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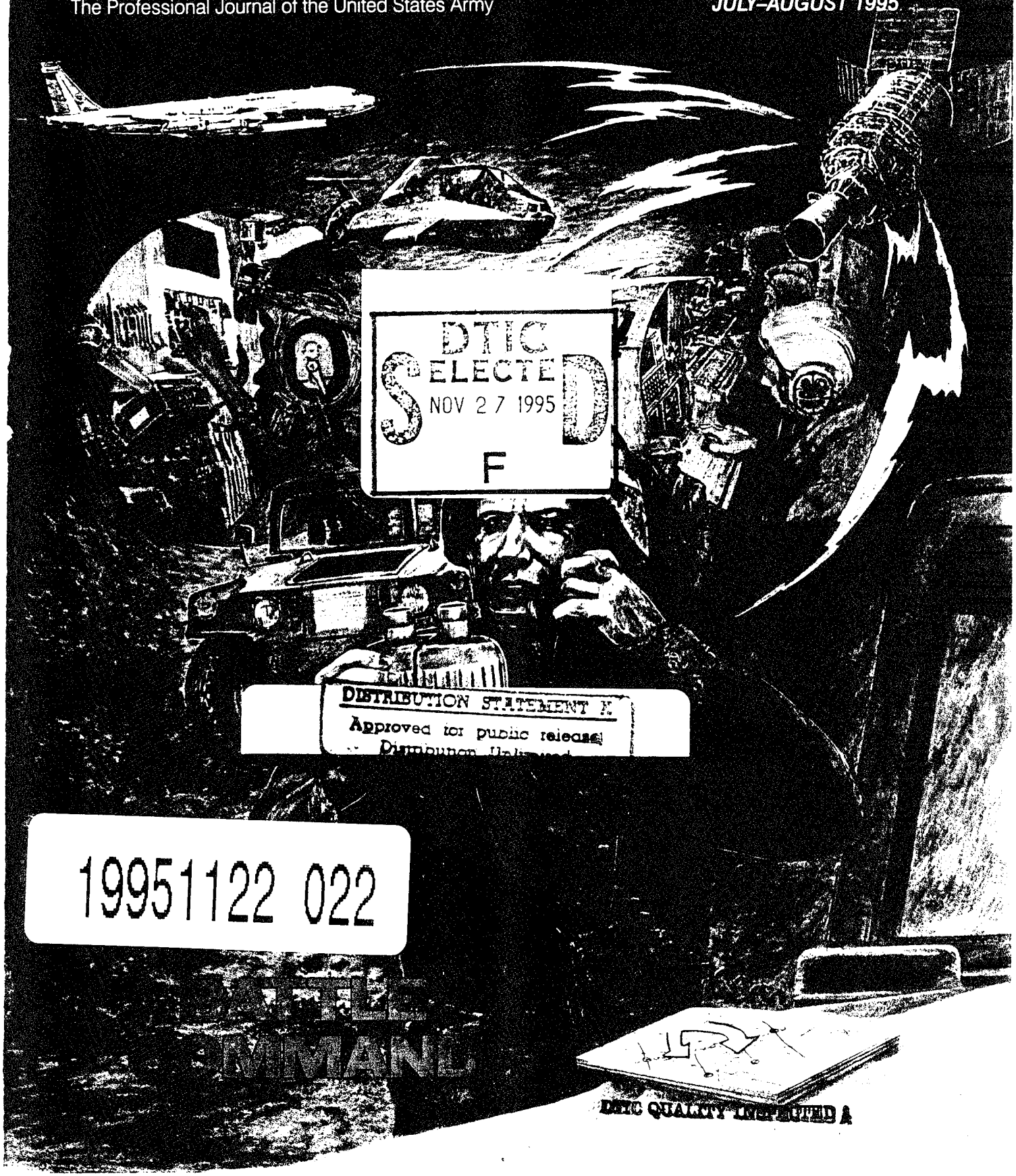

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From the Editor

This is my 23rd and final issue of the English edition of *Military Review.* Presiding over this magazine during a time of great change has been both a challenge and an honor. The essence of the challenge was finding articles and features that captured the soul of the changes the US Army faces in joint, combined and interagency operations. To that end, and by comparing the last two years to the previous two, *MR* increased the number of articles discussing joint, combined and interagency operations threefold; future Army and emerging doctrine, twofold; and non–European regional issues, twofold. We also tripled the number of general officer articles from combatant and corps commanders as well as tripling the number of joint, allied and academic authors' articles. Judging by your letters, comment cards, personal remarks and new articles, this editorial direction has indeed served as a forum—a mission–essential task of *MR.*

The theme for this issue is *Battle Command.* This theme, as well as those of joint operations, leader development and information operations, have been run before and will be run again, because each previous issue has generated responses that counter, amplify or propose new twists to those themes. This continuing dialogue is one standard of success—another is how much of each issue is read by the *MR* audience and then shared with others. We are measuring that standard of success with a readership survey that some of you will receive soon. Please take the time to complete this survey so that we may improve our product for you. The ultimate standard of success is intangible but invaluable: the intellectual exchange between an author and a reader. There is great power and value in a journal through which generals, officers, sergeants, congressmen and civilian staff exchange professional ideas freely and professionally. Arguably, *MR* provides more open exchange than any other US Military journal.

The honors of serving as the editor of *MR* are manifold. I have been honored with the opportunity to work with many innovative ideas offered by authors and the many professionals who assist us. I have been honored by the trust and support of Lieutenant General John E. Miller, US Army Command and General Staff College (USACGSC) commandant, and Major Generals Randolph W. House and Randall L. Rigby, past USACGSC deputy commandants. They provided not only intellectual curiosity and vision, but also the editorial independence to select the articles and themes for each *MR* issue. Finally, I was honored by the support and loyalty of a professional editorial staff that continued to improve *MR* through two physical plant moves and the pressures of a reduced staff and budget. This staff—military and civilian, appropriated and non–appropriated fund—reminds me daily of the greatest reward of serving in the US Army—the privilege of working with great Americans.

In closing, I also want to thank Dr. Samuel J. Lewis, Combat Studies Institute, USACGSC, for preparing the World War II Almanac Chronology since September 1993. His expertise and willingness to contribute are representative of all the talent and time contributed, even if less often, by the talented USACGSC faculty and staff and the Foreign Military Studies Office staff. While I can only hope that I provided something new and useful during my tenure as Editor in Chief, I know certainly that the people of *MR,* USACGSC and the Combined Arms Center added materially to my personal and professional development. Thank you one and all.

Colonel John W. Reitz
Editor in Chief, April 1993 to July 1995

MR Letters

Intelligence Warning That Fails to Warn

I enjoyed reading Lieutenant Colonel Victor M. Rosello's article "Predicting the Unpredictable" (December 1994/January–February 1995 *Military Review*), and I agree with the author that rationalization of potential future conflicts is only one way of looking at the world. However, barriers exhibited not just in the article but within the intelligence community should be cleared up.

Rosello states the analyst's future conflict vision is formulated from current information distilled into intelligence assessments. This logical event sequence is our analytical system foundation, which is largely logically based on linear thinking. Unfortunately, as the author points out, this same mode is used to produce a warning that fails in its objective, because it is perceived by many within the intelligence community as an all–source analysis byproduct. Therefore, those inside and outside the intelligence community view intelligence—defined as the collection of data analyzed and assessed in a logical and linear process—as an end–all.

As stated by Carl von Clausewitz, "The very nature of interaction is bound to make [war] unpredictable"; thus, "Anything that could not be reached by the meager wisdom of such one–sided points of view was held to be beyond scientific control: it lay in the genius realm, which rises above all rules." This is true. Some approaches to predicting future enemy actions can be categorized within a *rational* analytical approach. Irrational thinking may be used to predict future irrational adversarial behavior.

When the author points to an adversary's actions as irrational because of a "uniquely ethnocentric view of the world," the author is engaging in mirror imaging. It would seem Rosello views rational behavior as behavior conforming to Judeo–Christian norms, the foundation for American values.

This analysis method, when strictly applied, opens the intelligence community to dangerous assumptions that should not be limited to space and time and that may not be characteristically rational or irrational but transnational (another tier). Some in the intelligence community look upon the crisis advent as the quickening of intelligence analysis. Therefore, labeling a situation rationally allows for quick answers for short–term objectives. It is interesting that the word "rational" derives from the Latin roots of "calculation" and was used in obtaining goals effortlessly.

Jan Goldman, ***Joint Military Intelligence College, Washington, D.C.***

New Multinational Division Flawed

In his article "A New Face in NATO" (September 1994 *Military Review*), Major General Pieter Huysman discusses the military utility of the new Multinational Division (Central) [MND(C)]. The concept behind MND(C) and how it is executed do not deserve such an uncritical presentation in *Military Review*. What division commander would choose different armaments, equipment and logistic support structures for his four brigades; to have no control of his division's deployment activities, taking command only after its battlefield arrival; to have no assigned intelligence or medical capabilities; to have his division brigades unable to communicate on the battlefield; or to take a division to war with only one artillery battalion?

These questions do not even address the shortcomings in the MND(C) staff structure or make judgments (or comparisons) of the Dutch, Belgian, British or German soldiers' fighting qualities. But, if these questions create some doubt, maybe the basic MND(C) concept remains to be justified.

Consider the words of history's most successful architect and leader of coalition forces, General Dwight D. Eisenhower, in his book *At Ease, Stories I Tell to Friends*. Reflecting back to 1951 on his time as NATO's first commander building its military structure, he said, "There was no thought, of course, of amalgamating troops so that each unit would become an international hodgepodge. The differences in languages alone would be enough to defeat any such plan. Each unit of divisional strength would be homogeneous as to nationality, while the larger units—corps and armies—could logically contain within themselves units of different nationalities."

Alex Scammel, ***Sembach, Germany***

Globalism Demands Multinational Strategies

Alex Scammel's letter raises several astute questions, and I appreciate the opportunity to address them in this forum. Similar questions and doubts occur to every commander and tactician. From a NATO alliance perspective though, the military resolve to make things work is preceded by political guidance. Although a multinational division is not the dream of every planner or logistician, it is definitely not the commander's nightmare that Scammel suggests.

In today's world, one must consider the following factors: reduced defense budgets; downsized alliance armed forces; and the need to readdress the alliance's perceived risks and become more worldly in conducting assessments because there no longer exists a parallel between yesterday's general defense plans and current situations. Today, we address the tools needed for crisis management rather than for an all–out war, as we needed during the Cold War. Our political leaders have agreed to establish corps– and division–level multinational formations for operations on a smaller scale.

Often, the answer to the above considerations is to generate multinational forces that can address present factors and situations with commensurate force. Multinational forces should not come together as an "international

Force XXI Battle Command

Lieutenant General John E. Miller, US Army, and Major Kurt C. Reitinger, US Army

ESTABLISHED IN 1827 by Colonel Henry Leavenworth, Fort Leavenworth was a key center for the Frontier Army—today, it serves as a gateway to the US Army's future. As in the Frontier Army and throughout America's history, a vital component of the future Army will be effective command by competent, caring officers. The US Army Combined Arms Center and the Battle Command Battle Laboratory (BCBL) are actively pursuing numerous, multifaceted initiatives to enhance battle command performance, making Fort Leavenworth a crossroad to the future, in addition to its rich history as a crossroad to the old frontier. This article describes some of the depth, breadth and quality of initiatives that are leading the way to Force XXI battle command.

Battle command is the art of decision making, leading and motivating troops into action to accomplish missions at least cost in soldiers and materiel. The battle command concept represents a fundamental shift in emphasis—from systems and science—to the commander, his moral authority and the art of command. It recognizes the value of knowledge and the role that information and technology play in concert with the moral and human aspects of command in future operations. The Force XXI battle command vision is competent leaders supported by lean, agile battle staffs organized around information. Technology complements the art of command by enabling command with enhanced control.

Battle command is best described as the expression of the commander's will. It begins the day a commander assumes command, and its effects remain even after he relinquishes command. Categorized as a combat function, battle command does not package old notions about command and control (C^2) battlefield operating systems (BOS) under a new label but distinguishes the essence of command from its implementing systems: command with control vice command and control.

Battle command has two components—leading and deciding—to employ in addressing three fundamental concerns: visualizing the current state and desired future state, deciding how to get from one to the other and then leading the force to that future state, as illustrated by Figure 1. Both components include intangibles such as vision, intellect, judgment, resolve and integrity. Skill, wisdom, experience and courage—always moral and often physical—are critical as well. Both aspects of battle command contain the more tangible functions of collecting, processing, disseminating and protecting information. The application of battle command allows the commander to invoke his will to move his troops to victory.

The key to understanding this new battle command focus is to grasp the role of knowledge and the value of information. Commanders at all levels require the means to optimize timely battlespace information, thereby making more informed decisions and translating them into actions consistently faster than the enemy. The ability to make, communicate and enact these decisions before an adversary acts provides the commander the means to operate at a tempo the enemy cannot sustain.

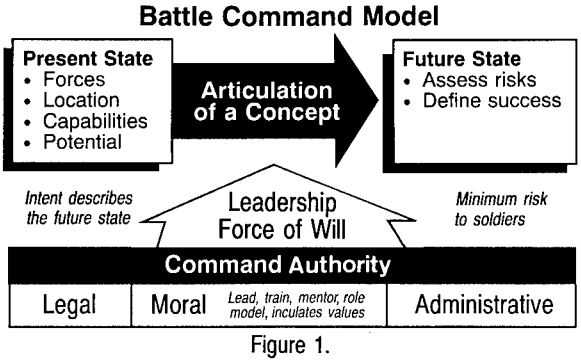


Figure 1.

VII Corps Apaches flying low over destroyed Iraqi armor, March 1991.

The key to understanding this new battle command focus is to grasp the role of knowledge and the value of information. Commanders at all levels require the means to optimize timely battlespace information, thereby making more informed decisions and translating them into actions consistently faster than the enemy. The ability to make, communicate and enact these decisions before an adversary acts provides the commander the means to operate at a tempo the enemy cannot sustain.

Battlefield Visualization

The Headquarters, Department of the Army deputy chief of staff for Operations and Plans (DCSOPS) has overall responsibility for battlefield visualization. The DCSOPS, through the assistant DCSOPS–Force Development, generates the management strategy to concentrate efforts and centralize direction. The Force Development Directorate ensures that the management plan fixes action agencies' responsibilities for execution of the approved US Army Training and Doctrine Command (TRADOC) *Master Plan*. New doctrine introduces the notion of battlespace—the use of the entire battlefield and the space around it to apply combat power to overwhelm the enemy. The concept includes not only the physical volume of breadth, depth and height, but also the operational dimensions of time, tempo, depth and synchronization. Commanders must dominate the enemy battlespace through a comprehensive understanding of geography and terrain, available collection assets and available weapon systems. Commanders must integrate other service, nation and agency assets with their own to apply their effects toward a common purpose.

Battlespace is more than the physical volume that expands or contracts in relation to the ability to acquire and engage the enemy. It reflects the commander's vision to dominate the enemy and protect his own force. The battlespace perspective leads to the concept of battlefield visualization—the ability to see the relationships between enemy forces, friendly forces, the environment and the desired end state in time, space and purpose. A clear and complete mental image of the commander's entire battlespace is critical to effective mission accomplishment because it drives the entire planning and execution process. The commander must be able to envisage his battlespace dynamically, seeing the flow of operations and activity from start to finish over the duration of the operation. Visualizing the final state is most important—"How do I know when we are done?"

BCBL initiatives. The battle laboratories and TRADOC are pressing forward aggressively to change doctrine, training, leader development, organization, materiel and soldier (DTLOMS) systems through capability definition, concept investigation and experimentation. BCBL is actively working with many organizations, both within and outside the Army, to effect desired changes. The criticality of battlefield visualization has given rise to the Battlefield Visualization Work Group. BCBL has teamed with the Army Digitization Office, Communications Electronic Command and the TRADOC Program Integration Office for the Army Battle Command System to identify, review, consolidate, validate and integrate Army and joint battlefield

hodgepodge" but should be put together intelligently, after careful military analysis and evaluation of each nation's contributing expertise. Then the forces will be collectively more capable than a single nation's force in executing a variety of tasks.

Although the Multinational Division (Central) [MND(C)] commander may not command an individual nation's unit movements until after transfer of authority, this should not be misconstrued. Control of the unit movements of the immediate reaction forces (IRF) and rapid reaction forces (RRF) is exercised from the minute military planning begins after political decisions determine which deployment, or perhaps employment, is necessary. NATO and the MND(C) planning staffs initially take control; there is even a special SHAPE staff—the Allied Command Europe Reaction Forces Planning Staff (ARFPS)—that plans contingent and generic RRF and IRF deployments. Unit headquarters and element deployments are executed from these developed plans through the major subordinate command and, if required, the personnel subordinate command levels. Do not forget that the different multinational force elements, of which the MND(C) is only one, deploy to the area from different locations. Therefore, until the multinational force makeup is complete, the commander is not in control. It is vital to note that the multinational commander exercises coordinating authority, deciding what unit will arrive *when* and *where*. He is in charge when it matters!

How to provide intelligence requirements is an issue within MND(C) headquarters that is being addressed with force proposal procedures and ARFPS coordination. Meanwhile, intelligence assets are drawn from higher formations—the multinational Allied Command Europe Rapid Reaction Corps—to bolster MND(C)'s capabilities.

Medical assets are very much part of every brigade's and national support group's establishment. This logistics field generally raises questions about a medical unit's capacity to process casualties. I believe national differences and areas such as standardization and interoperability are never a concern here, particularly when the need is manifested.

Each MND(C) unit has an inherent capability to communicate within its national areas and chains of command. To bridge these national contributions, the Netherlands army signal battalion assigned to MND(C) performs this vital task. While sophisticated equipment makes this feasible, action is being taken to upgrade MND(C)'s internal communications capabilities.

On a final note, General Dwight D. Eisenhower was the first in the long line of distinguished generals to serve as supreme commander, Allied Powers, Europe. I have great respect for his achievements, but his statements must be put into the proper context and not applied to the world situation today. Military and corporate globalism demands multinational strategies that can deal with a rapidly changing environment. The MND(C) is such a strategy.

LTG Pieter Huysman, ***Royal Dutch Army, Brussels, Belgium***

Editor's Note—Since his article appeared in the September 1994 Military Review, *Huysman has been promoted to lieutenant general and assumed the position of chief of staff, Allied Command Europe Reaction Forces Planning Staff, reporting directly to General George A. Joulwan, supreme allied commander and commander in chief, US European Command.*

Elusive Definition of UN Peacekeeping

The political pressure for UN involvement in the growing number of world conflicts increases the likelihood that US soldiers will participate in UN peacekeeping operations. Brigadier General Morris J. Boyd's article "Peace Operations: A Capstone Doctrine" (May–June 1995 *Military Review*) profiles the recently released US Army Field Manual (FM) 100–23, *Peace Operations.* He also outlines the critical aspects necessary for a successful peace operation.

While FM 100–23 is a valuable tool for US commanders and soldiers preparing for a peacekeeping mission, an important first step is for US commanders to understand that our peacekeeping doctrinal definition does not match the UN's. The all–inclusive UN definition combines two US doctrinal ideas—*peacekeeping* and *peace enforcement*—into one definition. Understanding this difference will enhance a commander's awareness of potential mission expansion, or mission creep, and foster the unit's ability to flexibly respond to the ever–changing operational environment.

The US military draws a clear distinction between peacekeeping and peace enforcement. FM 100–5, *Operations*, describes peacekeeping as using a neutral force, put into place between belligerents, with the "consent of all parties to the dispute [to] support diplomatic efforts to maintain peace in areas of potential conflict." A peace enforcement operation is described as a "military intervention operation" conducted to "restore peace or to establish the conditions for a peacekeeping force." In peace enforcement, US forces are expected to choose sides. The preparation for and focus of each type operation is markedly different for US forces.

UN Secretary General Boutros Boutros–Ghali draws no such distinction between peacekeeping and peace enforcement. The UN Charter outlines the various measures the UN can take to resolve conflicts peacefully or, if necessary, through enforcement action using military forces. The various types of "pacific settlement of disputes" are covered in Chapter VI of the charter. According to Lelan M. Goodrich and Evard Hambro in *Charter of the United Nations: Commentary and Documents*, the disputing parties must "seek a solution by negotiation, enquiry, mediation, conciliation, arbitration or judicial settlement or resort to regional agencies or arrangements or other peaceful means of their own choice."

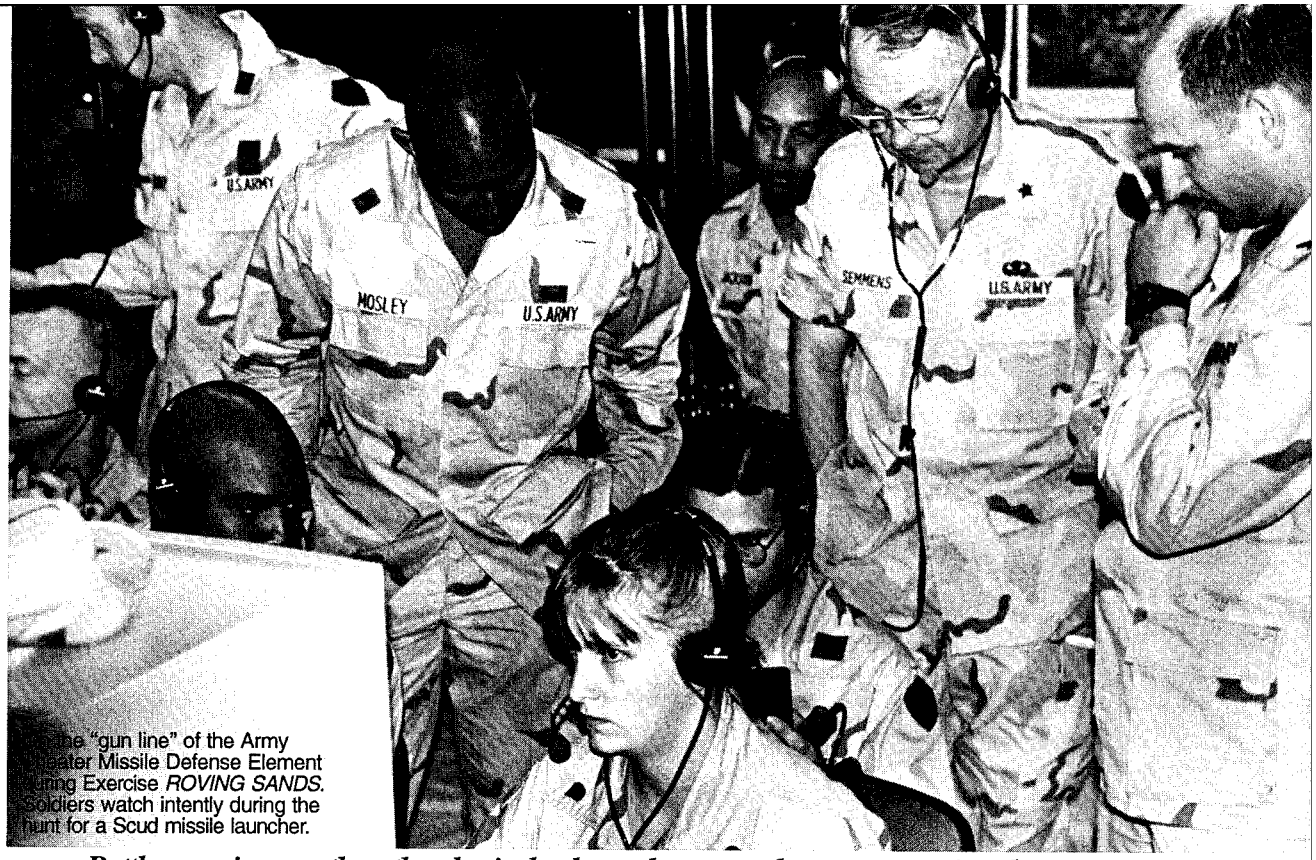
Chapter VII of the UN Charter gives the UN Security Council authorization to "determine the existence of any threat to the peace, breach of the peace or act of aggression and . . . make recommendations or decide what measures shall be taken." The UN Charter does not explicitly address the introduction of forces into a conflict as a neutral interpositionary force.

The word "peacekeeping" does not appear in the UN Charter, nor is there any chapter authorizing or outlining

continued on page 95

BATTLE COMMAND

...impacted the US Army's fundamental approach to warfare and ...promises to revolutionize the role of command and control, communica-...gence as a force multiplier on the Force XXI battlefield. As a result, ...re development is accelerating, and doctrine is evolving to cope with the multifaceted ...and challenges looming in the 21st century. Ultimately, battle command must integrate ...chronize continuous combined arms operations to enable, enhance and protect the command-...decision cycle and mission execution while providing a common view of the digital battlefield. This common picture will greatly improve situational awareness and ensure rapid, clear communication of the commander's intent and concept of operations. We must accelerate capabilities integration in harnessing digital communications, intelligence, global positioning and navigation to enhance decentralized mission execution and synchronization. This will allow leaders at every level to visualize current and future states by assigning missions, prioritizing and allocating resources, selecting the critical time and place to act and knowing how and when to make adjustments during the fight, to make Force XXI the world's preeminent land fighting force.



the "gun line" of the Army
ater Missile Defense Element
ing Exercise *ROVING SANDS*.
Soldiers watch intently during the
hunt for a Scud missile launcher.

Battlespace is more than the physical volume that expands or contracts in relation to the ability to acquire and engage the enemy. It reflects the commander's vision to dominate the enemy and protect his own force. The battlespace perspective leads to the concept of battlefield visualization—the ability to see the relationships between enemy forces, friendly forces, the environment and the desired end state in time, space and purpose.

visualization requirements across all DTLOMS systems. The work group will develop an experimentation program to address all DTLOMS impacts.

Battle Command, a hip–pocket, draft pamphlet designed to help further the battle command discussion and search for teaching, coaching and mentoring conditions, was first published in April 1994. The pamphlet is a "work in progress" that will be revised before becoming an approved TRADOC publication.

Command and General Staff Officer Course (CGSOC) Student Text (ST) 22–100, *Command,* a working draft, was published in January 1995 to fill a void in Army doctrinal publications by complementing US Army Field Manuals (FM) 100–5, *Operations*; FM 101–5, *Staff Organization and Operations;* and FM 22–100, *Military Leadership.* The intent of CGSOC ST 22–100 is to assist student officers in understanding the complex nature of contemporary and future warfare and in thinking about the art of command. TRADOC expects this draft manual to evolve into an FM leadership series with a focus on the commander's moral authority.

TRADOC Battle Command Action Plan 9512 assigns 51 tasks to 11 different organizations to address identified weaknesses in battle commander knowledge, skills and competencies. The Battle Command Action Plan is the result of a Force XXI Battle Commander Development Workshop conducted at Fort Leavenworth in November 1994 to address battle commander shortcomings. The workshop was composed of key leaders from throughout TRADOC, the Army War College, the US Army Reserve Officers' Training Corps Cadet Command, the Army Research Institute, the combat training centers and the US Military Academy. Workshop participants identified numerous solutions to improve the practice of the art of battle command throughout the Army. The action plan notes that battle command must not be considered in isolation. Rather, increasing battle command effectiveness involves adjustments in doctrine, training and leader development. The plan thus cuts across the entire DTLOMS spectrum to improve the art of command.

Concepts that work. Army Warfighting Experiment (AWE) *PRAIRIE WARRIOR 95* encompassed several key activities to gain Force XXI insights, including the Mobile Strike Force (MSF), the digitized battle staff (DBS) and a prototype battle command decision support system. The MSF was a land

combat force based on TRADOC Pamphlet 525–5, *Force XXI Operations*. The force portrayed capabilities that likely would be available in 2010 and beyond. *PRAIRIE WARRIOR* wargamed the force using tomorrow's leaders—CGSOC students who successfully completed the battle command elec-

DBS will allow us to move closer to General Dwight D. Eisenhower's ideal relationship: "The teams and staffs through which the modern commander absorbs information and exercises his authority must be a beautifully interlocked, smooth–working mechanism. Ideally, the whole should be practically a single mind."

tive—to derive DTLOMS insights on how to organize, fight and command. MSF represents more than just a force—it is a powerful vehicle for change.

Effective battle command. One facet of MSF experimentation was the DBS concept, an innovative approach where a commander has a deputy commander and three planning and operations (P&O) teams, rather than the traditional staff structure as depicted by Figure 2. The DBS is designed to be rapidly deployable, modular, scalable and tailorable to meet mission requirements. Mobile P&O teams handle the current battle, future battle and sequels to the future battle, with each team working directly with the commander to carry their respective operation from beginning to end. Multifunctional staff members conduct cross–BOS processes and rely upon a "commander–focused" knowledge base, comprehensive decision support tools and an information exchange system that produces virtual collocation between the staff and external elements.

Digitized Battle Staff

Organized around information... optimized for mission execution

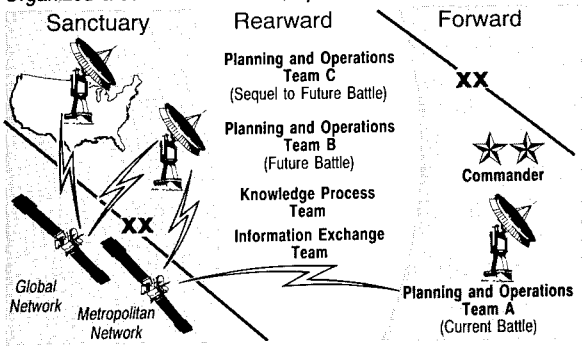


Figure 2.

The DBS' objective is to allow effective battle command to occur wherever the commander is on the battlefield. At its core, the DBS experimental work under way addresses the question of how to organize around information and optimize information flow. DBS will allow us to move closer to General Dwight D. Eisenhower's ideal relationship: "The teams and staffs through which the modern commander absorbs information and exercises his authority must be a beautifully interlocked, smooth–working mechanism. Ideally, the whole should be practically a single mind."

