapon is used, not its individual characteristics or command affiliation. Acknowledging this concept would result in a far more flexible aerospace force structure—one that not only gets the most from our increasingly expensive and limited assets but also applies the right force at the right place at the right time. September 1986. 96 pages. ISBN 978-1-58566-013-1

B-15



Land-Based Air Power in Third World Crises

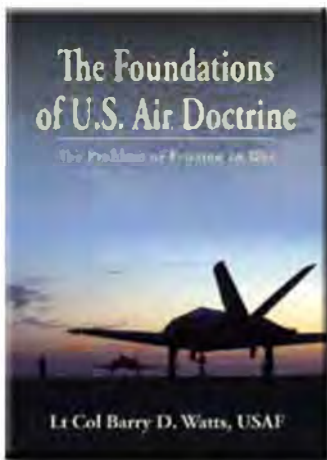
Mets, David R.

Dr. Mets examines the utility and limitations of land-based aircraft in third world crises over two decades. He offers several conclusions regarding the most effective use of airpower in crisis situations.

July 1986. 171 pages.

ISBN 978-1-58566-000-1

B-1



The Foundations of US Air Doctrine

The Problem of Friction in War

Watts, Lt Col Barry D., USAF

This study analyzes airpower doctrine from the viewpoint of Clausewitzian friction. It concludes that American airpower doctrine has changed very little since the 1930s and that it is fundamentally flawed.

December 1984. 159 pages. ISBN 978-1-58566-007-0 B-8



Strategy for Defeat

The Luftwaffe, 1933–1945

Murray, Williamson

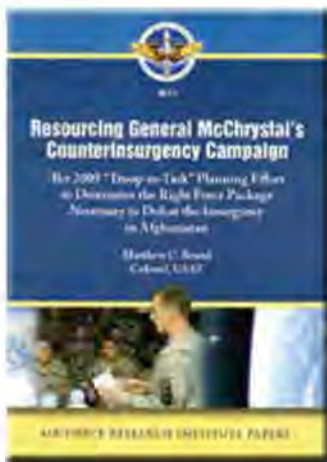
Dr. Murray's book provides a detailed analytical study of the development and downfall of the Luftwaffe. The author takes an in-depth look at the "easy war" (1939–40) and the turn toward Russia in Operation Barbarossa. He also investigates the war of attrition from 1942 through early 1944 and the reasons for the final demise of the Luftwaffe from April through September 1944.

January 1983. 391 pages. ISBN 978-1-58566-010-0 B-12

PAPERS



PAPERS



Air Force Research Institute (AFRI) papers are occasional studies written by Air Force researchers at large and military defense analysts assigned to AFRI, Air University, and beyond. The purpose of these papers is to provide useful ideas and independent analysis of current or potential issues of importance to Air Force commanders and their staffs.

The following papers are in print as of the catalog publication date and are listed in order of publication, beginning with the most recent. All AFRI Papers, including those not in print, are available for download at the AU Press website, <https://www.airuniversity.af.edu/AUPress/>.

Owen, Robert C.

Basing Strategies for Air Refueling Forces in Antiaccess /Area-Denial Environments

AFRI Paper 2015-1

Modern antiaccess/area-denial (A2/AD) systems threaten forward-based air refueling units. To mitigate those threats, various basing options are explored: hardening of aircraft shelters and support facilities, disaggregation of refueling units among prepared bases, and agile disaggregation among more austere base infrastructures. Also discussed is the potential value of introducing a midsized "tactical" tanker to the fleet able to operate from airfields substantially shorter and more weakly surfaced than those from which the current fleet of modified airliners must operate. The study concludes by recommending greater focus on agile disaggregation, acquisition of a fleet segment of tactical tankers, and directions for further analysis.

September 2015. 32 pages.

P-111, ISBN 978-1-58566-258-6

Brown, Col Jason

Strategy for Intelligence, Surveillance, and Reconnaissance

AFRI Paper 2014-1

Numerous reports have highlighted obstacles to the integration of intelligence, surveillance, and reconnaissance (ISR) into military campaigns and major operations. The root cause of these difficulties is adherence to a centralized Cold War collection management doctrine focused on production rather than goals and objectives. A strategy-oriented approach that balances ISR ends, ways, and means will more effectively meet commander's needs and expectations. ISR helps decision makers anticipate change, mitigate risk, and shape outcomes. ISR strategy, therefore, is a set of ideas that integrates organizations and balances ends, ways, and means in pursuit of that purpose.

December 2014. 38 pages.

P-107, ISBN 978-1-58566-246-3

Brand, Lt Col Matthew C., USAF*Resourcing General McChrystal's Counterinsurgency Campaign**The 2009 "Troop-to-Task" Planning Effort to Determine the Right Force Package Necessary to Defeat the Insurgency in Afghanistan***AFRI Paper 2013-1 [Online Only]**

This narrative focuses on the process that Gen Stanley McChrystal's operational planning team undertook as it conducted its research and analysis of a variety of counterinsurgency theories applied to the difficult operating environment in Afghanistan. Overcoming external pressures that served to complicate the analysis, a small number of handpicked planners took part in this vitally important work—almost all of them graduates of advanced planning courses. These planners produced remarkable and historic work that substantiated General McChrystal's force increase recommendation. This is the story of their struggle to generate a force capable of turning the tide in Afghanistan toward an American victory and enduring peace.

July 2013. 66 pages.

P-91

Milner, Col Joseph A., USAF*Integrated Defense**Lessons Learned from Joint Base Balad***AFRI Paper 2012-3**

Base defense—defending one's air assets on the ground—is one of the least understood operational aspects of airpower. The current USAF strategy for defending air bases is integrated defense (ID). This study examines the first full implementation of ID in a combat environment in 2008 for Joint Base Balad to evaluate the effectiveness of the new strategy in actual operations. The lessons learned, as discussed by Colonel Milner, are instructive for future operations.

April 2013. 71 pages. P-90, ISBN 978-1-58566-250-00

Hukill, Jeffrey; Larry Carter; Scott Johnson; Jennifer Lizzol; Col Edward Redman, USAF; and Panayotis Yannakogeorgos*Air Force Command and Control**The Need for Increased Adaptability***AFRI Paper 2012-5**

Responding to a CSAF request to examine whether effective command and control (C2) in uncertain and dynamic future scenarios requires changes to Air Force doctrine and organizational structures, the Air Force Research Institute first identified criteria for effective C2 and then used them to analyze C2 across seven operational examples representing the range of military operations. Next, the research team developed recommendations to improve adaptability of the Air Force's C2 based upon the problems identified, including lack of (1) clarity among command relationships, (2) confidence and trust, and (3) capability and capacity regarding Air Force integration elements. Finally, it validated the recommendations against key characteristics of the expected future operating environment.

July 2012. 133 pages. P-89

Hukill, Jeffrey; Lt Col Kristal Alfonso, USAF; Scott Johnson; and John Conway

The Next-Generation Expeditionary Air Force

AFRI Paper 2012-2

In 2008 the Air Force chief of staff asked AFRI to determine if the current expeditionary air and space forces construct is adequate to meet current and future challenges. This paper presents the results of that study. AFRI researchers discuss five key issues and make recommendations that will help produce a measurable and sustainable expeditionary process to meet combatant commanders' requirements. These recommendations include completing the transition of Air Combat Command as the force provider for combat and expeditionary combat support forces, developing a garrison force construct, creating a force presentation model to meet requirements across the spectrum of operations, developing two sourcing constructs for expeditionary operations, and establishing a strategic communication plan to improve understanding of deployment processes.

February 2012. 47 pages.

