

Air University Research Bulletin

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Air University Research Bulletin
Spring 2001

The first element of air power is preeminence in research.

—General Henry H. Arnold

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Air University Commander's Welcome

By Lt Gen Lance W. Lord

Welcome to the inaugural issue of the *Air University Research Bulletin*, a new annual publication highlighting research activities and accomplishments at Air University (AU).

Students at AU contribute over 200 papers each year to the national security community. These papers target research needs identified in the previous year by United States Air Force (USAF) major commands, unified commands, and the Joint Staff, as well as by select Air Force agencies and institutes. With this bulletin, AU is proud to announce our recent research accomplishments.

Our schools and research support team have just completed the on-line collection of student research papers written in Spring 2000. We invite you to review the titles in this bulletin or to access them in full text on our Web site. The AU collection of 1,400 papers serves a wide variety of research needs. It is a valuable resource for staff officers and researchers—we hope you'll find it useful.

With high expectations, we are happy to present the first-ever *Air University Research Bulletin*.

AU Research Targets AF Needs

By Dr. Jim Titus, AU Dean of Research

AU sponsors a variety of research programs. In publishing the *AU Research Bulletin* each spring, our primary objective is to recognize the research accomplishments of AU faculty and students. Accordingly, we will highlight

faculty and student research, the latest AU Press publications, and the activities of AU's specialized research centers.

The *AU Research Bulletin* will also highlight faculty and student participation in conferences and other professional activities that extend our knowledge in the core areas of the AU curriculum. We want the bulletin to foster communication about a broad range of matters related to research at AU. It is our larger hope that by publicizing our research activities and achievements, the bulletin will help promote increased recognition of an important dimension of AU's service to the Air Force and the wider defense community.

AU resources include research support services and tools offered by the AU Library, the Air Force Doctrine Center (AFDC), the Air Force Historical Research Agency, and various AU schools, to include the research databases and project management services offered by the College of Aerospace Doctrine, Research and Education's (CADRE) Research Support Division. Web sites for most of these services are featured on the back cover.

We welcome your thoughts on anything that may improve the value of the *AU Research Bulletin*. Please send any comments to james.titus@maxwell.af.mil.

William M. Arkin, in his *Washington Post Online* article, 14 Feb 2000, said:

"[Air University's] ResearchNet makes available student research papers and other studies in full text, a particularly welcomed service, and a practice that needs to be emulated by war colleges of other services."

The *AU Research Bulletin* is produced by the Research Support division of the Airpower Research Institute of the College of Aerospace Doctrine, Research and Education and by Air University Press, Air University, Maxwell Air Force Base, Alabama.

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From the Editor

Research at Air University includes both technological research undertaken primarily at the Air Force Institute of Technology at Wright-Patterson Air Force Base in Dayton, Ohio, and research on doctrine, strategy and the art of war conducted at the schools at Maxwell Air Force Base, Alabama: Air War College, Air Command and Staff College, the College of Aerospace Doctrine, Research and Education, and the School of Advanced Airpower Studies.



This bulletin highlights research accomplishments of the faculty and students at the Maxwell schools. In particular, it identifies student research papers from last year. Full text versions of these papers are available at the AU Research Web site (<http://research.au.af.mil>).

AFIT's research program is supervised by Dr. Heidi Ries, Associate Dean for Research, Graduate School of Engineering and Management (AFIT/EN), Heidi.Ries@afit.edu. Student theses from AFIT for last year are not featured in this bulletin, but are available on-line at DTIC's STINET and the AU Research Web site. Both sites are featured on the back cover.

The *AU Research Bulletin* is distributed throughout the national security community in print form and is also available electronically at <http://research.au.af.mil/bulletin>.

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Research Highlights from Air War College

Faculty Highlights

By Dr. Lawrence Grinter

Dr. Michael Hickok's fellowship with the Council on Foreign Relations and International Affairs led to strengthened US-Japan relations, exposure to Japanese ideas about America's regional military policy in the former Soviet states of Central Asia and the Caucasus, and to his research presentation at the 2d Eurasian Economic Summit in Istanbul. He continued his work on Japan's Eurasian policy and was able to present his finished research at Massachusetts Institute of Technology (MIT) and in various government meetings stateside. Portions of this work have been published in both English and Japanese, making it available to a broad audience in both Japan and the United States.

Dr. Steve Burgess's research on the South African Chemical and Biological Warfare Program was funded by the AF Counterproliferation Center (CPC) and by the Institute for National Security Studies (INSS). The findings were presented at the November INSS "Research Results" conference at the Air Force Academy. Both INSS and CPC will be publishing monographs shortly, and an article is being prepared for the *Nonproliferation Review*. Dr. Burgess and coauthor, Helen Purkitt of the Naval Academy, are writing a book on this research.

Dr. Mary Hampton's article, "Reaching Critical Mass? Women and the 1998 German Elections," is an analysis of how and why German women voted in the consequential election of 1998 that ended the 16-year Kohl era. Women voters in both eastern and western parts of Germany played a decisive role in bringing that era to a close. The article examines why women voters, especially those over 60 years of age, turned increasingly to the Social Democrats (SPD). It also explores the important economic, social, and political differences that still separate women in the east and west.

Dr. Chris Hemmer's new book, *Which Lessons Matter? American Foreign Policy Decision Making in the Middle East 1979–1987*, was published by the State University of New York Press (2000). The book attempts to answer the important question of why some historical analogies are seen as relevant for later decisions, while countless others are ignored. The book examines the Carter administration's policy during the 1979 hostage crisis and the Reagan administration's policy that resulted in the Iran–Contra affair.

Dr. Daniel Hughes's "Germany and Coalition Warfare in Two World Wars: A Comparative Study" (forthcoming in the journal *War in History*) is expected to be published in April. He is also preparing a book on German military theory, strategy, and doctrine from 1870–1918, which he started during his recent sabbatical. The book relates German theory and strategy to the German army's structure, officer personnel policies, professional military education (PME), unit training, social structure, and armaments policy.

Dr. Jim Toner used his sabbatical to finish his new book *Morals Under the Gun: The Cardinal Virtues, Military Ethics, and American Society*, which has been published by the University Press of Kentucky. His book connects ethics and moral theology with the armed services, arguing the core values of the military must represent the four cardinal virtues—wisdom, courage, temperance, and justice.

Dr. Judith Gentleman, professor of International Security and Latin American Studies, and former Fulbright scholar in Colombia, has been conducting research into the regional impact of Colombia's widening conflict and the prospects for the US-sponsored Plan Colombia. She presented a paper titled "Upheaval in the Andes: the Growing Regional Security Crisis and State Response" at the Conference on Globalization and Security sponsored by the International Security and Arms Control Section of the American Political Science Association and the International Security Studies Section of the International Studies Association in Denver, Colorado, November 2000. She recently attended the conference "Implementing Plan Colombia: Strategic and Operational Imperatives for the U.S. Military" sponsored by the Army War College and the North–South Center of the University of Miami, Miami, Florida, February 2001. She also pioneered a new course at the Air War College (AWC) titled "The War in Colombia" for academic year (AY) 01.

Dr. David Sorenson continues his research in international relations. He recently completed editing two new books: *The Politics of International Aerospace Collaboration* (coedited with Pia Christina Wood, Wake Forest University), London: Ashgate Publishers, 2000; and *The Politics of Peacekeeping* (coedited with Pia Christina Wood, Wake Forest University), Portland, Oregon and London: Frank Cass Publishers, forthcoming.

The Maxwell Papers: AWC Releases Four

By Dr. Lawrence Grinter, Editor, *The Maxwell Papers*

The *Maxwell Papers*, AWC's occasional papers series, focuses on current and future issues of particular interest to the Air Force and the Department of Defense (DOD). The series began in May 1996 with the AU commander's signature on the foreword to the first *Maxwell Paper*. Gen Ronald R. Fogleman, former Air Force chief of staff, signed the foreword to *Maxwell Paper* No. 6. Since the inception of the series, 23 *Maxwell Papers* have been published.

Every candidate paper goes through a rigorous review and selection process. Selected papers average 7,500 to 8,000 words and are documented in conformity with the *Air University Style Guide*. The AU Press handles technical editing and layout for each selected paper.

The *Maxwell Paper* distribution list contains 395 addresses and is growing. Senior USAF leaders, DOD agencies, PME institutions, Congress, other US government agencies, defense contractors, and 41 foreign air forces and institutions presently receive the papers via the distribution list. The *Maxwell Papers* are also available electronically in the “Special Collections” section of the AU Research Web site at <http://research.au.af.mil>.

Publication as a *Maxwell Paper* is an option primarily for AWC students and faculty, but it is open to all interested authors. To be considered for publication, an author should submit two copies of the manuscript to: Air War College, ATTN: Lawrence E. Grinter, PhD, 325 Chennault Circle, Maxwell AFB, AL 36112-6427.

The *Maxwell Papers*, AY2000, available on-line:

- [*A Separate Space Force An 80-Year-Old Argument*](#), Michael C. Whittington, no. 20.
- [*US-Led Cooperative Theater Missile Defense in Northeast Asia Challenges and Issues*](#), Rex R. Kiziah, no. 21.
- [*Star and Crescent Turco-Israeli Partnership in a Tough Neighborhood*](#), Joseph M. Codispoti, no. 22.
- [*Growing the Space Industrial Base Policy Pitfalls and Prospects*](#), Robert L. Butterworth, no. 23.