Integration. One emerging technology with great promise to enhance a commander's ability to visualize the battlefield is Phoenix, a rapid prototype initiative that integrates battle command tools on one screen while interfacing with Army tactical C^2 systems. Phoenix is being developed using a spiral concept (build–exercise–build) to provide the commander with a relevant common picture through a powerful relational data base incorporating several key features:

- Scalable map displays
- Enemy and friendly force tracking
- Dynamic distributive overlays
- Voice activation
- Interactive graphics
- Three–dimensional terrain visualization
- Course–of–action analysis
- Graphical synchronization matrix
- Video–teleconferencing capability

Dynamic distributive overlays allow warfighters to transfer overlays without sending "bulky" terrain data as well. This is possible because terrain data is already resident on each system via compact disk–read only memory. This feature allows rapid transmission of only the "onionskin" overlay, facilitating the relevant common picture. These terrain visualization and synchronization tools will empower commanders with an effective mission planning capability. Taken together, the synergistic effect of Phoenix's capabilities represents a heretofore unparalleled ability to get the right information to the commander at the right time.

Phoenix will be used in the Joint Warfighter Interoperability Demonstration and *WARRIOR FOCUS* AWEs following *PRAIRIE WARRIOR*. Additionally, Phoenix's functionality is being integrated into the Maneuver Control System and will become the future decision support system for Force XXI.

Other BCBL projects in progress include a tactics, techniques and procedures manual for commanders; interactive training tools using tactical vignettes to

address battle commander shortcomings; and an examination of future leaders in *The Evolution of Army Leadership: Commanders in the Year 2010 (Echelon Division to Company).* This work is an effort to describe a "leader end state" that defines objective leader knowledge, skills and competencies. Critical to this undertaking will be a symposium scheduled for this winter addressing leadership on the information–age battlefield.

Command of soldiers is, first and foremost, a human endeavor requiring the commander to be a decision maker and leader. The enduring principles of command have withstood the test of time and will remain relevant in the future. Force XXI battle command starts with competent commanders who have developed an intuitive sense of battle and the ability to successfully command under a variety of operational circumstances and geographic environments. As is the case today, these competent commanders will establish their moral authority by tough, demanding training to standard and by the caring, holistic preparation of their subordinate leaders, soldiers and units for mission operations. The significance of the bonds of trust and confidence between the leader and the led will grow as the potential for decentralized execution over larger battlespace increases.

Fully integrated future battle command information systems will permit the commander to tailor or scale the information available based on the echelon of command. This will allow commanders to meet situational needs and to access critical information from any point on the battlefield. This gives the commander the opportunity to decrease voice traffic on key nets, communicate face–to–face with important subordinates and position himself to provide the essential element of combat power—leadership—at the critical time and place.

Battle command must not be considered in isolation. Rather, increasing battle command effectiveness involves adjustments in doctrine, training and leader development. The plan thus cuts across the entire DTLOMS spectrum to improve the art of command.

Multifunctional staff members conduct cross–BOS processes and rely upon a "commander–focused" knowledge base, comprehensive decision support tools and an information exchange system that produces virtual collocation among the staff and external elements.

Although Force XXI battle command technology will change the way information is collected, delivered and presented, commanders will never have perfect knowledge of the operational situation surrounding them. More important, command of soldiers will remain primarily a human endeavor. Consequently, intuitive skills will be called upon frequently to bridge the gap between what future battlefield systems information tells the commander and what the commander feels. Ultimately, the art of command is what BCBL is striving to enhance—providing commanders with technological advantages to aid their decision making while imparting the will and leadership traits needed for decisive victory. ***MR***

Lieutenant General John E. Miller is the deputy commander, US Army Training and Doctrine Command (TRADOC), Fort Monroe, Virginia.. He received a B.S. from Southwest Missouri State University and an M.S. from the Georgia Institute of Technology. He is a graduate of the US Army Command and General Staff College (USACGSC) and the US Army War College. He has served in a variety of command and staff positions in the Continental United States, Vietnam and Europe, including commander, US Army Combined Arms Center, Fort Leavenworth, Kansas; commander, 101st Airborne Division (Air Assault), Fort Campbell, Kentucky; assistant deputy chief of staff for Combat Developments, TRADOC; deputy commandant, USACGSC, Fort Leavenworth; assistant division commander for maneuver, 8th Infantry Division (Mechanized), Bad Kreuznach, Germany; and 1st Brigade commander and chief of staff, 9th Infantry Division (Motorized), Fort Lewis, Washington. His article "Going Deep: Division Air Assault Operations," co–authored with Major Daniel P. Bolger, appeared in the April 1993 Military Review.

Major Kurt C. Reitinger is the chief, Joint Tactical Ground Station Division, US Army Space Command, Colorado Springs, Colorado. He received a B.S. from the US Military Academy and an M.S. from the Naval Postgraduate School. He is a graduate of the US Army Command and General Staff College. He has served in a variety of command and staff positions in the Continental United States, to include fire support team chief and battery executive officer, 172d Infantry Brigade, Fort Richardson, Alaska; commander, C Battery, and operations and training officer, 6th Battalion, 11th Field Artillery Regiment, 9th Infantry Division (Motorized), Fort Lewis, Washington; field artillery systems manager, US Army Personnel Command, Washington, D.C.; executive officer to the commander, US Army Strategic Defense Command, Washington, D.C.; and senior project officer, Battle Command Battle Laboratory, Fort Leavenworth, Kansas.

The "Bondage" of Tradition

Colonel Charles M. Burke, US Army

AMERICA'S ARMY, by its very nature, is bound by tradition to principles, procedures and protocols—to a fault. Operations doctrine, as reflected in US Army Field Manual (FM) 100–5, *Operations*, is considered to be the industry standard by our sister services and is a collection of enduring principles rooted in 220 years of tradition—a legacy that helps form boundaries, define areas of responsibility and action and depict templates we have used throughout history for success.

Doctrine is a condensed expression of the US Army's fundamental approach to fighting. For easy use, we have categorized the principles and procedures found in doctrine into groups. For example, we have the three levels of war and nine principles of war. There are five tenets of Army operations and five forms of maneuver. There are eight "steady hold" factors and the five–paragraph field order, just to name a few. Although this categorization brings order, provides comfort and defines a basis for developing further procedures and doctrine, none of these paradigms is as pervasive as the seven battlefield operating systems (BOS). Virtually everything in the Army—every system, procedure and branch—fits neatly inside one of the seven BOS. The social tradition of forming around these BOS has become the single biggest limitation on our ability to move quickly into the information age.

The BOS, originally invented as a tool at the National Training Center to help facilitate the after–action review (AAR) process, have found their way into doctrine as "combat functions." All BOS are normally formed around an Army branch and have their own branch–affiliated officers and noncommissioned officers (NCOs) to manage staff functions. Each officer and NCO is schooled and bred in the culture and tradition of his BOS.

Each BOS stovepipes operating procedures and doctrinal principles. Accordingly, each BOS has its own set of publications to further ensure its smooth functioning. Each BOS owns its own communications architecture to pass information up and down the stovepipe. Each BOS has its own revered position in the Tactical Operations Center (TOC).

As efficient as these BOS stovepipes have become, their very existence prevents the natural integration of information between the stovepipes and fragments the way information is presented to the commander. The BOS prohibit the synchronization of the functions until they come to termination on the floor of the TOC. Here, in front of the operations map, the BOS representatives labor in the manual ritual of integrating information through an elaborate ceremony using yellow stickies, charts and overlays, known as the "shift change" briefing.

Only recently has the Army even attempted to automate the process. But instead of developing a fully integrated system that shares information among all the TOC's major users—passing critical information quickly to the commander in a form he can use where and when he wants it—the Army automated the stovepipes. The vertical automation of these stovepipes—with protocols such as All–Source Analysis System, Advanced Field Artillery Tactical Data System, Combat Service Support Control System, Forward Area Air Defense Command, Control and Intelligence and Integrated Meteorological System—is the biggest impediment to the horizontal integration of information.

Information age warfare requires decentralization and information integration at every level of command and staff. It requires a common view of the battlefield by both the commander and his staff to aid in agile decision making and rapid execution of orders. Near real–time information must be accessible to all who need it, when they need it, at any place on the battlefield and in a usable form. The technical capability to do this exists today. The *power* of the

computer is dramatically increasing while the *size* of the computer is decreasing. Software interaction is becoming more versatile and more user friendly. The penetration and proliferation of sensors are becoming more complete. Soon it may become possible to sense, fuse and present any piece of information to anyone who asks, anywhere on the battlefield, in real time. The information age brings great potential for fusing and passing information—from the corps commander to the individual tank crew.

Free Command from Control

To take full advantage of information age technology, two major changes must take place in the Army. First, we must free command from control and, second, free control from the bonds of BOS.

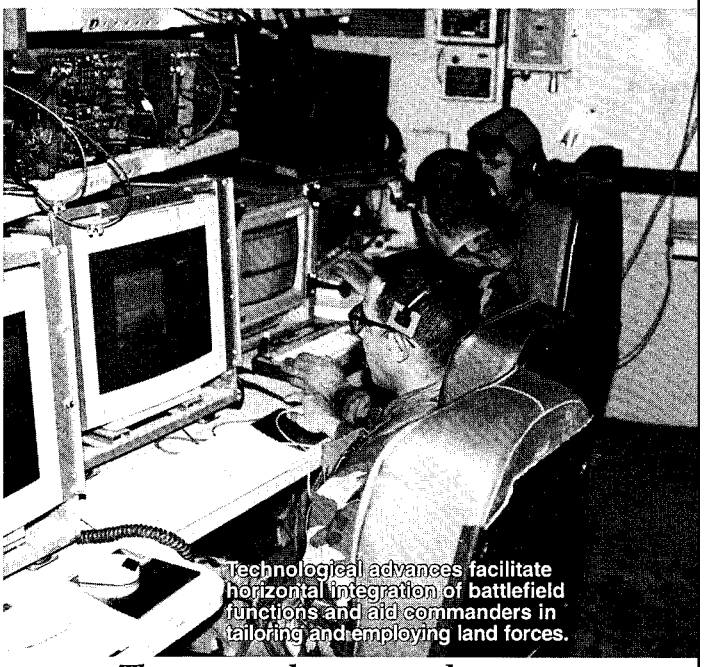
The commander *commands* while the staff *controls*. The commander's functions are different from the staff's, but the information requirements are nearly the same. The information the commander requires to effectively command remains the same no matter where he is on the battlefield. Heretofore, the commander has not been able to access this information unless he returns to his command post (CP) to suffer the "update briefing." While it is true a CP is not a CP unless the commander is present, the information age concept should enable him to access critical information anywhere on the battlefield.

The staff's function is to gather, nurture and present information to the commander and track, account, process, request and report information requirements. In this regard, the BOS stovepipes have proved very useful; hence they have endured. The Army is heavily weighted in staffs, but their focus tends to be different from the commander's. While the commander is focused on the battlefield, the staff focuses on its information stovepipe.

A Common View

The technical process for a common view of the battlefield is hindered by the social tradition of forming around the BOS. Instead of organizing around seven BOS, we should approach our battlefield view from a totally integrated perspective—that of the commander's perspective. The commander has two major informational requirements, or views, of a fast-moving battlefield—that of fighting and resourcing.

The *fighting view* is the forward combat zone—from the brigade rear boundaries all the way to the depths of the enemy's formation. The information presented to the commander should be fused in a manner to show the effects of friendly combat power, enemy combat power and the environment.



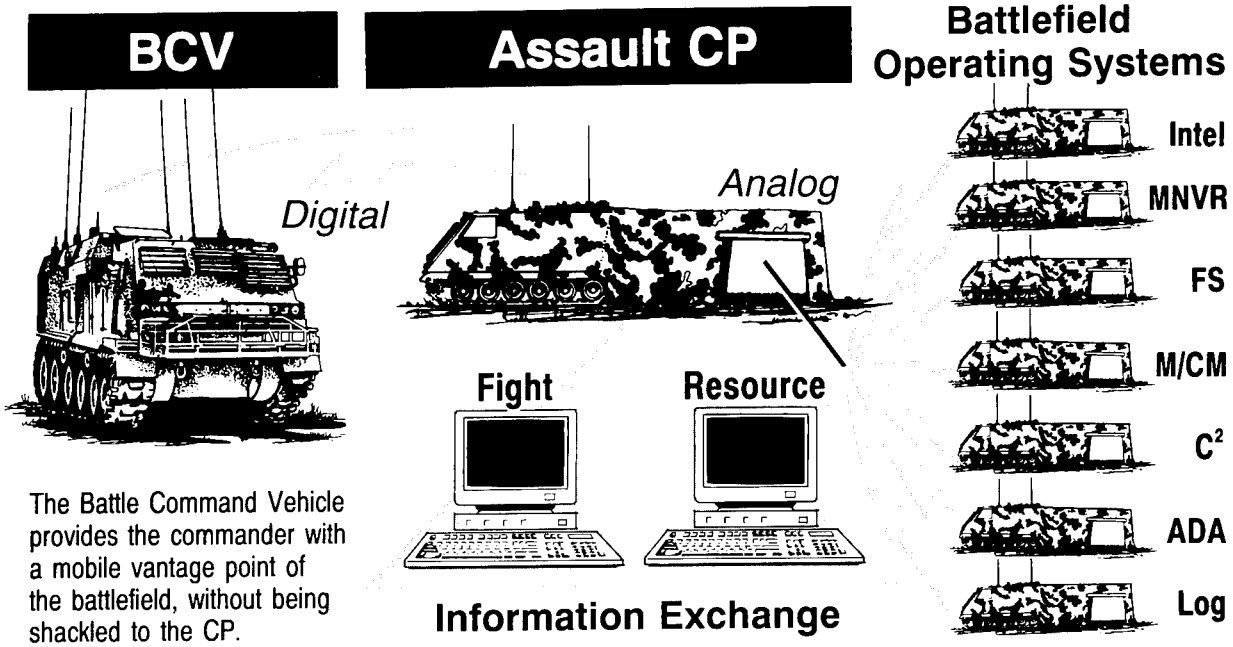
Technological advances facilitate horizontal integration of battlefield functions and aid commanders in tailoring and employing land forces.

The commander* commands *while the staff* controls. *The commander's functions are different from the staff's, but the information requirements are nearly the same. The information the commander requires to effectively command remains the same no matter where he is on the battlefield. . . . While it is true a CP is not a CP unless the commander is present, the information age concept should enable him to access critical information anywhere on the battlefield.

Maneuver, fire support, intelligence and engineer assets are predominant here, but all the BOS play a role. The ultimate goal of any combined arms force is to dominate the field and terminate the conflict on terms favorable to the United States and with limited casualties. The information age portends powerful capabilities to provide the commander a comprehensive and timely view of the battlefield.

The second view is that of *resourcing*—from the brigade rear boundaries all the way to the home station. The information fused here should show the effects of manning, arming, fixing, fueling, moving, equipping and sustaining combat operations.

A dependable, uninterrupted logistics system helps commanders seize and maintain the initiative. In many operations, the commander's logistic system will operate from split bases, leveraging assured



The Battle Command Vehicle provides the commander with a mobile vantage point of the battlefield, without being shackled to the CP.

communications to push electrons, rather than tons of infrastructure, forward.

The Battle Command Vehicle (BCV)

The BCV is an initiative by US III Corps to harness automation's power to free the commander from the shackles of control and provide information he requires, anywhere on the battlefield, in a format he needs, when he needs it. The BCV is equipped with a kit that is available today rather than waiting on technology that will be available in the "near" future. It is a demonstration of the "art of the practical" vice the "art of the possible" as illustrated in recent Army warfighting experiments. The BCV's crew and the staff that supports it are empowered to view the battlefield from the commander's perspective—that of fighting and sustaining.

Retired General Richard E. Cavazos recently implored us to "Start the command posts all over again; examine the staff process—the secret, the key, is in there." In this light, the CP supporting the BCV should be a TOC that essentially relates "analog to digital." The current BOS data construct will be translated into digital information in the TOC and transmitted to the commander through his BCV into a common relevant picture. Through this process, we will discover procedures and techniques to leverage digital technology even more.

A dependable, uninterrupted logistics system helps commanders seize and maintain the initiative. In many operations, the commander's logistic system will operate from split bases, leveraging assured communications to push electrons, rather than tons of infrastructure, forward.

Although this effort starts small, it will grow large. Manipulating knowledge through the power of automation, rather than simply moving data through the shelter of stovepipes, frees the commander and staff from the burden of process and focuses the intellectual rigor of the force on achieving victory. Winning wars is our primary purpose, and winning the information war is the first step. ***MR***

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Fear God and Dreadnought

Preparing a Unit for Confronting Fear

Colonel Gregory Fontenot, US Army

THE 2D BATTALION, 34th Armor Regiment, earned its proud nickname in Vietnam—*Dreadnought*. The question on the eve of combat in February 1991 was whether it would continue to merit that nickname. How the "Dreadnoughts" would do, to a large extent, depended on how their no–time–in–combat commander would act personally and how well green soldiers would do in their first battle.

A member of the generation of Army officers who entered the US Army at the end of the Vietnam War, I spent 20 years wondering how I would perform in combat. Over time, as my responsibilities grew, my musing evolved from worrying about my own performance under fire, to becoming more concerned about the quality of the decisions that I might make and the performance of my unit. On 18 February 1991, musing became reality. I entered combat for the first time and did so in command of a large unit.

This article is about confronting fear—how to prepare a unit to cope with the stresses of combat. The stresses of combat are, of course, a euphemism for fear. This is a personal account, and like any personal account, it is fraught with potential liabilities such as imperfect memory or a "negotiated" memory that retains only what one wants to remember. Nonetheless, it is undertaken with the hope that others who may discover themselves in similar circumstances will find it useful.

My experience as a commander in the summer of 1990 was typical of that of my colleagues. Those of us in command that summer had survived our small moments of truth at the National Training Center (NTC), Fort Irwin, California, in *REFORGER* (Return of Forces to Germany) or other training exercises, but most of us had done so in "bloodless" combat. No amount of simulations and simulators could ensure that we, or our units, would be ready. All of us dealt with our doubts in ways that matched our personalities and reflected our experience and preparation up to that moment.

Our Army knows how to train rigorously and it knows how to develop credible leaders, both of which will go a long way toward producing units in which soldiers believe in each other. However, our Army knows little about how to prepare individuals to confront fear—or how to prepare units for the psychological shock of combat.

In my case, I read voraciously about combat. In particular, I was interested in how soldiers coped with fear and how units prepared for and operated in combat. You could fill several large shelves with books devoted to the topic of overcoming fear or about unit cohesion in combat. They run from classic fictional accounts such as Stephen Crane's *The Red Badge of Courage,* to memoirs like Guy Sajer's *The Forgotten Soldier,* to more scholarly studies including Anthony Kellett's *Combat Motivation.*[1]

My reading and my experiences in the peacetime Army led me to believe that unit cohesion stemmed from three general sources: rigorous training to high standards, credible leadership and soldiers who believed in one another. Patriotism and belief in the cause seemed to have little effect on units in combat, though they were important aspects of developing unit cohesion in training prior to combat. None of these conclusions is demonstrable—I came to them via subjective analysis of what I read, heard and saw. My conclusions are decidedly not the result of objective analysis. In part, they stem from my belief that not all human behavior can be reduced to objective and quantifiable data points. Some things must be felt.

I also concluded that fear was palpable, so real that it was nearly tangible. Our predecessors believed fear was palpable and in the 19th century referred to fear as "seeing the elephant," implying that fear had texture. If this is true, we can confront fear and thus prepare for it prior to combat. Our Army knows how to train rigorously and it knows how to develop credible leaders, both of which will go a long way toward producing units in which soldiers believe in each other. However, our Army knows little about how to prepare individuals to confront fear— or how to prepare units for the psychological shock of combat. Based on this conviction, I sought to develop in my soldiers an understanding of what fear would feel like and to eliminate, when possible, the uncertainty that accelerates fear. My goal was to make them familiar with "the elephant" and, by acquainting them with the beast, enable them to conquer him at the outset.

We had to get our collective heads into the game. Each of us had to accept the idea of combat now—not some remote historical event but rather a "no–kidding" fact of life in the immediate present. At this stage, the need to prepare for fear in combat did not drive unit preparation generally or individual psychological preparation specifically. In August, the issue was changing our "mind–set."

Throughout my command tour, I operated on this basis, but I began to focus on the problem in August 1990. For the 2/34 Armor, the Persian Gulf crisis arrived at a time of almost piquant irony. The Dreadnoughts were firing qualification gunnery at Fort Riley's Multi–Purpose Range Complex (MPRC). In the days just prior to the Iraqi invasion of Kuwait, I had participated with my color guard in a "welcome home" parade for Vietnam–era 2/34 veterans. The city of San Juan Capistrano, California, rolled out the red carpet, or to be exact, white banners, and lined the city's streets, while 100 or so Vietnam veterans trailed their old colors to the city center, where they read the names of the 85 Dreadnoughts who died in Vietnam. It was a touching event for the younger soldiers, made more so when a middle–aged woman came to the color guard, stroked the Ardennes Campaign streamer and hugged the soldiers, telling them "thanks" for liberating her girlhood home in Belgium.

Just prior to heading for San Juan and the 2/34 reunion, the battalion hosted Secretary of Defense Richard Cheney at the MPRC. Cheney explained to the battalion's soldiers how the drawdown would affect them. In the summer of 1990, peace was at hand. Cheney's visit seemed to produce gloom and suggested that working to reconnect the current battalion with the lineal descendants made little sense. But the Iraqi invasion made the 2/34 Armor seem less superfluous, and efforts to work with the veterans' organization now seemed to have utility beyond historical interest. The Dreadnoughts, like their heroic predecessors, would "see the elephant."

Sitting in the tower of Riley's MPRC, it was plain to me that the United States would fight to assure the free flow of oil and that more than the XVIII Airborne Corps would be required. I was certain the 2/34 Armor would go to war. Similarly, my colleagues at Fort Riley reached the same conclusion. We resolved to start preparing for eventual deployment then and there.

Accordingly, the 2/34 Armor would use any training event already planned as a means to prepare for war and would create opportunities when possible. Equally important, we had to get our collective heads into the game. Each of us had to accept the idea of combat now—not some remote historical event but rather a "no–kidding" fact of life in the immediate present. At this stage, the need to prepare for fear in combat did not drive unit preparation generally or individual psychological preparation specifically. In August, the issue was changing our "mind–set." That meant converting the battalion from an organization that would deploy and draw pre–positioning of materiel configured to unit sets (POMCUS) equipment for fighting in Central Europe to one that would have to ship all it owned directly to a different theater of operations. In other words, the 2/34 Armor had to develop a high tolerance for ambiguity. No one knew anything for sure.

Physical preparations proceeded quickly. At the end of August, 2/34 Armor underwent an announced compliance–oriented annual general inspection. Because the 1st Infantry Division (Mechanized) still conducted announced compliance inspections, focus and some priority for resources followed the baleful eyes of the inspectors. Similarly, a tasking to support fire fighting in the West assured access to the post staff for preparation for overseas movement under the guise of preparing for deployment to fight fires. Equally important, the fire–fighting detail provided an opportunity to re-energize the battalion family support program. Finally, individual fillers and some tenant units were deployed to join Operation *Desert Shield.*

As a result, the number of unbelievers declined quickly. By mid–September, the battalion belief was we were bound for war. Watching people we knew deploy forced us to prepare psychologically. When the mind–set changed, it produced new intellectual and spiritual needs. The change, nearly imperceptible at first, was clearly evident in September. Raucous bravado abounded, as it had since August, but it had a brittle quality.

Preparing the battalion psychologically for combat was not a new mission, but rather one which is inherent as a function of command. For me, the task of psychological preparation for the battalion began in April 1989 when I assumed command. My approach was to communicate often and personally with officers, noncommissioned officers (NCOs), troops and with all of them together in a number of settings. My favorite venue was to assemble everyone in the motor pool or in the field and speak from the front slope of my tank. To me, ritual, symbols and language are important. The aim of speaking from the tank to the assembled battalion was to make each of these meetings an occasion. They became known as "gathering the entire Sioux nation." I used these sessions to communicate intent, answer questions, create a feeling that all of us belonged to the battalion and to make sure all my soldiers knew me and what I expected from them. Awards were presented when appropriate, and soldiers had the opportunity to ask questions—there is a certain anonymity in large assemblies which promotes "taking liberties," so soldiers asked questions and even offered criticisms at these "town meetings."

Fundamentally, I believe that if soldiers know what you want them to do—and why—they will try to get it done. Further, they need to know the "culture" of their unit and feel that their commander is accessible. This belief was confirmed for me years before by Major General Robert W. Hasbrouck, the 7th Armored Division commander during the Battle of the Bulge. In a week of fierce fighting in and around St. Vith, the "Lucky Seventh" fought against the elements of three German corps. The 7th's defense bought time—critical to stemming the tide of the German counteroffensive—but at a horrible price, which included the loss of over half its tanks and almost 2,000 soldiers. In January 1945, with just over two weeks to refit and assimilate hundreds of new replacements, the 7th went on the offensive, retaking St. Vith on 23 January. According to Hasbrouck, it was essential that he initiate his new troops in the traditions of the 7th and explain why they were in this fight. To do this, Hasbrouck established "little reception centers" where new troops could be indoctrinated on the division and what was expected of them.[2]

I borrowed this idea in its entirety. The 2/34 Armor conference room became the repository of its history, with each company having a section devoted to it exclusively. Vietnam served as the centerpiece because it was recent—to 18–year–old soldiers in 1989, World War II seemed nearly as distant as the

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Civil War. We were able to obtain artifacts from Vietnam veterans that helped enliven the Dreadnought's legacy. The presence of the original battalion's Vietnam colors and photographs of that era created a powerful setting for our "reception center."

In this environment, I set up a slide and videotape presentation covering our history, our mission, photographs of our POMCUS site and General Defense Plan positions, as well as information about Fort Riley and its facilities. All new soldiers attended this orientation in small groups—usually no more than five or six. Thus, every new private heard the tribal lore from the battalion commander and his command sergeant major in the presence of the "totems and bona fides" of the regiment.

Clearing the air about the capabilities of Soviet hardware, compared to what the media and our own training and intelligence establishments told us, greatly eased the minds of junior leaders. More important, it helped shape how these leaders prepared themselves and their soldiers for direct confrontation. . . . We retained a healthy respect for the Iraqis' experience against the Iranians, but that respect was tempered by our appreciation for their equipment and by what we could gauge by the fighting they had done.

Another venue for getting the word out came directly from Lieutenant Colonel Fred Dibella. Dibella commanded a tank battalion in the 4th Infantry Division (Mechanized), which enjoyed a legendary reputation based on its performance during an NTC rotation in 1983. Dibella met weekly with his commanders for lunch and a chalk talk. He alleged that during these talks, the task force leaders developed the tactics and techniques they employed with great success in the Mojave. I unashamedly mimicked Dibella and found the technique worked well in thinking through basic combat tasks.[3]

To Dibella's scheme, I added my own twist in officer professional development (OPD). Each month, the battalion's officers read a book on a topic that explored the condition of battle from the combatants' perspective. These included *Face of Battle*, *Killer Angels* and others, which permitted a glimpse at the "elephant" in safety. Two other requirements remained. Each officer wrote a critical analysis of the book, which I personally graded, and each was required to participate in a group discussion.

In November, I had the opportunity to employ ritual and a small battalion tradition to set the stage for our transition from planning for war to preparing for war, because we now were assigned that mission. The battalion returned from the field on 9 November after a week of company level training. We received word on the evening of 8 November that we would deploy as part of US VII Corps to join the *Desert Shield* forces. After a short talk designed to pass the facts, I sent the battalion home for a three–day weekend with the promise that when we met next I would have instructions for them.

On 13 November, we returned to duty and I had instructions, as promised; but first we indulged in a bit of ritual. The Dreadnoughts assembled before the front slope of Headquarters 66. Standing on the slope, speaking as tribal chieftain, I assured them that we were ready to undertake this mission, that we would do so with the equipment at hand and that this was the purpose for our collective existence as a unit. I concluded by putting on my "warfeathers" when Staff Sergeant Jerry Ellis gave me my desert haircut. The Dreadnought desert haircut was simple enough—Ellis took it all. This ritual went exactly as the one preceding our NTC rotation, with me cutting Ellis' hair and others coming forward to do the same, signifying their readiness for what might come.

On the heels of this ritual, the Army greatly assisted our indoctrination process by providing a considerable quantity of Soviet equipment and briefers to teach us all the capabilities of the weapons we might soon confront. Daily, for a week or so, a Soviet Hind and Hip droned overhead in lazy circles so that we would become familiar with these helicopters' silhouettes from every angle. On the gunnery range, we all peered through our thermals at a T–72 tank, BMP armored personnel carrier and several other Soviet vehicles so we could learn to distinguish their thermal signature from those of our own systems.

Though these efforts greatly reduced the mystery of these weapon systems, the "experts" who briefed did little to help with confidence. For some reason, those who are responsible for working with opposing force (OPFOR) gear or are themselves replicating the OPFOR become proprietary. In short, they tended to pitch Soviet gear as far more capable than our own. This tendency, along with the almost absurd claims made for the T–72 and other Soviet weapons, exacerbated the nearly constant television message of how tough the Iraqis were going to be and how many of us would die fighting them.

I found these assertions hard to believe and strove

A gathering of the "entire Sioux nation" at the NTC, September 1989.

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to debunk them whenever possible. Fortunately, the T–72's proponents demonstrated it. Among other things, the intelligence types who accompanied the Soviet gear demonstrated the T–72's self–digging capability. At the NTC, the OPFOR routinely dug two–step firing positions in hasty defensive positions, claiming the T–72 could do so. By contrast, after a half–hour of scraping, rumbling and belching clouds of blue smoke, the vaunted T–72 dug down to about road wheel depth and pushed a laser–safe berm of about 2 feet in height and thickness in front of itself. This, coupled with a tour of the gear for my NCOs and officers, convinced us all that there was a wide gap between what we were *told* and what we could *see* for ourselves.