P-87

Brand, Lt Col Matthew C., USAF

General McChrystal's Strategic Assessment

Evaluating the Operating Environment in Afghanistan in the Summer of 2009

AFRI Paper 2011-1 [Online Only]

As the new commander of US and coalition forces in Afghanistan, US Army general Stanley McChrystal was tasked to conduct a 60-day initial assessment and quickly assembled a headquarters team. This paper captures this story from the inside, showing the progress of the team from its formation through completion of its tasking. It provides insight into some of the early friction between the members of the team who had arrived with the new commander and the existing headquarters staff. It also dissects the strategy working groups, which relied heavily on the expertise of civilian scholars. The author provides a unique look at leadership and teamwork at a critical period.

July 2011. 137 pages.

P-86

Mets, David R.

RPAs

Revolution or Retrogression?

AFRI Paper 2010-1

Remotely piloted aircraft (RPA) are in a way merely the continuation of the old human longing for methods of striking or observing one's enemies while remaining safe. This paper explores the advantages and disadvantages of the systems and briefly speculates about the future of RPAs.

April 2010. 39 pages.

P-78

Mets, David R.*Reflections of a Middling Cold Warrior**Should the Army Air Corps Be Resurrected?***AFRI Paper 2009-5**

The need for an autonomous Air Force seems to be increasingly questioned. David Mets argues that the issue arises from a bad case of "presentism," making it inevitable that the USAF will again be accused of having prepared for the last war in future conflicts. He explores the reasons for creating the separate Air Force in 1947 and how the environment has changed since then. The author makes the case that the Air Force's principal contributions are its global capabilities and ability to support the other services in its overarching goal of providing for national security.

December 2009. 45 pages.

P-80

Tharp, Col Donald; Anthony Gould; and Col Robert Potter, USAF, Retired*Leveraging Affective Learning for Developing Future Airmen***AFRI Research Study**

Affect is critical to the overall learning process since cognitive learning depends on attitude, motivation, beliefs, emotions, and other affective factors. Unfortunately, the affective domain has been a neglected area because its characteristics are not directly observable or easily measured. The authors conclude that instructional design merging affective and cognitive objectives is even more critical as more instruction is conducted through distance learning without a facilitator present. An important Air Force goal should be to partner technology with the affective and cognitive domains to provide distance students with an experience similar to that of in-residence students.

November 2009. 33 pages.

P-79

Lowther, Adam B.*Challenging Nuclear Abolition***AFRI Paper 2009-4 [Online Only]**

"Modernizers" and "abolitionists" have attempted to influence President Obama's nuclear weapons policy. Modernizers believe that the United States must develop a new warhead and advanced delivery platforms if the nation wishes to maintain the most advanced and secure nuclear arsenal in the world. Abolitionists see an opportunity to oversee substantial reductions in the number of nuclear warheads and their delivery systems. This paper takes a critical look at the fundamental arguments offered by abolitionists and concludes that the rationale offered, while admirable, is utopian and makes predictions about human behavior that are not supported by historical example or logic, which must be relied on when examining nuclear deterrence.

August 2009. 57 pages.

P-76

Hall, David Ian*Learning How to Fight Together**The British Experience with Joint Air-Land Warfare***AFRI Paper 2009-2 [Online Only]**

Dr. Hall examines the elusive quest for effective integration between air and land forces in the context of joint operations. He draws on historical and contemporary British experience to illustrate the enduring disagreements between soldiers and airmen over who should control aircraft on the battlefield and what air forces should do to assist the army in its operations. The study shows the need for air and land commanders to be in each other's minds and plans from the outset. Lessons learned offer insight to contemporary airmen and soldiers on both sides of the Atlantic to be better equipped conceptually to develop and deliver air-land integration that meets their respective requirements in the complex operating environment of today and tomorrow.

March 2009. 59 pages.

P-65

Hinote, Lt Col Clint, USAF*Centralized Control and Decentralized Execution**A Catchphrase in Crisis?***AFRI Paper 2009-1**

Colonel Hinote applies the Air Force tenet of centralization versus decentralization to the conflicts in Afghanistan and Iraq and suggests that the urgent need is for improved communication between air and ground forces. Relying on the teaching of the theoretician B. H. Liddell Hart, who emphasized the role of compromise in combat, Hinote sees communication between air and ground forces as a necessity.

March 2009. 93 pages.

P-67

Tomme, Lt Col Edward B. "Mel," USAF, Retired*Expansion or Marginalization**How Effects-Based Organization Could Determine the Future of Air Force Space Command***AFRI Paper 2008-1**

Air Force Space Command (AFSPC) is currently a domain-based organization: the command "does things in and through space." Tomme argues instead for an effects-based organization whereby missions are grouped according to similar effects rather than platforms and locations. Separating combat-effects producers from combat-support-effects producers would create synergies of training and organization to facilitate a more effective and potent force. Under Tomme's recommendations, AFSPC would become the nation's linchpin for delivering the effects of command, control, communications, computers, intelligence, surveillance, and reconnaissance. Tomme's analysis of Space Command also has implications for the organization of the recently announced Air Force Cyberspace Command.

July 2008. 56 pages. P-60



Air Force Research Institute (AFRI) Cyber Power Papers (CPP) provide original and accessible overviews of subjects about cyber power, conflict, and cooperation by practitioners and renowned scholars who are leaders in their fields. They offer venues for dialogue and study about cyber power and its relationships to national security, foreign relations, military operations, economic policy, and other strategic issues, and they are essential reading for senior military leaders, professional military education students, and interagency, academic, and private-sector partners.

The following papers are in print or forthcoming as of the catalog publication date and are listed in order of publication, beginning with the most recent. All CPPs are available for download at the AU Press website, <https://www.airuniversity.af.edu/AUPress/>.

Weed, Maj Scott A., USAF

US Policy Response to Cyber Attack on SCADA Systems Supporting Critical National Infrastructure

AFRI CPP Series-7 [Online Only]

This study examines federal efforts to unify the public and private domestic sectors in the defense against cyber attack on the industrial control systems (ICS) and supervisory control and data acquisition (SCADA) systems that underpin US critical national infrastructure. It describes critical national infrastructure; the role of industrial control and SCADA systems in these sectors; and the panoply of actors, vulnerabilities, late-to-need cybersecurity, and threat trends for these systems. Political and social challenges to achieving greater cybersecurity are examined as are the processes through which the US government divides efforts among its lead cybersecurity agencies and what the responses to a cyber attack on ICS or SCADA might resemble. Finally, this study offers policy recommendations to synchronize foreign and domestic cybersecurity efforts to help realize a resilient and secure infrastructure.

Solomon, Col Scott E., USAF

Social Media

The Fastest Growing Vulnerability to the Air Force Mission

AFRI CPP Series-6 [Online Only]

The inherent risks and vulnerabilities of the Internet and social networking sites like Facebook, LinkedIn, and Twitter have cultivated a rich and ripe environment for foreign adversaries and criminals to cherry-pick personal information about Airmen and their missions for nefarious activities. FBI guidance encourages users to reduce their online footprint in cyberspace rather to proliferate it. This paper addresses some of the most common threats and vulnerabilities of the social media environment, the risks of using social media, and current Air Force social media guidance. It recommends revising Air Force social media guidance and outlines cyberspace best practices. An informed workforce can better protect the Air Force mission and reduce the risk of becoming a target of opportunity.

Rienzi, Maj Patrick D., USAF

International Efforts to Stabilize Cyber and the Potential Impacts to the United States Military

AFRI CPP Series-5 [Online Only]

The evolutionary growth of cyberspace has inspired malicious activities and the requirement to establish acceptable norms of state behavior. Considering that these challenges extend beyond state borders, the United States must engage the international community with a whole-of-government approach. This paper outlines the global strategic landscape in cyberspace and the need for regulation in this complex environment, analyzes efforts under way to regulate it, suggests how these efforts could influence the United States' ability to conduct military cyberspace operations, and recommends ways forward in this domain.

McKenzie, Col Timothy M., USAF

Is Cyber Deterrence Possible?