AWC AY00 Commandant’s Professional Studies Papers available on-line:

Author	Title
Lt Col John Brunderman	<u>High Power Radio Frequency Weapons: A Potential Counter to US Stealth and Cruise Missile Technology</u>
Col William Floyd	<u>Air Force Civil Engineer Mobilization in a Joint Vision 2010 World</u>
Lt Col George Hept	<u>Evolution in Military Affairs: The Chaotic Development of Infrared Systems for Tactical Aviation</u>
Lt Col Beth Kaspar	<u>The End of Secrecy? Military Competitiveness in the Age of Transparency</u>
Col Brad Mason	<u>The Integration of US Army AH-64 (Apache) Helicopters into USAF Aerospace Expeditionary Force Organization: Bridging the Conceptual Gap Between Halt Doctrine, Strategic Preclusion, and JV 2010</u>
Lt Col Larry Sills	<u>Prompt Global Strikes Through Space: What Military Value?</u>
Lt Col Loraine Simard	<u>Acquisition and Contracting Strategies to Reduce Depot Maintenance and Repair Costs—An Integrated Approach</u>
Lt Col James Whidden	<u>Future Combat Assessment</u>
Lt Col Charles Wolfe	<u>Properly Resourcing the “Shape” Pillar of the National Military Strategy</u>

AWC Nonresident Program Adds New Research Choices

By Lt Col Robert Kane

The AWC Nonresident Studies (NS) program requires its distance learning students to complete a writing assignment as one of the academic requirements to complete that program. Students have received specific guidance to write papers on a limited selection of prescribed topics that, while providing meaningful writing assignments for the students, resulted in little or no new research. Starting with AY 1999-2000, in addition to the prescribed topics, NS students could select research topics from the database maintained by the INSS located at the United States Air Force Academy, Colorado Springs, Colo. The mission of the INSS is to promote national security research for the DOD within the military academic community and to support the Air Force National Security Education Program.

This first, tentative effort produced one paper, “Sharing the Knowledge: Military-Private Sector. Partnerships in Information Age Warfare” by Lt Col Steven M. Rinaldi, an AWC/NS student who graduated in June 2000. His paper was selected for presentation at the seventh INSS Annual Research Results Conference in November 1999. However, during calendar year 2000, 11 AWC/NS students wrote research papers based on INSS topics. Of these, four were selected to be among the 30 research papers presented at the eighth INSS Annual Research Results Conference in November 2000.

AWC/NS is eager to continue its relationship with INSS. Additionally, in the upcoming academic year, AWC/NS will enter a partnership with CADRE to encourage AWC/NS students to write applied research papers on selected topics from the AU Topics database maintained by CADRE. These topics will encompass topics similar to those offered by INSS: national security, regional security, arms proliferation, environmental security, aerospace policy, and planning. AWC/NS will provide guidance for students pursuing this option in its *Student Guide* for the upcoming academic year.

Research Centers at Air War College

CSAT Research Products

By Dr. Grant Hammond, Director

The Center for Strategy and Technology (CSAT) had 16 research papers produced last year by AWC students, supported research for two School of Advanced Airpower Studies (SAAS) theses, and funded two faculty research efforts. The latter projects, undertaken by Dr. Tim Castle at AWC and Dr. David Mets at SAAS, are book length monographs which will not be completed for a year or more. Of the 16 CSAT papers submitted for AY 2000, nine won AWC awards and one was a Chairman, Joint Chiefs of Staff (CJCS) Essay finalist. CSAT has since published nine additional papers from previous submissions and expects to publish an additional nine papers before the end of AY 2001 after outside vetting and editing are completed.

Dr. Colin Gray of the University of Reading in the United Kingdom is a CSAT Fellow for AY 2001. He has completed a monograph entitled “Weapons for Strategic Effect: How Important is Technology?” which will be published this spring. In addition, he will be visiting AU during the week of 1–7 April 2001. Those wishing to have Dr. Gray speak to various audiences or meet with faculty should contact Dr. Hammond (334-953-6996).

Dr. Hammond was an invited speaker at the Airpower Colloquium on Coercive Air Strategies of the Royal Netherlands Air Force in June 2000. His paper entitled “Operation ALLIED FORCE: Implications for the Future” was published in the conference proceedings. He also published an article titled “Myths of the Air War Over Serbia: Some ‘Lessons’ Not to Learn” in the Winter 2000/2001 issue of the *Aerospace Power Journal*. His latest book, *The Mind of War: John Boyd and American Security*, will be published by the Smithsonian Institution Press in May 2001.

CSAT will be moving to new quarters later in the year, sharing Bldg. 1450 with the CPC. Phone numbers and E-mail will remain the same, and notification of the move will be provided when it occurs. In addition to relocating offices for Dr. Hammond and Col Ted Hailes, USAF, retired, the deputy director for CSAT, the new facilities will add space for administrative support, additional faculty and research staff, and provide a shared classroom, SIPRNET, and publication storage.

New CSAT Occasional Papers available on-line:

- [Directed Energy and Fleet Defense: Implications for Naval Warfare](#), William J. McCarthy, no. 10.
- [High Power Microwaves: Strategic and Operational Implications for Warfare](#), Eileen M. Walling, no. 11.
- [Reusable Launch Vehicles and Space Operations](#), John E. Ward Jr., no. 12.
- [Cruise Missiles and Modern War: Strategic and Technological Implications](#), David J. Nicholls, no. 13.
- [Deeply Buried Facilities: Implications for Military Operations](#), Eric M. Sepp, no. 14.

- [Technology and Command: Implications for Military Operations in the Twenty-first Century](#), William B. McClure, no. 15.
- [Unmanned Aerial Vehicles: Implications for Military Operations](#), David Glade, no. 16.
- [Computer Networks and Information Warfare: Implications for Military Operations](#), David J. Gruber, no. 17.
- [Failed States and Casualty Phobia: Implications for Force Structure and Technology Choices](#), Jeffrey Record, no. 18.

USAF Counterproliferation Center

By Dr. Barry R. Schneider, Director

The CPC is now entering its third year of existence and has engaged in significant research and publication efforts to make officers in the USAF aware of the diverse worldwide nuclear, biological, and chemical weapons threats to the United States and its allies and the means of reducing and coping with that threat.

Since its inception, the CPC has provided funding for research projects by faculty and student officers at AU and has published a number of books and studies listed below that were both well written and contributed new insights valuable to the USAF.

Counterproliferation Books

- Barry R. Schneider, *Future War and Counterproliferation: Military Responses to NBC Proliferation Threats* (Westport, Conn.: Praeger, 1999).
- Lawrence E. Grinter, editor, *The Dragon Awakes: China's Military Modernization, Trends and Implications* (CPC, 1999).
- Barry R. Schneider, editor, *Middle East Security Issues: In the Shadow of Weapons of Mass Destruction Proliferation* (AU Press, 1999).

Counterproliferation Papers, Future Warfare Series available on-line:

- [The Military Role in Countering Terrorist Use of Weapons of Mass Destruction](#), Lansing E. Dickinson, no. 1.
- [The Third Temple's Holy of Holies: Israel's Nuclear Weapons](#), Warner D. Farr, no. 2.
- [A Chemical and Biological Warfare Threat: USAF Water Systems at Risk](#), Donald C. Hickman, no. 3.
- [Chemical-Biological Attack: Achilles Heel of the Expeditionary Force?](#), Byron C. Hepburn, no. 4.
- [The Security Implications of Micro-disarmament](#), Christopher D. Carr, no. 5.
- [Assessment of the Emerging Biocruise Threat](#), Rex R. Kiziah, no. 6.
- [Biocruise-A Contemporary Threat](#), Michael E. Dickey, no. 7.
- [Deterring Libya-The Strategic Culture of Muammar Qaddafi](#), Craig R. Black, no. 8.
- [Smallpox: A Primer](#), Brenda J. McEleney, no. 9.

Classified CPC Studies

Edited by Dr. Barry R. Schneider

- Kerry Taylor, *Israeli Homeland Defense: Lessons from the Passive Defense Program*, AWC thesis, 1999.
- B. David Campbell, *Tracking and Targeting Deeply Buried Hard Targets*, AWC thesis, 1999.
- Christopher Morris, *The Iranian Shahhab-3 IRBM Program: Analysis of a Threat*, AWC thesis, 1999.

There are numerous other CPC studies in the pipeline about to be printed on other counterproliferation topics.

The CPC staff also has created the CPC Internet Web page at (www.au.af.mil/au/awc/awcgate/awc-cpc.htm). Judging by the number of hits recorded, this Web site is the best US government one-stop shopping spot on the Internet for counterproliferation information. The CPC has also provided AU researchers with a specialized database from the Monterey Institute of International Studies, Monterey, Calif. In the past two years, the CPC staff and associates at AU have directed over 60 AU student research studies on WMD threats and counterproliferation responses.

In addition to a busy research and publication effort, the staff and associates of the CPC also teach courses at the AWC, Air Command and Staff College (ACSC), in the On-Scene

Commander's Course, and in the Aerospace Basic Course. The CPC also sponsors numerous field studies for students at the AWC, runs conferences and workshops, sponsors a series of speakers to the AU, provides its books and readings to the 130+ universities and colleges that offer AFROTC classes to 13,500 students each year, and runs an unclassified closed circuit TV series (Channel 35) on counterproliferation topics to the 17,000 officers who attend AU each year. Also, to improve the access to timely information, the CPC Outreach Journal is E-mailed to hundreds of USAF and DOD officers and employees each week with copies of relevant new articles and information about upcoming conferences and classes related to NBC issues. The CPC also provides edits and comments on USAF and DOD draft documents relating to new CPC policy and doctrine.