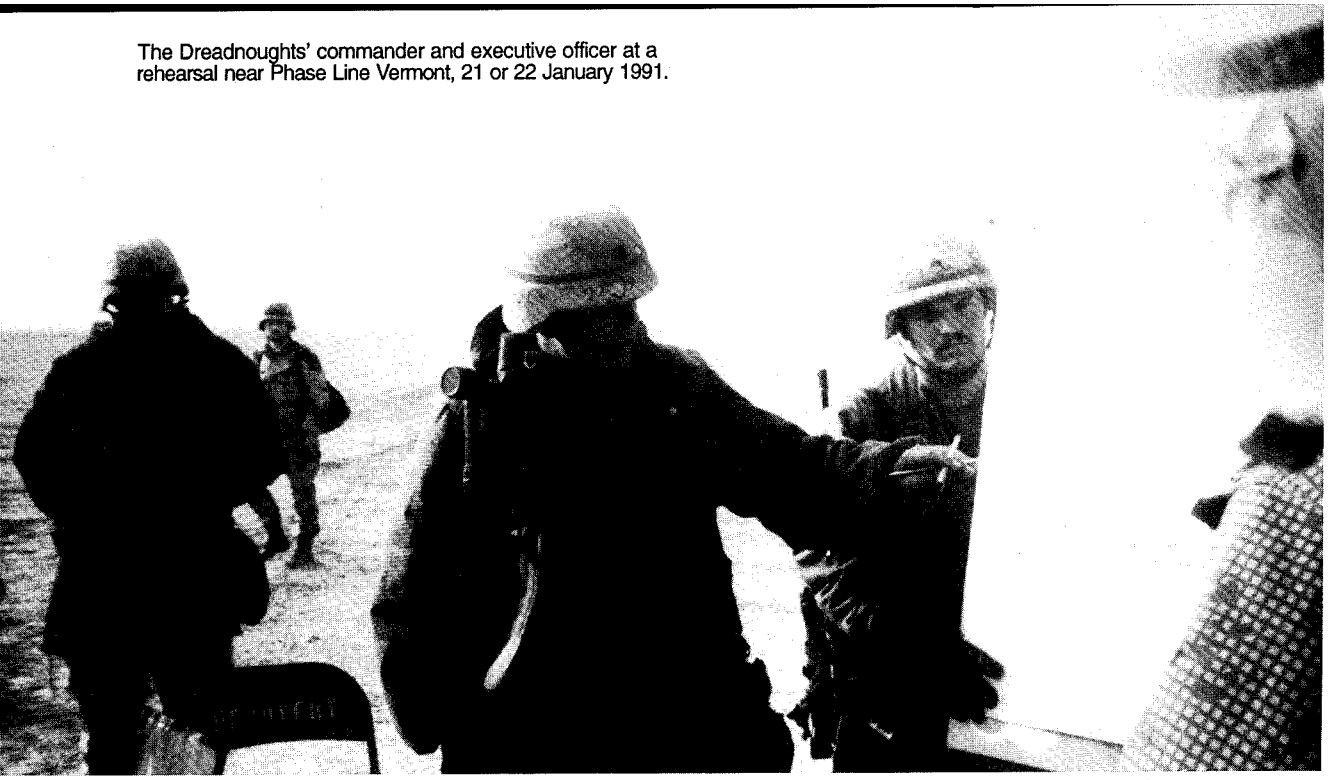
Clearing the air about the capabilities of Soviet hardware, compared to what the media and our own training and intelligence establishments told us, greatly eased the minds of junior leaders. More important, it helped shape how these leaders prepared themselves and their soldiers for direct confrontation. No one in the 2/34 Armor believed that our opponents would be better equipped or trained than us. We retained a healthy respect for the Iraqis' experience against the Iranians, but that respect was tempered by our appreciation for their equipment and by what we could gauge by the fighting they had done.

About the same time the Soviet gear arrived, another fortuitous event occurred. As part of our OPD program, I had arranged with the post chaplain to lend us the support of Chaplain John Brinsfield. A member of the US Forces Command (FORSCOM) staff, Brinsfield was due to visit Fort Riley. But Brinsfield, like many Army chaplains, was more than *just* a chaplain. He had received doctoral degrees in history and ethics and had studied at Yale Divinity School and Oxford University. Interested in the ethics of war and warfare, Brinsfield had written and lectured on military ethics. I asked him to discuss the just war theory with my officers and NCOs and how that theory, along with the law of land warfare, would affect us.[4]

As esoteric a topic as this might seem, Brinsfield brought to it clarity, wit and the ability to demonstrate how Thomas Aquinas' thoughts about just war affected tankers and infantrymen today. His talk melded with myriad other preparations we were making and contributed directly to our efforts to strip the coming events of their mystery. John showed us another side of the "elephant's" face.

Prior to departing from Fort Riley, psychological

The Dreadnoughts' commander and executive officer at a rehearsal near Phase Line Vermont, 21 or 22 January 1991.



The weeks between 18 January—when the task force conducted the first of many rehearsals at all levels from platoon to brigade—until the afternoon of 18 February, when we first went into combat, passed quickly and productively. Frequent visits with units and individual soldiers, along with intense rehearsals and, in the case of three newly manned platoons, accelerated small unit training, helped us get our "game face."

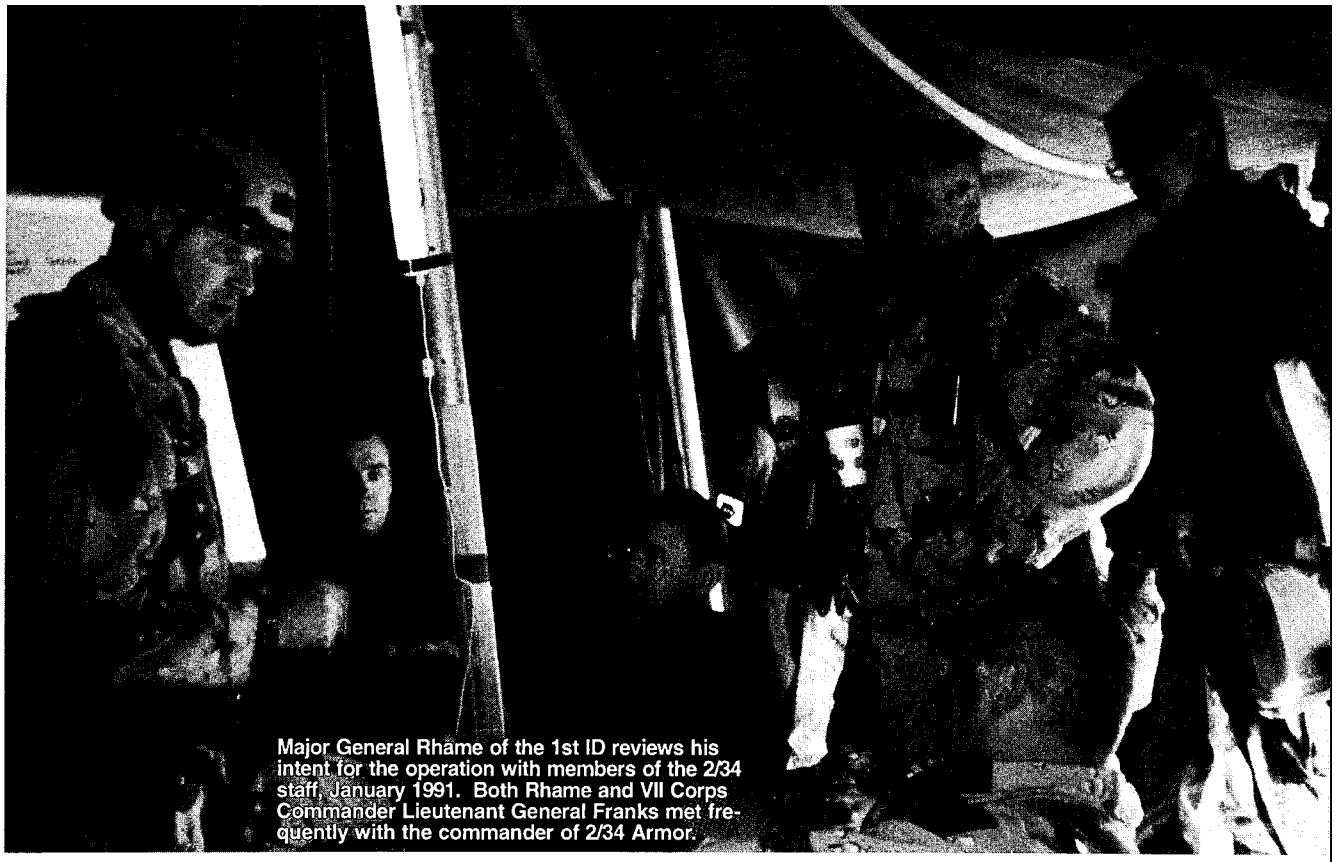
preparation rested primarily on providing accurate information, assuring task understanding, clarifying when possible the arcane but important law of war and "working the crowd." The intent was to inform and to promote confidence in our equipment and each other. Like the 7th Armored Division before us, we also had to assimilate new soldiers quickly. When alerted on 8 November, the 2/34 manned only nine of 12 tank platoons and had many other personnel shortages. By 3 December, when we began loading, our strength was in excess of 100 percent.

The next phase of physical and psychological preparation began upon arrival in Saudi Arabia. Moving through the port, which required an urgency associated with getting to the tactical assembly area (TAA), focused everyone's mind. The lead elements closed on TAA Roosevelt on 12 January 1991, with the main body arriving over the next four days.

Responding to various "alarums and excursions" in these early days made it clear to everyone that we had arrived in a combat zone. False alarms and accidental chemical alerts stimulated the least enthusiastic to get themselves ready. Unable to gather the Sioux nation for a tribal conclave, I traveled to each of the clan sites. During these visits and when we met to rehearse at task force level, I passed along the latest information from home and brigade, quelled rumors and answered questions. I was not alone in this effort. Visits from Lieutenant General Frederick M. Franks Jr., the US VII Corps commander; Major General Thomas Rhame, the 1st Infantry Division commander; Brigadier General William E. Carter and Brigadier General Terry Rutherford, the assistant division commanders; and Colonel Maggart, the brigade commander, were routine. All of them had in their minds much the same purpose I had—their visits changed our perceptions about each other and our leadership.

No Dreadnought ever objected to visits from "higher," but in the desert we came to look forward to them positively. These folks changed before our very eyes from men who, however competent, friendly or whatever traits they might have, had been remote in varying degrees before TAA Roosevelt. Now they were part of us and we were part of them. I was so astounded by this transformation that I commented on it to Rhame. He understood. Our relationship was no longer friendly but professional. Further, it had changed to one which was professional but personal. We depended on Franks, Rhame, Carter, Rutherford, Maggart and a host of others in ways which would not have seemed credible in August and are hard to describe even now.

To a man, they not only understood, but I believe



Major General Rhame of the 1st ID reviews his intent for the operation with members of the 2/34 staff, January 1991. Both Rhame and VII Corps Commander Lieutenant General Franks met frequently with the commander of 2/34 Armor.

It seems maudlin to write this now, but I remember the feeling clearly. Each of us was alone with his thoughts, and to discover that what we felt was understood by those around us was of immeasurable value as we prepared personally. For a unit like the Dreadnoughts to know our corps, division and brigade leaders were genuinely concerned about our welfare and readiness—and that it transcended evaluation reports—fundamentally changed the way we all interacted.

felt as I did. The troops understood it as well—we dealt with each other differently—it was unspoken and difficult to pinpoint, but it was there. No one who was in a combat unit was remote any longer. The generals and the colonel were doing for me what I was attempting to do for my soldiers—looking into our eyes, telling us what they expected, sharing with us what they thought and how they conceived the operation and assuring us they were there for us all.

Their visits achieved other important outcomes. For example, the way our senior leaders arrived spoke volumes. Franks came not in a cloud of dust generated by the blades of a helicopter, but in the commander's hatch of an M–113. Clearly he, too, was a Sioux. Besides communicating intent, Franks and the other senior leaders inspired confidence on the basis of their bona fides and their sincerity. All of them were combat veterans and each of them, in his own way, offered another glimpse of the "elephant."

The weeks between 18 January—when the task force conducted the first of many rehearsals at all levels from platoon to brigade—until the afternoon of 18 February, when we first went into combat, passed quickly and productively. Frequent visits with units and individual soldiers, along with intense rehearsals and, in the case of three newly manned platoons, accelerated small unit training, helped us get our "game face." Reception of still more new soldiers occurred without the formality possible at Fort Riley, but rapidly and effectively, since everyone knew the tribal rituals and standards.

In the desert, commanders at all levels made time to visit with and prepare subordinates for the coming crisis, both in terms of communicating intent and just plain communicating. I saw the corps commander several times, and on two occasions after visiting with some of my troops, he took the time to look me in the eye and tell me what he expected and to share with me his view of our task. His message was clear, if unspoken—Franks was asking the Dreadnoughts to breech the enemy's prepared defenses, and he wanted me to know that he realized it was no easy task.

Rhame also made sure he laid hands on the troops and commanders. He was enthusiastic and confident, and he communicated that confidence. Carter's way was more reserved, but his good humor and thoughtful questions made him a welcome sight. Several of

Responding to various "alarums and excursions" in these early days made it clear to everyone that we had arrived in a combat zone. False alarms and accidental chemical alerts stimulated the least enthusiastic to get themselves ready. Unable to gather the Sioux nation for a tribal conclave, I traveled to each of the clan sites.

us considered that in his case, the "M" in ADC–M (assistant division commander—maneuver) stood for morale. Rutherford was well known to most of us since he had served as the "M" before Carter. He sought to help solve nearly insoluble problems in sustaining the force far beyond the port. Despite daunting problems, he was the soul of enthusiasm. Maggart seemed always to sense when he should be around both to "poop up" the troops and to "pump up" the officers. He did it effortlessly, as if nothing could be more natural than taking us all to war.

It seems maudlin to write this now, but I remember the feeling clearly. Each of us was alone with his thoughts, and to discover that what we felt was understood by those around us was of immeasurable value as we prepared personally. For a unit like the Dreadnoughts to know our corps, division and bri-

Combat Stress Casualties: A Commander's Influence

Lieutenant Colonel Donald M. Bradshaw, US Army

Combat stress causes battle casualties. A commander can decrease the number of personnel lost to combat stress through his direct and indirect impacts on the command. This article will discuss the commander's role in combat stress management. A commander exerts influence on his unit through his personal traits; direct influence on treatment of these casualties and the cohesion of the command group; and his indirect influence on the unit's cohesion, training and esprit.

Nine hundred of the first 1,500 casualties the Israeli army suffered during the 1973 Arab–Israeli War were purely psychological.[1] During the World War II North Africa Campaign, there was a brief period when the psychiatric casualties evacuated outnumbered replacements entering the theater.[2] These losses decreased the commander's available combat power. Casualty prevention would have decreased losses, and proper treatment would have reintegrated trained replacements, resulting in increased combat power.

Combat stress affects all soldiers during battle. A *combat stress casualty* is a soldier who is unable to persevere in combat—a soldier rendered combat ineffective—due to the psychological strain of battle.[3] *Esprit* is pride in a unit, especially in a large unit, where face–to–face encounters are rare among some members. *Cohesion* is the feeling of belonging to a specific group, a solidarity marked by trust, loyalty and mutual affection. Last, *morale* is the mental attitude of the individual characterized by confidence in self and in the primary group.[4]

A commander can directly decrease a unit's combat stress casualties through his personal activities, proper treatment of casualties and leading by example. To be an effective leader, he must be healthy. In other words, the commander must practice physical and mental hygiene. This hygiene includes physical fitness, determining and using effective personal stress reduction techniques and sleep discipline.

Both physical fitness and the use of personal stress reduction techniques decrease the commander's level of stress. Being fit allows one to use less available physical energy per action and decreases recovery time, thereby reducing fatigue and physical stress. A knowledge of effective personal stress reduction techniques will decrease the mental stress experienced.

Sleep discipline is especially important. During sleep deprivation, mental ability is impaired first and affects the information processing and decision making faculty to the greatest extent.[5] A commander cannot afford to lose cognitive abilities when rapid decision making is required.

The commander must also be competent in his field. Soldiers in battle will rely on his expertise. A leader's professional competency is the primary leadership factor that soldiers say decreases their stress. Quoting wounded veterans, S. A. Stouffer states that "When scared, a man looks for a leader—someone to look up to."[6] In surveys of combat soldiers, competency outranks concern, approachability and shared experiences.[7] Conversely, tactical errors committed by commanders greatly increase their soldiers' combat stress.[8]

Commanders can have a direct impact on their units' combat stress casualties through proper diagnosis and treatment. Once diagnosed, many soldiers can be treated and rapidly returned to their units, provided "combat stress reaction" is treated as a "normal reaction to an abnormal situation" rather than as a coward's means to avoid combat or a mental deficiency.[9] During the Korean War, 90 percent of combat stress casualties were returned to combat.[10] The commander sets the tone by accepting and reintegrating soldiers back into his unit. These soldiers represent a source of trained, experienced replacements for the unit commander.

To enhance unit cohesion, the commander should focus on the smallest group he can have the largest impact on, the command group. He can directly influence the cohesion of this group and thereby decrease stress. Cohesion is a very powerful counter to stress. S. Noy, a noted Israeli Defense Force psychiatrist, summarized cohesion's impact, saying that "As long as the social structure is intact, the soldier is able to stand the horrors of war. When it is destroyed, the individual is overwhelmed by anxiety

gade leaders were genuinely concerned about our welfare and readiness—and that it transcended evaluation reports—fundamentally changed the way we all interacted.

Feeling this, seeing it and having this perception of a changed relationship confirmed by soldiers in the unit convinced me that my own relationship with my unit must also be changing. Right or wrong, I concluded that not only should I continue to meet with my troops when feasible, but should also plan a final gathering to review the operation and this business of fear in combat one last time.

During the last week of January, word came that we would probably move in early February. The

Company and separate platoon [meetings provided] a last chance for us to reflect on what we were about to do and why we were about to do it and to discuss fear openly. . . . Besides talking about fear, they included bringing everyone up to date on the plan—from US Central Command down—reminding them . . . what our government was doing; and the apparent reaction of the American people. Additionally, this was an opportunity for talking through key elements of my own intent.

and helplessness. The disruption of unit cohesiveness is the main, not secondary, cause of individual disorganization."[12]

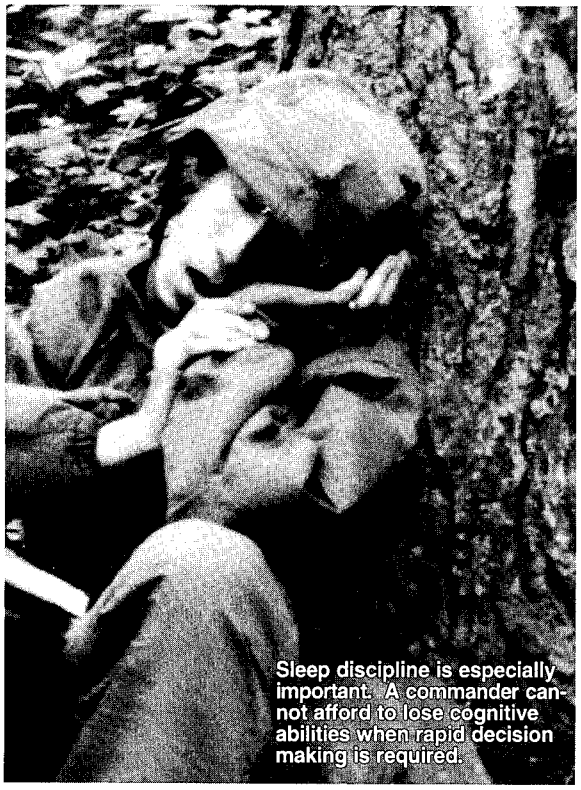
Commanders have indirect impact on the majority of the soldiers they command. They must ensure the same aspects of the mental and physical hygiene of the troops as for themselves. These measures have the greatest impact on the units' combat stress casualties.

Realistic training also has indirect impact on the unit. Two specific areas that decrease soldiers' combat stress are confidence in themselves and their weapons. Training under realistic conditions builds necessary soldier trust in themselves and the organization. Confidence is essential in reducing combat stress.[13]

In smaller units, the commander has a direct effect on unit cohesion, but in larger organizations, the commander's influence is more indirect. Cohesion is built through shared experiences, both on and off duty; establishment of an "us versus them" (another unit or the enemy) mentality; and the unit's traditions and history.[14] Commanders influence cohesion by providing opportunities for common tasks and by increasing job stability within the unit. S. L. A. Marshall, when asked what causes a man to face death, replied, "Largely the same things which induce him to face life bravely—friendship, loyalty to responsibility and the knowledge that he is a repository of the faith and confidence of others."[15] Cohesion helps provide this motivation.

Cohesion can also differentiate the hero from the casualty. During World War II, studies found that "Soldiers in severe anxiety states performed most of the duties and received most of the decorations. The difference then between the evacuee and the hero is the lack of permission to be evacuated, which is derived from the cohesion of the unit. A soldier fights for his comrades, not against the enemy."[16] All combat soldiers experience battle stress. Cohesion encourages heroic reactions to stress and provides the necessary "glue" that keeps soldiers fighting.

A commander's last indirect effect is upon the unit's esprit. A commander builds esprit by developing unit



Sleep discipline is especially important. A commander cannot afford to lose cognitive abilities when rapid decision making is required.

cohesion, using the unit's history and traditions. Pride in the unit, built through familiarity with the unit's history, binds a soldier to "those who went before." Increased esprit can decrease combat stress casualties.

No commander can totally prepare his troops for combat or prevent combat stress and combat stress casualties. However, commanders can take preventive measures to decrease personnel losses due to combat stress. Commanders must recognize combat stress symptoms, treat combat stress reaction and then reintegrate soldiers into

time was now for that last opportunity to address the Dreadnought tribe. We had not been able to gather the entire Sioux nation since before leaving the port. Even then, the opportunity to do so was so limited that we made it an occasion. The initial opportunity had been to uncase the colors in a combat zone for the first time since Vietnam. The gods conspired with us to make that ceremony almost surreal. The 1st Division band joined us on a sandy spit of land with the Persian Gulf on one side and an enormous battleship gray ammunition ship on the other side. The day was as gray as the ship, and our audience consisted of only a few curious soldiers from other units and two crewmen on the ammunition ship. At the conclusion of the ceremony, the band played the national anthem. As the last notes faded, the two merchant seamen could be heard faintly through a blustery sea breeze clapping and cheering. The only other occasion to gather the clan had been an evening concert by the 1st Division band.

We reviewed how a "fear-produced" adrenaline surge increased alertness and was useful to soldiers who needed that extra measure of reaction time brought by increased alertness. Fear stimulates the body to ensure blood supply to core functions. For example, the supply of blood to the appendages is reduced. Not only does fear assure blood to the heart and lungs as a priority, but it can also reduce bleeding in wounds to the arms and legs.

For our last meeting we would have no band, no audience and would meet at company and separate platoon levels. This was, however, a very important gathering. It was a last chance for us to reflect on what we were about to do and why we were about to do it and to discuss fear openly. There were three embedded objectives for this last formal gathering. Besides talking about fear, they included bringing everyone up to date on the plan—from US Central Command down—reminding them of key points: why this war was being fought and how the prosecution of the war was tied into what we were doing; what our government was doing; and the apparent reaction of the American people. Additionally, this was an opportunity for talking through key elements of my own intent.

At each site, the venue was the same. A Bradley Fighting Vehicle or M–113 was converted to a chalkboard, around which the company or separate platoon assembled. In quick succession, I drew a sketch of the Kuwait theater of operations and what the plan looked like at "one–over–the–world" level and then translated the sketch to detail our part of the operation.

These two sketches provided focus for everyone from micro level to macro level and generated questions of all kinds, many of which demonstrated how sophisticated an Army we had become. On the heels of the military picture and update, I drew for them the Clausewitzian triangle of people, state and army and discussed Clausewitz's conviction that only when these three components of national power were synchronized could victory be achieved. Perhaps it was an oversimplification to say so, but I assured my soldiers that we had this right in the Persian Gulf.

the unit once they have been treated. Commanders who fail to take preventive measures, recognize combat stress, or treat and reintegrate soldiers have sentenced their units to unnecessary casualties and wasted combat power. ***MR***

NOTES

1. L. H. Ingraham and F. J. Manning, "Psychiatric Battle Casualties" (hereafter cited as "Casualties"), *Military Review* (August 1980), 18–29.
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3. S. Noy, "Combat Psychiatry: The American and Israeli Experience," *Contemporary Studies in Combat Psychiatry* (hereafter cited as *Contemporary Studies*), edited by G. Belenky (New York: Greenwood Press, 1987), 69–86.
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6. S. A. Stouffer, et al., "Studies in Social Psychiatry in World War II," *The American Soldier, Volume II*, quoted in A. Kellett, "Combat Motivation," *Contemporary Studies*, 205–32.
7. G. Belenky, S. Noy and Z. Solomon, "Battle Stress, Morale, Cohesion, Combat Effectiveness, Heroism and Psychiatric Casualties: The Israeli Experience," *Contemporary Studies*, 11–20.
8. N. A. Milgram, R. Orenstein and E. Zafrir, "Stressors, Personal Resources and Social Supports in Military Performance During Wartime," *Military Psychology*, Volume I, No. 4 (1989), 185–99.
9. Ingraham and Manning, "Casualties."
10. Ibid.
11. G. L. Belenky, C. F. Tyner and F. J. Sodetz, "Israeli Battle Shock Casualties: 1973 and 1982," *Walter Reed Army Institute Research Report NP–83–4*, 1983.
12. Noy, 69–86.
13. Belenky, Noy and Solomon, 11–20.
14. Ingraham and Manning, "Cohesion,"
15. S. L. A. Marshall, *Men Against Fire: The Problem of Battle Command in Future Wars*. (Gloucester, MA: Peter Smith, 1978), 161.
16. Noy, 69–86.

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Fundamentally, my thesis was that fear was natural, normal and useful—* natural, *because all animals experience fear as a reaction to danger;* normal, *because all of us had experienced fear; but the most interesting thing about fear is its* usefulness. *We talked and shared experiences about how fear made us feel. Everyone could relate to time distortion as a fact in their lives when they felt serious fear. Most had also experienced the keen alertness that comes with being truly scared.

Specifically, the "state" had not embarked on this war without developing in the people of the United States an understanding of why the war was necessary and a conviction that it was the right thing to do. Finally, the Army and its sister services were ready. Evidence of our readiness abounded—we could see for ourselves the daily presence of large numbers of US Air Force jets and bombers, and we knew they were devastating our opposition. We also knew the US Navy controlled the Persian Gulf and that the US Marine Corps was ready to do its part. For the Dreadnoughts, confidence grew with each rehearsal and with each soldier assured that his mates and weapons were up to the task.

The meat of this little seminar on military affairs came last. Fear and how it felt and what effect it would have on each of us was the crucial reason for our gathering. Fundamentally, my thesis was that fear was natural, normal and useful—*natural*, because all animals experience fear as a reaction to danger; *normal*, because all of us had experienced fear; but the most interesting thing about fear is its *usefulness*. We talked and shared experiences about how fear made us feel. Everyone could relate to time distortion as a fact in their lives when they felt serious fear. Most had also experienced the keen alertness that comes with being truly scared. Some admitted to craving water while needing to urinate as reactions they experienced when afraid. We reviewed how a "fear–produced" adrenaline surge increased alertness and was useful to soldiers who needed that extra measure of reaction time brought by increased alertness. Fear stimulates the body to ensure blood supply to core functions. For example, the supply of blood to the appendages is reduced. Not only does fear assure blood to the heart and lungs as a priority, but it can also reduce bleeding in wounds to the arms and legs. I concluded my discussion by promising them that we all would make mistakes which might endanger one another. However, I assured them that we had a technological advantage, superior training and a good plan of operation and that our enemies enjoyed none of these benefits.

The last of these sessions occurred the night before

we began the final move to our forward assembly areas. On 18 February 1991, we fired our first shots in anger and concluded direct–fire combat operations on the 28th. Whether the nickname Dreadnoughts is still warranted is best left to historians to determine, but those of us who were there believe we lived up to the challenge.

There is no objective way to demonstrate whether this system of preparation for fear employed in the 2/34 Armor worked. There is anecdotal evidence that the soldiers appreciated knowing what lay ahead. Several remarked that they thought war would bear no resemblance to training and were surprised that our war went just about the way we trained to fight. The tolerance of soldiers for miserable conditions and uncertain circumstances remained very high throughout the operation and demonstrated amazing adaptability and patience on their part. There is just no way to ascertain the extent to which ritual, information, discussion and understanding prepared us for battle. My view is colored by my convictions on these matters, which were strong to begin with and are stronger now. In my experience, commanders at all levels shared the conviction that they bore a responsibility to prepare troops for the stress of combat.

The tools to do that included rigorous training, techniques for developing cohesion, clear communication of intent and addressing the matter of fear forthrightly and on a personal level.

Obviously, fear is not a new problem. Neither is the system suggested here. Commanders since Alexander the Great have exhorted their troops in battle by sign, speech and example. Alexander himself did all of the above. To ensure his troops could see him, he went into battle brilliantly plumed. General George S. Patton Jr.'s siren and other outrageous accoutrements were designed in part as a totem or sign of who he was. Both famous and infamous in the company of troops, Patton knew that commanders made a difference where fear was concerned. Generals Eisenhower, Bradley and Montgomery also believed that visiting the troops—both to assess them and to pump them up—was an essential part of a commander's tasks. As for the Dreadnoughts, I will always believe, though I will never be able to prove it, that my efforts and those of the great leaders in the 1st Infantry Division and VII Corps made a difference. I humbly offer this account for those who follow to use if they find the argument compelling. ***MR***

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NOTES

1. Stephen Crane, *The Red Badge of Courage* (Logan, IA: Perfection Form, 1979). See also Guy Sajer, *The Forgotten Soldier* (New York: Harper and Row, 1971) and Anthony Kellett, *Combat Motivation: The Behavior of Soldiers in Battle* (Boston: Kluwer Boston, 1982). The body of literature on the matter of fear in combat is enormous and richly varied. Novels, histories and analyses of the topic from the perspective of sociologists and psychologists abound.

2. Interview with MG Robert W. Hasbrouck, Washington, DC, 20 August 1984. Hasbrouck stressed the importance of this process in assimilating individual replacements. Practically speaking, he reconstituted his division following a bitter fight in and around St. Vith, Belgium, in December 1944. In two weeks of fighting, the division sustained 1,980 casualties, most of whom were infantrymen. See MAJ Gregory Fontenot's unpublished Master of Military Art and Science thesis titled "The Lucky Seventh in the Bulge: A Case Study for the AirLand Battle," Fort Leavenworth, Kansas, 1985.

3. Dibella has since retired, but from 1986 to 1987, his efforts at the National Training Center and the means he used to prepare were widely copied.