AFRI CPP Series-4 [Online Only]

Deterrence in the cyber domain is drastically different and far more complicated than in the other military domains of air, land, sea, and space. Cyber weapons and offensive cyber techniques are relatively inexpensive and easily obtained or developed. The number of adversary groups capable of attacking US networks is large, and our ability to deter each group will vary based on their motives and levels of risk tolerance. An effective cyber deterrence strategy must be multilayered and use all instruments of US national power. This paper explores the difficulties of deterring unwanted cyber activities, sets some realistic expectations for a deterrence strategy, and offers proposals to help mitigate the problems.

Barrera, Col Mark A., USAF*The Achievable Multinational Cyber Treaty
Strengthening Our Nation's Critical Infrastructure***AFRI CPP Series-3**

Developing cyber norms and institutions has been problematic due to the competing interests of the major state actors in the multi-national environment—especially among Russia, China, and the United States—concerning information freedom and access. The author establishes the genesis of this debate and argues that the United States should move beyond it to the issue of protecting critical infrastructure from cyber attack. Addressing the escalating threats to our nation's infrastructure and networks, the author recommends pursuing an international agreement singularly focused on securing critical infrastructure combined with improving national regulatory and legislative measures for cyber defense.

Parker, Maj William E., USAF*Cyber Workforce Retention***AFRI CPP Series-2 [Online Only]**

The US Air Force must develop strategies to effectively retain and sustainably build its workforce of 1B4 cyber Airmen. Doing so will be most critical in the next few years as the Air Force continues to increase its contribution to the nation's cyber mission forces. This study overviews the current cybersecurity human capital environment and explores the evolution of this new breed of warrior and the plan to move this emerging career field from growth to future sustainment. Also examined are public-sector retention study and initiative findings and Department of Defense retention tools—primarily special and incentive pays—for their potential application in supporting cyber Airmen retention. The study concludes with recommendations for initiatives and focus areas to support not only retention of cyber Airmen but also growth and sustainability of this fledgling career field.

Yannakogeorgos, Panayotis A.*Strategies for Resolving the Cyber Attribution Challenge***AFRI CPP Series-1**

The author develops a framework to guide US policy responses to origin or transit countries of cyber attacks. Nation-states should be held culpable for malicious multistage, multijurisdictional cyber attacks originating in or transiting information systems within their borders or owned by their registered corporate entities. Legal/policy solutions must be sought alongside technological defenses. To help legitimize the engagement of the global community in developing a global culture of cybersecurity, the United States must articulate norms of responsible state behavior in cyberspace. Identifying the gaps in international cooperation and their socioeconomic and po-

litical bases will enable the support of our partners' cybersecurity and contribute to building a cyber environment less hospitable to misuse.

December 2013. 107 pages.

P-93, ISBN 978-1-58566-226-5





The Drew Papers are award-winning master's theses selected for publication by the School of Advanced Air and Space Studies, Maxwell AFB, Alabama. They are intended to promote the understanding of air and space power theory and application. AU Press publishes this series of papers to commemorate the distinguished career of Col Dennis "Denny" Drew, USAF, retired.

Titles listed are currently or soon to be available in print at the AU Press bookstore at the time of this catalog's publication. They are listed in series number order beginning with the most recent and are searchable by author and title in this catalog's indexes and on our website. All papers in this series are downloadable from our website, <https://www.airuniversity.af.edu/AUPress/>. When ordering Drew Papers, use the catalog reference number (e.g., P-99).

Pope, Lt Col Billy E., Jr., USAF

A Better State of War

Surmounting the Ethical Cliff in Cyber Warfare

Series No. 29 [Online Only]

Concepts that determine the justice of wars and justice in war are analyzed as they relate to cyber-warfare capabilities, highlighting both concerns and opportunities for betterment. Cyber warfare offers nagging difficulties that complicate existing ethical warfare standards and novel prospects for improving how warfare is carried out. Decision makers must appreciate how their actions shape emergent norms and standards that will promulgate through this burgeoning domain. Cyber warfare has the potential to facilitate effects previously achievable through only lethal means. This is an exciting development in terms of ethical warfare. While B. H. Liddell Hart famously proposed that the reason for war is to create a better state of peace, cyber warfare has the potential to create a better state of war.

Davies, Sqn Ldr Gareth, Royal Air Force

Sovereignty and Collaboration

Affordable Strategies in Times of Austerity?

Series No. 28

In terms of military procurement, sovereignty is the ability to develop and operate equipment free from the external constraints of other nations. This paper questions whether sovereignty is an outdated strategy during times of austerity and if its apparent alternative—collaboration—delivers on its promise of affordability. The author examines Britain's purchase of military equipment over the past 15 years to determine if the United Kingdom has increasingly favored collaboration over sovereignty. He concludes that sovereignty is a

contested subject and that the question challenging nation-states in the future will not be whether to resist collaboration in favor of sovereignty but identifying when to collaborate and what sovereignty to invest in.

Porter, Wg Cdr Angus L., Royal Australian Air Force

Windows of Opportunity

East Timor and Australian Strategic Decision Making (1975–99)

Series No. 27

This study analyzes Australia's involvement in the 1975–99 East Timor crisis and examines how global and regional power dynamics have influenced Australia's pursuit of the national interest. It addresses the question of why Australian support for military intervention in East Timor took 25 years to develop. To answer this question, the study is divided into three key periods of East Timorese history covering major shifts in great-power dynamics and significant changes in Australia's strategic outlook. More specifically, these divisions represent periods of Australian dependence on great-power patronage and periods where Australia leveraged national power to alter the direction of Southeast Asian security.

Lee, Lt Col J. S. Peter, USAF

This Man's Military

Masculine Culture's Role in Sexual Violence

Series No. 26

Culture trumps strategy every time. The author proposes that the Department of Defense has mistakenly focused too much on a strategy to combat sexual assault without due recognition of military cultural factors. Colonel Lee concludes that while there is enough evidence to suggest that the military is demographically and culturally predisposed to a higher-than-average frequency of interpersonal violence and sexual assault, more research on who joins the military (and why) is needed. To reduce interpersonal violence and sexual assault, the military must confront its members' beliefs—not just their behaviors. The author illustrates not only how organizational change theory can be used to empower those most at risk of sexual assault to avoid becoming victims but also how to make the military a less friendly environment to would-be offenders prior to them getting the chance.

Poole, Lt Col John D., USAF

Jungle Skippers

The 317th Troop Carrier Group in the Southwest Pacific and Their Legacy

Series No. 25

This study examines the 317th Troop Carrier Group's experience in the southwest Pacific during World War II to identify its long-term effects. The work focuses on the 317th's role in two specific events: the Battle of Wau in January 1943 and the airborne assault at Nadzab.

the following September. Each event highlights the combat airlift dichotomy of airland and airdrop. In airland, troops are moved by aircraft and disembark from the aircraft on the ground. In airdrop, troops are moved by aircraft and land using parachutes.

Stahl, Lt Col Brian T., USAF

Blunting the Spear

Why Good People Get Out

Series No. 24 [Online Only]

Analysis of Air Force rated officer retention data, interviews with squadron commanders, and surveys of pilots from the fighter, bomber, and remotely piloted aircraft communities highlight the need for more focused retention methods. The surveyed communities reported different contextual definitions of key retention variables. Failure to negotiate these disparities at key points throughout an officer's career will lead to decreased retention of the best, regardless of monetary payout incentives. The author proposes methods the Air Force can use to address retention contextually from the Air Force level to individual major weapons system communities.

March 2015. 177 pages.