The work of the CPC is sponsored primarily by Headquarters USAF/XONP and the Counterproliferation Division of the Defense Threat Reduction Agency (DTRA). A number of speakers to AWC classes and CPC conferences have also been supported by the Joint Service Integration Board (JSIG). The annual CPC conference has been supported financially by these three organizations and was also endorsed by the Office of the Secretary of Defense (OSD) and the Air University Foundation.

AIR UNIVERSITY PRESS RECENT BOOKS

By Ms. Joan Morrissey Dawson, Marketing Specialist

The AU Press announces two new publications. These publications and many others may be obtained by visiting the AU Press Bookstore, Bldg. 910, from 8 a.m. to 4 p.m., or by visiting us on-line at www.au.af.mil/au/oas/aupress.

Science and Technology: The Making of the Air Force Research Laboratory, by Robert W. Duffner, addresses the far-reaching implications of science and technology by recounting the events that led to the creation of a single Air Force Laboratory. He tells how the Air Force moved from 13 separate labs to one consolidated lab.

The War in the Air 1914–1994, edited by Alan Stephens, is a modified reprint detailing the proceedings of a conference on aerial warfare held by the Royal Australian Air Force in Canberra, Australia, in 1994. This book is a compilation of essays covering such subjects as World War I, airpower in the Korean War, Vietnam War, Arab–Israeli Wars and the Falkland Island War, to name just a few.

Research Highlights from Air Command and Staff College

The Wright Flyer Papers

By Lt Col Steven A. Kimbrell

The *Wright Flyer Papers* are an ACSC-produced series, recognizing the “best-of-the-best” student research projects from each academic year. The ACSC research program encourages students to move beyond the school’s core curriculum in their own professional development in advancing aerospace power. The series title reflects ACSC’s desire to perpetuate the pioneering spirit embodied in earlier generations of airmen. Projects selected for publication combine solid research, innovative thought, and lucid presentation in exploring war at the operational level. With this broad perspective, the *Wright Flyer Papers* engage an eclectic range of doctrinal, technological, organizational, and operational questions. To date, 11 student projects have been published and distributed to individuals and agencies across the world. During AY 00, five additional projects were selected for publication as *Wright Flyer Papers*:

- *EC Support for an Expeditionary Air Force: The Lessons of History*, James Rentfrow
- *Ethnic Conflict and CENTCOM Policy for the Central Asian Republics*, William Tart
- *Fatigue Management for AEF Deployment and Sustained Operations*, Michael Leclair
- *Identifying and Migrating the Risks of Cockpit Automation*, Wesley Olson
- *They Too Served: A Unit History of the 496th Fighter Training Group, 1943–1945*, David Kelley

All of the *Wright Flyer Papers* are available under the Special Collection at <http://research.au.af.mil>.

ACSC Research Day

By Lt Col Steven A. Kimbrell

For the past three years, ACSC has provided students a jump-start on their research projects by conducting ACSC Research Day, known as ARDY. The goal of ARDY is to strengthen relationships between Air Force and DOD agencies and AU students and faculty. Among the attendees are representatives from the Joint Chiefs of Staff, major commands, battle labs, and the INSS.

To satisfy curriculum requirements, ACSC students must complete a research paper or participate in an elective course. Both options demand a written product that demonstrates the student’s ability for critical thinking and careful analysis. The students are challenged to consider research as an opportunity to address “real-world” problems and questions facing the Air Force and DOD.

The students’ topics are generated by the AU Call for Research Topics, which invites the major air commands and unified

commands to submit potential research topics. Each year CADRE compiles the responses into a database of over 600 new topics. Students review this database to pick a topic of interest to them. ARDY provides the sponsoring agencies a chance to discuss the details of these topics from the stage and in person with ACSC students.

In many cases, students’ research projects are published and can be found well beyond the boundaries of AU. In addition, not only are the students executing a project that gives them course credit towards professional military education completion but they are also addressing research that serves the needs of the DOD.

According to AU dean of research, Dr. James Titus, “well-written AU student papers have received considerable interest at high Air Force and DOD levels, and can help shape policy-maker thinking about key issues.”

In the past three years, ACSC has generated hundreds of research papers that can be found at the AU Research Web site, <http://research.au.af.mil>.

ARDY is eight hours of contact that allows the students and the invited agencies to network and learn from each other. Everybody wins—ACSC students and sponsoring agencies reap the benefits of the interactions of ACSC Research Day.

AU Delegation Gives Keynote Session at National Communication Association Conference

By Lt Col Steven A. Kimbrell

In November 2000 an AU delegation led by Dr. Abigail Gray-Briggs traveled to Seattle, Washington, to present a panel at the 86th annual National Communication Association (NCA) conference. The panel, “The Military Mindset: Engaging the Adult Learner Through Professional Military Education,” was accepted as part of the national president’s commission and was featured at the conference of more than 6,000 attendees as a keynote session. As indicated by the association president, these senior government leaders represent an important external constituency and bring to the scholarly community a program “engaging communication teaching and research with those concerns most pressing for society as we move into a new millennium—e.g., sustaining community in a diverse, international society; creating inclusive, effective information technologies; and fostering free and responsible speech that enhances public discourse.”

The panel was chaired by Dr. John Kline, senior visiting professor of leadership and communication studies, AU. Panel members included Col T. S. Kelso, vice commandant, Air Force Institute of Technology, speaking on “Engaging the Adult Learner through Research and Technology: Integrating

Technology in the Classroom for Advanced Air Force Research Initiatives”; Dr. Abigail Gray-Briggs, executive director of the communication studies program, Air Command and Staff College, speaking on “Engaging the Adult International Learner”; and Col (sel) James Briggs, commandant, Academic Instructor School, speaking on “Engaging the Adult Learner through Teaching: Teaching Air Force Teachers and Trainers.”

NCA is *the* premier professional communication organization, with approximately 7,100 educators, practitioners, and student members spread across every state and more than 20 foreign countries. The purpose of the association is to promote study, criticism, research, teaching, and application of the artistic, humanistic, and scientific principles of communication. NCA is the oldest and largest national organization promoting communication scholarship and education.

Selected Faculty Publications

Mr. Matthew Caffrey, “Toward a History-Based Doctrine for Wargaming,” in *Aerospace Power Journal*, Fall 2000.

Dr. Michael L. Grumelli, *Trial of Faith: The Court-Martial of Gen William Mitchell*, book manuscript accepted for publication by AU Press.

Dr. Kevin Holzimmer, “New Guinea Campaign (1942–44),” in *The Oxford Companion to American Military History*.

Dr. J. T. LaSaine, “Douglas MacArthur,” “Franklin D. Roosevelt,” and “Pearl Harbor,” in the forthcoming *Readers’ Guide to Military History*.

Dr. Donald A. MacCuish and Col Edd Chenoweth, “ACSC Distance Learning: 50 Years of Lessons Learned,” in *Interservice/Industry Training, Simulation and Education Conference Proceedings 1999*.

Dr. Donald A. MacCuish and Col Edd Chenoweth, “Merging Resident and Non-Resident Curricula Through Management, Innovation, and ADL Initiatives,” in *Interservice/Industry Training, Simulation and Education Conference Proceedings 2000*. (Presented by Maj Anthony Gould.)

Dr. Kathleen Mahoney-Norris, “Humanitarian Intervention and Human Rights: Considerations for Educating Military Professionals,” 42d Annual International Studies Association Conference, February 2001.

Dr. Richard R. Muller, “World War I Air Warfare: Strategic Bombing,” “Germany: Air Force,” “World War I Air Forces—the German Air Arm,” “World War II Armed Forces, Luftwaffe,” and “World War II: Air Warfare—Strategic Bombing of Germany” for the forthcoming *Reader’s Guide to Military History*.

Dr. Doug Peifer, *Return to the Sea: German Naval Personnel, the Dissolution of the Kriegsmarine, and the Foundations of the East and West German Navies, 1945–1956*, due for publication in 2001 by University Press of Florida.

Maj Vicki Rast, “Understanding the National Security Policy-Making Process: Why Logisticians Should Care,” in *Air Force Journal of Logistics*, Spring 2000.

Maj Tomislav Ruby, “Morality in Modern Aerial Warfare,” accepted for publication in *Joint Forces Quarterly*.

Maj Jon M. Sutterfield, “Big Week: Eighth Air Force Bombing 20–25 February 1944—How Logistics Made Big Week Big,” *Air Force Journal of Logistics*, Summer 2000.

Selected Faculty Presentations

Lt Col Chris Cain, “The *Armee del’Air* in the Interwar Period: A Model for Joint Operations?” Society for Military History Annual Conference, May 2001.

Lt Col Marshall Cobb, “Leadership Education at the United States Air Force Air Command and Staff College,” 5th International Air Force Education Seminar hosted by the Japan Air Self-Defense Force (JASDF) Air Staff College, Tokyo, Japan, 4–10 February 2001.

Lt Col Marshall Cobb, “Interpersonal Relations and Conflict Management,” Intermediate Chaplain Course 2001A, USAF Chaplain Service Institute, 10 January 2001.

Dr. William Dean, “Disasters in French Colonial Joint Operations: The Indo–China and Madagascar Cases,” Society for Military History Annual Conference, May 2001.