4. Chaplain John W. Brinsfield has two doctoral degrees: a Ph.D. in church history from Emory University and a D. Min. in ethics from the University of Minnesota. He has also attended Yale Divinity School and Oxford University, where he was a Woodrow Wilson Fellow. A prolific writer, Brinsfield has published two books and 14 scholarly articles. His "The Military Ethics of General William T. Sherman" in Lloyd Matthews (ed.) *The Parameters of War* (Washington, DC: Pergamon–Brassey's, 1987) and personal acquaintance led me to seek him out.

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Building Unbreakable Units

Major Richard D. Hooker Jr., US Army

AS THE US ARMY painfully completes its drawdown, its senior leaders are thinking hard about creative strategies that substitute quality for quantity. While numbers always count, there may be ways to significantly increase the quality and combat power of a smaller Army, in particular, its tactical maneuver units that constitute the lethal end of the force. Human factors are crucial components of America's Army that can be exploited to compensate for a loss of mass on the battlefield. However, traditional personnel management policies encourage rapid turnover and an individual replacement system that work against the formation of powerful small units. By recognizing and exploiting true "soldier power," the Army can leverage human factors to build combat power even as force structure declines to record lows.

Effective, durable combat units are largely the product of good morale, esprit and cohesion. Though related, these human factors have distinct meanings and important differences. *Morale* is a subjective end state that subsumes many different factors such as leadership, support services, unit history and tradition, weather, casualty rates and exposure to combat–related stress. It can be defined as the enthusiasm and persistence with which a member of a group engages in the prescribed activities of that group.[1]

Esprit is commonly defined as unit pride. While not grounded in the small unit, its presence can exert tremendous influence over the individual and the group. Esprit complements and reinforces morale and cohesion through the mechanism of pride and devotion to the reputation of the unit. It relates the soldier to the unit or institution, while cohesion relates soldier to soldier.[2] Implicit in the concept of unit pride is the acceptance of externally derived and formalized behavior standards. These can extend to the minutia of dress, military courtesy and drill, as well as insistence on prescribed modes of combat behavior or adherence to previously defined standards in battle.[3]

Cohesion ***is defined as the bonding together of unit members to enhance and sustain their commitment to each other, the unit and the mission. Central to the cohesion concept is the individual's desire to submit to group norms. The soldier must feel a sense of responsibility to the group and subordinate personal concerns to the higher imperative of group welfare.***

While morale, esprit and cohesion all relate to a soldier's willingness to fight at a given place and time, *cohesion* is defined as the bonding together of unit members to enhance and sustain their commitment to each other, the unit and the mission.[4] Central to the cohesion concept is the individual's desire to submit to group norms. The soldier must feel a sense of responsibility to the group and subordinate personal concerns to the higher imperative of group welfare. In high–performing combat units, this imperative can demand extreme personal self–sacrifice for group survival or the achievement of group goals.[5]

Furthermore, cohesion has a vertical, as well as horizontal, dimension. In first–rate combat units, bonding occurs between soldiers and their leaders through daily interaction. This phenomenon diminishes as distance from soldier to leader increases. Whereas the platoon sergeant or company commander may profoundly affect individual and group behavior in combat by direct influence, the brigade command sergeant major and division commander are remote leaders whose direct effect on small units is limited.

The views expressed in this article are those of the author and do not purport to reflect the position of the Department of the Army, the Department of Defense or any other government office or agency.—Editor

Most available evidence suggests that cohesion, unlike morale and esprit, is fundamentally a *primary* group phenomenon and occurs at the small–unit level in squads, crews and platoons.[6] While soldiers may draw real strength from unit pride, their ability to persevere, endure and remain determined in the face of mounting combat stress is primarily a function of small–group solidarity.

The true test of cohesion is how well units perform under extended combat stress. During the Gulf War, most combat units underwent a lengthy precombat training period in which units were brought up to full strength . . . and the distractions of garrison life were eliminated. Actual combat was of extremely short duration, our opponents did not fight well and casualties were remarkably low. . . . On future battlefields, soldiers may fight at the end of an extended and tenuous logistic tail . . . and against well–armed opponents for lengthy periods.

The crucial importance of small–unit cohesion takes on greater meaning when one considers the future battlefield. In contrast to earlier periods when weapon technology required large troop formations to deliver massed fires, warfare over the last century has seen the progressive dispersion and decentralization of maneuver elements on the battlefield. As units and soldiers disperse to survive, they no longer fight under the commander's direct influence. On more lethal battlefields, small–unit leadership and cohesion are defining characteristics for success in war.

Primary group cohesion is not the only important component of combat performance. Generalship, leadership, operational and tactical planning and execution, logistics and intelligence are all critical parts of the equation. But under the appalling hardships and stresses of combat, it is cohesion that keeps fighting units together and enables the other factors to come into play.

Evaluating Cohesion

US combat performance in Grenada, Panama and the Persian Gulf suggests that cohesion is first rate in the Army. By measurable standards, such as absent–without–leave and desertion rates, combat discipline, assaults, drug and alcohol incidents and performance in battle, cohesion seems to have been extremely high. However, without denigrating the Army's impressive performance in these contingency operations, we can observe that real small–unit cohesion was not fully tested. The true test of cohesion is how well units perform under extended combat stress. During the Gulf War, most combat units underwent a lengthy precombat training period in which units were brought up to full strength, personnel allocations were stabilized and the distractions of garrison life were eliminated. Actual combat was of extremely short duration, our opponents did not fight well and casualties were remarkably low. Additionally, popular support for the military was high.[7] On future battlefields, soldiers may fight at the end of an extended and tenuous logistic tail, in unfamiliar terrain and against well–armed opponents for lengthy periods. Under these conditions, we cannot assume numerical or fire superiority. Cohesion at the small–unit level will be an important precondition for success.

Scientific data suggests that small–unit cohesion can be greatly improved.[8] Numerous studies conducted in the 1980s concluded that although morale in troop units was reasonably good—a result of higher–quality soldiers, better leaders and more resources for unit training—strong unit cohesion was lacking due to the crippling effects of personnel turbulence.[9] At the squad, platoon and crew levels, turbulence persists at rates as high as 150 percent annually.[10]

Studies that evaluated stabilized tank crews against standard crews revealed marked differences in gunnery and crew skills. Analysis conducted by the Army Research Institute (ARI) concluded that over a five–year period, maneuver units at the National Training Center (NTC) had achieved only a 17–percent success rate against opposing force units. Despite growing numbers of leaders who have completed multiple NTC rotations, there was no measurable improvement over a seven–year period. From 1983 to 1987, the NTC reported that only 6.5 percent of training platoons "exceeded standards," while the great majority were rated "below standard" or "poor."[11] With fewer resources for extended field training, lower unit manning levels and more operational deployments, improving performance standards will be a difficult challenge for our Army, given the current personnel management policies.

Defining the Problem

For many years, Army personnel managers have equated "personnel fill" with unit readiness. Units assigned their full complement of school–trained soldiers and leaders were rated fully combat ready from a personnel standpoint. While extremely effi-

VII Corps soldiers during the Gulf War

Most available evidence suggests that cohesion, unlike morale and esprit, is fundamentally a* primary *group phenomenon and occurs at the small–unit level in squads, crews and platoons. While soldiers may draw real strength from unit pride, their ability to persevere, endure and remain determined in the face of mounting combat stress is primarily a function of small–group solidarity.

cient from a *systems* viewpoint, it is much less so when viewed from a *capabilities* perspective.

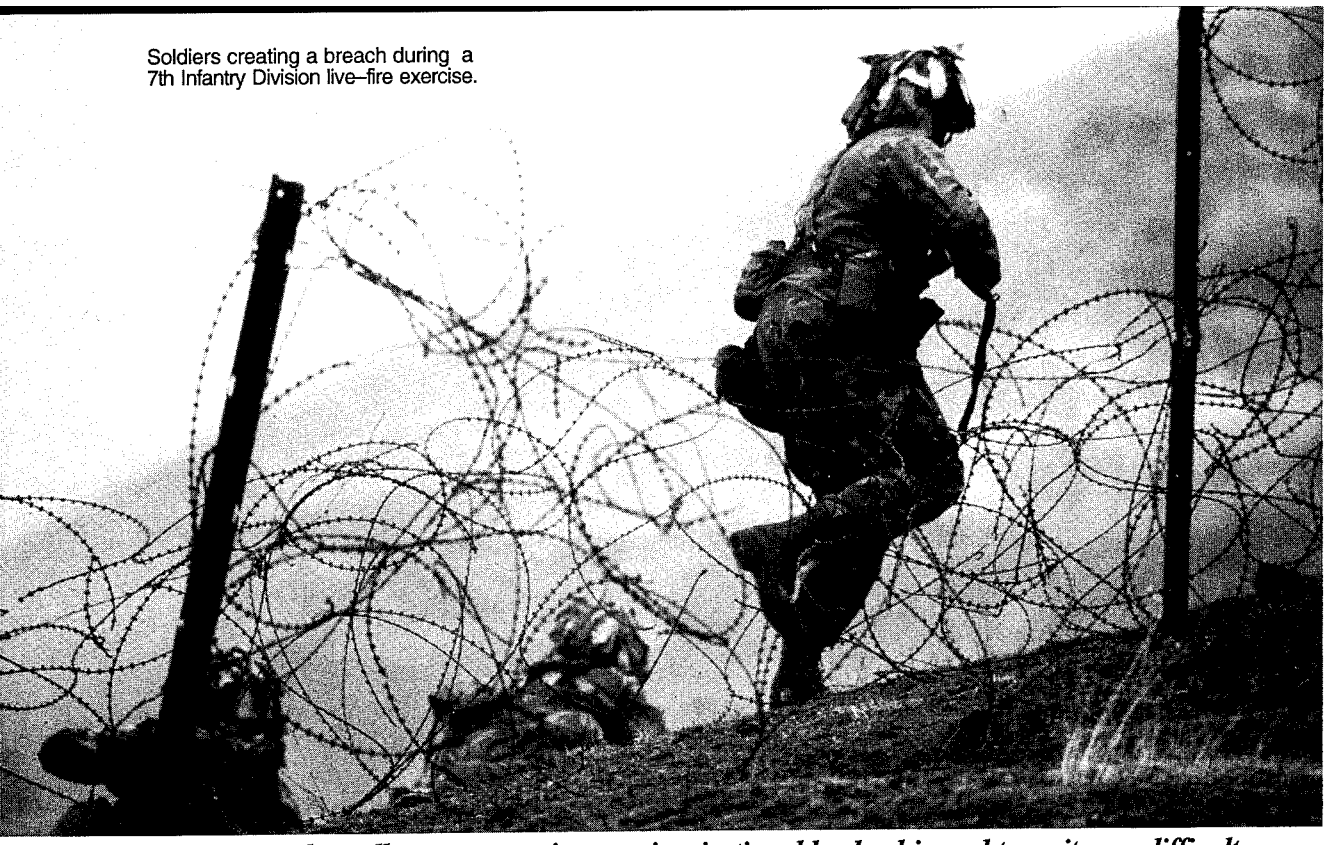
To reach their full potential, crews and squads need time to build strong, cohesive primary groups. Good equipment, training and leaders are not enough. Trust, confidence and group identity are basic requirements for high–performing combat units. All too often, personnel turnover defeats our best efforts to build effective, durable units.[12] Keep in mind that the more technologically advanced the equipment and the smaller the crew, the more important interdependent skills become. It does not matter how good the training is if the resulting collective skills are thrown away by a personnel management system that values only efficiency.

Beginning in the 1960s, the Department of Defense adopted a systems approach to organizational management based on econometric modeling and cost and benefit analysis. This system continues in full force, encouraging unit evaluations based on easily quantifiable performance indicators. "Good" units have high maintenance availability scores, gunnery scores, school attendance and property accountability. They have low accident rates, infrequent disciplinary problems, few "dead–lined" vehicles and score well on external evaluations that search for quantifiable elements.

This emphasis on the quantifiable is desirable from many points of view. It is objective and fair and lends itself to establishing clear performance standards. It permits senior leaders to rapidly assess subordinate units' conditions. But it has one grave weakness—it cannot measure intangible, hard–to–rate human factors that often enable smaller forces to win against larger ones.

Tactical excellence, aggressiveness, inspirational leadership and tenacity are difficult to assess numerically. Nevertheless, they are more important than the peacetime performance indicators previously cited. Since unit cohesion cannot be readily measured or expressed numerically, it receives less emphasis than other more tangible factors.[13]

The transition to the All–Volunteer Force and the rise of "occupationalism" in the early 1970s also contributed to the decline of unit cohesion. Incentives such as increased pay, gradual relaxation in the authority of first–line supervisors and emphasis on rapid promotion, vocational training and college preparation lent a "marketplace" flavor to military service at variance with traditional professionalism



Soldiers creating a breach during a 7th Infantry Division live–fire exercise.

Tactical excellence, aggressiveness, inspirational leadership and tenacity are difficult to assess numerically. Nevertheless, they are more important than the peacetime performance indicators previously cited. Since unit cohesion cannot be readily measured or expressed numerically, it receives less emphasis than other more tangible factors.

norms and subordination to group or unit goals.[14] In essence, many incentives offered to attract recruits into voluntary service also serve to weaken traditional sources of group bonding.

These changes were accompanied by progressive consolidation and centralization of important leadership functions at higher command levels. Organizational autonomy and the small–unit leader's ability to apply positive and negative incentives eroded as supply, military justice, promotion and messing functions were consolidated.[15] Company leaders were increasingly viewed as "place holders," not as autonomous decision makers exercising real authority. Over time, this process has degraded the linkage between soldiers and their primary leaders. The shift to private rooms, off–post housing and greater off–duty freedom has loosened the bonds among small–unit members.

One can say the Army has identified this problem and tried to compensate for the lack of small–unit cohesion in its organizational approach to warfare. The Cold War Army stressed big units, massive individual replacement systems and lavish resources, not small–unit excellence.[16] The Army's preference for mass and firepower, overemphasis on technological solutions, methodical and linear approaches to operations and reliance on materiel superiority have resulted in an organization built around its personnel system.[17] In the near future, however, it will be hard to wage traditional war. Declining budgets, reduced force structure and an eroding military–industrial base are changing the rules of the game.

Human factors, those hard–to–measure but critical determinants of battlefield proficiency, will grow in importance as our capacity to wage industrial age war diminishes. In short, primary group bonding and small–unit excellence will gain importance as materiel resources decline. These factors will become more important in an information age Army, which demands highly perishable technical skills and even greater dispersion and small–unit autonomy. Tomorrow's Army must win, not because it is bigger, but because it is better.[18]

A Bold Initiative

While official public assessments of Army readiness appropriately focus on positive force aspects, the harmful effects of excessive personnel turbulence have been recognized for some time. In 1980, Army Chief of Staff General Edward C. Meyer announced plans to revamp the Army personnel management system to relieve these effects. Dubbed

1st Cavalry Division soldiers dig defensive fighting positions during an annual NTC training rotation.

Analysis conducted by the Army Research Institute concluded that over a five–year period, maneuver units at the NTC had achieved only a 17–percent success rate against opposing force units. Despite growing numbers of leaders who have completed multiple NTC rotations, there was no measurable improvement over a seven–year period. From 1983 to 1987, the NTC reported that only 6.5 percent of training platoons "exceeded standards," while the great majority were rated "below standard" or "poor."

the New Manning System (NMS), Meyer's initiative was a revolutionary attempt to focus personnel systems on unit cohesion.

The NMS was built around two complementary programs: The Regimental System (TRS) and the Cohesion, Operational Readiness and Training (COHORT) program. Meyer stated that the NMS was designed to "reduce unit turbulence by meeting most future unit replacement needs by unit rotation rather than by individual replacement."[19] While discussion and debate focused largely on the perception that the NMS, and TRS in particular, aimed to build unit pride and esprit, Meyer clearly understood that the first and most important step was to build strong, cohesive primary groups and that the only way to do so was to stabilize soldiers in units for lengthy periods.[20]

TRS' purpose was to provide the soldier with continuous identification with a single regiment, institution or location throughout a career. Through repeated assignments to the same regimental units and locations, soldiers would experience recurring identification with a relatively small circle of peers and leaders.[21]

The NMS concept envisioned permanent affiliation with a numbered regiment, home–basing at a particular Continental United States (CONUS) location and periodic overseas rotations. TRS strived to enhance soldier identification with a regiment and called for permanent unit affiliation with emphasis on unit heritage, traditions, memorabilia and distinctive uniform items.

Where TRS focused primarily on home–basing and affiliation, COHORT addressed the problems of stabilization and unit movement. The basic idea behind COHORT was to keep soldiers and leaders together through the life cycle of the unit—typically a standard three–year enlistment. COHORT units rotated overseas as a unit from their CONUS home base during the latter part of the unit life cycle.

Implementation of the NMS began in late 1982 with formal designation of several regiments and integration of the first COHORT units into the Active Component. Initially, these steps were taken on a test basis. Overnight conversion of the Army to the new system was never seriously considered due to the massive short–term disruption that would inevitably ensue. Army leaders assumed that experience

with the new initiatives would lead to more "fine tuning" as the system adapted itself to the new personnel model.

The NMS went forward with the energetic and personal backing of Meyer and the deputy chief of staff for Personnel (DCSPER), Lieutenant General Robert M. Elton, attended by high hopes for strong gains in personnel effectiveness and unit cohesion. Professional journals were awash with articles supporting NMS concepts and implementation strategies.[22] NMS cells in the offices under the DCSPER, the Military Personnel Center and other Army agencies proliferated. Mass redesignation ceremonies became the order of the day.

Good equipment, training and leaders are not enough. Trust, confidence and group identity are basic requirements for high–performing combat units. All too often, personnel turnover defeats our best efforts to build effective, durable units. Keep in mind that the more technologically advanced the equipment and the smaller the crew, the more important interdependent skills become.

Yet, within five years, both TRS and COHORT lay dormant, stripped of institutional support. The Army returned to the individual replacement system it had never really left, and the NMS found itself labeled, privately if not publicly, a failure.

Why did the Army reject the Meyer initiative? Without going into a detailed analysis of the organizational and bureaucratic politics surrounding the issue, one can surmise that the attempt to change from an individual to a unit replacement philosophy required a fundamental shift in the Army's organizational culture. To be successful, the NMS required the Army to look at itself in a different way. Even with the support of top Army leaders, this proved to be "too hard to do" within the tenure of a single chief of staff.

Following Meyer's retirement, successive chiefs of staff were absorbed with organizational challenges of their own such as the light division initiatives, conversion to the Army of Excellence and force modernization.[23] Tactical commanders were asked to administer both COHORT and existing personnel programs concurrently by mixing individual and unit replacement schemes.[24] Veterans groups protested Army decisions to exclude some historic regiments from TRS. Traditional emphasis on "generalist" career patterns continued undisturbed as leaders migrated between light and heavy units at home and abroad.

But the most damaging blow to COHORT and TRS was personnel bureaucracy opposition. Local and Army–level personnel managers resisted taking the necessary steps to make the concept a reality. Little was done to implement the NMS in the field beyond redesignating certain units and notionally affiliating soldiers with regiments. By 1989, only five years after TRS implementation, requests for return assignments to a soldier's affiliated regiment went unheeded, and the significance of TRS was reduced to wearing the unit crest on the uniform blouse.

Getting What You Pay For

Why should the Army alter fundamental operating routines and switch to a unit replacement system? Aside from the urgent need to find new sources of combat power for a smaller Army, the historical record provides disturbing evidence of the failure of the individual replacement system in this century's major conflicts. One can make a compelling argument that the Army prevailed in these conflicts despite its personnel management practices.

Military psychiatry has long known that continuous exposure to front–line combat stress makes psychological breakdown virtually inevitable.[25] Excepting sociopathy or other forms of aberrant psychological behavior, the average soldier's endurance in combat can be gauged with fair accuracy. The leadership challenge is to extend the combat soldier's endurance as much as possible. Experience has shown that the individual replacement system is the least effective way to protect the soldier from the debilitating effects of combat stress.

In World War II, the average combat soldier knew with dreadful certainty that aside from death, serious wounds or desertion, there was little chance of escaping from the awesome burdens of combat. This sense of hopelessness was not materially affected by the knowledge that the Allies had turned the corner and no longer feared defeat. The enormity of this burden is revealed by the fact that in the fall of 1944, after the breakout from the Normandy beachhead, US infantry regiments suffered 100–percent losses every 90 days.[26] A high number were psychiatric casualties.

With no unit rotation system and very high levels of personnel turbulence, soldiers could rarely count on familiar associations or small–unit cohesion. It is small wonder that so many combat soldiers—alone,

A 25th Infantry Division M113 conducting a "reconnaissance by fire" along the road from Tay Ninh to Katum, 9 February 1968.

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friendless and cut off from the therapeutic effects of comradeship and community—broke mentally when they were not wounded outright or evacuated because of disease. While the personnel system worked effectively to make up these losses, it took scant notice of the woeful rate at which these combat replacements soon became casualties themselves.

In recognition of the large–scale breakdown of units and soldiers who served in combat "for the duration," Army planners limited service in Vietnam to 12 months. For most officers, six months in the combat zone was the norm. Despite lessons learned, the individual replacement framework remained intact. Combat platoons and companies continued to resemble holding organizations, while soldiers and leaders rotated through in a never–ending cycle of arrival and departure. Death, wounds, disease, drug use, psychological problems, disciplinary action, desertion and posting to rear areas displaced many combat soldiers before they could reach their normal date eligible for return from overseas. Small–group cohesion and morale began to erode with the departure of the first iteration of "regulars," who had arrived in 1965 and 1966.

The problems of the Vietnam–era Army have been widely discussed and debated. Drug use, officer assassinations, poor leadership, sterile tactics, faulty strategy and many other failings have been ascribed and condemned.[27] In the search for answers to dysfunctional performance in Vietnam, however, the Army personnel management system did not emerge as a central problem. In retrospect, it is difficult to see how anyone could expect poorly trained conscripts fighting an unpopular war in the company of relative strangers to perform well. Perhaps, given the preference for big–unit operations, helicopter mobility and massive firepower that typified US operations in Vietnam, no one really did.

Yet, there were alternative models to be studied. John Baynes' classic history *Morale,* an account of a British infantry battalion sent off to war in 1914, describes in detail the British approach to personnel management in wartime. Virtually every leader and soldier was a veteran. Despite long service in the line and a series of fearful engagements, the battalion continued to fight cohesively and effectively throughout the war.[28]

Imperial War Museum

British paratroopers on their way to Arnhem, Holland, 17 September 1944.

If . . . the "people who really count in battle are the commanders and fighters at battalion and below," then the regimental system practiced in commonwealth armies sustained the will to fight to a remarkable degree. It did so, not because its fighting soldiers transferred their primary group loyalties to the regiment, but because the regiment proved an ideal instrument for promoting, protecting and sustaining primary groups amid the harshest conditions imaginable.

Although by war's end very few of the original soldiers remained, the British practice of periodic rotations out of combat, regular drafts of replacements from regimental training depots, use of recalled reservists with previous service in the regiment and return of wounded veterans to their old units all helped to sustain unit pride and cohesion. The esprit and cohesion of the regiment, with all its features of an extended family and unique customs, traditions and codes of behavior, lent sanity and support to young men engaged in the most sanguinary conflict the world had yet seen. If, as many experts assume, the "people who really count in battle are the commanders and fighters at battalion and below," then the regimental system practiced in British Commonwealth armies sustained the will to fight to a remarkable degree.[29] It did so, not because its fighting soldiers transferred their primary group loyalties to the regiment, but because the regiment proved an ideal instrument for promoting, protecting and sustaining primary groups amid the harshest conditions imaginable.

During World War II, the *Wehrmacht* managed to achieve similar performance levels by following a sensible program of unit rotations out of the battle line. Until relatively late in the war, German divisions on the Eastern Front (with an average strength of 12,000) were considered "used up" and withdrawn for rest, retraining and replacements when their ration strength dropped below 10,000. In comparison, rifle companies in General George S. Patton Jr.'s US Third Army averaged 55–percent strength in 1944 despite the individual replacement system.[30] Most German divisions maintained training depots for the reception and integration of replacements instead of sending them piecemeal to the front lines. As the war ground on, combat units were reduced in size, and veterans were carefully distributed to form the nucleus for strong primary groups.[31]

Strenuous measures were taken to ensure that junior leaders were experienced and competent. For example, a US infantry company might boast 150 soldiers and four or five inexperienced lieutenants; a German infantry company might carry 50 to 70 soldiers on its rolls with a single seasoned officer in command.[32] The German noncommissioned officer (NCO) corps was not diluted to replace officer losses, which might largely have destroyed the basis for small–unit cohesion, and lengthy NCO training courses were continued right up until the war's end.

These practices stood in marked contrast to US Army policy, which kept units in combat indefinitely and replenished them with a continuous stream of new conscripts. Where the German army strove by all available means to nurture its small units, which it considered the basis of its combat power, the US Army seemed unaware of the relationship between unit cohesion and soldier performance. The virtues of US military performance in World War II, Korea and even Vietnam are many, yet we cannot ascribe our battlefield successes to the personnel system. On the contrary, many of our battlefield failures can be directly linked to an inability to grasp the significance and importance of small–unit cohesion.

These lessons, purchased at great cost by earlier generations of American combat soldiers, retain their impact today. They suggest that unit replace-

A US Sixth Army soldier searches for snipers shortly after landing on Leyte in the Philippines, 20 October 1944.

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ment systems and a true emphasis on cohesion are worth the organizational inconveniences and short-term "teething" problems that inevitably accompany changed operating routines and new initiatives. However, it should be noted that one replacement system will not work effectively for both a peacetime and wartime Army.

Toward a Personnel System that Works

The Army personnel system can provide the kind of stable supporting environment needed to make cohesion, esprit and morale a reality in the US Army. In theory, Army personnel management has one overriding purpose: to support the force so its units will fight to their maximum potential. The best way to do this is to stabilize soldiers' assignments to small units and provide leaders who are known, trusted and proved through long service together.

Pride in the unit is the glue that binds soldiers to one another, to their primary fighting units and to their leaders. This same pride binds leaders to leaders. Cohesive units are made up of comrades, not strangers. To live up to the standards of the unit and to the expectations of one's leaders and peers is a profound source of motivation in combat. The trust and support of one's fellows is the best possible defense against combat stress. Taken together, cohesion, esprit and morale enhance and sustain each other by creating unit environments that breed confidence, durability and the expectation of success.

Although stability and leadership are the keys to unit cohesion, other personnel system features can play significant support roles. One organizational dynamic that is often overlooked in combat performance studies is the horizontal cohesion shared by leaders within a unit.

When leaders know, trust and understand each other through long association, a true synergistic effect magnifies the contribution of individual leaders and makes the whole more than the sum of its

parts. Coordination is simpler, decision and action cycles are faster, task organization is smoother and battlefield friction is reduced. In short, the prospects for effective teamwork are greatly improved.

To achieve these results, the Army must wrestle with some of its strongest institutional "truths." It must concentrate its best leaders in combat units and keep them there. When due for troop duty, soldiers and leaders will return to the same brigade. Genuine vertical and horizontal cohesion demands an end to migration between branch communities—light, heavy, armor, cavalry—and calls for long-term service in one brigade within a combined arms framework. Training units must be aligned with combat units. Replacements will come to combat brigades in packages instead of as individual replacements, with ready-made friendships and socialization into the unit's history and traditions long before they arrive.

[The New Manning System of 1980] was a revolutionary attempt to focus personnel systems on unit cohesion. . . . [and] was designed to "reduce unit turbulence by meeting most future unit replacement needs by unit rotation rather than by individual replacement."

Tactical commanders were asked to administer both COHORT and existing personnel programs concurrently by mixing individual and unit replacement schemes. . . . Traditional emphasis on "generalist" career patterns continued undisturbed as leaders migrated between light and heavy units at home and abroad. But the most damaging blow to COHORT and TRS was personnel bureaucracy opposition.

There are arguments against this kind of reform. Some feel that leaders cannot be professionally developed without exposure to many different assignments and experiences.[33] Others worry that in such a system, it may not be possible to expose every leader to the jobs needed for future success. Many detractors believe that efficient personnel management would go out the window or that the effects associated with transitioning from an individual to a unit personnel management system would "break" the force.

These criticisms have merit, but they must be weighed against the potential gains. The success of many senior leaders who served exclusively in one community demonstrates that professional schooling, self-development, combined arms training and talent are perhaps more important than a succession of tours which expose leaders to multiple environments while denying them real opportunities to truly master any particular one.[34]

Also, it is useful to bear in mind that other armies have wrestled with these problems and overcome them. With modern data processing systems, personnel managers can administer this system more effectively, especially when much of the burden is borne by the units themselves.

I suspect that the true basis of dissent is an unwillingness to move away from cherished organizational routines. Despite the warning signs—loss of funding, force structure and advanced bases overseas—which alert us to the fact that "business as usual" is no longer possible, decades of institutional routine have created an inertia that makes real change extremely difficult.

It is possible to change the way entrenched bureaucracies function, but the obstacles to change should not be underestimated. Sustained commitment and a detailed implementing strategy must complement good ideas. An Army personnel system that values human factors and strong, proud units is one good idea that deserves to succeed.

Small-unit excellence matters in a smaller Army. Even in aggressive offensive operations, smaller, weaker armies have often triumphed because they were better. Encouragingly, the transition to a unit replacement system need not be expensive, and it need not disturb the tactical organization and functioning of combat maneuver units. Soldiers can put down roots in local communities, build equity in their own homes and develop professionally in the company of known and trusted comrades.

But the ultimate payoff is battle, where we might confidently expect the greatest return. For combat soldiers, trust in one another and their leaders is the fire that welds successful units together and makes them winners. A new look at this old idea can show us how to build real combat power at little cost.

As the Army completes the final stages of the drawdown, stabilization should increase dramatically with a largely CONUS-based Army, eliminating many of the associated problems already discussed. Stable, cohesive units represent a simple, commonsense strategy for improving combat power. While it may be difficult to measure resulting improvements in cohesion, morale and esprit quantitatively, they will be real, tangible and lasting. A revised personnel management philosophy stress-

[Human factors] will gain importance as materiel resources decline. These factors will become more important in an information age Army, which demands highly perishable technical skills and even greater dispersion and small–unit autonomy.