P-99, ISBN 978-1-58566-237-1

Anderson, Lt Col Steven J., USAF

Airpower Lessons for an Air Force Cyber-Power Targeting Theory

Series No. 23 [Online Only]

Cyber targeting and associated doctrine should be the center of Air Force cyber strategy and its plans to organize, train, and equip a force for full-spectrum cyberspace operations. Understanding what targets cyber operations can affect is critical to deliberate planning or crisis planning. This paper attempts to draw parallels to early airpower targeting principles in order to propose a cyber-power targeting theory based on offense, defense, and exploitation objectives. It draws upon limited artifacts inherent to wielding cyber power—attribution, authorities, and centers of gravity—and acknowledges their impacts upon leaders and practitioners of cyber power. In addition to focusing on the adversary, the theory is intended to cause introspection toward the end of identifying potential Air Force and national security vulnerabilities in, through, and from cyberspace.

McClam, Lt Col Reginald J., USMC

Balancing on the Pivot

How China's Rise and Offshore Balancing Affect Japan's and India's Roles as Balancers in the Twenty-First Century

Series No. 22

To maintain its relative position in the twenty-first century, the United States should consider rethinking its grand strategy of primacy. The United States is poised to pivot East to meet the demands of China as a rising challenger. The author raises the question, how viable would an alternative grand strategy in Asia be? Considerable enthusiasm is expressed in some corners of the policy-making world for the United States to return to a balancing strategy in Asia. Formerly known as offshore balancing, the strategy aims to conserve America's power as it deals with the challenges of a rising China. One important—albeit overlooked—element of offshore balancing is who should play the role of the balancer.

March 2016. 107 pages.

P-110, ISBN 978-1-58566-257-9

Greene, Lt Col Marc E.

Deconstructing Afghanistan

How Does America's Past Inform Afghanistan's Future

Series No. 21

A comparative history of Afghanistan and the post-Civil War US South societies reveals commonality in three important traits: highly differentiated class structures, ethnically and economically diverse societal mosaics, and a belief in peripheral and societal autonomy. The author explores the prospects for either renewed civil war or stable peace in Afghanistan after US and coalition military forces withdraw. The comparison with the South after April 1865 suggests that political reconciliation with Taliban leaders, sustained peace, and stable economic growth are possible. The study concludes that Afghanistan's fate rests with the Afghan people and not the international community, despite the weight of effort expended by the US and coalition nations since October 2001.

January 2015. 110 pages.

P-98, ISBN 978-1-58566-236-4

Burdick, Lt Col Jonathan E., USAF

Instantly Basing Locust Swarms

New Options for Future Air Operations

Series No. 20

Future swarms of small, remotely piloted aircraft (RPA) might provide significant force-projection capabilities using global military and commercial logistics infrastructures. This conclusion results from an examination of air operations during the Vietnam War, Operations Desert Storm and Enduring Freedom, existing RPA research and development, and projected Department of Defense developmental milestones involving swarms of small RPAs. The study also proposes a concept of operations, designated Locust Swarm, and a new logistics construct, called Instant Basing, that exploit the future capabilities of small, unmanned aerial vehicles. Such concepts may provide national policy makers relatively low-cost, low-risk options for international crises requiring the rapid deployment of airpower. January 2016. 127 pages. **P-20, ISBN 978-1-58566-252-4**

Bearden, Lt Col Robert C., USAF

Risky Business

Reducing Moral Hazard in Airlift Operations

Series No. 19

Comparing airlift-dependent operations at Dien Bien Phu and Khe Sanh, the author establishes that moral hazard plays a role in airlift operations that is not predictive and that may illuminate risks. Further, a positive relationship exists between airlift capacity and moral hazard. After analyzing US airlift operations in Iraq and Afghanistan from 2001 to 2011 in this historical context, the author concludes that a doctrinal solution best addresses moral hazard by informing the application of airlift in military operations while not arbitrarily curtailing or limiting them. Moreover, risks associated with airlift-dependent operations are more fully accounted for than they would be otherwise.

January 2015. 99 pages. **P-105, ISBN 978-1-58566-244-9**

Murphy, Lt Col Eric M., USAF*Complex Adaptive Systems and the Development of Force Structures for the United States Air Force***Series No. 18**

Force-structure analysis is critical to the process of planning, programming, and acquiring the military means to provide for national security and to shape the strategic environment. The author presents a theory of complex adaptive systems and demonstrates that force structures are examples of such systems. The argument is then made that the prevailing paradigm of the force-structure-analysis community in the United States Air Force is inconsistent with this reality. Recommendations identify low-cost opportunities with the potential for significant long-term effects in aligning the force-structure-analysis paradigm with the fact that force structures are complex adaptive systems.

January 2015. 127 pages. **P-103, ISBN 978-1-58566-239-5**

Bishop, Lt Col Benjamin W., USAF*Jimmy Doolittle**The Commander behind the Legend***Series No. 17**

The examination of Doolittle's performance as an operational air commander fills a void despite the many works about the famous aviator. Prior to assuming command of the Eighth Air Force, Doolittle lacked the administrative skills and bureaucratic experience typical of most senior officers. His legendary raid on Tokyo had, however, demonstrated his technical expertise, courage, and strong personal leadership. Aspects of Doolittle's leadership reviewed include his command environment, leadership approach, and actions to sustain morale. Doolittle adroitly managed his force's morale while remaining steadfast in his determination to defeat the Luftwaffe. This study suggests that while fostering the technical education of future senior leaders is prudent, even more important is nurturing leaders of courage, boldness, and humility.

February 2015. 121 pages.

P-106, ISBN 978-1-58566-245-6

Schutte, Lt Col John M., USAF*Casting Net Assessment**Andrew W. Marshall and the Epistemic Community of the Cold War***Series No. 16**

In government service, Andrew Marshall has projected and sustained influence in defense policy circles while serving eight presidents and 13 defense secretaries. Yet he remains an enigma to all but his closest associates. This paper attempts to answer the central and compelling question, who is Andy Marshall? Marshall's formative ideas about the practice of net assessment and his unique understanding of organizational behavior provide him a kaleidoscopic and masterful understanding of strategy. The story of Marshall's journey, of his growth and maturation as a strategist, is the focus of this biography.

February 2015. 114 pages. **P-104, ISBN 978-1-58566-240-1**

Salmi, Lt Col Derek M., USAF

Slim Chance

The Pivotal Role of Air Mobility in the Burma Campaign

Series No. 15

Lessons learned from air mobility's pivotal role in Field Marshal Sir William Slim's World War II Burma campaign are applied to contemporary air mobility operations. Based on this analysis, the author suggests that modern air mobility practitioners must account for five key essentials: superiority across the air and space domains, proper organization that promotes relationship building at the operational level of war, normalization of the complete air mobility supply chain and its accompanying idea of "air mobility mindedness," training focused on increased interoperability, and the vital role of leadership.

April 2014. 94 pages. P-97, ISBN 978-1-58566-234-0

Tyler, Lt Col Brian J.

Intelligence and Design

Thinking about Operational Art

Series No. 14

The 1948–60 anticommunist counterinsurgency known as the Malayan Emergency demonstrates key elements of operational design, including its close relationship with intelligence. The British high commissioner, Gen Sir Gerald Templer, made intelligence his "absolute top priority" and used it in bringing about the ultimate British victory. The author evaluates how emerging concepts of operational design should influence operational intelligence and concludes that operational intelligence and design are complementary processes that together can enrich operational art in the information age. The author considers implications for performing, organizing, training, and equipping operational intelligence and for balancing the inherent tensions of operational intelligence to improve the effectiveness of the joint force.

July 2014. 143 pages. P-96, ISBN 978-1-58566-233-3

Hersch, Lt Col William R., USAF

Images of Inherited War

Three American Presidents in Vietnam

Series No. 13

The presidencies of Kennedy, Johnson, and Nixon are examined through the lens of image and cognitive theory to help answer the question of how their perceptions (which often can create their own reality) of the Vietnam War affected their agendas and the outcomes of the war that each inherited. By examining Vietnam in the context of presidential image—how presidents filter events based on the unique experiences they bring to office—it is the author's hope that a broader conceptualization of "war as inheritance" will emerge. Ultimately, this study may help minimize current and future cognitive pitfalls in the development and execution of grand strategy—particularly when policy makers face the daunting challenge of inherited war.