Lt Col Phil Chansler, “Predictors of Work Group Cohesion at a Harley-Davidson Motor Company Plant,” 12th Annual Production and Operations Management Society 2001 Conference, 30 March–2 April 2001.

Lt Col Charles Costanzo, “The Proliferation of Weapons of Mass Destruction: Considerations for Educating Military Professionals,” 42d Annual International Studies Association Conference, February 2001.

Lt Col Charles Costanzo, “The Security Threat Posed by Weapons of Mass Destruction,” presented to members of Albanian, Estonian, Ukrainian, and Georgian militaries at Kapaun, Germany, July 2000.

Dr. William Dean, commentator for a panel “Eighteenth and Nineteenth Century Colonial Warfare,” The French Colonial Historical Society, May 2000.

Dr. William Dean, “Morale and Combat Effectiveness of African and Asian Soldiers in the French Army in World War I,” Mid-America Conference, September 2000.

Lt Col Charles Ferguson, USA, “Restructuring Forces for Effective Joint and Combined Operations,” presented to members of Albanian, Estonian, Ukrainian, and Georgian militaries at Kapaun, Germany, July 2000.

Lt Col James Forsyth, “Educating Military Professionals on Security Issues: Theory and Practice,” 42d Annual International Studies Association Conference, February 2001.

Lt Col James Forsyth, “Globalization and Security: Contemporary Concerns about the War Problem,” Conference on Globalization and Security hosted by the Graduate School of International Studies and the Denver Council on Foreign Relations in conjunction with the American Political Science Association and International Studies Association, Denver, Colorado, November 2000.

Lt Col James Forsyth, “The Changing International Security Environment,” presented to members of Albanian, Estonian, Ukrainian, and Georgian militaries at Kapaun, Germany, July 2000.

Mr. Budd Jones, “Joint Doctrine and Operations Concepts,” presented to members of Albanian, Estonian, Ukrainian, and Georgian militaries at Kapaun, Germany, July 2000.

Lt Col Brad Lafferty, et al., “Organizational Trust: An Orientation for the HRD Practitioner” and “Organizational Trust and Attachment to an Immediate Leader: A Pilot Study,” Academy of Human Resource Management Conference, 28 February–5 March 2001.

Dr. Donald A. MacCuish, “Professional Military Education (PME) and ADL,” Interservice/Industry Training, Simulation and Education Conference, November 2000.

Dr. Richard R. Muller, “From ACTS to Desert Storm and Beyond: The USAF Teaches Its History,” Yale University Military and Strategic History Conference.

Maj Vicki Rast, “Bridging the Gap between Diplomats and War Fighters: Challenges to Understanding the Military’s Transformational Role in Conflict Resolution,” 42d Annual International Studies Association Conference, February 2001.

Lt Col Dave Wallace, “The Deployed First Sergeant: A Deployed Commander’s Expectations,” USAF First Sergeants’ Class, Senior NCO Academy, 2001.

Selected Publication Venues for Scholarly Research on Military Issues

Aerospace Power Journal

By Lt Col (Sel) Scott Wierschke, Ph.D., APJ Senior Editor

Aerospace Power Journal is the primary forum for worldwide aerospace power debate. The journal is published in English, Spanish, and Portuguese. APJ promotes professional dialogue for Air Force members in pursuit of professional development, communication of professional standards, and stimulation of new ideas. APJ’s editors are charged with shaping that professional dialogue. For guidelines and advice, see <http://www.airpower.au.af.mil/airchronicles/howto.html>.

AU Press Call for Manuscripts

By John E. Jordan, Chief, Editorial Branch

Air University (AU) Press is a key tool for maintaining and reinforcing Air University’s position as the center of airpower thinking and research. We support Air Force authors and other airpower thinkers by editing, packaging, publishing, and distributing their writings. For information on submitting manuscripts to AU Press, consult the *Air University Author Guide* [<http://www.au.af.mil/au/oas/aupress>].

Joint Center for Lessons Learned Bulletin

By Mr. Al Priesser, Editor

Articles should be related to lessons learned and applicable to the Joint and/or Service Community. Articles should be 3-5 pages in length, or could be a complete paper with an executive summary of 3-5 pages that could be published in the Bulletin. The entire paper would then be provided on our web site for more detailed study. Bulletins are distributed quarterly in March, June, September, and December. Submission deadline is the first month of the quarter (for example, January for the March distribution). E-mail to: jcll@jwfc.jfcom.mil or by US mail to: Commander, USJFCOM JW4000, 116 Lake View Parkway, Suffolk, VA 23435-2697.

Additional Publication Venues

By Lt Col (Sel) Harry Newton, Ph.D., Chief, Research Support

The AU Research Support staff maintains a Web page of information on publication opportunities for scholarly research on military issues. This page features direct links to Web sites for each journal, as well as information on contacting the editor. Browse to <http://research.au.af.mil/publications> to access this page.

ACSC Student Research Papers

ACSC AY00 research papers available on-line:

Author	Faculty Advisor	Title
Maj William Ames	Maj David Smith	<u>Logistical Effectiveness During the Air War Over Serbia (AWOS)</u>
Maj Brenda Armstrong	Maj Marlin Moore	<u>Changing Demographics and the Impact on Air Force Officer Retention</u>
Maj Susan Baker	Lt Col Marshall Cobb	<u>Redefining the Air Force Medical Service in the New Millennium: Should the AFMS Outsource Physician Training and Residency Education Programs?</u>
Maj Ronald Banks	Col Stephen German	<u>The Integration of Unmanned Aerial Vehicles into the Function of Counterair</u>
Maj Debra Bean	Lt Col Hank Dasinger	<u>Barriers to Implementing Diversity Management in the Air Force: Four Conversations We Must Have</u>
Maj James Bearden	Lt Col Bruce Blaisdell	<u>Command and Control Enabling the Expeditionary Aerospace Force</u>
Maj Mark Bednar	Lt Col Bruce Blaisdell	<u>A Study of Central Asia to Identify Future Threats to Regional Stability</u>
Maj Clifton Blanks	Lt Col Steven Purtle	<u>Deputy Operations Group Commander for Maintenance— DOGM: Band-Aid or Solution?</u>
Maj Michael T. Brewer	Maj Courtney Holmberg	<u>An Investigation of the Non-distributed Flight Reference (NDFR) Ownship Status Symbology</u>
Maj Craig Campbell	Maj Gregory Church	<u>Technology, Organization and Doctrine: Enhancing the Combat Capability of the On-call AEW</u>
Maj Ted Carter	Lt Col Courtney Holmberg	<u>Theater Air Mobility: Historical Analysis, Doctrine, and Leadership</u>
Maj Lyle Cary	Lt Col Scotty Lewis	<u>Evaluating US Air Force Nuclear Weapon Storage Area Security in the Post-Cold-War Environment</u>
Maj Neal A. Clinehens	Maj Carol L. Atkinson	<u>Aum Shinrikyo and Weapons of Mass Destruction: A Case Study</u>
Maj David Cogdall	Lt Col Randall Soboul	<u>Training a Priority National Guard Tank Battalion: (Effectiveness of Training with an ESNB)</u>
Maj George Coggins	Lt Col Richard Lombardi	<u>Competitive Sourcing and Savings: Are We On Target?</u>
Maj David Cohen	Lt Col LaDonna Idell	<u>The Vital Link: The Tanker's Role in Winning America's Wars</u>
Maj Kerri Cole	Lt Col Steven Hansen	<u>Prioritizing Quality of Life Issues: Laying a Vision for Tomorrow (Joint Vision 2010)</u>
Maj Lynn Connett	Lt Col Mike Beno	<u>Is the US Launch Program Really Ready for the 21st Century?</u>
Maj Shane Courville, Maj Timothy Fox, Maj Craig Hall, Maj James McGann, Maj Gary Renfrow and Maj James Kuhns	Maj Mike Foster	<u>Civil Air Patrol Senior Member Professional Development Course</u>
Maj James Crowhurst	Maj Gregory Church	<u>NATO Expansion in the Post-Cold-War Era: The Case of the Czech Republic</u>
Maj William Danskine	Lt Col Kimberly Sievers	<u>The Time-Critical Targeting Model</u>
LCDR Anthony Desmet	CDR Robert Threlkeld	<u>The Effects of Doctrine on Close Air Support in Korea (1950–1951)</u>
Maj Erin Durham	Lt Col Jeffrey Hukill	<u>Why Drink From a Firehose When All You Want is a Glass of Water?</u>
Maj George Emilio	Lt Col Michael Simpkins	<u>Promoting Critical Thinking in Professional Military Education</u>
Maj Robert Gaines	Maj Mary Willmon	<u>Future Information Operations (IO) in the Military: Is It Time for an "IO CINC?"</u>
Maj Phillip Gales	Lt Col Charles Costanzo	<u>The Peruvian Military's Role in Sustaining Democracy</u>
Maj Gregory Giletti	Lt Col Steven Purtle	<u>A Grand Illusion: United Nations Reform</u>