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ing unit replacement can go far to offset loss of combat power due to a smaller force structure. The costs are not prohibitive—surely the gains are worth reaching for. ***MR***

NOTES

1. Frederick J. Manning, "Morale, Cohesion and Esprit de Corps," *Handbook of Military Psychiatry,* edited by Reuven Gal and A. D. Mangelsdorf (London: John Wiley & Sons, Ltd., 1991), 455. See also Kevin R. Smith, "Understanding Morale," *Defence Force Journal* (May/June 1985), 52; and John Baynes, *Morale: A Study of Men and Courage* (New York: Praeger Publishers, 1967), 104.
2. Manning, 458.
3. For example, the 82d Airborne Division was inordinately proud of its World War II claim that "no ground gained was ever relinquished," an issue that caused friction when MG Matthew B. Ridgway was ordered to withdraw from the vicinity of St. Vith during the Battle of the Bulge. See Clay Blair, *Ridgway's Paratroopers* (New York: William Morrow & Co., Inc., 1985), 394.
4. John H. Johns, et al., *Cohesion in the U.S. Military* (Washington, DC: National Defense University Press, 1984), 4.
5. Manning, 458.
6. In an important recent study on military cohesion, William Darryl Henderson cites Edward Shils, Morris Janowitz, Charles Moskos, Alexander George, Anthony Kellett and S. L .A. Marshall as proponents of the "primary group" theory. See Henderson, *Cohesion: The Human Element in Combat* (Washington, DC: National Defense University Press, 1985), 4–5.
7. A senior retired Army leader interviewed for this study observed: "I have a real concern that we'll draw the wrong lessons from [Operation] *Desert Storm.* The real lesson is that six months in the desert accomplished miracles in terms of group bonding, honing combat skills and getting the force ready. The wrong lesson is that we can deploy every combat unit in the Army to austere locations on short notice and be fully ready to go. We needed those six months."
8. Interview with COL Rick Manning, Walter Reed Army Institute for Research, 5 June 1991.
9. Henderson, former chief, Army Research Institute (ARI), *The Hollow Army* (Westport, CT: Greenwood Press, Inc., 1990), 77–90.
10. Ibid., 77.
11. See Sam Endicott and Earl Pence, "NTC [National Training Center] Leadership Lessons Learned" (unpublished US Army Training and Doctrine Command report, 1987); Larry E. Word, "Observations from Three Years at the National Training Center" (ARI Field Unit, Presidio of Monterey, 1987); and Robert Holz, "ARI Technical Area Report on NTC Rotation 88–5" (Alexandria, VA: ARI, 1988), cited in Henderson, *Hollow Army.* A senior NTC observer/controller interviewed for this study confirmed that these trends continue: "Basically what we're doing is training individuals, primarily leaders. Six months after a rotation, these units don't exist anymore. There is no collective group experience to bring back the next time around. Every unit goes through here for the first time. And that's usually not good enough to win."
12. Interview with GEN Edward C. Meyer, 6 June 1991.
13. "A consequence of econometric analysis is to downplay the less tangible econometric factors and value–driven aspects of military organization . . . [and this] approach tends to define issues that are amenable to existing methodologies and thus concentrates on narrowly conceived comparisons of variables to the neglect of the more difficult issues." Charles C. Moskos, et al., *The Military: More Than Just a Job?* (Washington, DC: Pergammon–Brassey's, 1988), 4.
14. Ibid.,17. Where soldiers previously lived in squad rooms under close supervision of their leaders, today they live in dormitory rooms or military or civilian housing areas. Many young soldiers are married, and some hold civilian jobs after duty hours. Most soldiers own automobiles, increasing their independence from the unit environment, as do liberal provisions that permit soldiers to depart after last duty and not return until the following day. Some recent initiatives, such as barracks policies in US Army, Europe (USAREUR) that increase soldier autonomy in the barracks, send unambiguous signals in this regard.
15. William J. Taylor Jr., "Leading the Army," *The Washington Quarterly* (Winter 1983), 42.
16. Carl Builder provides an impressive analysis of distinctive service cultures in *Masks of War* (Baltimore, MD: The Johns Hopkins University Press, 1989).
17. For a provocative explication of the "Army Concept of War," see Andrew F. Krepinevich, *The Army and Vietnam* (Baltimore, MD: The Johns Hopkins University Press, 1986), 5.
18. This is not to suggest that technology and size are irrelevant on the battlefield. On the contrary, below a certain point, the quality of the force becomes irrelevant in the face of overwhelming numbers. See Anthony Kellett, *Combat Motivation: The Behavior of Soldiers in Battle* (Boston, MA: Kluwer Nijhoff Publishing, 1982), xvii. As Kellett argues in his classic study, warfare is fundamentally about soldiers using machines, not "manned weapon systems." The well–documented emphasis on technological aspects of warfare obscures consideration of the human dimensions of combat. And these are all–important.
19. "Regimental Unit Plan Will Begin This Year," *Army Times* (25 January 1982), 1.
20. Ibid., 17.
21. *Assessment of the United States Army Regimental System,* Volume 1, BDM Corp., II–3.
22. See Robert M. Elton, "Cohesion and Unit Pride Aims of New Manning System," *ARMY* (October 1984).
23. BDM Corp. study, II–8.
24. Interview with COL Frederick Black, former secretary of the General Staff, 25th Infantry Division (Light), 7 April 1992. Managing unit and individual replacements concurrently at the same installation was a problem because units continued to be evaluated on the basis of personnel fill. Falling personnel levels in some units required cross–leveling, which frequently broke up leadership in Cohesion, Operational Readiness and Training units in the interest of meeting unit status reporting category one (highest readiness level) standards.
25. "In the trenches, a man's willpower was his capital and he was always spending, so that wise and thrifty company officers watched the expenditure of every penny lest their men went bankrupt. When their capital was done, they were finished." See Baron Charles McMoran Wilson Moran (Lord Moran), *The Anatomy of Courage* (Garden City Park, NJ: Avery Publishing Group, 1987), 63–64.
26. John English, *On Infantry* (New York: Praeger Publishers, 1984), 138.
27. See Richard A. Gabriel and Paul L. Savage, *Crisis in Command* (New York: Hill & Wang, 1978) for an apposite example of the genre of Vietnam criticism.
28. The 700–man battalion lost 469 men at Neuve Chapelle in March 1915, another 168 at Richebourg–Festubert two months later, was decimated again at the Somme and Third Ypres and lost 638 members in 10 days' fighting during the German *Friedensturm* Offensive of 1918. See Baynes.
29. GEN Frido von Senger und Ettelin, *Neither Fear nor Hope* (London: Macdonald, 1960), 196 and 223.
30. English, 138.
31. A description of this system in operation in the Panzergrenadier Division *Gross Deutschland* is found in Guy Sajer's *The Forgotten Soldier* (London: Weidenfeld and Nicolson, 1967), unquestionably the outstanding personal memoir of World War II from the perspective of the German soldier.
32. By war's end, the German officer corps was far below authorized levels; 30.8 percent of all German officers were killed outright, with many more wounded and missing. See Gabriel and Savage, 36. Sajer provides a moving and vivid illustration of the German company officer in the person of Hauptmann Wesreidau and the German institution of *Kameradeschaft* (officer/soldier comradeship) in *The Forgotten Soldier.*
33. One former tank brigade commander interviewed for this study remarked: "I had a hell of a time with my young infantry captains. Army policy ensured they came from exclusively light backgrounds, and they needed too much breaking in to the tank and Bradley environments. Command of a tank or Bradley company team is hard stuff. The good ones took about a year to really get in the saddle—long enough to see everything at least once. They were fully productive for six months before I lost them. But the average ones were always liabilities. If you believe, like I do, that small units win wars, it's a hell of a price to pay to "develop future leaders." The author observed a similar phenomenon when visiting an Army light division. While two infantry brigade commanders had long and varied experience with light, airborne and special operations units, the third had never served with light units before. This officer was universally liked and respected for his leadership ability and administrative competence—but widely faulted by field– and company–grade officers in the division for his lack of experience and grasp of light infantry tactics, capabilities and psychology.
34. Interview with COL Giora Eiland, Office of the Chief of Paratroops and Infantry, Israeli Defense Forces, January 1986. Many Israeli commanders, such as Raful Eitan and Ariel Sharon, have risen to armored division command after long service in non-mechanized infantry units (the Israeli division or "ugda" is exclusively an armored formation). They are given a short course in the technical aspects of armored units, but have long since mastered combined arms tactics and operations through a combination of service schooling, unit training programs and habitual task organization.

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Versatility

Command and Control During Transition Operations

Lieutenant Colonel Charles D. Marashian, US Army, Retired

DURING THE PAST five years, the evolving strategic environment has forced the US Army to reexamine and redefine the land force missions, roles and functions that give it a strategic value. *Strategic value* is defined as the Army's capability as a military force to contribute, in concert with the other elements of national power, to the attainment of strategic objectives in three distinct environments—war, conflict and peace. The Army's strategic value is discussed in US Army Field Manual (FM) 100–5, *Operations*, with its greatest contribution being command and control (C^2) capability during *transition*—the period of adjusting operational focus as forces move from one type of operation to another because of changes to military objectives and operational environments. FM 100–5 states that the Army is capable of full–dimension operations. This means the Army must be able to accomplish any mission in war and operations other than war (OOTW).[1] While the Army may simultaneously operate in all three environments, the challenge is to have the capability to adjust focus to changing operational and strategic objectives.

The tenet that allows the Army to operate in three environments is *versatility*. As defined in FM 100–5, versatility is a unit's ability "to meet diverse mission requirements. . . . Versatility denotes the ability to perform in many roles and environments during war and operations other than war."[2] Since 1982, our warfighting doctrine has rapidly matured to address the unique requirements of each environment. Additionally, Army forces have gained experience working in different environments, as evidenced by the numerous and diverse military operations that have occurred worldwide.

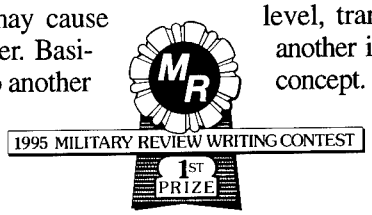
Changes to military objectives may cause transition from one operation to another. Basically, transition from one operation to another is guided by an operations plan, which supports the joint task force (JTF) commander's campaign or can be a previously developed branch or sequel to the current operation. While strategic objectives may change rapidly, transitioning from one operation to another may be extremely complex and require intensive planning and C^2 effort. During transition, new C^2 functional requirements evolve and other functions become unnecessary.

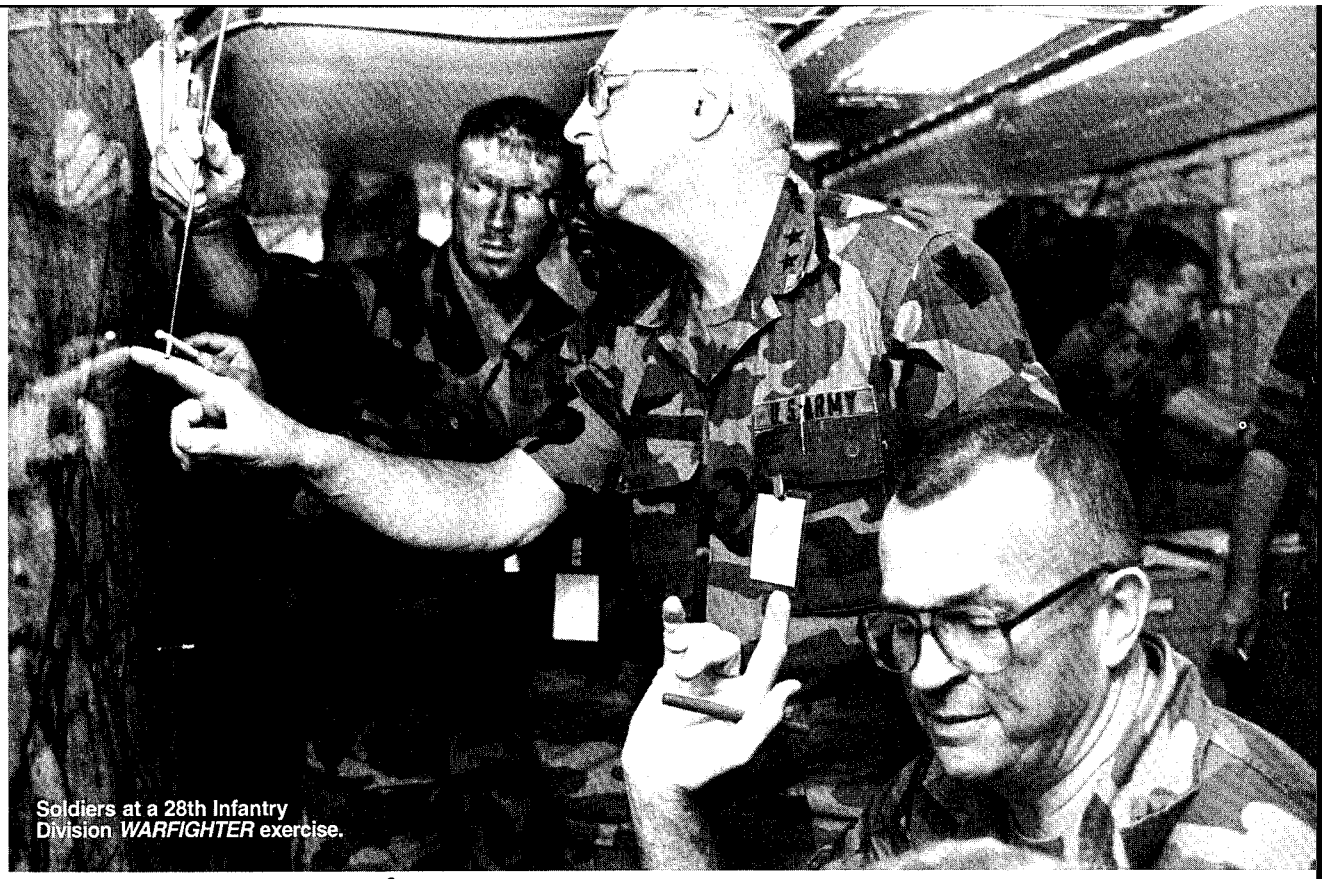
An example of how changes to strategic objectives affect the type of operations that may occur is a "show of force–combat operations–postconflict operations" scenario. The strategic objectives for a *show of force* are to display international resolve and to adjust the regional balance of power by providing a security assistance surge to a friendly nation. During combat operations, the strategic objective may be to neutralize the military power of a hostile nation. And finally, the strategic objective during postconflict operations may be to rebuild the defeated nation's infrastructure.

Changes to strategic objectives that demand a different operational focus invoke changes in operational and tactical activities. These changes may affect task organization, functional C^2 organization and the commander's critical information requirements (CCIR). CCIR comprises priority intelligence requirements, friendly forces information requirements and the essential elements of friendly information.[3]

Doctrinal Underpinnings

Transition has a different meaning at each level of war. The importance of transition from one level to another is implied. However, transition's doctrinal foundation is planning rather than C^2. At the strategic level, transition from one crisis response to another is addressed by the adaptive planning concept. *Adaptive planning* is the framework within which planners produce different operations plans useful to





Soldiers at a 28th Infantry Division *WARFIGHTER* exercise.

The key to effective C^2 operations during transition periods is the division CP. Today's division CP structure is designed to synchronize the close, deep and rear battles. Division C^2 organizations are configured to maintain flexibility, redundancy, reliability, survivability and mobility to sustain continuous combat operations.

high–level decision makers if crises develop.[4]

To deal effectively with crises, adaptive planning produces a range of options that are used to deter further escalation or diffuse a crisis. Flexible deterrent options are those military options that are intended to be used to support diplomatic, political and economic flexible deterrent options.[5] For example, the United States may deploy forces to a threatened host nation to conduct land exercises as a show of force to support a diplomatic deterrent option of international resolve.

At the operational level, the idea of transition is inherent in the application of operational art in developing campaigns and major operations. A campaign is "a series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space."[6] The idea of moving from one connected major operation to another implies transition C^2 activities. Primary activities at this level include identifying centers of gravity, defining operational objectives to accomplish strategic aims, applying resources and ordering tactical events.

Joint Publication 3.0, *Doctrine for Joint Operations*, discusses transition as part of phasing. A phase represents a period in which a large portion of the force is involved in similar activities. Transition to another phase indicates a shift of emphasis. Planning operations require commanders to establish conditions for transitioning from one phase to another.[7]

Division C^2 doctrine addresses transition operations at the tactical level. FM 71–100–2, *Infantry Division Operations—Tactics, Techniques and Procedures*, emphasizes the importance of transition operations planning. The division plans element's primary role is to focus on future operations by developing plans and coordinating, integrating and synchronizing them with current operations to allow smooth transition from current to future operations.[8] Basically, the division manages transition by planning branches and sequels to current operations.

The importance of effective C^2 during transition has been evident in many recent military operations—from Operation *Just Cause* to Operation *Uphold Democracy*. Especially noteworthy has been the rapid transition from one type of operation to another and the various C^2 structures used to plan and execute operations. For example, primary C^2 responsibilities under US Southern Command during the period prior to Operation *Just Cause* was shouldered by US Army South, which made up the core of JTF *Panama*. Primary missions included security and show of force

Changes to strategic objectives that demand a different operational focus invoke changes in operational and tactical activities. These changes may affect task organization, functional C^2 organization and the CCIR.

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operations. During *Just Cause*, the XVIII Airborne Corps headquarters had warfighting C^2 responsibility as JTF *South*. Following hostilities, postconflict operations reverted to the ad hoc Military Support Group under JTF *Panama*, which mainly consisted of US Army South's headquarters. Its mission was to help other US government agencies rebuild Panama's government infrastructure.[9]

In wartime, divisions and corps may not be pivotal to transition operations because of their focus on tactical operations. Rather, different echelons above corps may be primarily focused on transition operations like those that occurred during Operations *Desert Shield* and *Desert Storm*. The enormity of the Persian Gulf campaign required the C^2 capability of several organizations to manage transition to different operations as operational and strategic objectives changed. Major C^2 players besides US Central Command included Task Force *Freedom* as well as the coalition humanitarian assistance effort in Operation *Provide Comfort*.[10]

As the Army downsizes, the luxury to apply different C^2 headquarters to execute diverse operations lessens. During relatively short–term crises, a single C^2 headquarters element may have to plan for and execute myriad operations to accomplish strategic and operational objectives.

Division C^2 Capability

The utility of a division command post (CP) for C^2 was clearly demonstrated by the 10th Mountain Division (Light). During Operation *Restore Hope*, the 10th Mountain Division (Light) served as an Army Forces (ARFOR) headquarters and planned and executed joint and combined peace enforcement operations to secure humanitarian relief efforts.[11]

The key to effective C^2 operations during transition periods is the division CP. Today's division CP structure is designed to synchronize the close, deep and rear battles. Division C^2 organizations are configured to maintain flexibility, redundancy, reliability, survivability and mobility to sustain continuous combat operations.[12]

Doctrinally, the division was designed to have a strong C^2 capability. It has one Main CP. However, the division is capable of resourcing the Tactical (TAC) CP, Rear CP and Assault CP as extensions of the Main CP. These extensions focus on specific operations areas. The TAC CP focuses on the close operation, while the Rear CP controls rear operations. The Assault CP provides C^2 for contingency operations until the Main CP is established. Additionally, the aviation brigade and division artillery (DIVARTY) headquarters are structured and equipped to perform large–scale C^2 functions.[13] Assuming the division is not fully committed to wartime missions that involve deep, close and rear operations, it conceptually has the capability to command and control five or more related but distinct operations.

A CP's primary function in combat is to provide information, make estimates, present recommendations for decisions, prepare plans and orders and supervise and monitor the execution of decisions.[14] The primary division CP during war synchronizes, integrates and coordinates the basic functions of operations, planning, intelligence, Army Airspace Command and Control (A2C2), fire support and communications.[15] Designed for war, these primary CP functions are also applicable to OOTW.

The division's CP structure is suited for transition C^2. Its structure generally remains the same, even while transitioning to different operation types. However, the CP's functions change to meet operational requirements that may demand different categories of expertise, including the functional expertise to make estimates and prepare plans and orders.

Transition may occur quickly and unexpectedly from one operational extreme to another. For example, a change from combat operations to noncombat operations may cause predominant wartime functions to shift. The CP may become preoccupied with such activities as identifying and monitoring political, social and economic factors; redeploying combat forces; coordinating with UN peacekeeping forces; developing new rules of engagement; providing support to other US agencies; receiving noncombat nation assistance forces; coordinating civil affairs actions; and planning and executing security operations.

Another role shift may be from a tactical force under a corps headquarters to an ARFOR headquarters under a JTF. This shift may require reorganization of CP functions as well as the augmentation of

communication, intelligence, logistics and additional liaison assets. Most significant would be the division headquarters shift to a theater focus.

The key to successful C^2 during transition is ensuring that CP functions are sufficient to address changing operational focus. Thus, as force tailoring is essential to address different missions, so is the tailoring of CP functions. The division CP must be augmented as the operational focus changes, but that does not mean a wholesale change of functions as the operational focus changes. Rather, it is the gradual adjustment of functions to meet new operational requirements.

There are numerous C^2 functions that may be required to respond to different and evolving missions and taskings. During contingency operations characterized by strikes and raids, many division C^2 functions would be similar to wartime. As hostilities terminate, requirements for other C^2 functions will emerge that force the division CP to transition to plan and execute humanitarian missions. Task organization may change by the addition of more medical and engineering units. Civil affairs and psychological operations forces may be added, thus increasing the need for a Special Operations C^2 Element (SOCCE) for coordination. Traditional functions such as A2C2 may remain. The division Rear CP may plan and execute the redeployment of unneeded forces. If division forces are committed to "mop up" operations, the division TAC CP will focus its C^2 efforts here. The division Main CP may be focused on planning and executing the "hand–off" of a current operation to an international peacekeeping force.

As hostilities subside, more US government, host nation and international agencies may become involved in postconflict operations. Liaison operations as a C^2 function become vital to unity of effort between the division and the other agencies.

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Future Division C^2 Requirements

Future crises will require unique military responses to support national security interests. Most likely, the nature of these responses will be part of a joint or combined operation conducting simultaneous combat and noncombat tasks. Deploying TFs may consist of specifically tailored troop packages. Additionally, there may be very close working relationships with other US government and international agencies. The division can provide a versatile C^2 capability tailored to the mission, the key to conducting specific operations in different environments. A versatile C^2 capability ensures the smooth transition from one operation to another.

The Army, with its 12 active divisions, provides a strategic response by virtue of its enormous C^2 capability. The primary focus of division C^2 is to fight the division during war. Doctrinal changes to identify the appropriate division C^2 functions required to successfully accomplish OOTW missions will greatly enhance the Army's strategic value. ***MR***

NOTES

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9. Based on personal observations while assigned to US Army South, 1985 to 1989; and while leading a Combined Arms Command team to Panama in August 1990 to study the Military Support Group, Panama, as a possible model for future nation assistance organizations.
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11. MG S. L. Arnold, "Somalia: An Operation Other Than War," *Military Review* (December 1993), 27 and 34.
12. US Army Field Manual (FM) 71–100, *Division Operations* (Washington, DC: GPO, 1990), 3–3.
13. FM 71–100–2, 2–4.
14. Ibid., 2–1 to 2–2.
15. Ibid., 2–38, 2–54.

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Measuring Mission Success

Major Michael P. Barbero, US Army, and
Captain Dominic J. Caraccilo, US Army

"Direct every military operation toward a clearly defined, decisive and attainable objective."
—US Army Field Manual (FM) 100–5, *Operations*

CONTINUING ITS DISCUSSION of *objective* as a principle of war, FM 100–5 states, "The ultimate military purpose of war is the destruction of the enemy's armed forces and will to fight. The ultimate *objectives* of operations other than war [OOTW] might be more difficult to define; nonetheless, they too must be clear from the beginning. The linkage, therefore, between *objectives* at all levels of war is crucial; each operation must contribute to the ultimate strategic aim."[1]

The US military historically does a competent job of defining goals and objectives through mission statements and the commander's intent. However, often lacking—especially at the strategic level, where the National Command Authority (NCA) dictates policy in very broad terms—are clearly defined and measurable criteria that determine the degree of success in attaining each goal or objective.

To analyze the problem of defining goals, objectives and criteria, we must first understand the above terms' interrelationships and how they fit into a system. A *system* is a group of elements working together for a specified purpose.[2] All systems have purposeful actions and present a choice of means, ends or both. Obtaining this common language, we begin to understand how the military as a system operates when defining missions.

Goals, Objectives and Criteria Relationships

The first system discussed is the US military and its role in war. As stated above, this system's purpose is destroying the enemy's armed forces and their will to fight. This purpose should have a direct link to specific goals and objectives. One can normally determine these goals and objectives from the unit mission statement, which defines the goal derived from the higher headquarters' requirements. The commander's intent translates this goal into more definitive objectives that will facilitate the prescription of measurable criteria. But how does one know when a goal and its objectives are correctly defined? This question is easily answered if there are defined criteria or performance measures that gauge how well the objective is being met. But does the existence of clearly definable criteria indicate that the objective is definitive enough?

One way to develop definable objectives and follow–on criteria is by using the simple input–output (I–O) model illustrated in Figure 1. This model's development allows one to define the intended outputs and their byproducts by clarifying controllable and uncontrollable inputs. Controllable inputs are those items needed to start the process from which the outputs can be achieved.[3] Uncontrollable inputs include those environmental characteristics or tangibles that are available or which influence the system's performance.[4] If the I–O model has been properly constructed and adequately reviewed during the planning process, the establishment of *formal* criteria becomes straightforward.[5]

Another method of developing definable objectives and associated explicit criteria is to use goals and objectives trees. Goals or mission statements are important aspects of military decision making, and *goal* development is the most critical aspect of defining the soldiers' expectations. However, there is a tendency to define a mission in too specific terms and in an ad hoc manner without researching and generalizing what we propose to do. The higher the organizational level, the more general or broad the goal becomes, since it must encompass the more specific objectives at lower levels. We can depict the different goals in what is termed an objective tree. This tree is nothing more than a visual representation of the system's goals and objectives structured into an easily understood, identifiable hierarchy.

For example, one of the current NCA goals is "to restore democracy in the country of Haiti." This directed *goal (effective need)* is broad and general in nature. The NCA subsystems' missions will help define the more specific goals and objectives that will assist in supporting this broad effective need. Many agencies, including the US military, will support these lower–level goals and objectives. US military goals that support this need are to:

- Ease Haiti's military from power.[6]
- Assist in restoring President Jean–Bertrand Aristide's regime.
- Help provide security to the transitioning government.

The military's goals that support the NCA goal should be broad and general in nature. However, a government and its military often will move quickly into a project and move toward apparent success, then meet with eventual failure because the assumed need disappeared or changed greatly in the light of reality, such as US operations in Somalia.[7] All too often in the military, missions change without concern for the initial effective need and subsequent goals that the criteria for success were built upon.

In a 31 August 1994 interview, Chairman of the Joint Chiefs of Staff General John M. Shalikashvili stated, "Deciding whether to enter an all–out war is easier than figuring out how to help in places like Rwanda, Bosnia or Somalia. One basic rule: Set *goals* and stick to them."[8]

Sticking to established goals has been a recent problem for US forces. The idea of "mission creep" has forced the military to change goals in midstream without the apparent change of applicable objectives and criteria. A recent example was in Somalia, where a humanitarian mission reverted to a foray in urban warfare in October 1993. The idea of clearly stating goals and sticking to them should have been an absolute imperative. To avoid mission creep in the future, it is important to clearly identify criteria that measure the degree of success in attaining stated goals and objectives. This process is even more crucial at the strategic level, where national security interests, goals and objectives are the framework for deciding on military intervention.

Keeping this in mind, if the nation's effective need is to "restore democracy to Haiti," we can begin to develop our goals and objectives using an objectives tree. The tree serves three major purposes by clearly communicating *what we intend to accomplish* with the mission; helping guide the creation of *criteria* that will be used to evaluate and compose courses of action; and sparking the ideation of *activities* used to create courses of action.[9] Figure 2 is an example of a possible objectives tree for the Haiti mission.

Objectives and Criteria

When addressing the success of objectives, it is imperative to discuss the issue of criteria. Being precise in what we say when issuing orders or mission statements is absolutely essential, especially for US forces. However, do most decision makers actually go through a painstaking methodology of defining criteria that measure attainment of the goals and objectives supporting the mission? FM 100–5 states that in OOTW, defining clear objectives may be difficult. Nonetheless, it is absolutely essential. Does the ambiguity of OOTW stem from ill–defined objectives or from our inability to prescribe criteria that will measure success in attaining the objectives?

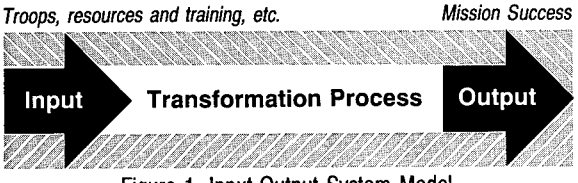

Figure 1. Input-Output System Model


US soldiers in Macedonia discuss maneuvers to counter a simulated sniper attack during Operation *Able Sentry*.

Two simple rules must be met in determining criteria that clearly gauge success in meeting an objective. First, criteria must be measurable. . . . [Second] each objective [must be] measured by only one criterion. There must be a one–to–one relationship between criteria and the objectives they measure.

Two simple rules must be met in determining criteria that clearly gauge success in meeting an objective. First, criteria must be measurable. Does the criterion sufficiently describe the level of success in attaining the objective? For example, if the objective is "to maximize the number of refugees fed in the camps along the Rwanda–Zaire border," a criterion that measures this objective may be "the number of refugees fed a recommended daily allowance in a 24–hour day."

In this example, we might attempt to measure the same objective with the criterion "tons of food distributed per day to refugees." Does this criterion accurately measure the degree of success in meeting the stated objective? The amount of food distributed does not directly measure the number of refugees fed. We may want to first determine the number of refugees in each camp and measure the success in attaining the objective by measuring the percentage

Goals or mission statements are important aspects of military decision making, and* goal *development is the most critical aspect of defining the soldiers' expectations. However, there is a tendency to define a mission in too specific terms and in an ad hoc manner without researching and generalizing what we propose to do. The higher the organizational level, the more general or broad the goal becomes, since it must encompass the more specific objectives at lower levels.

of refugees per camp that are fed on a periodic basis.

The other rule criteria must follow is that each objective is measured by only one criterion. There must be a one–to–one relationship between criteria and the objectives they measure. By following these two rules, decision makers can ensure objectives are clearly defined and can measure how successfully they are attained by using clearly identifiable criteria.

