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Information Warfare Conference

Robert J. Bunker
Claremont Graduate University

Digest

NDU Opens World Wide Web

The National Defense University (NDU) is pleased to announce the opening of its World Wide Web (WWW) server. Through NDU's web server, individuals and organizations with WWW access can obtain much of the original unclassified NDU research and a wealth of information about its constituent organizations: the Armed Forces Staff College, Information Resources Management College, Institute for National Strategic Studies (INSS), Industrial College of the Armed Forces, National War College and the world-class NDU library.

Other information includes:

● INSS articles and publications on current issues of global security interest such as *Strategic Forum*, *McNair Papers* and *Strategic Assessment*, which are accessible by title or word search.

● Promotional and registration information on upcoming symposia.

● The NDU Press catalogue of books available for order.

Ultimately, the NDU goal is to include faculty and student papers cleared for publication. To maximize the server's utility, comments and questions are solicited in the NDU homepage.

The NDU WWW server can be reached using most web browsers at http://www.ndu.edu. For more information, call COL John Burkhart at (202) 287–9210, ext. 546, or DSN 667–9210, ext. 546.

Information Warfare Conference

The Education Foundation of the Data Processing Management and Technical Marketing Society of America's *Information Warfare* Conference was held 5 and 6 June 1995 in Los Angeles, California. The conference focused on the technical, operational and strategic significance of information warfare. While the

US Army is a recognized leader in battlefield digitization, the conference theme dealt primarily with our society's information infrastructure, the emerging cyberspace battlefield and the impact information technologies will have on 21st–century war concepts.

The conference was attended by a select group of 45 government, industry and military representatives. Conference participants included Robert L. Ayers, director, Information Warfare Division, Defense Information Systems Agency; Captain R. J. Caldarella, US Navy, director, Information Warfare/Command and Control Warfare, Office of the Chief of Naval Operations; retired Army Major General Cloyd H. Pfister, consultant, Technology Strategies and Alliances and Chair of the Army Panel on Information Systems; retired Rear Admiral Wesley E. Jordan, vice president, Advanced Systems, Bolt Beranek and Newman, Inc.; Dr. Michael L. Brown, senior analyst, Strategic Assessment Center, Science Applications International Corporation; Dr. James Llinas, executive engineer, Calspan Corporation; and Edward Waltz, manager, Corporate Program Development, Environmental Research Institute—Michigan.

A distinguished panel of experts discussed defensive information warfare, the Navy's response to information warfare, information operations, impact of information technology on warfare, image and spatial data fusion, unmanned aerial vehicle technology and advanced information processing.

Key points raised by conference participants were:

● Cyberspace represents a virtual fifth dimension characterized by no geographic, national or temporal boundaries and no ownership, laws or identity cards.

● Individuals can conduct information warfare attacks on the economic, political and military infrastructure of the United States. The Department of Defense (DOD) information network suffered 250,000 attacks last year. Attacks are doubling

each year as intruder technical knowledge becomes more accute.

● Major attacks on US commercial service providers have been detected. Internet network switches were attacked by inserting codes that looked for privileged transactions and then collected the first 124 characters, such as destination, user identification and password. DOD research and development transactions were then collected and used as the basis of attacks on DOD computer systems. It is unknown who is behind these sophisticated attacks.

● Data modification is far more destructive than data destruction. Data modification is not easily detected. However, data destruction is readily apparent and can be protected through proper data backup and security procedures.

● To support two major regional conflicts in 1995, it is estimated that at least 65 percent of military information would be carried over vulnerable commercial lines.

● The information infrastructure our nation is building represents new centers of gravity and target sets for our adversaries. To counter this vulnerability, a cyberspace service must be researched and developed.

● Current paradigms and operational concepts of strategic attack are based on Colonel John Warden's "ring theory" and strategic information warfare.

● In information warfare, your "observe–orient–decide–act" loop must be faster than your opponent's. To achieve this, your loop must be protected while you disrupt your opponent's.

● Information warfare courses are now appearing in major military universities across the nation.

● Data fusion has immense potential application on the future battlefield and is based on the concept of taking points or information concerning three–dimensional space and "fusing the data" to image a target. Adaptive data–fusion systems have many potential battlefield applications and may provide the heuristic

basis for future "machine" soldiers.
• Defensive information infrastructure principles are: *protect* infrastructures and data from information warfare attack; *detect* attacks upon the information infrastructure; and *react*

to attacks to maintain information services.