ACSC Student Research Papers

Author	Faculty Advisor	Title
Maj John R. Glock	Maj Carol Atkinson	<u>"Operationalizing" Information Operations</u>
Maj Robin Grantham	Ms. Patricia Battles	<u>Air War Over Serbia: It Is Important to Win the Information War</u>
Maj James Hall	Maj Vicki Rast	<u>Agile Combat Support Doctrine and Logistics Officer Training: Do We Need an Integrated Logistics School for the Expeditionary Air Force?</u>
Maj Donald Heilig	Lt Col Jeffrey Reilly	<u>Subterranean Warfare—A Counter to US Airpower</u>
Maj Ellwood Hinman	Lt Col Brian Bjornson	<u>The Politics of the Air Campaign: A Troubled Marriage</u>
Maj Montgomery Hughson	Lt Col Courtney Holmberg	<u>The Future Role of the Technical Officer in the USAF</u>
Maj Jeffrey Hupy	Lt Col Robin Nestor	<u>Tactical Control of Air Mobility Forces in Operation Allied Force: Is This the Way Things Should Be Done?</u>
Maj Brooke Janney	Lt Col Randall Soboul	<u>C4I of Army Deep Operations and Air Interdiction: Fusion of Effort Within the Same Battlespace</u>
Maj Charles Johnson	Maj David Smith	<u>USAF Aircraft Maintenance Management: Is There a Better Way?</u>
Maj Nicholas Johnston	Lt Col Robin Nestor	<u>Warning: Feeding the Hegemon May be Hazardous to Your Health—Assessing China's Fitness to be a Superpower</u>
Maj Christopher Kaufman	Lt Col Marshall Cobb	<u>Pilot Recruitment of African-Americans: An Examination of a Negative Trend</u>
Maj David Kelley	Dr. Richard Muller	<u>They Too Served: A Unit History of the 496th Fighter Training Group, 1943–1945</u>
Maj Wayne Larsen	Maj Mary Willmon	<u>Serbian Information Operations During ALLIED FORCE</u>
Maj Jon Larvick	Maj David Smith	<u>Improving Wartime Spares Support to AMC: An Analysis of KC-135 Readiness Spares Packages During Operation ALLIED FORCE with a Look to the Future and Support of the Aerospace Expeditionary Force</u>
Maj Timothy Lea	Maj James Cashin	<u>Integrating Space-Based Fires into the Joint Force After Next</u>
Maj Michael Leclair	Maj Connie Rocco	<u>Fatigue Management for AEF Deployment and Sustained Operations</u>
Ms. Cynthia Lee	Lt Col Richard Lombardi	<u>GPRA and Its Significance to the Acquisition Workforce</u>
Maj Ricky Locastro	Maj Gregory Church	<u>Analysis of the C-17 Acquisition: Did the USAF Get Its Money's Worth?</u>
Maj James Marek	Lt Col Jeffrey Garner	<u>Organizing to Win: Centralized Control for Information Warfare</u>
*Maj Fred Marheine	Lt Col Charles Christopher	Defending the Final Frontier: Commercial Space System Vulnerabilities to Directed Energy Weapon Threats
Maj Stephen Masters	Dr. Donald MacCuish	<u>Diversity in the Military: How Far Should We Go in Pursuing a Diverse Force?</u>
Maj David McCormick	Maj David Smith	<u>Examination of E-3 AWACS Readiness Spares Kits Adequacy During Operation Allied Force</u>
Maj Jeffrey McDaniels	Brig Gen John Rosa	<u>Viper FAC-A: Effectiveness of the F-16 Block 40</u>
Maj Steven Miller	Maj Friend Walker	<u>The Military, Domestic Law Enforcement and Posse Comitatus: A Time for Change</u>
Maj Kevin Moore	Lt Col Kenneth Lynn	<u>Using Activity-Based Costing to Improve Performance: A Case Study Report</u>
Maj Michael Moran	Lt Col Jeffrey Garner	<u>An Evolving Doctrine: Force Application from Space</u>
Maj Kim Nelson	Maj Van Poindexter	<u>Contractors on the Battlefield: Force Multipliers or Force Dividers?</u>
Maj Craig Niiya	Lt Col Hank Dasinger	<u>Executive Development Programs in the US Air Force: Does Diversity Matter?</u>
Maj Elmer Norvell	Ms. Patricia Battles	<u>Defending the Human Weapons System Using ORM and the Bioenvironmental Engineer Capabilities</u>
Maj Kimberly Olson	Lt Col Gregory Herbert	<u>Technology and the Air Force Nonresident Intermediate Professional Military Education: A Successful Marriage</u>

ACSC Student Research Papers

Author	Faculty Advisor	Title
Maj Wesley Olson	Lt Col Steven Kimbrell	Identifying and Mitigating the Risks of Cockpit Automation
Maj Dalene Perdue	Maj Marlin Moore	Wait a Minute, I Didn't Sign Up For This
*Maj George Pierce	Lt Col Randall Soboul	Robotics: Military Appreciation for Special Operations Forces
Maj Todd Piergrossi	Maj Joel Junker	Optimizing Computer Network Defense Training
Maj Larry Price	Lt Col Mike Beno	Space Operations in the Joint Warfighting Arena: The Viability of a Joint Force Space Component Commander
Maj Kimberley Ramos	Lt Col Michael Simpkins	Solar Power Constellations: Implications for the United States Air Force
Maj Robert Rego	Dr. Timothy Castle	Anti-infiltration Barrier Technology and the Battle for Southeast Asia
Maj James Rentfrow	Maj Glenn Carlson	EC Support for an Air Expeditionary Force: The Lessons of History
LCDR John Richmond	Lt Col James Forsyth	The Armed Citizen: Pillar of Democracy
Maj Douglas Rider	Maj Kimberly Sievers	Establishing a Commercial Reserve Imagery Fleet—Obtaining Surge Imagery Capacity from Commercial Remote Sensing Satellite Systems During Crisis
Ms. Cynthia Robertson	Lt Col Richard Lombardi	Outsourcing: An Impact to Readiness?
Maj Mark Sanders	CDR Robert Threlkeld	Amphibious Operations in a Mine Environment: A Clear Path to the Beach . . . Unmarked
Maj Daniel Settergren	Lt Col Mark LeSage	New Missions for the CV-22 “Osprey” in a Changing World
Maj Andre Shappell	Lt Col James Forsyth	Pseudo Democracy, Real War: Russia's Autocratic Conduct in Chechnya and the Implications for US National Security and Regional Security Strategy
Maj Steven Slatter	Lt Col Steven Kimbrell	Operational Considerations Related to Cockpit Automation and Crew Compliment in the C-17
Maj Paul Smith	Col David Vogelgesang	The Reluctant Hegemon: Counterdrug Efforts in Colombia
Maj Stephen Smith	Lt Col Steven A. Kimbrell	Supplying the Warfighter—Is Surplus an Answer?
*LCDR Erik Snyder	LCDR Donald McBrayer	Counter Narcotics Missions for Unmanned Aerial Vehicles
Maj Charles Spencer	Lt Col Steven Kimbrell	Cockpit Automation and Mode Confusion: The Use of Auditory Inputs for Error Mitigation
Maj Deborah Stark	Lt Col Walter NesSmith	Regionalization, Outsourcing and Consolidation: An Analysis of Navy Tug Operations within Navy Region Southeast
Maj Richard Stephens	Lt Col James McNally	The United States' National Interests in Central Asia
Maj David Stilwell	Dr. Timothy Castle	Implications for Chinese Expansion on Southeast Asian Security: Philippine Case Study
Maj Lynn Stover	Lt Col Mark Barnhart	Chinese Ambition
*Maj Thomas Summers	Lt Col Steven Kimbrell	How is U.S. Space Power Jeopardized by an Adversary's Exploitation, Technological Developments, Employment and Engagement of Laser Antisatellite Weapons?
Maj Ricky Sward	Lt Col Gerard Quenneville	The Software Maintenance Spectrum: Using More Than Just New Toys
Maj William Tart	Maj Vicki Rast	Ethnic Conflict and CENTCOM Policy for the Central Asia Republics
Maj Evan Thomas	Maj Thomas Himes	The Future of All-Weather, Rapid Reaction Precision Targeting
Maj Christopher Valle	Lt Col Mitch Heitmann	Toward a Single Integrated Planning and Execution System
Maj Curt Van de Walle	Maj Thomas Nine	Back to the Future: Does History Support the Expeditionary Air Force Concept?
Maj Todd Varvel	Lt Col Allison Palmer	Ensuring Diversity is Not Just Another Buzzword
*Maj Christopher A. Warack	Maj James P. Cashin	Opportunities and Challenges for using National Systems for Rapid Targeting
*Maj Rex A. Williams	Maj Karen A. Cleary	Does your Dragon Bite? Theater Missile Defense and a US–China Arms Race

*Pending review for public release.

Research Highlights from the School of Advanced Airpower Studies

Faculty Highlights

By Dr. Harold R. Winton, Professor of Military History and Theory

Members of the SAAS faculty have continued to set the example in intellectual development for their students by producing an impressive and varied array of books, articles, and academic papers as well as contributing to anthologies.

Professor David Mets's *The Air Campaign: John Warden and the Classical Airpower Theorists*, released by AU Press in 1999, goes to the heart of the SAAS curriculum with a critical comparative analysis of the ideas of a contemporary airpower theorist, Col John Warden, in light of the concepts for airpower employment advocated by Giulio Douhet, Hugh Trenchard, and William "Billy" Mitchell. Written with a keen appreciation of historical context, this book is becoming a must-read for informed airpower practitioners.

Professor Dennis Drew has teamed up with his colleague Donald M. Snow at the University of Alabama to produce the second edition of *Lexington to Desert Storm and Beyond: War and Politics in the American Experience*, released last year by M. E. Sharpe, Inc. This book, which has served as a standard ACSC text since 1995, takes the story of American military history through the end of the twentieth century to include US operations in Somalia, Bosnia, and Kosovo. The second edition significantly expands the original, already quite useful, bibliography.