An example of this concept might be a military unit's mission "to parachute assault into Panama in 18 hours or less and to seize the airfield not later than [NLT] 1400." The objectives supporting this goal may be "to minimize the time it takes to parachute assault into Panama" and "to minimize the time it takes to seize the airfield." Respectively, the objective's measurable criteria could be "the time [in hours] it takes to deploy to Panama" and "the time [in hours] it takes to seize the airfield."

It is also important to define the units of measure when describing the criteria that measure the objectives. By doing so, we define a benchmark to measure our success. For instance, if we fail to deploy to Panama in 18 hours or fail to seize the airfield NLT 1400, we have clearly identified what benchmarks need to be reached to succeed, and if those marks are not reached, we are unsuccessful.

Given the aforementioned criteria, we must then ask ourselves, "Are we being specific enough?" For instance, if the unit seizes the airfield in 17 hours but sustains a 50–percent casualty rate, is the mission successful? Again, have we defined a criterion that will measure attainment of our objective? By identifying the units of measure, have we clearly identified a benchmark for success?

To ensure we are identifying this benchmark, the decision maker must break the objectives and their associated criteria down to a level that accurately defines the measures of success. In this case, the time it takes to seize the airfield is not by itself sufficient for defining success. We would then associate the criterion "percent of the unit that remains combat effective" to measure this additional objective.

Using the three objectives and related criteria, we have now sufficiently defined the benchmarks that will accurately measure the degree of success for attaining the goal "to parachute assault into Panama in 18 hours or less and seize the airfield NLT 1400."

Referring back to the objectives tree, we can measure success by "maximizing the disarmament of General Raul Cedra's supporters" with the criterion "the number of organized elements he has remaining under his control." The objective "to minimize US casualties" can be measured by the criterion "the number of US soldiers injured by hostile fire or by other means." "The number of military engagements between the two factions in Haiti" will measure the objective "to minimize the violence between the two factions," and "the vulnerability of Aristide as a leader or his perceived risk while in power" can be the measurable criterion for the objective "to maximize the protection of Aristide."

The two remaining objectives in the tree, "to maximize host nation support of the US military" and "to maximize control of the country's infrastructure," are more difficult to measure. Therefore, we should define more specific objectives that support each of these goals and then attempt to define measurable criteria for each new lower–level objective. We must now ensure that there is a method for measuring each criterion and set some acceptable constraints benchmarking our success.

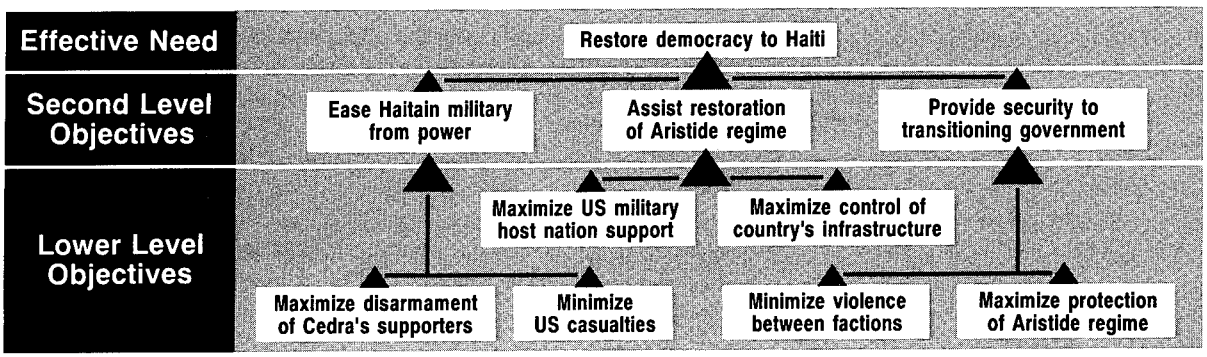

Figure 2. Objectives Tree

A peacetime example of the relationships between objectives and criteria is the issue of *quality of life* at every military post. Commanders at every level know of its importance, but is the objective of "maximizing the quality of our military members' lives" ever actually measured? A 19 September 1994 *Army Times* headline, "The Army Cares About Families; But Does Anyone Believe It," depicts a lack of measurable criteria—or more important, the military families' perceived lack of criteria derived by those who make the decisions about the Army's quality of life program.

If criteria present the means by which a system's performance is assessed, what is the measurement for how well the quality of life program is performing?[10] There are numerous lower–level objectives and criteria that need to be identified. For instance, one of the many subobjectives for "maximizing the quality of life" may be "maximizing housing quality." A criterion that may help us clarify how housing quality is measured may be the response time of maintenance crews (in hours per emergency work order) and availability of housing from time of request to time of move in (days average waiting time). The question becomes, "When measuring these objectives, does anyone at the decision–making level actually synthesize this information into a report that helps identify and convey the criteria used to define how well the Army is meeting the quality of life challenge?"[11] Clearly, this is an issue that warrants considerable thought.

The Bottom Line

We must be definitive in determining which goals, objectives and criteria are used when the country wages war, keeps peace, assists humanitarily or simply does not participate militarily and attempts to resolve a conflict through diplomacy.

A peacetime example of the relationships between objectives and criteria is the issue of* quality of life *at every military post. Commanders at every level know of its importance, but is the objective of "maximizing the quality of our military members' lives" ever actually measured? [An]* Army Times *headline, "The Army Cares About Families; But Does Anyone Believe It," depicts a lack of measurable criteria—or more important, the military families' perceived lack of criteria derived by those who make the decisions.

Unfortunately, deciding on what action to take before we define the effective need leads decision makers to use preconceived solutions. These alternatives are choices that we have learned to template for any given situation. But by putting the proverbial cart before the horse, we never capture the *goals* and *objectives* and therefore attempt to resolve a problem that has never been clearly defined.

There is no question that clearly defining goals and objectives is vital to the US Army's success. Our doctrine dictates the use of such terms. In FM 100–5, there are 33 subheadings under the word *objective* and 12 additional headings for related topics. This reference shows that the word *objective* is an important expression in US Army doctrine. However, FM 100–5 does not discuss the need for measures of success in attempting to complete these goals or objectives. This void can result in never reaching the actual goals, not knowing when the goals set forth by our leaders have been met and lack of a proper hierarchy of definable objectives and criteria, leaving soldiers at all levels searching for success. ***MR***

NOTES

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2. "Course Notes: Introduction to Systems Design" (West Point, NY: Fall 1994), 2–4.
3. W. L. Chapman, A. T. Bahill and A. W. Wymore, *Engineering Modeling and Design* (Boca Raton, FL: CRC Press, 1992), 21.
4. Ibid.
5. Benjamin Ostrofsky, *Design, Planning and Development Methodology* (Englewood Cliffs, NJ: Prentice–Hall, Inc., 1977), 80.
6. CNN report, 19 September 1994.
7. Ostrofsky, 33.
8. Interview with Chairman of the Joint Chiefs of Staff General John M. Shalikashvili, *USA Today* (31 August 1994), 11A.
9. Conversation with LTC James E. Armstrong Jr., associate professor, Department of Systems Engineering, US Military Academy, West Point, NY (20 September 1994).
10. Ostrofsky, 80.
11. The Operations Research Center, Department of Systems Engineering, US Military Academy, is developing an Installation Status Report that will provide such criteria.

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BATTLEFIELD DYNAMICS

Evolving battlefield dynamics will allow US forces to operate as an integrated joint, combined or coalition partner with the ability to dominate any battlespace, region or situation. Full–dimensional operations—which include early entry, battlespace, depth and simultaneous attack, battle command and combat service support—deliver quick, definitive results. To achieve decisive victory and dominate their battlespace, commanders at all echelons must apply available combat power. Future battlefields will be characterized by fast–moving forces with unprecedented lethality. Real–time information will enable commanders to develop intelligence and synchronize force employment and weapon systems to destroy the enemy's capability to wage war. Improved sensors will find, identify and accurately locate targets in depth. Increasingly lethal weapons will engage, overwhelm and destroy enemy forces in all types of weather and terrain. To succeed, battlespace domination requires an innovative and imaginative approach to warfighting skills and doctrine development commensurate with the Army's Force XXI objectives. Battlefield insights that lead to clearly defined requirements must include doctrine, training, organization, materiel and soldier systems. This section's articles address several key issues and offer suggestions for further discussion on warfighting concepts, lessons learned and potential vulnerabilities.

THE DIVISION COVERING FORCE

Captain Howard E. Arey, US Army

DIVISIONS MUST BE prepared to conduct their own covering force operations. Elimination of the 11th Armored Cavalry Regiment (ACR) and the transformation of the 2d ACR to a new light ACR design means that corps operations may be conducted either without a covering force or with an entire division as the covering force. The corps may even forego use of the ACR covering force. As an example, XVIII Airborne Corps executed its attack in Operation *Desert Storm* with the 3d ACR and 24th Infantry Division (ID) (Mechanized) abreast. Either option means that the only element between the enemy and the division main battle area (MBA) is the division covering force.

The division cavalry squadron has not been used alone in a covering force role for good reason—the squadron simply did not have sufficient combat power with its 40 M3 Bradley Cavalry Fighting Vehicles to accomplish the mission. US Army Field Manual (FM) 17–95, *Cavalry Operations,* clearly states that the squadron would have to be augmented to operate in the covering force role. However, times have changed. The addition of tanks and a third ground troop to the cavalry organization gives it a total of 27 M1A1 tanks, 38 M3 Bradleys, 12 OH–58C observation helicopters and eight AH–1 Cobra attack helicopters. This new cavalry organization gives the division commander a very powerful and flexible nucleus around which to build the covering force.

The Mission

The covering force configuration will be determined by two issues: the division commander's intent of how the covering force will direct the enemy to the MBA and the enemy situation. The covering force mission statement from the 1st ID's (Mechanized) last Battle Command Training Program (BCTP) *WARFIGHTER* exercise provides guidance for one possible mission:

- Deceive the enemy as to the MBA location.
- Defeat first–echelon regiments of the first–echelon divisions.
- Force second–echelon regiment deployment.

> Using one of the division's two active duty mechanized brigades as the covering force means planners have assumed that a third mechanized brigade has been attached. . . . This is a very dangerous assumption. *Desert Storm* activations and train–ups of several Army National Guard roundout brigades showed that these units are often not ready for immediate deployment with their parent units. . . . Employing [a] cavalry squadron as the basis of the covering force allows the commander to retain the required forces for the MBA fight.

The Enemy

The enemy unit portrayed for comparison purposes is a combined arms army (CAA) consisting of two motorized rifle divisions (MRDs) and one tank division (TD). Artillery from the army artillery brigade will be organized into division artillery groups. It could also include an independent tank regiment. The army will attack with the two MRDs abreast and the TD in the second echelon. The major units in the MRD include three motorized rifle regiments (MRRs) with BMP infantry combat vehicles, BTR armored personnel carriers (or a mix of both), one tank regiment (T–64), one artillery regiment (all self–propelled, 2S1 and 2S3), one reconnaissance battalion and one helicopter squadron (six Mi–24 Hinds, six Mi–8 Hips and six Mi–2 Hoplites).

VII Corps Bradleys take up position along the first border berm between Saudi Arabia and Iraq, February 1991.

The cavalry covering force's ability to destroy numerically superior forces lies in its mobility advantage. The covering force will have to operate over a wide division frontage of 18 to 30 km, requiring the squadron to delay from successive positions or phase lines. The mission will be planned like a defense in sector, using a combination of troop sectors and battle positions to ensure the cavalry commander has both the ability to execute a mobile defense and adequate control measures to mass all fires in squadron–level EAs.

The first–echelon regiments the covering force will face will include four MRRs (each with three motorized rifle battalions and a tank battalion attacking on one or two march routes); two reconnaissance battalions—one per MRD, up to 50 kilometers (km) in front of the main body; four reconnaissance companies—one per MRR, 25 km in front of the main body; and four regimental artillery groups (RAGs) (two to four battalions of 2S1 each; for comparison purposes, will assume three battalions per RAG). The first–echelon regiments, artillery and the tank division are graphically depicted in Figure 1.

Clearly, this mission cannot be performed by the division cavalry squadron without augmentation. Thus, arguments have been made for assigning the covering force mission to a mechanized brigade instead of organizing the appropriate forces under cavalry control.

Cavalry Squadron or Mechanized Brigade?

Using one of the division's two active duty mechanized brigades as the covering force means planners have assumed that a third mechanized brigade has been attached to the division. This is a very dangerous assumption. *Desert Storm* activations and train–ups of several Army National Guard roundout brigades showed that these units are often not ready for immediate deployment with their parent units. Another option is to deploy an active duty light infantry brigade as the division's third brigade. Unfortunately, this leaves the division commander with only three to five mechanized task forces in the MBA to maneuver against the enemy, whose strength (if the covering force has completed its mission) is approximately eight regiments. This also eliminates any possibility of forming a reserve force, unless the covering force completes its mission unscathed and returns to perform this mission. Employing the cavalry squadron as the basis of the covering force allows the commander to retain the required forces for the MBA fight.

The organization. As stated earlier, the pure division cavalry squadron lacks the combat power

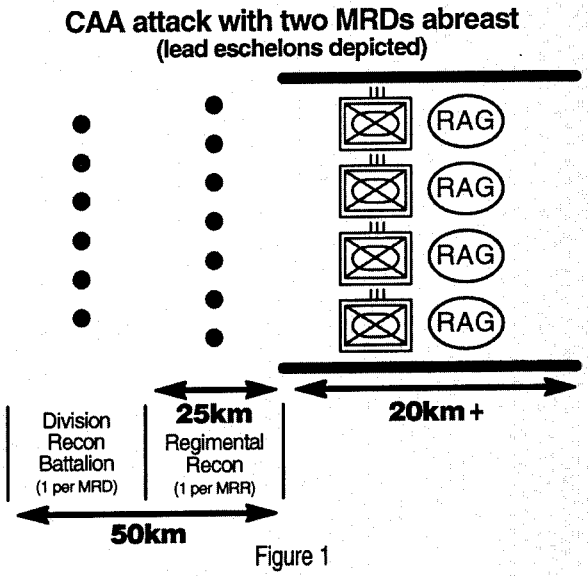
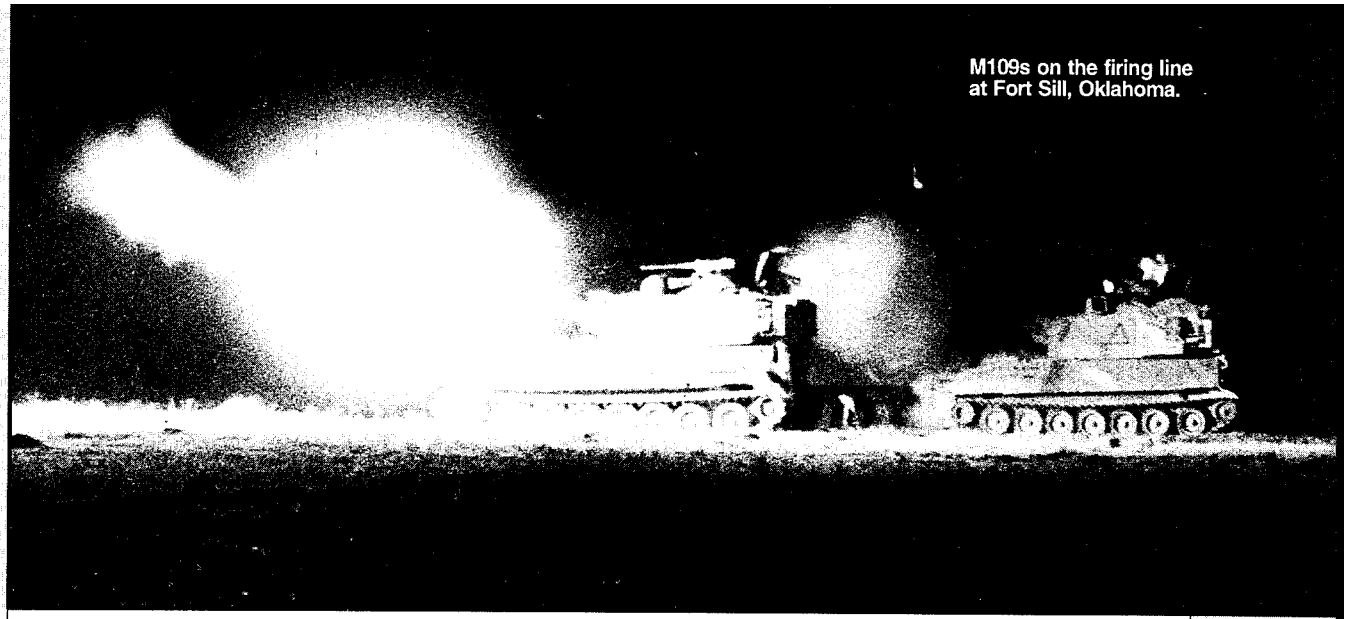


Figure 1



M109s on the firing line at Fort Sill, Oklahoma.

Fire support must be part of the covering force organization. The force will operate far from the MBA, preventing effective fire support from the rear. An M109 howitzer battalion brings the mobility and firepower required by the covering force.

required to defeat the lead regiments and division/regiment reconnaissance units. A proposed organization for a cavalry–based covering force follows:

- Cavalry squadron (three ground troops, two air troops)
- M1A1 tank company
- AH–64 attack helicopter company (operational control [OPCON])
- Air defense artillery (ADA) battery (+)
- Engineer company
- Intelligence, electronic warfare (EW) company team (direct support [DS])
- Intelligence, EW support element
- M109 howitzer battalion (DS)
- Multiple launch rocket system (MLRS) battery (reinforcing DS howitzer battalion)
- Forward logistics element (DS)

These units were selected as the minimum force needed to fight in the covering force area (CFA) because they have the mobility and combat power to defeat a much larger force.

The following values were extracted from US Army Command and General Staff College (USA-CGSC) Student Text (ST) 100–9, *Historical Planning Ratios*, Table 3–1 "U.S. vs. Soviet Combat Unit Comparison Values." It is important to note that the values are subjective. The base unit for comparison is the BTR battalion (value equals 1.0). Figure 2 depicts the relative strengths of US and Russian forces.

ST 100–9 indicates that a maximum ratio of 6:1 is needed to execute a delay mission. The conclusion is that a properly organized covering force can successfully execute delays.

Fighting the security zone battle. The cavalry covering force's ability to destroy numerically superior forces lies in its mobility advantage. The covering force will have to operate over a wide division frontage of 18 to 30 km, requiring the squadron to delay from successive positions or phase lines. The mission will be planned like a defense in sector, using a combination of troop sectors and battle positions (BPs) to ensure the cavalry commander has both the ability to execute a mobile defense and adequate control measures to mass all fires in squadron–level

Motorized Rifle Division First–Echelon Regiments (four total)	Combat Power	Battalions (bn)	Total
Reconnaissance bn (1 per MRD)	1.6	2	3.2
BMP bn	1.5	12	18.0
T–64 bn	1.8	4	7.2
Regimental artillery group	2.0	12	24.0
			52.4
Covering Force			
Division cavalry squadron * (3 ground troops, 2 air troops)	3.0	1	3.0
DS artillery bn (155mm)	2.0	1	2.0
MLRS battery (btry)	2.0	1 btry	2.0
AH–64 company (co) **	1.35	1 co	1.35
M1A1 tank co***	0.79	1 co	0.79
			9.14

Ratio of first–echelon regiments to covering force equals 52.5/9.14, or 5.74:1.

* Value for heavy division cavalry squadron before addition of tanks or a third ground troop was 2.0. The assigned value is subjective determination of power, based on additional assets and comparison with other battalion–size values.
** Value of AH–64 battalion (three companies) equals 4.0.
*** Value of M1A1 battalion (four companies) equals 3.15.

Figure 2

MI assets are combat multipliers that will allow the cavalry commander to focus his combat power on the enemy forces. One ground surveillance radar squad with four teams will provide the early warning needed to move friendly forces. A collection and jamming platoon will hinder the enemy's ability to command and communicate as it enters the squadron–level engagement areas.

engagement areas (EAs). Multiple BPs for both the attached tank company and an AH–64 company, under the operational control of the cavalry commander, will allow maximum flexibility in executing the defense. The mission to destroy more than 15 first–echelon battalions requires that the covering force sector be deep enough to allow the squadron to maneuver forces and avoid decisive engagement. Figure 3 depicts CFA operations. It shows only two EAs, though an actual area of operations may have multiple EAs planned.

The wide division frontage and required depth in sector greatly increase the covering force's combat support requirements. Fire support must be part of the covering force organization. The force will operate far from the MBA, preventing effective fire support from the rear. An M109 howitzer battalion brings the mobility and firepower required by the covering force. An MLRS battery positioned in the rear of the CFA can shoot reinforcing fires for the howitzer battalion and provide fire support if the entire self–propelled artillery battalion must move. The MLRS battery's position in the rear allows it to be quickly passed into the MBA to support that fight.

Engineer support is critical to the mission's success. The cavalry commander will use countermobility obstacles to channel the enemy into the squadron–level EAs. Survivability positions are especially critical for the tank company as it moves into BPs around the most likely EAs. The engineer restructuring initiative allows the division commander to better distribute his engineer assets. In all likelihood, the greatest need for survivability positions will be in the MBA, since the covering force's best defense will be its mobility. An engineer company can generally emplace the limited obstacles needed to support the covering force scheme of maneuver. However, exact requirements will be determined by the depth of the sector and the division commander's maneuver scheme for the MBA.

ADA requirements are also affected by the wide frontage and the mobile defense. Not only does the MRD have its own squadron with a limited number of attack helicopters, the CAA has an attack helicopter regiment. This means the cavalry commander may face up to 60 Hinds and Hips in his sector.

The normal battery organization of two Vulcan platoons and one Stinger section does not provide enough protection for the covering force. An ADA battery (+) consisting of three Vulcan platoons and two Stinger sections can protect each cavalry troop and the forward–positioned artillery. Protecting the AH–64 forward assembly area (FAA) is also important, because the Apaches may need to be quickly integrated back into the division commander's MBA fight. The division must meet the needs of both the

Division cavalry covering force in the CFA

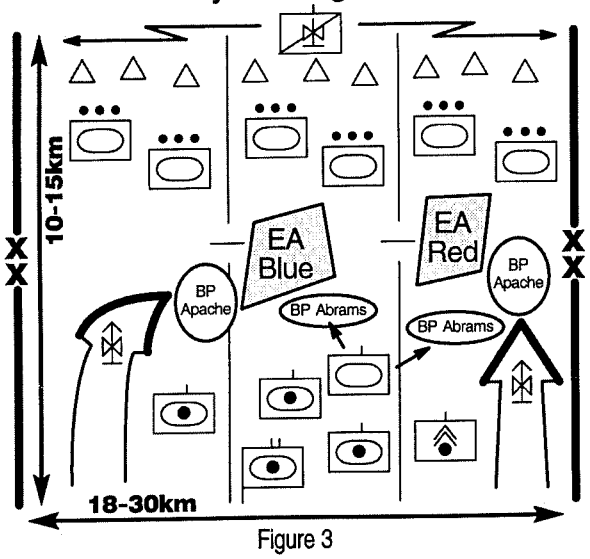


Figure 3

Covering force CSS

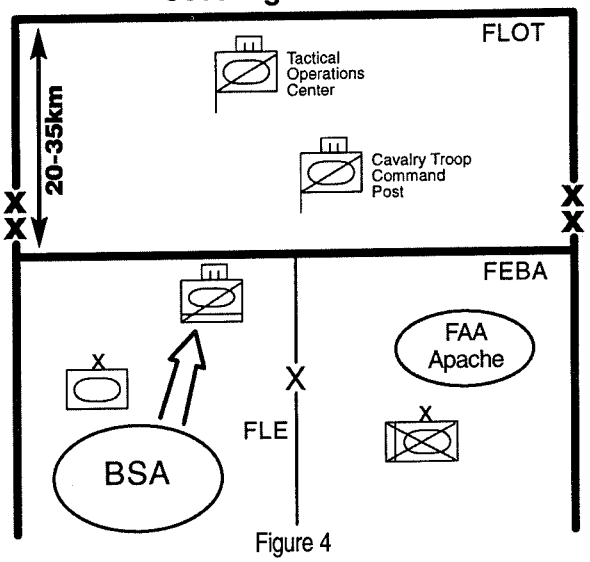


Figure 4

MBA and the covering force. The Vulcan platoon taken away from the ADA battery supporting one of the mechanized brigades can be replaced by Avenger systems from the ADA battalion's Delta battery since the brigade will be in defensive positions. The more maneuverable and protected Vulcans will be forward with the moving cavalry force, while the high mobility multipurpose wheeled vehicle–mounted Avengers can be placed in survivability positions in the MBA. This organization will be more robust when the ADA community replaces the Vulcans with ADA M2 Bradleys on a one–for–one basis.

Military intelligence (MI) assets are combat multipliers that will allow the cavalry commander to focus his combat power on the enemy forces. One ground surveillance radar squad with four teams will provide the early warning needed to move friendly forces. A collection and jamming platoon will hinder the enemy's ability to command and communicate as it enters the squadron–level engagement areas. The division's Quickfix platoon can be positioned in a reinforcing role to help support the collection and jamming platoon. The Quickfix platoon becomes even more crucial if the division commander decides to retain all EW assets in the MBA.

It is important to note that both the ADA and MI battalions are structured to support a division with three mechanized brigades. If the division deploys without its roundout brigade, task organization of MI and ADA assets to the cavalry squadron is easier. Deploying the third brigade, however, requires that the limited assets be redistributed according to mission, enemy, troops, terrain and weather, and time available, meaning that the brigade defending the enemy's least likely avenue of approach could have its support significantly reduced. In any case, it is critical that the covering force receive the proper forces to fight its battle. Unfortunately, the division will only have two active duty engineer battalions, one of which will have to cut back support to a defending brigade to provide the minimum required support to the covering force.

Combat service support (CSS) requirements will be increased due to the long distance between the brigade support areas and the CFA. Internal assets will not be able to replenish the tremendous Class V expenditures. Pre–positioned caches will relieve some of the burden, but the key to defeating the enemy lies in the commander's maneuver ability. Enemy movement can quickly make the pre–position plan obsolete.

CSS requirements will be increased due to the long distance between the brigade support areas and the CFA. Internal assets will not be able to replenish the tremendous Class V expenditures. Pre–positioned caches will relieve some of the burden, but the key to defeating the enemy lies in the commander's maneuver ability. Enemy movement can quickly make the pre–position plan obsolete.

Large Class IV packages will also need to be moved forward. Since only one organic engineer company will be supporting the squadron, cavalry scouts will need to move barrier materiel forward on their Bradleys and troop transportation assets, unless reinforcing, nondivisional combat engineer elements are used to support the mission. External support will need to pre–position the materiel throughout the depth of the sector for the scouts as they prepare their obstacles.

A forward logistics element (FLE) from one of the forward support battalions (FSBs) in the MBA can provide the necessary support. The FLE's equipment will vary depending on the distance between the covering force and the main body and the time required to delay. Figure 4 shows how the FLE is deployed from an FSB. It also shows the FAA for the AH–64s supporting the covering force fight.

The division cavalry squadron is the optimum base force for the division defensive covering force mission. The addition of a third ground troop and M1A1 tanks gives it sufficient combat power to defeat larger forces. Proper task organization and support will allow the division commander to retain his mechanized brigades for the MBA fight. The task–organized covering force can also form a "division ready brigade" for emergency deployments, thus putting security and aviation assets in–theater early. The time has come to relook the cavalry and the covering force missions. ***MR***

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2D ACR AND FORCE PROJECTION

Lieutenant Colonel George F. Oliver III, US Army

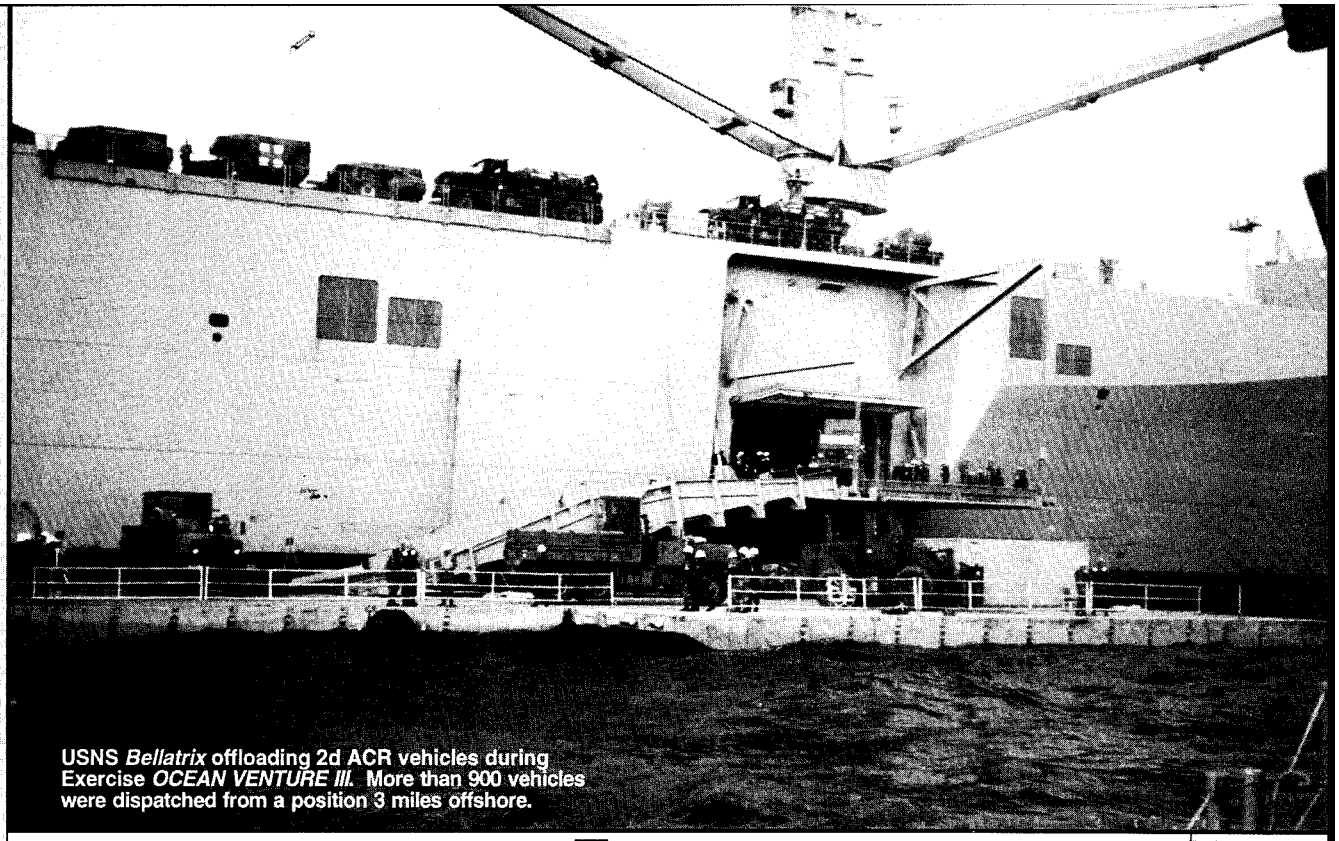
FOR OVER 150 years, the soldiers of the 2d Armored Cavalry Regiment (ACR) have forged their place in history. With 55 battle streamers to its credit, the 2d Dragoons is the longest continuously serving regiment in the US Army. Famous American warriors such as Zachary Taylor, Ulysses Grant, Theodore Roosevelt, John Pershing, George Patton and, most recently, General Frederick Franks have commended the 2d ACR for its devotion to duty and success in battle.[1] Now, with new challenges facing the Army and a changing doctrine oriented on deployment from the Continental United States (CONUS), the 2d ACR once again stands ready to respond to its nation's call.