February 2014. 203 pages. P-102, ISBN 978-1-58566-249-4

Fino, Lt Col Steven A., USAF

All the Missiles Work

Technological Dislocations and Military Innovation

A Case Study in US Air Force Air-to-Air Armament, Post–World War II through Operation Rolling Thunder

Series No. 12

Innovation has always clashed with entrenched bureaucracies and tradition, creating a tension that weaves itself through the fabric of US military history. With his concept of technological dislocation, the author examines factors that can dislocate the predicted evolutionary pathway of established or emerging technologies and steer them in new directions. Colonel Fino shows how a commitment to existing technologies and a fascination with the promise of new ones often complicate an institution's ability to recognize and adapt to an evolving strategic environment. This study provides today's leaders and strategists much-needed insights into how to bring about change and create advantage in the swirling complexity of modern technology and bureaucracy.

January 2015. 167 pages. **P-108, ISBN 978-1-58566-248-7**

Riley, Lt Col Jonathan, USAF

At the Fulcrum of Air Force Identity

Balancing the Internal and External Pressures of Image and Culture

Series no. 11 [Online Only]

Exploring the roots of the Air Force's identity problems helps to explain why many previous leadership-driven identity initiatives—bits of sizzle in the form of a shiny logo, fresh motto, or revamped uniform—have been so startlingly unsuccessful. The author concludes that senior Air Force leaders have failed, in part, because of their disregard for the powerful roles that organizational cultures play in the day-to-day lives of the average Airman. In the end, a leader will be truly successful only by discovering and communicating an emergent sense of Airman culture that resonates throughout the rank and file and inspires Airmen with a clear and compelling “why.”

January 2014. 97 pages.

P-101, ISBN 978-1-58566-229-6

Donnithorne, Lt Col Jeffrey W., USAF

Culture Wars

Air Force Culture and Civil-Military Relations

Series No. 10

This work considers US civil-military relations at the level of an individual military service and the impact of the US Air Force's organizational culture on its civil-military relationship. Whereas most of the literature on civil-military relations treats the military as a unitary actor, this study considers the services as separate entities with unique self-interests. Using the structural framework of agency theory, the author explores the causal impact of the Air Force's organizational culture on its calculus of cooperating with or resisting a national policy.

August 2013. 122 pages.

P-92, ISBN 978-1-58566-225-8

Mastalir, Lt Col Anthony J., USAF*The US Response to China's ASAT Test**An International Security Space Alliance for the Future***Series No. 8 [Online Only]**

China's successful antisatellite (ASAT) test ushered in a new era of space competition. China still offers no answers to one of the most troubling strategic space questions of the twenty-first century: why is China building space weapons? Fundamental changes in the way the United States approaches national security space are long overdue. Poorly implemented policies and futile strategies have hitherto failed to ignite any sense of urgency or rationality in Washington. China's test must serve to demark the end of failed American assumptions vis-à-vis its future competitive edge in space. Colonel Mastalir suggests that the best response for the United States is to prepare for a very different future in space, not with weapons in kind but with enduring solutions to preserve the utility of space exploitation for all nations. He recommends that the United States take action to properly align its instruments of national power to produce an enduring, coherent, multilateral approach toward space power.

August 2009. 138 pages.

P-71, ISBN 978-1-59566-197-8**Spaven, Maj Paul F., USAF***A US Air Force Strategy for Africa***Series No. 7 [Online Only]**

This groundbreaking study offers a thorough analysis of the context for USAF strategy making in Africa, followed by a synthesis of what that strategy might look like. The study concludes that a viable Air Force strategy in Africa is properly based on modest "ends" that reflect US national interests on the continent that are themselves limited in scope. Spaven proposes that "only by accepting the risk of stepping beyond tactical and operational thinking can the Air Force do great things for the poorest of continents." Major Spaven's thesis was the recipient of the Airlift/Tanker Association's 2008 Global Reach Award.

August 2009. 114 pages.

P-73, ISBN 978-1-59566-198-2**Judge, Maj Sean M., USAF***"Who Has the Puck?"**Strategic Initiative in Modern, Conventional War***Series No. 6**

What factors lead to shifts in strategic initiative during the conduct of modern, conventional war? The author looks at the Russo-German War of 1941–45 and the Pacific War of 1941–45 to answer this question. Both conflicts progressed through three distinct phases in which the Axis combatant first seized the strategic initiative, which then fell into dispute, and eventually shifted to Allied control. Four factors contributing to strategic initiative have been examined for each phase of each war: resources, intelligence, strategic acumen, and operational and tactical methods. The heart of the study focuses on the transition into, conduct during, and transition from the second phase of each war, where the actual shifts in initiative occurred.

August 2009. 134 pages. **P-72, ISBN 978-1-59566-195-5**

Hanson, Lt Col David S., USAF*"When You Get a Job to Do, Do It"**The Airpower Leadership of Lt Gen William H. Tunner***Series No. 4 [Online Only]**

This study examines the development and effectiveness of Lt Gen William H. Tunner's leadership during the interwar years, World War II, and early Cold War. It draws upon current Air Force leadership doctrine and proposes an Air Force leadership framework with which to assess the relationships among personal experience, leadership competencies, leadership actions, and the results they produce. While Tunner was brilliant at improving airlift efficiency and safety, his single-minded focus limited his leadership accomplishments. Nonetheless, his contributions to the airlift element of airpower confirm that while often underappreciated, General Tunner was a major force in the development of air transportation and a successful Air Force leader.

May 2008. 88 pages. P-58, ISBN 978-1-58566-183-1

Brown, Maj R. Greg, USAF*Learning to Leave**The Preeminence of Disengagement in US Military Strategy***Series No. 3**

Clausewitz posited centuries ago that "no one starts a war—or rather, no one in his senses ought to do so—without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it." Centuries later Robert Mandel cautioned that "perhaps the least understood, and certainly the least studied, aspect of war is how they [sic] end." Most recently, in *Learning to Leave*, R. Greg Brown uses a historical and theoretical examination of US national military strategy to explore these two theses, cogently highlighting how misconceptions about our outdated security framework hinder disengagement. For example, he finds especially outdated and appalling the nexus between the national security and national military strategies, outlining their role in extending military engagements.

May 2008. 149 pages. P-59, ISBN 978-1-58566-181-7

Lenderman, Lt Col Laura L., USAF*The Rise of Air Mobility and Its Generals***Series No. 1**

During the rise of fighter generals to preeminence in the Air Force, mobility operations played a significant yet secondary role in airpower strategy. Since the end of the Cold War, however, airlift, air-refueling, and aeromedical-evacuation missions have become an indispensable and direct aspect of US grand strategy. The author examines a shift toward myriad, complex operations demanding mobility aircraft. She also shows that as the number and importance of mobility-centric operations have increased, so has the number of generals with mobility expertise, especially at the most senior levels of the Air Force—a phenomenon that reflects the Air Force's adaptation to the changing geopolitical environment.

March 2008. 103 pages. P-53, ISBN 978-1-58566-175-6



The Center for Strategy and Technology (CSAT) was established at the Air War College in 1996 to engage in long-term strategic thinking about technology and its implications for US national security.

The Occasional Papers series is the result of CSAT research on topics developed from Headquarters Air Force and other Department of Defense agency inputs. The ensuing research is published as Occasional Papers and disseminated to senior military and political officials, think tanks, educational institutions, and other interested parties. The papers are used to promote the integration of technology and strategy in support of US national security objectives.

This series is normally available **online only** at the AU Press website, <https://www.airuniversity.af.edu/AUPress/>.