Col Wray Johnson's book, *Vietnam and American Doctrine for Small Wars*, was recently released by White Lotus Publishers. The book examines the evolution of US military doctrine for foreign internal conflict up to the time of the Vietnam War and why American military forces have had such difficulty engaging in this type of conflict. The book's value lies not only in its keen historical interpretation but also in its author's continuing awareness of the complex issues involved in the theory and practice of operations other than war.

Professors Harold Winton and David Mets collaborated as coeditors to produce *The Challenge of Change: Military Institutions and New Realities, 1918–1941*, released last year by the University of Nebraska Press. This volume studies the dynamics of military transformation in the German, French, British, Soviet, and American armies between the world wars. By working to identify themes of both continuity and change in the adaptation process, the authors have produced a work of contemporary as well as historical relevance.

Lt Col Peter Hays served as coeditor of *Spacepower for a New Millennium: Space and US National Security*, published by McGraw-Hill last year, and also served as coauthor of the chapter in this anthology titled "Spacepower for a New

Millennium: Examining Current US Capabilities and Policies." Two of the contributors, Gen Ronald Fogleman and Gen Howell Estes, served as members of the Rumsfeld Commission on National Security Space Management and Organization and requested that all 13 commission members receive copies of this volume, demonstrating once again the practical utility of scholarly research.

Professor Karl Mueller contributed a chapter titled "Flexible Power Projection for a Dynamic World: Exploiting the Potential of Air Power" in *Holding the Line: US Defense Alternatives for the Early Twenty-First Century*, which is to be released by MIT Press early this year. The volume analyzes the future of US defense spending in the next decade, examining strategic alternatives to the two options of enacting large spending increases to support the currently projected procurement programs or making across-the-board spending reductions. Coming at a time of new defense challenges and a new administration, this work is sure to make a useful contribution to defense analyses.

Professor Mueller has also developed a research presentation titled "Coercive Airpower in Bosnia and Kosovo." This project examines NATO's attempts to use coercive bombing in Bosnia in 1995 and Serbia in 1999 to end post-Yugoslav civil wars on its terms. The work focuses on several key military and political issues and has been presented in a number of international military venues.

In addition to a chapter in *The Challenge of Change* titled "A Comprehensive Approach to Change: Reform in the German Army in the Interwar Period," Professor James Corum wrote "The Myth of Air Control: Reassessing the History," which appeared in the Winter 2000 edition of *Aerospace Power Journal*. This article offers a critical reappraisal of the practice of using airpower to exert control over civilian populations and enemy territory.

Likewise, in addition to penning the introduction and the chapter on the British army in *The Challenge of Change*, Professor Winton wrote "Toward an American Philosophy of Command," which appeared in the October 2000 issue of *The Journal of Military History*. This article examines the efforts of the US Army PME system to use the lessons of World War I and the study of military history to develop a command philosophy for a rising generation of military leaders.

Recent conference papers by the SAAS faculty include Lt Col Hays's "Commercial Spysats and Shutter Control: The Military Implications of US Policy" and "Spacepower for a New Millennium: Examining Current US Capabilities and Policies" for the American Institute of Aeronautics and Astronautics Space 2000 Conference and Exhibition, held 19–21 September 2000 in Long Beach, Calif.; Professor Mueller's "Deus Ex Machina? Coercive Airpower in Bosnia and Kosovo" for the American Political Science Association Annual Meeting,

Washington, D.C., in the same month; and Maj John Terino's "In the Shadow of Spreading Ivy: Cold War Science at the University of Pennsylvania, 1950–1970" at the November 2000 conference, Cold War Science, Technology, and Medicine: Global Perspectives.

In January 2000 AU Press published *Deliberate Force: A Case Study in Effective Air Campaigning*, edited by Col Robert C. Owen, a former SAAS dean. This collection of essays assesses the planning and execution of NATO air operations against the Bosnian Serb army in the late summer of 1995, which helped create the military conditions leading to the Dayton peace accords. SAAS contributors included Col Maris McCrabb, Lt Col Mark Conversino, Lt Col Ronald Reed, and Professor Karl Mueller. Other AU and tenant unit contributors included Col Christopher Campbell and Maj Mark McLaughlin of CADRE; Lt Cols Bradley Davis, John Orndorff, and Robert Pollock of ACSC; and Lt Col Richard Sargent of the Air Force Historical Research Agency.

The SAAS Master's Thesis

Each SAAS student is required to write a thesis that meets master's-level standards of research, argumentation, and expression. Normally 50 to 80 pages in length and based, at least in part, on original source research, the thesis represents both a process designed to educate future aerospace strategists and a product intended to promote the common defense. The process includes instruction in research methodology, topic selection, assignment of a committee, closely directed and guided research and composition during blocks of curriculum time dedicated to the thesis, committee approval, and briefing of the research findings in a computer-supported presentation. The products take a wide variety of formats. Selected students brief their theses to external agencies before graduation. Following a security and policy review, the vast majority of theses are placed on the AU Research database <http://research.au.af.mil>. AU Press publishes many as occasional papers and a carefully selected few as CADRE Papers. One of the latter, William Andrews's *Airpower against an Army: Challenge and Response in CENTAF's Duel with the Republican Guard*, is now on the chief of staff's professional reading list. Over the last 10 years, positive student comments as to the educational value of the thesis process and wide demand for those that have been published indicate that the SAAS thesis continues to accomplish its twofold purpose.

SAAS Students Brief Commanders

United States Space Command (USSPACECOM) and Air Force Space Command (AFSPC)—Three SAAS students briefed their theses: Maj Brian Anderson, "Shaping the Space Medium: Does the Geographic CINC Model Apply?" Maj John Davis, "Integrating Air and Space Sensors: Path to an Aerospace Force," and Maj Bruce McClintock, "The Transformation Trinity: A Model for Strategic Innovation and Its Application to Space Power." The briefings were given to USSPACECOM J-3, AFSPC/DR, and AFSPC/XP as well as more than 40 staff officers from the two headquarters. A lively question and answer session followed each briefing, indicating the value of the research to the commands.

Air Force Doctrine Center (AFDC)—Two officers briefed their theses: Maj John J. Zentner, "The Art of Wing Leadership: Exploring the Influences of Aircrew Morale in Combat," and Maj Patricia D. Hoffman, "Seeing Shadows in the Sky: The Strategy of Air Guerrilla Warfare." The briefings were presented to AFDC/CC and /CV as well as a large number of doctrinal analysts. As in the case at USSPACECOM, an engaging question and answer session followed each briefing, demonstrating the practical utility of the research efforts.

Air Combat Command (ACC)—Maj Michael Panarisi briefed his thesis "A Comparative Analysis of Internal and External Solutions to Provide Air Combat Maneuvering Instrumentation (ACMI) Functionality" to ACC/CC and several ACC staff officers. The presentation was enthusiastically received, and the United States Air Forces in Europe (USAFE) Requirements Directorate is now actively pursuing Major Panarisi's proposal for an internal ACMI capability.

Finally, as an example of AU research supporting the Air Force's combat lessons-learned efforts, Maj T. W. Beagle's thesis "Effects-Based Targeting: Another Empty Promise?" was incorporated into USAFE's after-action report on Operation Deliberate Force.

SAAS Master's Theses

SAAS AY00 Master's Theses available on-line:

Author	Advisor	Thesis Title
Robert A. Abernathy	Lt Col Wray Johnson	Weapons of Choice: The "Propeller versus Jet" Controversy and the Appropriate Technology Dilemma
Brian K. Anderson	Dr. Karl P. Mueller	Shaping the Space Medium: Does the Geographic CINC Model Apply?
Peter D. Axelson	Lt Col David L. Coulliette	The B-52: Can It Fly Until 2050?
T. W. Beagle, Jr.	Lt Col Forrest Morgan	Effects-Based Targeting: Another Empty Promise?
Daniel C. Blaettler	Lt Col Peter Hays	Making Room for Space In Aerospace
*John H. Davis	Lt Col David L. Coulliette	Integrating Air and Space GMTI Sensors: Path to an Aerospace Force?
Courtney A. Ducharme	Dr. Harold Winton	Combining Sequential and Cumulative Air Strategies for Victory: The Past Informs the Future
Peter S. H. Ellis	Dr. James Corum	Hale's Handful . . . Up from the Ashes: The Forging of the 7th AF from the Ashes of Pearl Harbor to the Triumph of V-J Day
Todd P. Harmer	Dr. Harold R. Winton	Enhancing the Operational Art: The Influence of the Information Environment on the Command-and-Control of Airpower
*Quintin H. Hartt, Jr.	Dr. James S. Corum	Somalia: Air Mobility in a Complex Humanitarian Emergency
Richard J. Hazdra	Dr. James S. Corum	The Key to the United States National Security Strategy
Donald C. Hickman	Lt Col Peter Hays	Biological Warfare and American Strategic Risk
Patricia D. Hoffman	Prof. Dennis Drew	Seeking Shadows in the Sky: The Strategy of Air Guerrilla Warfare
Peter W. Huggins	Dr. Karl P. Mueller	Airpower and Gradual Escalation: Reconsidering the Conventional Wisdom
Keith J. Kosan	Lt Col David L. Coulliette	United States Air Force Precision Engagement against Mobile Targets: Is Man In or Out?
*Bruce McClintock	Dr. Karl P. Mueller	The Transformation Trinity: A Model for Strategic Innovation and Its Application to Space Power
Greg E. Metzgar	Lt Col Wray Johnson	Unconventional Warfare: A Mission Metamorphosis for the 21st Century?
*Matthew T. Molloy	Col Stephen D. Chiabotti	US Military Aircraft for Sale: Crafting An F-22 Export Policy
Michael T. Panarisi	Lt Col David L. Coulliette	A Comparative Analysis of Internal and External Solutions to Provide Air Combat Maneuvering Instrumentation (ACMI) Functionality
Michael T. Plehn	Col Stephen D. Chiabotti	Control Warfare: Inside the OODA Loop
Bradford J. Shwedo	Dr. Harold R. Winton	XIX Tactical Air Command and ULTRA: Patton's Force Enhancers in the 1944 Campaign in France
Scott F. Smith	Col Stephen D. Chiabotti	Boots In the Air: Moving the New Army Brigade
Roland K. Van DeVenter	Lt Col Peter Hays	Airborne Warning and Control System (AWACS) and Space: A Framework to Help Understand the Issues
R. Robert Woodley	Lt Col David L. Coulliette	Unmanned Aerial Warfare: Strategic Help or Hindrance
Todd M. Zachary	Lt Col Wray Johnson	Wearing the White Hat: The Effect of American Strategic Culture On Implementing National Strategy
John J. Zentner	Dr. James S. Corum	The Art of Wing Leadership: Exploring the Influences of Aircrew Morale in Combat

* Pending review for public release.