With the winning of the Cold War and great success in the Gulf War, the Army found itself again faced with force reduction. Many US units in Europe were targeted for deactivation. After serving over 50 years defending US interests along the Iron Curtain, the 2d ACR found itself on the "hit list." However, when faced with deactivating a unit that had been on continuous active duty since 1836, Army Chief of Staff General Gordon R. Sullivan decided to reflag the 199th Separate Infantry Brigade at Fort Lewis, Washington, and reorganize it as a light armored cavalry regiment. Sullivan's stated mission guidance for the regiment was: "The Light ACR is to be an all–Army cavalry force—a combat multiplier in a strategic Army. As such, I feel we need a regiment which is deployable, versatile and lethal. . . . I want the 2d ACR to be the best 21st–century cavalry outfit in the world."[2]

With this decision and guidance, a series of actions began to create a force that truly represented Sullivan's vision for the Army of the future. In June 1992, the 66th colonel of the regiment, Colonel John Eberle, flew the 2d Dragoons' colors from Europe to Fort Lewis, and on 1 July, the 199th Separate Infantry Brigade was officially reflagged under the command of Colonel Thomas M. Molino. Using the 199th Brigade's equipment, the US Armor Center began designing a robust organization with all the combat, combat support and combat service support elements required by the light cavalry concept.

The visionary design for the 2d ACR required that it be fielded with the Army's new light tank—the Armored Gun System (AGS). The AGS, however, is still under development and will not be fielded until 2001. In the meantime, US Army Training and Doctrine Command (TRADOC), US Army Forces Command (FORSCOM) and the US Armor Center reacted with unprecedented speed in developing a table of organization and equipment (TOE) and a modification TOE (MTOE) in parallel so that the entire project was completed in less than six months. The light armored cavalry regiment is designed around the traditional heavy cavalry concept but uses the existing weapon systems of the newly reflagged 199th Infantry Brigade (Motorized). On 20 April 1993, all the regiment's organic battalions and separate companies were reflagged as squadrons and troops, and the regiment immediately began to reorganize.

In the midst of reorganizing, the regiment executed Operation *Cascade Cajun*, moving its home base from Fort Lewis, Washington, to Fort Polk, Louisiana. Included in this operation was the participation in Exercise *OCEAN VENTURE III*, in which more than two squadrons of equipment proved the regiment's deployability. At the Port of Tacoma, Washington, over 900 pieces of rolling stock were loaded aboard a Navy Fast Service Ship (FSS). After circumnavigating CONUS, the equipment was transferred to landing craft at sea. In approximately 72 hours, the entire ship's contents were brought across the beaches of Camp LeJeune, North Carolina. Although 2d ACR's participation was only a small part of the exercise, it clearly demonstrated the versatility of the light cavalry concept as it proved that even under extremely austere conditions, Army forces could deploy by sea.



USNS *Bellatrix* offloading 2d ACR vehicles during Exercise *OCEAN VENTURE III*. More than 900 vehicles were dispatched from a position 3 miles offshore.

The light cavalry concept is validated by its deployability. There are many units in the Army as maneuverable and lethal, yet no rapidly deployable force can match the 2d ACR's combat power.

Upon arrival at Fort Polk, the regiment came under the control of XVIII Airborne Corps, Fort Bragg, North Carolina. The Army's contingency corps now had a new means to project America's combat power—a unit that is deployable, mobile, versatile and lethal.

The 2d ACR gains these qualities from a robust mix of weapon systems. The regiment is totally high–mobility, multipurpose wheeled vehicle (HMMWV) and 5–ton pure. Until AGS fielding, the regiment's scout and antitank platoons will be equipped with the up–armored HMMWV. It is a very stable platform on which the regiment mounts a variety of weapon systems, including tube–launched, optically tracked, wire–guided missiles (TOWs), MK–19 40mm automatic grenade launchers, M2 .50–caliber machineguns, 120mm mortars and shoulder–fired air defense weapons. Fire support is provided by organic M198 155mm towed howitzers. Each squadron boasts 36 TOWs, 30 MK–19s, 30 .50–caliber machineguns, six 120mm mortars, six Avengers and eight 155mm howitzers.

The regiment was formed with three cavalry squadrons, a support squadron, an air defense battery, an engineer company, a military intelligence company and a chemical company, as illustrated in Figure 1. Additionally, an air cavalry squadron is part of the force design. The 4th Squadron, 17th Cavalry, was reflagged as the regimental aviation squadron in 1994, but retains its home at Fort Bragg, North Carolina.

The regiment's basic fighting force is the cavalry squadron. The squadron can conduct reconnaissance, counter–reconnaissance, security operations and limited offensive and defensive missions. All three squadrons are identical—with three cavalry troops, an antitank company and an artillery battery. When the squadron is filled out with its slice of air defense, engineer, chemical and military intelligence, it is a full–up combined arms task force fully capable of successfully accomplishing a multitude of missions.

Just as with the heavy ACR, the cavalry troop has two scout platoons and two overwatch platoons. The light cavalry squadron, however, does this with different mounts. The HMMWV is the mount of choice, with each scout platoon having 10 HMMWVs with a mix of MK–19s and .50–caliber machineguns. The overwatch platoons are armed with the highly effective TOW antitank missile, which can

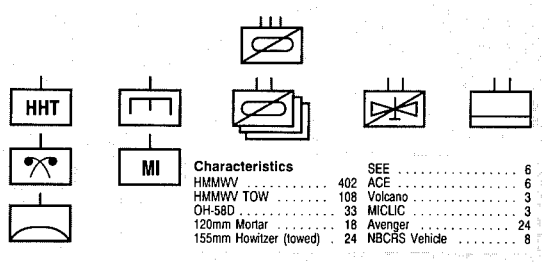
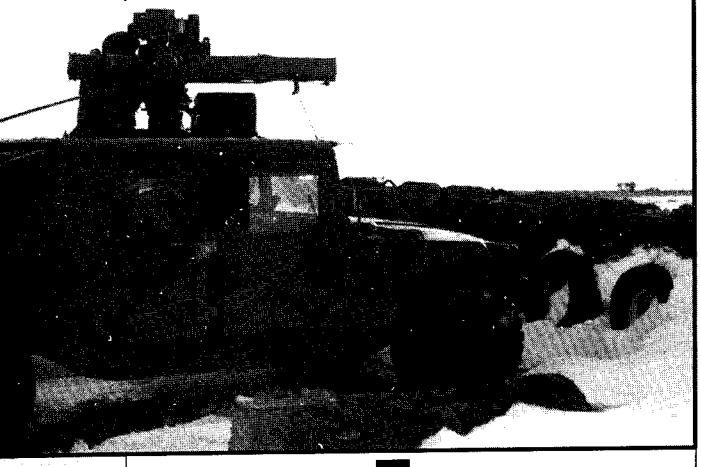


Figure 1. 2d Armored Cavalry Regiment

A TOW–mounted HMMWV during a combined arms live–fire exercise at the Yakima Multipurpose Range Complex, Washington. Until AGS fielding, the regiment's scout and antitank platoons will be equipped with the up–armored HMMWV.



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reach out 4,000 meters to kill the enemy. Finally, the troop has its own organic indirect–fire support, with a section of the Army's new 120mm mortars.

Such an organization allows troop commanders to search out the enemy and, if necessary, engage in close combat. Aerial scouts, coupled with the deceptively quiet scout vehicles, move out to locate the enemy, provide valuable intelligence or protect another friendly force. The HMMWV has proved extremely maneuverable in all types of terrain, and its 24–hour, all–weather capability is maximized through the use of AN/TAS–4A thermal sights, which are effective beyond 3,000 meters. To protect the scouts, the antitank platoons' TOWs are extremely effective against stationary and moving targets. Their optical sights are very sensitive and provide additional 24–hour, all–weather coverage of the battlefield. As the scouts locate the enemy, they quickly call for indirect fire from the troop's organic mortars, while continuing to conceal their locations. At the right time and place, all weapon systems are brought to bear, including the 155mm howitzers. Reconnaissance forces and even front–line infantry units are no match for the firepower that can be provided by one squadron, as depicted in Figure 2.

The light cavalry concept is validated by its deployability. There are many units in the Army as maneuverable and lethal, yet no rapidly deployable force can match the 2d ACR's combat power. An entire light armored cavalry squadron package can deploy in approximately 100 C–141 sorties, but the essential elements of combat power can deploy in fewer than 50 aircraft. The remainder of the regiment can either continue to deploy by air or embark on the Navy's new FSS vessels. With a speed of over 30 knots, the FSS can reach a contingency area in a matter of days.

Only five years ago, the United States held its breath as the 82d Airborne Division deployed to Saudi Arabia to stop Iraqi armored forces' aggression. For weeks, the United States had only a line drawn in the sand. Had Saddam Hussein decided to turn his forces south instead of defending the Kuwait border, the valiant 82d Airborne soldiers would have put up a good fight but were ill suited to counter a Republican Guard armored thrust. The dilemma facing the Army was that these paratroopers were the only forces which could respond within hours to a strategic "hot spot."

In every major speech by senior military leaders, the focus is on worldwide instability. Regional conflicts in the Middle East, Europe, Africa, Central and South America could potentially be the next battleground for US forces. As President Bill Clinton has pointed out on several occasions, the United States is not a world policeman, but it is a world leader with certain responsibilities. Thus, the US Army could be called to action on a moment's notice. This mission, coupled with the military drawdown, has caused the Army to revise its warfighting focus. The Army's keystone warfighting manual, US Army Field Manual (FM) 100–5, *Operations*, has been revised to project the Army's role into the 21st century. CONUS–based, strategic force projection has become the basis for Army doctrine.[3]

With the formation of the light cavalry regiment, the Army now has the means to rapidly deploy a force with overwhelming combat power. Additionally, a cavalry squadron has significantly more capability to counter the increasing threat posed by armored forces. Certainly, the best way to counter armor is with armor, but until the light tank is developed, the 2d ACR has the right mix of weapon systems to effectively counter selected armor threats.

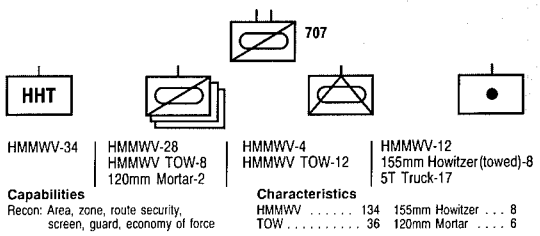

Figure 2. Armored Cavalry Squadron

Little imagination is needed to envision a conflict erupting in a Third World country where UN or US presence is requested. Growing international sale of sophisticated weapons to Third World countries makes such a situation even deadlier. Consequently, the United States must be able to deploy forces quickly to undeveloped areas of the world, and the urgency of the response may require deployment by air. Either a Ranger battalion or an 82d Airborne brigade could jump in to secure an airhead for follow–on US forces. Within 48 hours of notification, a 2d ACR squadron could be in the air as a follow–on force.

With the airfield secured by paratroopers, a fully modernized cavalry squadron could begin landing by either C–130 or C–141 aircraft. Fully combat loaded and ready to fight, a cavalry troop would lead the squadron in. The mission would be to quickly link up with the forward elements of the airborne battalion or brigade and focus efforts on screening the enemy's most likely avenues of approach. Immediately following the troop would be the squadron's tactical command post. The squadron commander and his small staff would immediately coordinate with the forces on the ground to develop a plan to screen the entire airhead line. As fast as the transport aircraft could land, the rest of the squadron would arrive. Within a few hours, the airhead could be expanded to 20 to 30 kilometers. This would ensure the survivability of this tenuous air line of communication, as the airfield could no longer be engaged by indirect fire. Additionally, armored cavalry ground forces would have the necessary weapon systems to defeat most armor threats and the mobility to place decisive combat power at the right time and place.

Force–projection operations are challenging—friction and uncertainty prevail. Forces that deploy early must have overwhelming combat power and retain the flexibility to react to the unexpected.[4] The 2d ACR provides the joint task force commander the necessary tools to succeed in a wide range of missions. Whether conducting counterdrug operations, responding to natural or man–made disasters, regional conflicts, insurgencies or limited war, light cavalry forces can be tailored to meet any challenge.

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In a more conventional role, the 2d ACR can also provide a corps commander with a viable force to conduct a variety of missions. Like the heavy cavalry regiments, the 2d ACR can conduct reconnaissance operations to provide valuable information about the activities and resources of an enemy or about the terrain and weather characteristics of a given operational area.[5] Another use would be to conduct security operations to give the commander reaction time, maneuver space and protection for the main body.[6] Finally, as many have learned in rotations to one of the combat training centers, the force that wins the counter–reconnaissance battle is usually victorious. The weapon systems in the light ACR are ideally suited for winning the counter–reconnaissance battle. Last, but certainly not least, the 2d ACR can provide the corps commander with the ability to conduct an economy of force in either a defensive or offensive role.

It is clear that the deployability, versatility and lethality of the 2d ACR provide a significant capability to quickly react to any contingency from peacekeeping to general war. As Sullivan pointed out in the 1993–1994 *Green Book*, the 2d ACR is "our first purpose–built 21st–century combat unit."[7] ***MR***

NOTES

1. MAJ Christopher P. Thompson and SFC Kenneth E. Morrison, "The Second Dragoons Mark Their 150th Anniversary of Continuous Service," *Armor: The Magazine of Mobile Warfare* (May–June 1986), 22–29.
2. Handwritten note from GEN Gordon R. Sullivan, chief of staff of the Army, 17 April 1992.
3. US Army Field Manual (FM) 100–5, *Operations* (Washington, DC: US Government Printing Office [GPO], 14 June 1993), 1–2.
4. Ibid., 3–3.
5. FM 17–95, *Cavalry Operations* (Washington, DC: USGPO, 19 September 1991), 3–1.
6. Ibid., 4–1.
7. Sullivan, "America's Army—Into the 21st Century," *ARMY, 1993–1994 Green Book* (October 1993), 20.

Lieutenant Colonel George F. Oliver III is attending the US Naval War College. He received a B.S. from the US Military Academy and an M.B.A. from the University of South Carolina and is a graduate of the US Army Command and General Staff College. He has served in a variety of command and staff positions in the Continental United States, Korea and Southwest Asia, to include G3, Joint Readiness Training Center, and commander, 1st Squadron, 2d Armored Cavalry Regiment, Fort Polk, Louisiana. For the 101st Airborne Division (Air Assault), he was executive officer, 1st Brigade; and chief, G3 Operations during the Gulf War.

REDESIGNING ARMY BRANCH TRAINING

Colonel John H. Northrop, US Army

TODAY IS as exciting a time to be in the US Army as ever in the history of this nation. Commanders must prepare their units to face a wide variety of global initiatives, ranging from peace and intervention operations to major regional conflicts. Never before has the commander in chief had such a ready and able military to execute US global initiatives and counter threats to our national security interests. Our Armed Forces must be trained and ready to handle any contingency.

This substantive increase in mission comes juxtaposed to the Department of Defense bottom–up review, which calls for each service to reduce its force structure by about one–third. Senior leaders must develop innovative changes in the US Army structure and focus on a peacetime readiness vision and organizational flexibility unparalleled in recent history. They must reevaluate all established systems based on affordability, utility and relevance and eliminate unnecessary redundancy in accomplishing established US roles and missions.

As America's Army continues downsizing to reach an active end strength goal of 500,000, the necessary combat support (CS), combat service support (CSS) and below–the–line combat forces, such as field artillery and engineer brigades, will become increasingly difficult to retain. Calculations suggest that a 10 full–up division force would be manned by about 160,000 soldiers. When added to the current 60,000 trainees, transients, holdees and students (TTHS) account, this yields 220,000 soldiers. Subtracting 220,000 from a projected end strength of 500,000 leaves 280,000 soldiers to be divided among table of distribution and allowance (TDA), CS and CSS forces. For the current force of about 540,000, the TDA account contains 140,000, about half of the remaining 280,000 soldiers. If the TDA account is not significantly reduced, it will become almost equal to the size of the echelons above corps and echelons above division combined CS/CSS force. Worse still, the force structure cuts from 540,000 to 500,000 will come at the support forces' expense. An oversized and inefficient TDA account hollows the total force structure.

A key tenet of the Army's dynamic and battle–tested Airland Battle doctrine is the *synchronization* of the battlefield operating systems (BOS) in support of maneuver. The BOS elements are important because they represent the essential battlefield functions that, when properly integrated and synchronized, maximize combat power.

One system that bears reviewing is the Army's personnel system, which consists of numerous specialties and more than 20 branches in over 17 different geographical locations. Each branch has its own separate schoolhouse, doctrine and combat developments fiefdom emphasizing differences, rather than similarities, in the branches. This centuries–old system steadily proliferated from what was once essentially an infantry, cavalry and quartermaster Army to our present combat, CS, CSS and specialty branches. This system is redundant and bureaucratic, and its continued existence sustains unnecessary operating costs at the expense of the force structure and combat power.

This "branch" system has not kept pace with doctrinal changes. A key tenet of the Army's dynamic and battle–tested Airland Battle doctrine is the *synchronization* of the battlefield operating systems (BOS) in support of maneuver. The BOS elements are important because they represent the essential battlefield functions that, when properly integrated and synchronized, maximize combat power. Because not all Army branches clearly fall into a partic-

ular BOS category, a capability sometimes does not get synchronized when it should. For example, aviation branch has three principal components: firing platforms, reconnaissance and transport assets. The first aligns with the BOS maneuver, the second with fire support and the last with logistics. The brigade commander has no one on his staff to ensure all capabilities contribute to his operational plan. This is but one example of how current branch structure is an impediment, not a contributor, to synchronization.

This is not to suggest, however, that the principal mission of any branch is not important. On the contrary, each Army branch has a unique and important contribution to make to the force's effectiveness. At issue is whether the existing branch schools system effectively and efficiently contributes to molding leaders who are less specialized, more interchangeable and more capable. Does the current system posture the Army for its future roles and missions? This article suggests it does not, but by formally realigning branches into warfighting centers and, when possible, physically relocating appropriate branches to designated warfighting centers, a smaller and more efficient TDA structure and a more ready Army will result.

The Warfighting Center Concept

The warfighting center concept was first introduced in 1989 as part of the US Army Training and Doctrine Command (TRADOC) review and analysis of the headquarters and schools structures to determine ways to significantly reduce base operating costs and overhead within the command. The goals were to:

- Improve the training and readiness of TRADOC.
- Find and eliminate redundancy in TRADOC organizations.
- Provide a logical way to consolidate functions to better use empty training base facilities.
- Provide base closing recommendations.

An initial investigation of 20 consolidation alternatives and potential base closings yielded literally hundreds of possibilities. Justification proposals for potential relocation sites could be reasonably supported with a variety of explanations, ranging from space availability due to troop or training reductions, to being most favored by an efficiency algorithm to satisfying political interests. The problem with this system was that as efficient and honest as any base realignment and closure (BRAC) result was, a long–range strategy showing a cohesive logic and overall plan for these moves, while still supporting the US Army's needs and goals, was not present. The warfighting center concept offers such a strategy, proposing that branches could be collocated, based on a number of considerations, including: leader development; mission and battlefield functional area; training, combat and doctrine development requirements; and relationship to BOS synchronization.

> The current synchronization matrix is a maneuver–enemy action–focused time line. Major BOS functions are synchronized against maneuver's actions. A logical extension of this idea is to have each warfighting center develop its own set of essential operating procedures that maximize the contributions to maneuver's effort.

Because of the Army's dramatic force reduction, the warfighting center concept is even more important now than it was when first conceived. Warfighting centers improve readiness because they facilitate leader development and better integrate combat, training and doctrine developments; improve various operating systems' synchronization; reduce overhead within military schools and headquarters staffs; provide a logic for future base closings; and align Army branches more closely to joint operating systems.

Improving Integration and Synchronization

Integrating combat, training and doctrine development has traditionally been a significant problem for TRADOC and the Army. A 1986 inspector general report at TRADOC headquarters described an overall system where separate branch interests and lack of coordination between organizations resulted in serious disconnects in combat, training and doctrine development. The mere collocation of the responsible staffs of related BOS functions would significantly contribute to redundancy reduction in areas such as training devices and simulations acquisitions. While this integration is a very complicated process and improvements have been made over the last five years, more work is needed. As the focal point for all combat, training and doctrine development, warfighting centers would inherently improve this process.

To make BOS improvements, each warfighting center must teach synchronization during advanced course training and again at the US Army Command and General Staff College, prior to officers assuming battalion staff positions. BOS synchronization remains a significant problem because few officers, and then usually only those in infantry, armor and

A warfighting center is the schoolhouse and principal location for leader development and the integration of the training, doctrine and combat development for those branches that best assimilate under a common warfighting BOS or functional area.

Serving somewhat as a testimony to the warfighting center concept's potential for success in terms of leader development, the Army already fills brigade command positions for division and corps support commands with the best–qualified logisticians and designates the best–qualified logisticians for command of many division forward support battalions.

field artillery, are comfortable with synchronization exercises and execution. The current synchronization matrix is a maneuver–enemy action–focused time line. Major BOS functions are synchronized against maneuver's actions. A logical extension of this idea is to have each warfighting center develop its own set of essential operating procedures that maximize the contributions to maneuver's effort.

Additionally, the warfighting center concept reduces academic overhead by placing the instructor staff requirements for multiple basic branch institutions at one location. By placing the chemical, military police (MP) and engineer schools and centers at Fort Leonard Wood, Missouri, the basic staff, which teaches core skills, knowledge and attributes, is reduced from three to one. One instructor, instead of three, teaches introduction to basic infantry tactics. Similar reductions should occur in the doctrine, training and combat development areas.

Taking this idea further, *all current integrating centers or intermediate headquarters between TRADOC and the warfighting centers could be eliminated or dramatically reduced.* In time, as field grade officers become more well rounded, these types of personnel savings could occur in active unit organizational structures as well. For example, the typical light infantry brigade commander has one engineer liaison officer, one chemical officer and no MP representative on his staff. Within 10 years of having the warfighting center system in place, both officers could be replaced by one with expertise in engineering, chemical and MP operations. Headquarters staff cuts also would reduce the cost of civilian personnel. Freed–up labor dollars could buy back additional force structure, operating tempo or force modernization.

As the Army justifies why one base versus another is closed, the warfighting center presents a substantive, persuasive and nonprejudiced logic in support of certain facilities being closed. Though other warfighting centers, such as special operations forces, aviation, soldier services and intelligence, communications and computers, do not have corresponding theater operating systems, these centers have training requirements and missions very similar to those of other services. This lays the foundation for either turning these branches "purple," or at least effecting consolidations at the multiservice level.

Warfighting Centers Proposal

The US Army warfighting centers proposal is shown in the accompanying figure. A warfighting center is the schoolhouse and principal location for leader development and the integration of the training, doctrine and combat development for those branches that best assimilate under a common warfighting BOS or functional area.

There are many challenges and potential dilemmas in any consolidation process. Some posts are not readily closed due to exorbitant environmental decontamination and detoxification costs. Sensitivities to the impact on the local civilian population are often exceptionally compelling for keeping a post open. For example, Fort Knox is one of the largest employers in the state of Kentucky. Also, diverse and sometimes persuasive arguments might lure decision makers into less–than–visionary decisions. For example, the MP School and Center at Fort McClellan, Alabama, could logically realign at a number of other posts. The secondary MP warfighting role is as infantrymen—so why not move the school and center to Fort Benning, which is also the cheapest and shortest move? Twenty years ago, the MP School and Center was located at Fort Gordon, Georgia—so why not move it back there? The MPs are closely affiliated with traffic management and rear area control—so why not put the school and center with the logistics community?

On the battlefield theme, however, MPs align most closely with mobility, countermobility and terrain management. Additionally, this mobility, countermobility and survivability theme fits even better with the other branch at Fort McClellan—the Chemical Corps. This article emphasizes the best fit with respect to BOS functions. Despite other attractive

quick fixes, this was the basis for forming the warfighting center for maneuver support.

Maneuver. The maneuver warfighting center (1) should be located at Fort Benning. The center's principal mission would be for combat, training and doctrine development for all infantry missions, covering the full spectrum of conflict, including low intensity, operations other than war (OOTW) and major regional conflicts involving heavy and light maneuver forces. Branches and functions associated with this center include infantry, armor and ground cavalry. This maneuver center is also the Army's center for developing command and control doctrine.

Logistics. The logistics warfighting center (2) could be located at Fort Lee (or arguably Fort Eustis), Virginia, with the mission for battlefield logistic support. This center also would include the Transportation, Medical Service, Quartermaster and Ordnance corps. Due to Fort Lee's limited size, the Aviation Logistics School and the Ordnance School and Center should be located elsewhere. The latter should probably be consolidated at Fort Knox as a backfill for the great maintenance facilities vacated by the armor branch's move to Benning. The Aviation Logistics School should stay at Fort Rucker, because it will become an integral part of joint helicopter training. Serving somewhat as a testimony to the warfighting center concept's potential for success in terms of leader development, the Army already fills brigade command positions for division and corps support commands with the best–qualified logisticians and designates the best–qualified logisticians for command of many division forward support battalions. In preparation for these duties, the Combined Arms Support Command at Fort Lee has created a Combined Logistics Officer Advanced Course that brings together junior captains from logistics branches to widen their professional perspectives.

> The warfighting center concept is particularly important as it puts the Army's operating systems more in line with the major functional area categories listed in the *Universal Joint Task List*. . . . [and] the centers match virtually all the theater operating systems and the Army's BOS categories.

Aviation. While I was initially inclined to eliminate this branch (3) and return its components of transportation, scout reconnaissance and observation and combat attack back to their respective branches, aviation's importance as an operating system (though not a BOS element, *per se*) has increased significantly as it assumes joint responsibilities. Attack aviation and observation reconnaissance should integrate closely with the fire support BOS, where

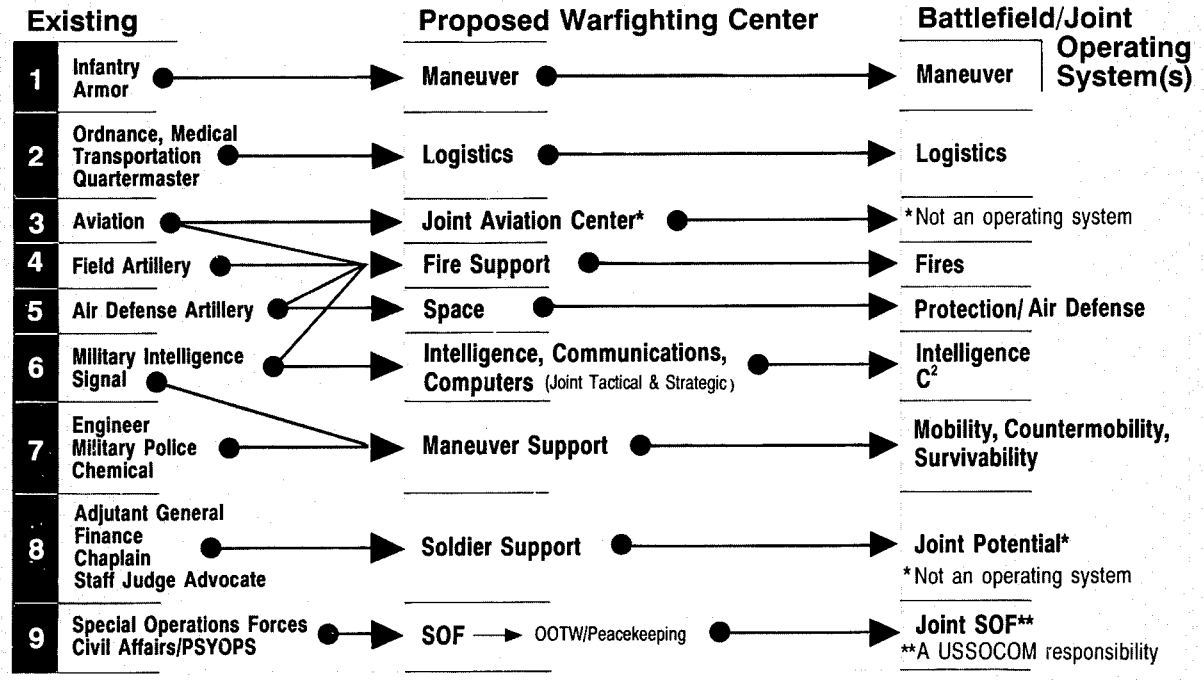

Figure 1. US Army Warfighting Centers Proposal

There appears to be a synergy between the branch that has the computers (signal) and the branch which makes the most demand on those computers (intelligence). This warfighting center would be a strategic intelligence community and communication composite and include the evolving specialty of computers and computer architecture. These forces would form the basis for any future information processing and management function.

they can be properly developed to support the fires plan for maneuver.