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Lt GEN STEVEN L. KWAST, Air University Commander and President

Foster, Harry A., with Maj Dylan A. Bell and Capt Darren R. Turner

American Aerospace Power

Choosing to Lead in the Twenty-First Century

Series No. 71 [Online Only]

America's strength as an aerospace nation—its technology and people—is critical to the country's future prosperity and security. America's leadership position in aerospace is threatened commercially and militarily, not necessarily because of the actions of others but because American leadership is taken for granted. Without congressional action and the continued support and interest of the American people, it is a leadership position other nations are posturing to assume. We must invest in and develop new ways to contend in the aerospace arena. The authors suggest ways forward for the United States to continue to be a leader in it.

March 2016. 49 pages. **P- 110, ISBN 978- 1-58566-260-9**

**Geis, Col John P., II, USAF; Grant T. Hammond; Col Harry A. Foster, USAF;
and Col Theodore C. Hailes, USAF, Retired**

Blue Horizons IV

Deterrence in the Age of Surprise

Series No. 70 [Online Only]

Exponential technological change influences the panoply of threats the US Air Force may have to face in the future and how it should posture itself to best deter those threats. The authors examine the changes in the array of threats for which deterrence will be needed in the future due to the proliferation of disruptive technologies. Additionally, they explore the relevance of deterrence theory to both existing and new threats, some of which may surpass nuclear weapons in the risk they pose to both the United States and humankind. Finally, they recommend new ways of applying deterrence theory to reduce the risk that new disruptive technologies pose to the United States and its interests.

February 2014. 71 pages. P-95, ISBN 978-1-58566-231-9

**Shannon, Lt Col Christopher C., USAF; Lt Col Scott J. Scheppers, USAF;
Lt Col Dustin P. Ziegler, USAF; Maj Brian C. McDonald, USAF;
and Maj David Suh Hoon Menke, USAF
Edited by Col John P. Geis II, USAF; Lt Col Amanda S. Birch, USAFR;
and Maj Tosha N. Meredith, USAFR**

Finding the Shape of Space

Series No. 69 [Online Only]

The US space mission for 2025–40 will be shaped by accelerated technological change. A wide range of scenarios and solutions are presented for US space-based deterrence, which may become a reality in the very near future. The authors conclude that there will be a need for improved and untapped space-access technology. To maintain its space superiority advantage, the United States must be able to respond in a rapidly changing environment. It must take action to preserve space dominance, or it will encounter challenges from adversaries—which could prove devastating if not addressed well in advance.

July 2011. 146 pages. P-83, ISBN 978-1-58566-208-1

**Geis, Col John P., II, USAF; Lt Col Scott E. Caine, USAF; Col Edwin F. Donaldson,
USAF;
Col Blaine D. Holt, USAF; and Lt Col Ralph A. Sandfry, USAF**

Discord or "Harmonious Society"?

China in 2030

Series No. 68 [Online Only]

This study asks, How should the Air Force prepare for a peer China in 2030? The authors assume that China's economy will dominate Asia and much of the world by 2030. China will also be a near peer to the United States in terms of military power. War is not a foregone

conclusion, but the United States will face a wide array of advanced weapons if war does occur. The authors expect China to develop naval power that will challenge US naval capabilities in the region. Its military aircraft will be on par with those of the United States. China will also field a vast array of technically advanced weapons such as systems for directed energy, space and counterspace, information warfare, and electronic warfare. Moreover, the Chinese will field a wide variety of antiaccess capabilities to deny the United States entry to areas around their country. Whatever the actions of China in 2030, the United States must be prepared to handle the challenges they present. Meeting these challenges will require investments in new systems and technologies, especially in the fields of responsive space, offensive and defensive cyberspace, more responsive strategic lift, and survivable tactical lift as well as long-range strike.

February 2011. 148 pages. P-64, ISBN 978-1-58566-209-8

**Kinnan, Col Christopher J., USAF; Col Daniel B. Gordon, USAF;
Lt Col Mark D. DeLong, USAF; Lt Col Douglas W. Jaquish, USAF;
and Lt Col Robert S. McAllum, USAF**

Failed State 2030

Nigeria—A Case Study

Series No. 67 [Online Only]

How will the world, particularly the United States and its Air Force, deal with the potential global consequences of a failed state whose principal export commodity is also of vital interest to the United States. Although not possessing nuclear weapons, Nigeria—with its vast oil wealth, large population, and strategic position in Africa and the global economy—has the potential to dramatically affect the US and the global economy if it fails. Africans are fond of saying, “As Nigeria goes, so goes Africa.” Nigeria’s extraordinarily complex demographics, culture of corruption, poor and failing national and human infrastructure, long history of dangerously destabilizing religious and ethnic violence, history of and potential for future military coups d’état, endemic disease, and growing importance to the worldwide and US economies present researchers with a myriad of vexing and intractable problems and challenges. This monograph is not a forecast of a specific future; rather, it is structured to help the reader understand the magnitude and shape of Africa’s largest economy and its global impact. A failure in Nigeria, like that of almost any other nation, could have serious repercussions across the planet.

February 2011. 156 pages. P-77, ISBN 978-1-58566-203-6

**Hailes, Col Theodore C., USAF, Retired; Col Ronald Buckley, USAF;
Lt Col David Blanks, USAF; Lt Col Mark Butler, USMC; Lt Col Phillip Preen, USAF;
and Lt Col Michael Tarlton, USAF**

Resurgent Russia in 2030

Challenge for the USAF

Series No. 66

Russia is reasserting itself as a world power in terms of geography, politics, nationalism, and religion. It tends to value stability and strong leadership even when these traits conflict with the democratic ideals that have become mainstays in the West. Its ideology is deeply rooted in its unique history, and that history helps explain Russia’s focus on national security and its high level of suspicion in the international arena. This constant pursuit of security will drive Russia to continue to spend an increasingly larger share of its gross do-

mestic product on its military. Security concerns will continue to allow for the centralization of authority in the hands of a strong, autocratic leader. Consequently, these security concerns and associated spending priorities will come at the expense of social programs, which will continue to be underfunded.

September 2009. 100 pages.

P-69, ISBN 978-1-58566-199-2, online only

**Geis, Col John P., II, USAF; Col Christopher J. Kinnan, USAF;
Col Theodore C. Hailes, USAF, Retired; Col Harry A. Foster, USAF;
and Lt Col David Blanks, USAF**

Blue Horizons II

Future Capabilities and Technologies for the Air Force in 2030: Executive Summary

Series No. 65 [Online Only]

This study provides “a new look at the future” and develops a prioritized list of concepts and their key enabling technologies that the USAF would need to maintain dominance in air, space, and cyberspace to the year 2030. The study examines whether the USAF could leverage a targeted investment today to position itself to address a broad set of possible challenges over the next 20 to 30 years. Drawing on extensive academic and field research, the authors build four alternate futures. While the scenarios are not intended to be read as predictions, each is plausible, and we may see one or more of these unfold. Their purpose, however, is to act as a tool to assess how best to accomplish the core USAF missions, which are assumed to remain in the domains of air, space, and cyberspace for the foreseeable future.

July 2009. 60 pages. P-64, ISBN 978-1-58566-193-0





Walker Papers are selected for publication from Air Force Fellows program research projects. Field grade officers attend civilian universities and organizations for one year, studying national security strategy and serving as military ambassadors to prestigious institutions. The papers are named after Brig Gen Kenneth N. Walker, a former Air Corps Tactical School instructor and Medal of Honor recipient in the Pacific during World War II.

Titles listed below are available in print at the time of publication. All papers in this series are searchable on our website at <https://www.airuniversity.af.edu/AUPress/> and may be downloaded free of charge.

When ordering Walker Papers, please use the catalog reference number (e.g., P-85).