Research Highlights from the Air Force Fellows Program

Air Force Fellows Program

By Maj Malcolm Walker

Since 1958 the Air Force has assigned a small number of carefully chosen, experienced officers to serve one-year tours at distinguished civilian institutions studying national security policy and strategy. Beginning with the 1994 AY, these programs were accredited senior service school (SSS) PME in-residence for eligible officers. The Air Force Fellows program mission is to “develop leaders through a broader understanding of international security and civil-military affairs while advocating aerospace power.”

SSS-level Air Force Fellows serve as visiting military ambassadors to their sponsoring civilian institutions, devoting effort to expanding their colleagues’ understanding of defense matters. Candidates for SSS-level fellowships should have a broad knowledge of key DOD and AF issues. SSS-level fellows perform outreach by their presence and voice in sponsoring institutions. They are expected to advise on and to promote and explain AF and DOD policies, programs, and military strategy to nationally recognized scholars, foreign dignitaries, and leading policy analysts. The AF Fellows also gain valuable perspectives from the exchange of ideas with these civilian leaders. SSS-level fellows are expected to apprise appropriate Air Force agencies of significant developments and emerging views on defense, economic, and foreign policy issues within their centers. The SSS fellows include the National Defense Fellows (NDF) at major universities and think tanks throughout North America, the RAND Fellows, the National Security Fellows (NSF) at the John F. Kennedy (JFK) School of Government at Harvard University., and the Secretary of Defense Fellows (SDF) at selected major corporations.

This year, for the first time, the AU dean of research is supporting the AF Fellows by providing the following services.

- ❖ Potential topics proposed by major commands and unified commands.
- ❖ Targeted distribution of selected research papers to the national security community.
- ❖ Electronic publication to the AU research Web site and to the Defense Technical Information Center (DTIC).

National Defense Fellows (NDF). The Air Force sponsors approximately 25 NDFs to study at major universities and Washington, D.C. think tanks. This program acquaints officers with the views of those outside the AF community relative to national security policy issues. As such, this experience enhances the fellows’ executive development by broadening their knowledge and expanding their perspectives. In turn, the NDFs provide influential scholars in major universities and think tanks a broader understanding of DOD and AF issues. Each fellow conducts research on issues of mutual concern to the Air Force and the academic community by authoring a publishable paper on a national security affairs topic. These papers are

provided to Headquarters AU for analysis of benefits within and outside the DOD.

RAND Fellows. This fellowship affords the opportunity to work on Air Force-sponsored research at RAND Corporation. The objectives of this fellowship are for officers to learn advanced research techniques and to enhance professional relations with the research community critical to working military issues and policies. In turn, the RAND Fellows provide DOD/AF perspective and focus in their research. By the end of the fellowship, each RAND Fellow publishes a research paper that is provided to AU for analysis on benefits and application.

National Security Fellows (NSF). Three officers are appointed each year to this program which provides them an outstanding opportunity to research, write, and speak on issues of immediate or continuing concern to the Air Force. The NSFs attend the John F. Kennedy School of Government to gain a broad perspective of the wide range of issues encompassed by national security. In turn, the NSFs provide the school’s scholars a broader understanding of DOD and AF issues. The fellows publish research papers at the end of the fellowship for review by AU for applicability within and outside DOD.

Secretary of Defense Fellows (SDF). SDFs work directly for the SECDEF, Secretary of the Air Force (SAF), and chief of staff of the Air Force (CSAF). They work on special research topics of interest to OSD or on research that focuses on changes in information and related technologies and how they influence American society in ways that affect DOD operations over the near and midterm. These assignments broaden the officers’ perspectives beyond the Air Force. In exchange, the officers provide unique AF perspectives in their research. At the end of their research, the SDFs provide publishable reports for the SECDEF, applicable military departments, and Headquarters AU.

Air University Colloquium 2001: Leadership and Emerging Military Issues in the New Century

By Maj Malcolm Walker, Coordinator

On 5–7 June 2001, at the new ANSER facility in Arlington, Va., AU will showcase the papers completed by officers enrolled in the NDF program. Keynote presentations are expected from members of Congress, SAF, CSAF, and others. Panel topics will include leadership, missile defense, regional security, information operations, defense industry/ logistics, aerospace issues, and military roles/political goals. Panelists will present original research papers and will be drawn primarily from AU and Air Force Fellows at Harvard, MIT, Tufts, Hoover Institute, Brookings Institute, Washington Institute, Georgetown, Center for Strategic and International Studies (CSIS), RAND, Boston University, Institute for Defense Analysis (IDA), Foreign

Service Institute, and Atlantic Council. Other fellows at these institutions have volunteered to present papers.

AU is soliciting additional research papers appropriate for the panels. All primary and backup papers will be published via the event's Web site (coming soon) and CD-ROM (to be distributed through military channels and civilian institutions). Although

only limited positions remain available (attendance is limited to 125 participants), AU is seeking volunteers to act as panel chairs and discussants and will work to include volunteers in this forum. If you are interested in attending or would like more information, please contact Maj Mal Walker: commercial (334) 953-4012, DSN 493-4012, or malcolm.walker@maxwell.af.mil

Air Force Fellows Program AY00 Research Papers available on-line:

Author	Title
Jeffrey K. Beene	<u>Constraints, Restraints, and the Role of Aerospace Power in the 21st Century</u>
Gregory M. Billman	<u>The "Space" of Aerospace Power: Why and How</u>
Katherine Lemay Brown	<u>Time for an Update to Joint Officer Personnel Management?</u>
Michael Cartney	<u>The Art of Balancing Information Security and Information Sharing</u>
Maria Cordero	<u>The United States and Cuba: Past, Present, and Future</u>
David W. Eidsaune	<u>Air Force Modernization: New Investment Processes and Priorities for a 2020 Aerospace Force</u>
Donald R. Falls	<u>NATO Enlargement: Is Romania Ready to Join the Alliance?</u>
David A. French	<u>Leadership Development: A Supervisory Responsibility</u>
Gail M. Gilbert	<u>Force Protection: A Need for Greater Synergy</u>
Will W. Gildner	<u>Forcing Goldwater–Nichols to the Grassroots: Training Future Joint Crisis Response Forces</u>
Russell R. Grunch	<u>Air Force Combat Support: Adjusting Doctrine to Meet Expeditionary Air Force Requirements</u>
Lynda C. Jackson	<u>Recruiting Today's Youth: How Can We Increase Youth Propensity to Join the Air Force during this Millennium?</u>
David A. Karns	<u>NATO Relations With Ukraine: Prospects for Progress</u>
Richard A. Magnan	<u>An Examination of the Legal Authority for the 1999 NATO Air Campaign Against the Federal Republic of Yugoslavia</u>
Jim Marchio	<u>Unrest and Instability in Southeastern Europe: Cold War Insights for the 21st Century</u>
Craig S. McLane	<u>The Search For Increased Knowledge, Reach and Precision In War</u>
Michael R. Moeller	<u>Horizon's Edge: The Coercive Effects of Aerospace Power in the 21st Century</u>
Bill Nelson and Vickie Woodard	<u>The Centennial Air Force: The Future of Air Power at the Air Force's 100th Birthday</u>
Thomas R. O'Boyle	<u>The War of the Tiger and the Elephant: When the Military and the Media Collide</u>
H. D. Polumbo, Jr.	<u>Effects-based Air Campaign Planning: The Diplomatic Way to Solve Airpower's Role in the 21st Century</u>
Michael A. Rampino	<u>Shot In The Dark: Protecting America's Space Commerce</u>
W. Bruce Rember	<u>Tools for Transformation: The Military Requirements Process</u>
Philip M. Ruhlman	<u>War Winning: Paradigms and Visions for High-End Warfare</u>
Jill S. Skelton	<u>Russian Military Reform Since the Collapse of the Soviet Union: How Effective is the Russian Military as a Fighting Force?</u>
William R. Travnick	<u>Making the Expeditionary Aerospace Force Work—Now!</u>
Suzanne M. Vautrinot,	<u>Focusing the Lens: A Case Study of National Missile Defense</u>
Foster P. Payne and	
Charles D. Lutes	
Samuel J. Walker	<u>Interoperability at the Speed of Sound: Canada-United States Aerospace Cooperation . . . Modernizing the CF-18 Hornet</u>
Stephen L. Wolborsky	<u>Swords Into Stilettos: The Battle Between Hedgers and Transformers</u>

Research Highlights from the College of Aerospace Doctrine, Research and Education

CADRE's Airpower Research Institute

By Col Allan Howey, Director

The Airpower Research Institute (ARI) is one of six directorates of CADRE. ARI fulfills an important role in AU by acting as a “cradle to grave” system for research—research made available both in print and electronically. The institute not only solicits and publishes research but also carries out its own research projects and supports other AU research programs.