For Army and governmental leaders alike, this conference provided a "cutting edge" perspective on the emerging 21st–century cyberspace

battlefield. This new battlefield holds operational and strategic implications we are only now beginning to understand.

Robert J. Bunker, *California State University, San Bernardino, California*

Review Essay

Strategic Mobility's Stem
Colonel Kenneth L. Privratsky, US Army

Victory is the beautiful, bright colored flower. Transport is the stem without which it could never have blossomed.

—Winston Churchill

This statement, written by a young Winston Churchill before last century's end, holds particular relevance today as we approach the beginning of another century. It reminds us that before we can win, we must get our forces and supplies where they are needed. That may seem simple, but those familiar with our recent power–projection experiences in Southwest Asia, Africa and the Caribbean understand that it is not.

Getting what we need militarily where and when we need it has never been easy. It has also never been so important. Our ability to project power over long distances on short notice—what we call strategic mobility—constitutes the core of our current global military strategy. That is why Churchill's metaphor and, indeed, Douglas Menarchik's *Powerlift* take on such importance.

Menarchik contends that strategic transportation, often termed strategic lift, was the "long pole" in the US security tent when Iraq invaded Kuwait five years ago. At the time, this hardly surprised many in the military, particularly those who had been around logistics for a while. For years before the invasion, military planners had waved magic wands over map boards when it came time to deploy forces during exercises. Senior lead-

ers surely knew of strategic lift shortfalls. The Reagan administration pumped billions of dollars into the 1980s defense budgets, but little trickled into air or sealift procurement programs. The US ability to deploy its military steadily declined during those same years.

Then, in August 1990, Iraq invaded Kuwait, and a lot changed. Fortunately, Saddam Hussein foolishly sat on his newly gained prize for six months, giving transporters time to get units and supplies into theater. This struggle is the basis for Menarchik's *Powerlift*, a book that documents the requirements and problems of projecting Gulf War forces. This book may not be remembered as a landmark history of Gulf War logistics, and given its handsome price, it may not find its way onto many soldiers' bookshelves. Nevertheless, *Powerlift* tells a very important part of the Gulf War story.

Menarchik contends that there were three strategic moves during Operation *Desert Shield*: the first moved deterrent and defense forces to the gulf immediately after the invasion; the second doubled the force structure, providing General Norman Schwarzkopf the ability to take the offensive; and the third postured forces in–theater, setting the stage for enveloping Iraqi forces. Some will question why the third "strategic" move is included in Menarchik's analysis, and justifiably so, since preparation for the "Hail Mary" envelopment involved operational, not strategic, movements.

Drawing primarily from official briefings and his own interviews with senior officials, Menarchik presents a remarkable array of information on what was moved and how. *Powerlift* has five chapters, but the first three are clearly the best. They outline the

international situation at the time of invasion and provide detailed explanation and analysis of deployments into the theater. Readers will come away from these chapters impressed by the heroic stories of the behind–the–scenes transporters who made victory possible.

Menarchik describes, for example, how the US Transportation Command (USTRANSCOM) scrambled to mobilize lift assets. USTRANSCOM was formed just a few years before the invasion to centralize command and control (C^2) of the service commands that coordinate and provide strategic lift: Military Sealift Command, Air Mobility Command and Military Traffic Management Command. Today, it is hard to imagine what would have happened without this senior joint headquarters orchestrating the complex strategic transportation planning and execution.

Powerlift clearly portrays the commercial carriers' importance to war efforts. It reveals the vast differences between prewar plans and actual requirements for aircraft and ships; contract efforts for additional assets to meet those requirements; and various problems encountered in getting people and supplies where they were needed in–theater. A significant portion of the book is Menarchik's discussion of the funnel effect that resulted because of MOG [maximum aircraft on ground] constraints confronting airlifters. Scores of charts and graphs support such discussions.

Transporters moved a staggering volume—300,000 tons of equipment the first month and 250,000 military personnel and 1,000 aircraft in the first three months. However, this tremendous achievement was blunted by the sobering fact that it took over