Eldridge, Col William G., USAF

The Credibility of America's Extended Nuclear Deterrent

The Case of the Republic of Turkey

Series No. 18

The Republic of Turkey is used as a case study to examine the status of US extended nuclear deterrence and its effectiveness in reinforcing nonproliferation. This study explores the impact of post-Cold War nuclear weapon reduction policies and Air Force nuclear missteps on US deterrence capabilities. The author makes recommendations that may help to strengthen Air Force credibility in this arena, aid policy development for US-Turkish security relationships, provide inputs for NATO nuclear policy debates, and inform US nuclear deployment, arms control, and disarmament policies.

September 2011. 113 pages. **P-85, ISBN 978-1-58566-215-9**

Dixon, Col Kevin D., USAF

Equipping Network Warfare Industrial-Era Bureaucracies for Information-Era Weapons

Series No. 17

Potential approaches to accelerate requirements and acquisition processes in the cyber domain are Major Force Program-11 authorities, Cyber Safari, and the Cyber Warfare Integrated Reprogramming model. These alternatives provide a tiered approach to countering some ill effects of the corporate processes while mitigating both operational and resource allocation risk. They also allow a more responsive presentation of materiel development capabilities to counter the unique challenges of technology breadth, pace of innovation, and operational urgency.

May 2011. 56 pages. **P-84, ISBN 978-1-58566-213-5**

Atteberry, Col Christopher L., USAF*Overcoming Inertia**Building Human Capital on Interagency Success***Series No. 16**

The author outlines ways the government can maximize its human capital. The first phase of his two-pronged approach suggests better use of interagency personnel in the short term, while his second, longer-term phase fosters the “development of a truly independent corps of interagency experts, essentially a new bureaucratic structure within the government.” Combining these two phases to create interagency experts or specialists allows for near-ideal fluidity or cooperation among governmental agencies. Although written primarily for a governmental audience, this study also offers insights for nongovernmental agencies, including educational, financial, and religious institutions.

August 2011. 56 pages. P-81, ISBN 978-158566-214-2

Manske, Col Chad T., USAF*The Machinery of Government Needs a Tune-Up**Lessons for the US National Security Council from the British Committee of Imperial Defence***Series No. 15**

The US National Security Council (NSC) system is compared with its organizational prototype, the pre–World War II British Committee of Imperial Defence. Topics range from the historical contexts leading to their creation, structures, purposes, functions, leadership, and significant organizational developments over time. The author’s insights form the bases for recommending modest changes to the NSC system, including appropriately sizing the NSC staff and emphasizing the importance of strategic planning.

March 2009. 117 pages. P-63, ISBN 978-1-58566-190-9

Patterson, Lt Col P. Dean, Jr., USMC; and Lt Col Lenny J. Richoux, USAF*Rethinking the QDR**The Case for a Persistent Defense Review***Series No. 14**

The authors offer a cogent argument for a DOD quadrennial defense review (QDR). Established in 1997, the QDR is a relatively new mechanism for examining the budgetary process to ensure that taxpayers’ money is well spent. At the same time, it is equally important that each service receive its fair share of the allocation pie. Of the options they view as viable—abandoning, enlarging, or creating a persistent QDR—the authors believe the latter provides the best outcome.

January 2009. 72 pages. P-62, ISBN 978-1-58566-188-6

Marttala, Lt Col David W., USAF

The "In Lieu Of" Myth

Airmen in Joint Ground Operations

Series No. 13

The Air Force's "in lieu of" (ILO) (now called joint expeditionary team [JET]) deployment of Airmen to perform combat support functions doctrinally assigned to the Army or Marine Corps evolved from a temporary assistance measure to a de facto permanent reallocation of service roles and missions. Using Air Force security forces as a case study, the author demonstrates that this solution does more harm than good, creating an illusion of adaptation that obscures the nature and scope of the problem and jeopardizing future war-fighting capability among our collective military forces. Practical recommendations are offered to rebalance requirements and resources for modern warfare.

January 2009. 107 pages. P-61, ISBN 978-1-58566-172-5

Constantine, Lt Col Rofitjel, USAF

GPS and Galileo

Friendly Foes?

Series No. 12

The competitive relationship between the European Union (EU) and the United States regarding satellite navigation is outlined. To buttress his thesis that the EU's navigation satellite system, Galileo, poses a veritable threat to the United States' counterpart, the Global Positioning System, the author traces the development of the navigation systems, analyzes the threat, and delineates the precise course of action the United States must undertake to protect its industrial, military, and national security interests.

May 2008. 84 pages. P-56, ISBN 978-1-58566-177-0

Douglass, Lt Col Charles A., USAF, and Lt Col Michael D. Hays, USAF

A US Strategy for Iran

Series No. 11 [Online Only]

US relations with the largest country in the Middle East and potential nuclear power, the Islamic Republic of Iran, have captured headlines and elicited debate. The authors researched the history of the Persians and talked with noted experts to analyze the perceptions and patterns that contribute to Iran's actions toward the United States. They apply that knowledge to develop a strategy based on potential vulnerabilities created by Iran's history and the nature of the country and its people. Public diplomacy and a strategic communications effort tie together the components of the authors' short-term strategy while a long-term strategy is tied to improvements in US and Iranian relations.

April 2008. 130 pages. P-54, ISBN 978-1-58566-200-5

Lengyel, Col Gregory J., USAF*Department of Defense Energy Strategy**Teaching an Old Dog New Tricks***Series No. 10**

A national energy policy and organizational structure to support its implementation are required to meet the United States' insatiable thirst for energy, according to the author. Colonel Lengyel argues that the United States has created one of the mightiest militaries in the world but sadly has fallen short in its efforts to create a viable energy strategy. As the country's largest single consumer of energy—the key enabler of US military combat power—the DOD has a unique interest in energy security vulnerabilities. Proposals for conserving energy include bases operating on 100 percent renewable energy, Air Force Smart Operations 21 fuel savings processes, culture change, and leading the way in synthetic fuel testing and certification.

January 2008. 104 pages. **P-52, ISBN 978-1-58566-174-9**

McCarthy, Lt Col Michael J., USAF*The Limits of Friendship**US Security Cooperation in Central Asia***Series No. 9**

The history of US security cooperation programs in Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan is explored. Those programs exhibited five distinct phases of development as they sought to achieve US objectives in denuclearization and proliferation prevention, democratization and military reform, regional cooperation, and improvement of military capabilities. The author elaborates on limiting factors, successes, and a failure associated with those efforts and then recommends actions for the future US security cooperation in Central Asia.

October 2007. 265 pages.

P-49, ISBN 978-1-58566-172-5

Vaughan, Lt Col Edgar M., USAF*Recapitalizing Nuclear Weapons***Series No. 8**

More than six decades after Hiroshima and almost two since the end of the Cold War, the US nuclear weapons stockpile is undergoing an extensive and expensive life-extension program to ensure the continued safety, security, and reliability of the legacy weapons well into the future. The current stockpile does not meet post-Cold War national security challenges. Today's challenge is to sustain and modernize the US nuclear weapons infrastructure with minimal risk and cost. The author advocates the immediate recapitalization of US nuclear weapons to mitigate risks and address the highly uncertain future security environment.

August 2007. 80 pages. **P-47, ISBN 978-1-58566-170-1**

Butler, Lt Col Jeffrey T., USAF

The Influence of Politics, Technology, and Asia on the Future of US Missile Defense

Series No. 7

An overview of ballistic missile defense (BMD) initiatives and their attendant technologies is presented along with a careful analysis of their existing capabilities and potentialities. This data is used to recommend BMD initiatives most likely to provide realistic expectations of useful defense capabilities in the near- to mid-term. Extensively discussed are the implications of BMD in the relationships of the United States and nations of Asia—particularly Russia, China, India, Pakistan, Iran, North Korea, and Japan.