The AU dean of research's office operates out of ARI with the mission of “creating research opportunities that promote professional development and produce innovative thinking on critical military issues.” To accomplish this mission, the dean works closely with research directors in AU schools, the AU Command Research Advisory Board (CRAB) and ARI's Research Support Division.

The Journals Division seeks to promote discussion, debate, innovative thinking, and good writing on a wide range of issues relating to aerospace power. It produces three versions of the quarterly *Aerospace Power Journal (APJ)*—the English, Spanish, and Portuguese editions. An upcoming English issue (Spring 2001) of the *APJ*, featuring articles by senior Air Force officers, will focus on leadership. The division also publishes an on-line journal titled the *Aerospace Power Chronicles*, featured on the inside back cover of this *Bulletin*. These journals not only solicit scholarly articles and original research but also provide venues for publishing those pieces.

The task of producing timely research falls to the Research Division of ARI. This division consists of a group of military defense analysts who focus on research of both historical and current issues. The division publishes the *ARI Papers*.

CADRE's ARI reaches across the spectrum of research needs. It joins the Air Force's other research centers in providing both a stimulus for original research and a vehicle for presenting the results of that research.

ARI Papers on-Line:

ARI's new research papers are produced by full-time faculty researchers. Printed versions of the papers are produced in 1,500 copies with a select initial distribution. *ARI Papers* are available on-line on the AU Research Web site.

- [An Analysis of AEFs I–IV \(1995–97\) and the Way Ahead](#), Dr. William Lee Dowdy, no. 1.
- [Hitting a Bullet with a Bullet](#), Dr. Kenneth Werrell, no. 2.
- [Sparks Over Vietnam: The EB–66 and the Early Struggle of Tactical Electronic Warfare](#), Capt Gilles Van Nederveen, no. 3.

CADRE Papers on-Line:

The *CADRE Papers* are professionally edited versions of SAAS student theses. As with the *ARI Papers*, print editions are

produced in 1,500 copies. All of the papers in this series are available in full text on the AU Research Web site.

- [Airpower against an Army: Challenge and Response in CENTAF's Duel with the Republican Guard](#), Lt Col William F. Andrews, no. 1.
- [Airpower and the Cult of the Offensive](#), Maj John R. Carter, no. 2.
- [Synchronizing Airpower and Firepower in the Deep Battle](#), Lt Col R. Kent Laughbaum, no. 3.
- [Does the United States Need Space-Based Weapons?](#) Maj William L. Spacy II, no. 4.
- [Toward an Air and Space Force: Naval Aviation and the Implications for Space Power](#), Lt Col Mark P. Jelonek, no. 5.
- [Shooting Down a “Star”: Program 437, the US Nuclear ASAT System and Present-Day Copycat Killers](#), Lt Col Clayton K. S. Chun, no. 6.
- [Once in a Blue Moon: Airmen in Theater Command](#), Lt Col Howard D. Belote, no. 7.
- [Uninhabited Combat Aerial Vehicles: Airpower by the People, For the People, But Not with the People](#), Lt Col Richard M. Clark, no. 8.
- [Paradigm Lost: Rethinking Theater Airlift to Support the Army After Next](#), Lt Col David W. Allvin, no. 9.

CADRE's Research Support to AU

By Lt Col (Sel) Harry Newton, Ph.D., Division Chief

CADRE facilitates the student research programs at ACSC, AWC, SAAS, and the AF Fellows' program through the Research Support Division of ARI. Working for the AU dean of research, this division provides a central staff to serve common needs of the Maxwell schools, such as: conducting the AU/CC “Call for Research Topics” each summer, electronically publishing student papers, and preparing summaries of AU research. For the first time, this year the AU Research Support team is serving the AWC Nonresident Studies (see p. 4) and the AF Fellows program (see p. 16). With the help of the school representatives listed on the inside cover and the AU Press, this team also produced this *Bulletin*.

The Command Research Advisory Board was created last year to help guide the efforts of this team and help link the research programs of AU with the larger DOD community. The current members of this advisory board are listed on the inside front cover.

This year, in concert with the research directors at each school, the AU research support team gathered 600 potential research topics, cohosted the ACSC Research Day, provided briefings and workshops on research, and “e-published” over 300 AU student papers on issues of military importance. For more information, see the article on the AU Research Web site on the back cover.

Research Resources: Best Hits!

AF Doctrine Center Web site

By Col Roger Philipsek, Vice Commander, AFDC

AFDC's Web site, located at <http://www.doctrine.af.mil>, is the Air Force's primary means of disseminating aerospace power doctrine. Air Force basic and operational doctrine documents are available for downloading or for reading on-line. The site lists a point of contact with E-mail address for each document, providing ready access for questions or requests for additional information. In addition, the Web site features the *Doctrine Watch Papers*, short articles individually approved by the CSAF that are designed to help all airmen articulate the essentials of aerospace power employment and Internet links for those desiring to research joint or other service doctrine.



The AFDC site also provides reference information. The "Modeling and Simulation" section has a guide for helping airmen understand the strengths and weaknesses of programs meant to properly represent aerospace power capabilities in war games. Searchable databases include an "Exercises and Wargames" file that gives valuable information about service and joint events and a "Historical Evidence" file that contains factual information supporting Air Force doctrine. The public can access all sections of the Web site.

AU Library

By Dr. Shirley Laseter, Director, AU Library

The AU Library is walking through your door. The physical assets of the Library are no secret—452,325 volumes of books and journals; 491,612 technical reports; 622,596 print maps; 1,800 print subscriptions; 1,611 videos; and a knowledgeable staff to answer questions and to assist researchers. But in today's world of electronic information, researchers need information at their desktops. That's why our Web site (www.au.af.mil/au/aul) has become the primary vehicle for information delivery. Students attending AU schools and accessions programs will find course support that saves them time and frustration. Librarians have created links to full-text materials; to relevant databases and Web sites; and to maps, images, and bibliographies.



In addition, 17 online subscriptions offer researchers access to over 100 databases. Registered AU users can tap into full-text EBSCOhost, ProQuest, Jane's Geopolitical Library, and NetLibrary anytime/anywhere. Got a question? Click on the question box—as over 700 other users did last year—and get a librarian to give you an answer. The Library's mantra is "create, connect and deliver," and we are flying in formation with AU.

Aerospace Power Chronicles

By Ms. Tawanda Eaves, Managing Editor

Aerospace Power Chronicles is the on-line edition of the *Aerospace Power Journal*, the professional flagship publication of the USAF. Here you will find past and present issues of the *Aerospace Power Journal*, the *Airpower Journal*, and the *Airpower & Aerospace Power Journal International*. The site also features reference materials and articles that could not be accommodated in the print editions, plus images and links to similar sites. Got something on your mind? Join our discussion groups, and let your opinions be heard.

Browse to <http://www.airpower.au.af.mil> for more information.



Research Resources: Best Hits!

AU Research Web site: 1,400 Research Papers

By Lt Col (Sel) Harry N. Newton, Ph.D., Chief, Research Support

The AU Research Web site was established in 1995 to encourage research at AU and to provide the resulting papers in a format accessible through the Internet. Today, six years later, this site continues to serve as a link between AU researchers and the larger national security community. In 2000, the site was accessed over 3.25 million times, including 860,000 requests for full-text downloads of papers written by AU students and faculty.

Over 1,400 research papers from AWC, ACSC, AFIT, CADRE, SAAS, the AF Fellows Program, and AU Press are available at this Web site. In fact, all of the student papers announced in this publication are available in full text on this Web site.

This site also features a Topics Database that is updated each summer through the AU Call for Topics coordinated by CADRE. Currently, this database has more than 600 research issues raised last summer by the senior staffs at unified commands and Air Force major commands, as well as the issues identified by the INSS and other agencies. The student research programs at AWC, ACSC, and SAAS make use of these topics.

For more information, browse to <http://research.au.af.mil>.



Air War College and Eaker College Gateways

By Col Mike McKim, Webmaster

These two linked research portals contain over 20,000 links and files. The topics include just about every topic taught at AU or any other DOD school of PME. A perfect start for research.

Both sites are joint in nature, and between them address almost every aspect of warfare and military life. Users include staff at the National War College, CIA, State Department, US and AF Space Commands, US Special Operations Command, and doctrinal and medical personnel of all the services.

New topics and links are continually added based on suggestions from all the services and over a dozen countries. Go ahead—make our day—send us a link or a topic or a request. Chances are if you value it, others will too.

For more information, browse to <http://www.au.af.mil/awc/awcgate>



Defense Technical Information Center

Staff

DTIC's Scientific and Technical Information Network (STINET) provides on-line information on technical reports written throughout the defense community. Public STINET gives you access to all unclassified, unlimited citations to documents added into DTIC from 1974 to present. Many of these papers are available using Adobe's PDF format.

For more information, browse to <http://stinet.dtic.mil>.