August 2007. 86 pages. P-46, ISBN 1-58566-167-8

Hendrickson, Lt Col Gordon B., USAF

The Future of NATO-Russian Relations

Or How to Dance with a Bear and Not Get Mauled

Series No. 6

The author, a former air attaché in Moscow, analyzes how Russia's historic territorial anxiety affects its perception of NATO's eastern movement. Despite Russia and NATO having effectively worked together in exercises and operations in the Balkans, the NATO-Russian relationship is haunted by old feelings of distrust. Colonel Hendrickson proposes several practical steps the alliance can take to ease Russia's concerns and continue to effectively keep the relationship moving forward. As Lt Gen Frank Klotz notes in his foreword, "It is absolutely vital that NATO and Russia get this right."

July 2006. 80 pages. P-43, ISBN 978-1-58566-155-8

Bansemmer, Lt Col John D., USAF

Intelligence Reform

A Question of Balance

Series No. 5

Three topics are explored in the context of the 9/11 Report and the subsequent reform efforts initiated by the executive and legislative branches: (1) the 1986 Goldwater-Nichols reform of the Department of Defense and its applicability to the intelligence community (IC), (2) the common findings and recommendations of past reform efforts of the IC, and (3) the competing interests inherent in the IC that influence the pace and character of actual reform.

August 2006. 192 pages. P-42, ISBN 978-1-58566-151-0

Palmby, Col William G., USAF*Outsourcing the Air Force Mission**A Strategy for Success***Series No. 4 [Online Only]**

This study serves as both a primer for those unfamiliar with outsourcing and as a tool for Air Force leadership and decision makers for resolving or preventing its attendant pitfalls. A background on the terminology, processes, and regulatory guidance used in outsourcing is followed by a review of forces driving outsourcing and an analysis of its advantages and disadvantages. The author addresses associated issues facing the Air Force and Department of Defense and provides options designed to help begin the considerable effort of evolving the Air Force's culture and structure to allow full integration of outsourcing as a key and equal component of its Total Force team.

April 2006. 84 pages. **P-40, ISBN 978-1-58566-150-3**

Brown, Col Charles Q., Jr., USAF*Developing Doctrine for the Future Joint Force**Creating Synergy and Minimizing Seams***Series No. 3 [Online Only]**

Colonel Brown argues that recent operations have highlighted seams and shortfalls in joint doctrine that need to be addressed in the shaping of a more effective future joint force. Using current doctrine command and control tenets and Joint Operations Concept attributes as a framework, he develops the foundation of air-ground doctrine for the future joint force.

September 2005. 136 pages. **P-25, ISBN 978-1-58566-147-3**

Cotts, Lt Col Christopher D., USAF*The Revenge of Europe**NATO and the Transatlantic Relationship in the Era of the European Union***Series No. 2**

The collapse of the Soviet Union, the reunification of Germany, and the emergence of the European Union (EU) have all raised questions regarding the United States' transatlantic relationship and the subsequent role of NATO. The author takes a brief look at past US-European relations and analyzes the current state of affairs. Recent tensions in the relationship, he concludes, are a result of the EU's growing role as a state actor in the international system. Policy differences between the United States and the EU are merely symptoms of the changes resulting from the EU's new role. The author calls for a reformulation of the alliance that allows both the United States and the European Union to pursue their own interests while forcing the EU to take responsibility for its own defense. September 2005. 87 pages. **P-29, ISBN 978-1-58566-142-8**



The Wright Flyer series, sponsored by the Air Command and Staff College, presents a sampling of exemplary student research addressing some of the most complex security and defense challenges facing us today. The papers listed are available **online only** at the AU Press website, <https://www.airuniversity.af.edu/AUPress/>. Older titles in this series are searchable on our website at <https://www.airuniversity.af.edu/AUPress/>.

Boyd, Gary W., DAFC

The Innate Insurgent Advantage

Can Training and Planning Bridge the Gap?

Series No. 57

The role of training, planning, and technological change is examined in helping turn around coalition and American efforts in Operations Iraqi Freedom and Enduring Freedom. Despite the wealth of historical, doctrinal, and experiential knowledge available to help mitigate casualties and restore security in these operations, the United States and its coalition partners failed to adequately plan or to train and equip their individual forces until years after the start of the conflict. The evidence suggests that these forces made great strides in reversing what had been virtual lost causes to effect meaningful victories and gradual withdrawal throughout the region. Boyd reviews methods, training, and decisions that helped make moderate successes possible after particularly dark days.

January 2016. 46 pages

Sackett, Maj John G., USAF

Guilt-Free War

Post-traumatic Stress and an Ethical Framework for Battlefield Decisions

Series No. 56

Post-traumatic stress disorder (PTSD) affects roughly 15 percent of all combat veterans. When a warrior experiences a moral dilemma in a combat situation that violates a deeply held conviction, he or she suffers a moral injury. These moral injuries and the combat guilt that accompanies such injuries are a leading cause in the development of PTSD. Today's warriors are even more vulnerable to moral injuries, given the ambivalence surrounding morality in general. Compounding this situation are increasingly restrictive rules of engagement against an unseen enemy who does not appear to follow any rules at all. These dynamics increase the vulnerability of US warriors to moral injuries. Given the connections between moral injury, guilt, and post-traumatic stress, this paper seeks to open a dialogue on the need for the development of an ethical framework that can guide warriors in making battlefield decisions, providing possible armor against moral injury and assisting warriors in their reflection on previous involvement.

December 2015. 44 pages.

McDonald, Lt Col James E., ANG*Fiscal and Operational Impacts of Standardizing US Military Resiliency Programs to Minimize Post-traumatic Stress Disorder***Series No. 55**

In recent years the military has implemented nearly a dozen separate programs aimed at decreasing the rates of post-traumatic stress disorder and suicide. After evaluating current military resiliency training programs, the author concludes that the services could benefit from a universal program content and delivery framework. Organizations are independently managed and operated, with little or no collaboration among them. Standardized training scope, content, and delivery of resiliency programs would ensure proven subject matter and provide more consistent evaluation and metrics. Program consolidation could lower administrative costs while increasing communication and oversight of best practices. Standardizing and consolidating resiliency programs would result in saving lives and millions of dollars in treatment, disability, and retraining costs.

April 2016. 57 pages.

Schroer, Maj Michael R., ANG*Autonomous Warplanes**NASA Rovers Lead the Way***Series No. 54**

Military use of remotely piloted aircraft (RPA) has grown dramatically. RPAs are quickly becoming indispensable parts of military operations and assets greatly valued by commanders. These systems offer many benefits, including a reduced risk to human life, increased efficiency, improved time on station, and reduced cost. Current systems are limited by the need for direct human control due to the inherent slowness of human decision making and the physical delay of satellite communications. This paper identifies aspects of NASA's rover autonomy research that may apply to military RPA development. Using NASA's research could allow the United States to take advantage of decades of development effort and maintain the technological advantage it currently enjoys in this rapidly evolving area of competition.

April 2016. 51 pages.

Cunningham, Maj Peter A., USAF*Military Payloads Hosted on Commercial Satellites**How Can SMC Increase the Number of Commercially Hosted Military Payload Contracts?***Series No. 53**

Commercially hosted military payloads (CHMP) offer one good option for the Space and Missile Systems Center to accomplish its mission of delivering resilient and affordable space capabilities. A CHMP uses a commercial satellite's available size, weight, and power to accommodate a military payload. When the military payload requirements and commercial host characteristics match, a CHMP solution can be a cost-saving alternative. To date, the Air Force has contracted only one CHMP, with a 21 September 2011 payload launch. The CHMP was a wide field-of-view infrared sensor known as the commercially hosted infrared payload (CHIRP). The CHIRP demonstrated that a CHMP solution would garner a reduction in cost and schedule.

December 2015. 49 pages.

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April, 2016. 50 pages.

Turner, Lt Col Jason A., USAF

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October 2015. 41 pages.

Totten, Maj Lindsay, USAF

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Series No. 49

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December 2014. 43 pages.



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