Fire support to maneuver. The fire support warfighting center (4) should be located at Fort Sill, Oklahoma, with the artillery as the lead agency. This warfighting center would train soldiers in conventional artillery methods and multiservice fire support responsibilities. This encompasses managing aerial platform fires, including airplanes and attack helicopters. In addition to its fire support mission, this center should assume responsibility for tactical intelligence preparation of the battlefield, low–altitude air defense, aerial reconnaissance, aerial observer and target acquisition. This would require taking personnel and missions from the military intelligence, air defense artillery and cavalry (armor) branches.

Space. A potential future warfighting center (5) for space should be located at Colorado Springs, Colorado. This center could accommodate all the ground forces' variety of interests in information, including, but not limited to, weather, topography, communications, intelligence and space. The proponent for the new space branch would be air defense artillery. Elements from the military intelligence community, engineers, chemical and signal branches would also have vested interest in this center.

Intelligence, communications and computers. This warfighting center (6) would meld the branches most involved in battlefield architecture and processing strategic–level information with strategic and operational communications. This center should be located at Fort Huachuca, Arizona. As the Army and its sister services move toward more advanced computer systems, the transmission, storage and interpretation of information will create information management problems beyond the current system's capability. There appears to be a synergy between the branch that has the computers (signal) and the branch which makes the most demand on those computers (intelligence). This warfighting center would be a strategic intelligence community and communication composite and include the evolving specialty of computers and computer architecture. These forces would form the basis for any future information processing and management function. This center also has significant multiservice potential and would be a suitable site for foreign language training.

Maneuver support. The maneuver support warfighting center (7) merges the branches that deal in the mobility, countermobility and survivability of battlefield forces. This includes the Corps of Engineers, Chemical Corps and Military Police Corps. This center should be located at Fort Leonard Wood. The lead branch at the center should be the Corps of Engineers. The center might also serve as, in the Joint Staff Manual, Version 2.1, *Universal Joint Task List* (UJTL) vernacular, the "protection" center, in which case one could argue that elements of the air defense artillery should join this team.

Soldier support. The soldier support center (8) is the nerve center for those branches in the soldier services business. Collocated with the principal US Army basic training site, Fort Jackson, South Carolina, those branches, which include the Adjutant General, Finance and Chaplain's corps (the Staff Judge Advocate Corps remains in Charlottesville, Virginia) that serve the soldiers' personal needs, send representatives to meet these soldiers when they arrive for training.

SOF. The combat, training and doctrinal development of all special operations forces is the responsibility of US Army Special Operations Command and, for all practical purposes, is already formed into a unique warfighting center (9) located at Fort Bragg, North Carolina. There are a number of interesting possibilities for this center. First, this warfighting center could most easily become a totally joint activity. Second, with its civil affairs and psychological operations branches, it is the logical center, in conjunction with the Center for Low Intensity Conflict (Langley Air Force Base, Virginia), that could best develop doctrine for many global initiatives, including nation assistance and peacekeeping operations.

Additional Ramifications

The warfighting center concept has potential for making significant improvements in leader development and doctrine, training and combat development. While this concept could be the single most important force structure improvement the Army can make in the next 20 years, it has a number of pitfalls.

A fire support warfighting center, with artillery as the lead agency, would assume air defense training missions for weapon platforms such as this HAWK missile battery, among others.

The fire support warfighting center should be located at Fort Sill, Oklahoma, with the artillery as the lead agency. This warfighting center would train soldiers in conventional artillery methods and multiservice fire support responsibilities. This encompasses managing aerial platform fires, including airplanes and attack helicopters. In addition to its fire support mission, this center should assume responsibility for tactical intelligence preparation of the battlefield, low–altitude air defense, aerial reconnaissance, aerial observer and target acquisition.

The first pitfall is that each warfighting center must continue to fully emphasize the company–level officer and enlisted personnel development by primary branch. As officers become more well rounded, noncommissioned officers (NCOs) must assume an even greater role in technical specialties. The company grade period of an officer's career will only be successful and fulfilling when the officer masters the same tasks as the soldiers he or she supervises and leads by example. Our training and leader development system must ensure this is possible.

A second concern relates to the officer corps' technical and tactical proficiency at the major and lieutenant colonel levels. These ranks hold critical role model, supervisory and command positions within the battalion structure. These officers also serve as key trainers for company–level officers. If the Army moves to more composite battalion structures, such as the forward support battalion concept, there is the risk that the battalion commander and other field grade officers on the staff will not be skilled trainers for some of the branches represented in their battalion. For example, a logistics battalion commander with a specialty in ordnance may be the professional mentor for a junior officer in the medical specialist field. So long as the field grade officer understands these potential shortcomings and warfighting centers provide educational jump–start programs to overcome these inherent weaknesses, the system will work. The Army's strong NCO corps will also play a key role. By providing an opportunity to refresh knowledge, as well as introduce new concepts to officers who transition from company to field grade rank, the system will produce competent officers and improve BOS synchronization.

Third, the soldier support warfighting center is a tempting target of opportunity for wholesale civilianization, which is not a good idea. Such a move would offer little in net force structure savings, and the branches involved in this center contribute much to the combat force readiness. These branches played critical roles in all our recent combat and OOTW missions. Some, such as the MP and Chaplain's corps during Operation *Just Cause* in Panama, were noted in after–action reviews for their excellent service and importance.

Last, the Army must overcome strong resistance to implement this concept. Clearly, some startup

An Army SOF instructor addressing Central American students at Fort Bragg, North Carolina.

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costs would be high, but long–term savings will amortize the expense. Branch loyalties and identities run deep. Asking the armor branch to fall in on Fort Benning requires a huge leap of faith in simulations and training rounds, if nothing else. Unfortunately, there is no easy formula or methodology to overcome the passion of a soldier for his branch.

However, there are some additional benefits to the warfighting center system. It provides justification for additional base closings (and, therefore, overhead reduction to buy back military manpower); it places the Army branches more in accordance with the UJTL functional areas; and it provides the necessary framework to study additional force structure alternatives.

The current system for BRAC uses a variety of algorithms to address hundreds of variables, including amortization losses, the ability of surrounding areas to absorb civilian job losses and routine maintenance and repair costs for the installation. Since all these formulas involve algorithms, by weighing the factors differently, one can get the answer one desires. While all the aforementioned suggestions are valid considerations, none seems to offer an overall Army master plan. The warfighting center concept does. With the proposal as written, and considering potential base closures as a result of the warfighting center groupings, Fort Eustis (or Fort Lee), Fort McClellan,

Fort Rucker, Fort Bliss and Fort Gordon could also close. (Each of these closures, by the way, is in a state where another Army post has a significant mission and population.) By allowing communities long lead times prior to post closings, they can better influence their own destinies.

Additionally, the warfighting center concept is particularly important as it puts the Army's operating systems more in line with the major functional area categories listed in the UJTL. As the figure indicates, the centers match virtually all the theater operating systems and the Army's BOS categories. The warfighting center system also provides signal, space, air defense and intelligence officers with duties similar to those in other services, affording them the opportunity to interface with other services sooner, and more opportunely, than other branches.

Finally, there are other potential force structure spin–offs. As force developers investigate alternatives to force structure at the division level—such as mixing light and heavy units—there is great potential for the warfighting center system to drive other force structure improvements. An example might be the formation of a division composite engineer battalion with chemical and military police assets—or maybe, at the "eaches" level, having the ground/vehicular–mounted laser locator designator and Avenger operators manning the same observation post.

Other opportunities exist to reduce TDA that are beyond the scope of this article. For example, the Army's chief of staff might consolidate the Army War College at Fort Leavenworth, thereby accomplishing a number of goals:

- Use the space created by the significant manpower reduction in the integrating center there now to make better use of the 250 exceptionally talented doctrine writers and potential Combined Arms Services Staff School mentors.
- Leave a portion (about one–third) of that war college class at Leavenworth an additional year to serve as faculty at the Command and General Staff College.
- Facilitate the closing of Carlisle Barracks, Pennsylvania (wargaming center and great library facilities notwithstanding).

In the end, the warfighting center concept can provide a viable means of shaping the future force. It offers many benefits, ranging from improved leader, combat, doctrine and training development to promoting the exchange of ideas and systems in a joint environment. Equally important, the concept has potential to provide significant reductions in the TDA, thereby freeing up more manpower for warfighting. As dollars and budget increasingly drive end strength, an efficient TDA and a robust CS and CSS structure are key to maximizing the Army's readiness. ***MR***

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> The Army's strong NCO corps will also play a key role. By providing an opportunity to refresh knowledge, as well as introduce new concepts to officers who transition from company to field grade rank, the system will produce competent officers and improve BOS synchronization.

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Bridging Doctrinal Concepts of the Decisive Point

Major Kevin J. Dougherty, US Army

US ARMY Field Manual (FM) 100–5, *Operations*, defines the decisive point as "a point, usually geographical in nature, that, when retained, provides a commander with a marked advantage over his opponent."[1] Because FM 100–5 is the Army's keystone manual, it is now necessary to review the pre–1993 interpretations of the decisive point offered by the FM 7 series of manuals. This article will develop a decisive point interpretation which will preserve, and hopefully enhance, the main function of the decisive point at the tactical level—to serve as a starting point for course of action (COA) development.[2]

An analysis of FM 7–10, *The Infantry Rifle Company*, and FM 7–20, *The Infantry Battalion*, indicates these tactical manuals have gone far beyond FM 100–5's definition and have tied the decisive point to both the main effort and the accomplishment of the unit's purpose. FM 7–20 states that "Success by the main effort at the decisive point should result in the success of the commander's mission."[3] The manual uses the word "result" rather than "lead to." According to the *American Heritage Dictionary*, the word *result* means "to end in a particular way."[4] This finality is inconsistent with the current *Operations* definition, which requires only a "marked advantage" rather than a final solution.

The Infantry Officer Advanced Course (IOAC) has a colloquial description of the decisive point as being where the commander "begins winning and his enemy begins losing." The roots of this expression can be traced to Carl von Clausewitz, who wrote that "No engagement is decided in a single moment, although in each there are crucial moments which are primarily responsible for the outcome. Losing an engagement is, therefore, like the gradual sinking of a scale."[5] Thus, according to IOAC instruction notes and lesson outlines, decisive point action "should create the conditions necessary to lead to mission success."

> It would be ideal if the enemy cooperated with us and left a potential decisive point in a weakened state. The emphasis, however, should be on gaining a relative combat power advantage as a result of our COA development instead of attacking a weak, but perhaps unimportant point.

In order to arrive at this understanding, the IOAC faculty reconsidered the FM 7–20 requirement that the decisive point is not where we begin to win, but where we actually do win. Thus, if our mission is to seize Bush Hill, the FM 7–20 decisive point can be nothing less than Bush Hill. We may begin winning when we destroy the tanks on the objective, but we cannot honestly say this action, in and of itself, will "result in the success of the commander's mission." Thus, FM 7–20 goes beyond the FM 100–5 concept of gaining a "marked advantage" at the decisive point.

FM 7–20 restricts the application of the decisive point concept by requiring that it be the main effort which accomplishes the desired action at the decisive point.[6] This restriction specifically eliminates the possibility of a supporting effort accomplishing this action. FM 7–10 is less definitive, stating only that the commander must "determine the results that must be achieved at decisive points to accomplish the mission."[7] FM 7–10 does not specifically state who must achieve these results, so it could conceivably be a supporting effort.

Again, FM 7–20's restriction on the decisive point limits planners in a way FM 100–5 does not. It prohibits a COA which weights the main effort by having a supporting effort conduct the action at the decisive point and thus create conditions allowing the main effort to accomplish the mission–essential task.

A Tactical Example

In the following scenario, a platoon is conducting a raid of an enemy "retrans" site. The mission–essential task is to destroy the retransmission equipment. Because the operation is a raid, there is no requirement to seize or secure terrain. The objective is out of range of all available indirect fire. The site is lightly defended by an infantry squad in hasty positions surrounded by a two–strand concertina wire fence. There is only one dismounted avenue of approach, and it is covered by a machinegun position. The retrans equipment is in the perimeter's center.

Because there is only one feasible dismounted avenue of approach, the platoon must assault within the machinegun's sector of fire. The only available breach site is adjacent to the machinegun position. If the decisive point is where we gain a "marked advantage" or where we start winning, then one potential decisive point for one COA would be destroying the machinegun position, which is the key to the enemy's defense. Once we get past the gun, it is a cakewalk to the retrans equipment.

The platoon leader task organizes his platoon into assault, support and breach elements. The assault element's task is to destroy the retrans equipment. The platoon leader gives the element a rifle squad minus squad automatic weapons (SAWs) and attaches two sappers with demolitions to it. Because the assault element will accomplish the platoon's mission–essential task, it is the main effort. The support element will establish some blocking positions to isolate the objective area. The breach element, with all the platoon's automatic weapons and an engineer squad attached, will create the breach. Because the breach site will be adjacent to the enemy machine gun position, it will be the close assault force of the breach element that destroys the machinegun—what the platoon leader determined to be the decisive point.

As an observer/controller at the Joint Readiness Training Center for more than two years and a small group instructor at IOAC for almost two, I would give the platoon leader a "go" on this COA. Unfortunately, FM 7–20 will not. First of all, his decisive point only lets him begin to win instead of resulting in the success of his mission, and secondly, he has a supporting effort, rather than the main effort, accomplishing the decisive point action. As this scenario goes, FM 7–20 says the platoon leader blew it.

The FM 100–5 example. FM 100–5 gives the three bridgeheads in Operation *Market Garden* as its only decisive point example. The Allied airborne divisions, the units which were to accomplish decisive point actions, were supporting efforts. Their success would ensure the main effort's maintenance of momentum and initiative by the British XXX Corps as it pressed on to the Zuider Zee. Thus, in the Army's keystone manual, the example used to illustrate the decisive point has the action done by a supporting effort and a situation in which success at the decisive point does not in and of itself result in the success of the mission. That platoon leader at the retrans site is starting to look a little bit more squared away after all.

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A *Desert Storm* example. FM 100–5 states that in Operation *Desert Storm* the center of gravity was the Iraqi Republican Guards. Further, it states that "decisive points are not centers of gravity."[8] Thus, without telling us what the decisive point was, FM 100–5 rules out the Republican Guards. FM 100–5 does tell us that the main effort for the US Central Command was the US VII Corps. General H. Norman Schwarzkopf's instructions to VII Corps were to "destroy the Republican Guards."[9] Therefore, it seems we have another example of the decisive point action being accomplished by a force other than the main effort.

If the decisive point in *Desert Storm* was not the Republican Guards, then what was it? I surmise that the decisive point was the destruction of the Iraqi aerial reconnaissance capability. This allowed the undetected repositioning of coalition forces to the west of Kuwait so they would not have to go toe–to–toe with the strongest Iraqi defenses. It is a known fact that units crossing the line of departure (LD) still had a lot of work ahead of them, but imagine how much more they would have had if all forces had

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been doing a frontal attack. From the time coalition forces crossed the LD, they were winning and the Iraqis were losing. Repositioning to the west without detection was a critical factor.

Defining Critical Events

There are some who, regardless of the FM 100–5 example, argue that instances such as these are nothing more than "critical events." FM 7–20 addresses critical events without defining the term, but it does remark that a wargamer could make each essential task a critical event and gives passage of lines, breach of an obstacle, seizure of the objective and use of the reserve as examples of critical events. If we accept that the decisive point may be an event—which is easy because FM 100–5 states that the decisive point "usually, not always," will be geographical in nature—then perhaps one man's critical event can be another's decisive point. In fact, FM 7–20's example of "seizure of the objective" sounds pretty decisive to me. Unless you consider consolidation and reorganization, there is not a lot going on after you seize the objective. This would "result in success of the commander's mission," which is how FM 7–20 describes action at the decisive point.

I would also argue that a relationship can exist between a critical event and the decisive point as it does between key terrain and decisive terrain. Decisive terrain is also key terrain; it is just "so key" that its control becomes "necessary for accomplishment of the mission."[10] It makes sense then that a decisive point can be a critical event which is "so critical" that it is where one begins winning and the enemy begins losing.

Defining an Enemy Weakness

A final element in the FM 7 series manuals that requires some clarification is the attachment of the decisive point to a position of enemy weakness. In determining the decisive point, FM 7–20 advises that the commander identify the point where an enemy weakness is or will be positioned at a time when the battalion can generate overwhelming combat power against it.[11]

We must take pains to emphasize the word "ideally" in these passages. Unfortunately, if a point is important enough to be the decisive point, and we give the enemy any credit at all, the point will not be weak. British Prime Minister Winston Churchill's "soft underbelly" World War II strategy targeted an Axis weakness, but decisive results were not achieved until the Allies launched a cross channel invasion into the enemy's strength. Likewise, when General Ulysses S. Grant told General George Meade, "Wherever Lee goes, there you will go also," he was not targeting a Confederate weakness. More recently, for those who disagree with this analysis and think the decisive point in *Desert Storm* was the Republican Guards, consider whether they were actually an enemy weakness. Again, on a much smaller scale, success in the retrans site example was gained by focusing overwhelming combat power on the strongest part of the enemy's defenses.

In these situations, we created an enemy weakness by gaining a relative combat power advantage, but this is vastly different from selecting an enemy weakness as our decisive point during the COA development process. Again, it would be ideal if the enemy cooperated with us and left a potential decisive point in a weakened state. The emphasis, however, should be on gaining a relative combat power advantage as a result of our COA development instead of attacking a weak, but perhaps unimportant point. As long as the FM 7 series manuals say "ideally," there is no conflict with FM 100–5.

FM 100–5 has generated several changes in the FM 7 series manuals. The tenets of Army operations, the characteristics of the offense and defense, and the forms of the tactical offense, are just a few examples of concepts which have superceded information in the FM 7 series.

FM 100–5 is intended to ". . . allow the practitioners of Army operations a wider range of options."[12] The FM 7 series manuals continue to be very restrictive in their interpretation of the decisive point. They eliminate the possibility of a decisive point action being accomplished by forces other than the main effort and result in something less than overall mis-

Iraq's failure to successfully prosecute a three-division [illegible] Saudi Arabia west of Khafji on 29 January 1991 [illegible] Iraqi vulnerabilities and showed Arab nations that [illegible] forces had the will to fight and risk heavy casualties. [illegible] Iraq mounted no more ground offensives and did not [illegible] to probe coalition defensive positions.

King Khalid Military Quarterly

A relationship can exist between a critical event and the decisive point as it does between key terrain and decisive terrain. Decisive terrain is also key terrain; it is just "so key" that its control becomes "necessary for accomplishment of the mission." It makes sense then that a decisive point can be a critical event which is "so critical" that it is where one begins winning and the enemy begins losing.

sion accomplishment. Doctrinally speaking, we should not limit ourselves and should use the historical examples in FM 100–5 as a license to expand the FM 7 series interpretation of the decisive point.

In light of FM 100–5, this discussion of the decisive point at the tactical level takes advantage of opportunities presented in both the FM 7 series and FM 100–5. It preserves the FM 7 series tactical utility of the decisive point as being the starting point for COA development, yet it uses the latitude afforded by FM 100–5 to remove the old restrictions on COA development. Thus, I recommend the next editions of FM 7–10 and 7–20 include the expanded decisive point interpretation made possible by FM 100–5. ***MR***

NOTES

1. US Army Field Manual (FM) 100–5, *Operations* (Washington, DC: US Government Printing Office [GPO], 1993), 6–8.
2. FM 7–10, *The Infantry Rifle Company* (Washington, DC: GPO, 1990), 2–25 and FM 7–20, *The Infantry Battalion* (Washington, DC: GPO, 1992), 2–16.
3. FM 7–20, 2–4.
4. *The American Heritage Dictionary of the English Language*, Third Edition (Boston, MA: Houghton Mifflin Company, 1992), 1539.
5. Carl von Clausewitz, *On War*, edited by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 240.
6. FM 7–20, 2–4 and 2–16.
7. FM 7–10, 2–25.
8. FM 100–5, 6–7.
9. General H. Norman Schwarzkopf, *It Doesn't Take A Hero* (New York: Bantam, 1992), 383.
10. FM 7–10, 2–21.
11. FM 7–20, 2–16.
12. FM 100–5, vi.

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C^2 WARFARE IN FM 100-6

Kerry A. Blount and Lauren D. Kohn

THE ARMY PROCESS for developing information operations doctrine and concepts is gaining momentum. The goal is to meld battle command, intelligence support and command and control warfare (C^2W) to achieve C^2 and information superiority wherever Army forces are committed. The doctrinal context for C^2W established in US Army Field Manual (FM) 100–6, *Information Operations,* will have a major impact on the further development of C^2W as an information age Army strategy. At a minimum, this impact will be felt in planning, intelligence support, force and systems development, training and modeling, as well as in the general concepts of how the US Army executes operations in both war and operations other than war. Clearly, information operations, with C^2W as the warfighting component, will be major factors in the continuing revolution in military affairs well into the 21st century as new doctrine is developed to support future roles and missions.

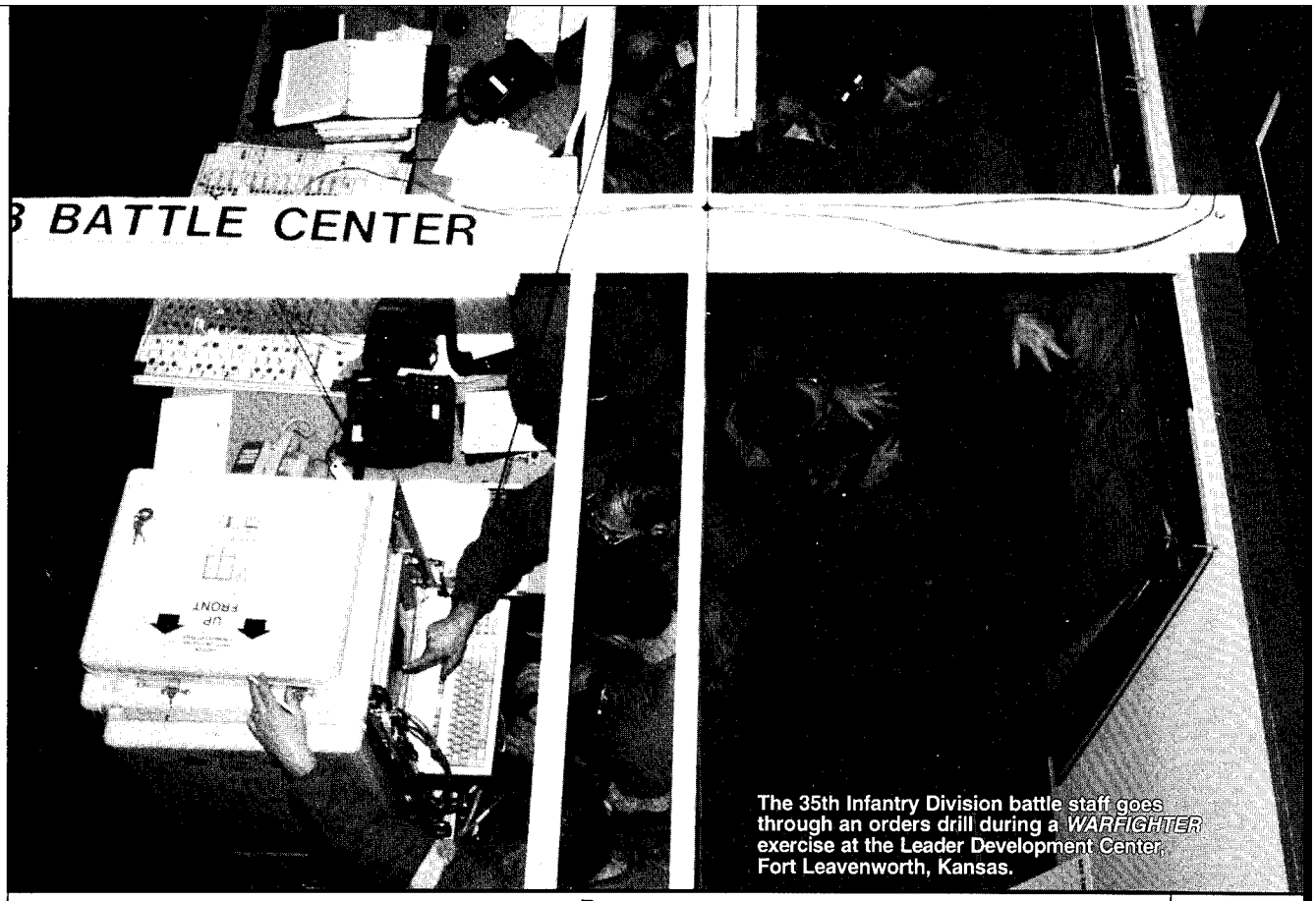
Despite the work that has been done, there are still many issues that will require resolution during the critical period following publication of the Army's new information operations doctrine. This article will highlight some important C^2W issues and implications that must be resolved.

Refining and Implementing C^2W Concepts

FM 100–6 emphasizes the point that C^2W is a strategy, not a complex of sensors and weapon systems. Nevertheless, there is a strong tendency to think of C^2W simply as a new term that allows us to talk about the discrete disciplines of operations security (OPSEC), psychological operations (PSYOP), military deception, electronic warfare (EW) and physical destruction in combination. In fact, these five disciplines do not encompass all C^2W functions, nor are all the capabilities represented in these disciplines directly involved in C^2W strategies. For example, not all elements of EW are directly involved with C^2W. EW provides self–protection by disabling the homing and guidance systems of many sophisticated weapons—a counterweapons function, not counter–C^2. Although sensors and C^2 facilities are important targets, physical destruction is most often applied against opposing troops and weapons. PSYOP measures are applied best against large audiences and only in certain cases to influence a specific military leader. Thus, combining all the activities of these disciplines under the rubric of C^2W loses sight of the purpose of adopting a C^2W strategy in the first place—achieving an exploitable level of C^2 superiority. It is solely by their contribution to this goal that "components" of C^2W are identified.

> If a counter–C^2 strategy is to be effective, intelligence support must perform all of its former tasks and take on the additional burden of identifying the internal functions of adversary C^2. . . . The bottom line is the same as with other aspects of warfare: The ability to conceive new forms of military operations is unhampered by intelligence requirements, but the ability to plan and execute such new concepts is always affected.

If the integrating strategy of C^2W is to be understood by those who must plan and implement it, its fundamental objectives must be kept in focus. The essence of C^2W is clearly expressed in Chairman, Joint Chiefs of Staff, Memorandum of Policy 30, *Command and Control Warfare*: "C^2W provides the commander with the means to achieve agility by focusing attacks on the adversary's ability to command and control his forces while simultaneously protecting friendly C^2. If adversary forces cannot act or react in a cohesive manner, friendly forces gain a comparable measure of agility. . . . Agility is not con-



The 35th Infantry Division battle staff goes through an orders drill during a *WARFIGHTER* exercise at the Leader Development Center, Fort Leavenworth, Kansas.

It is critical that effective C^2W training be developed for the commanders and staff officers who must direct, plan and control the variety of activities required to attain C^2W objectives. . . . Current and projected training systems in all spheres of military activity must take the new C^2 and C^2W environment into account. Models, simulations and distributed interactive networks—and the computer–generated forces and C^2 functions played within them—will be called on to provide a realistic training environment in which to practice and hone these skills.

cerned with speed itself, but with timeliness: thinking, planning, communicating and acting faster than the enemy can effectively react." In effect, the reason for adopting C^2W is that, as an element of military art, it secures the advantages of C^2 superiority.

C^2 superiority is not simply a matter of technological superiority. Technology provides only the capability for gaining battlefield advantages; it is the art of war that exploits these capabilities to provide victory in the least time and with minimal loss of life and expenditure of resources. Just as C^2 is not merely communications, computers and data, C^2W is not just jammers, zappers, decoys and an arsenal of brilliant munitions. Assuming technology to be the start point of C^2W is equivalent to defining the essence of maneuver as trucks, helicopters, tanks and infantry fighting vehicles. Maneuver combines these elements to most efficiently and effectively accomplish a mission; C^2W performs precisely the same function in the information warfare arena.

C^2W's focus is command and control—the functions military commanders and staffs perform in organizing and conducting operations. C^2W's primary targets are adversary decision makers and the information processes that support them. Sensors, communications, computers and command posts are the physical objects that are attacked or manipulated to "reach out and touch" these primary targets. This concept holds true both for those whose role is to attack an adversary's C^2 and for those who seek to protect friendly C^2 capabilities. Those who decide what means will be provided for C^2W and those who decide how to employ those means in operations must not lose sight of C^2W's primary goal and objectives.

C^2W Planning

C^2W planning begins with these same ideas—determining not how to attack and protect specific equipment and systems, but how to diminish the adversary's C^2 capabilities and preserve those of friendly commanders. As commanders prepare their troops to fight opposing forces, they first determine how to outfight the adversary commander and then how to defeat the opposing forces that serve the

> **C²W** provides the commander with the means to achieve agility by focusing attacks on the adversary's ability to command and control his forces while simultaneously protecting friendly C². If adversary forces cannot act or react in a cohesive manner, friendly forces gain a comparable measure of agility. . . . Agility is not concerned with speed itself, but with timeliness: thinking, planning, communicating and acting faster than the enemy can effectively react.
>
> —Chairman, Joint Chiefs of Staff, Memorandum of Policy 30, *Command and Control Warfare*

adversary's most critical needs. The tenets of war embody this approach, and the same rationale should be applied to C²W planning.

A C²W planning process that begins with targets to be attacked and those to be protected is tantamount to one that starts planning maneuver with tanks, fires with targets, intelligence with sensors, air defense with radar returns and logistics with supply shortages. *All* good military planning begins with the answer to the question "What effect must be achieved operationally?" The smart commander then proceeds to develop a concept and marshal the resources to achieve the explicit and implied tasks associated with the concept.

The C²W staff integrates the various C²W disciplines to achieve this desired effect, but the commander determines the C²W role in the overall concept of operations. To assist the commander in establishing a reasonable objective, the staff must first advise him of the available resources' capabilities, which requires an assessment of the possible effects that can be achieved against a particular adversary. This analysis must be supported by thorough intelligence preparation of the information battlefield.

Intelligence Support to C²W

The necessity for new forms of and priorities for intelligence support is probably the most clearly understood implication of adopting a C²W strategy, but that does not mean the path to its resolution will be short or smooth. The problem of collecting and processing the information needed to protect against adversary counter–C² capabilities has grown with the proliferation of potential adversaries in the aftermath of the Cold War. At the same time, the wide availability of commercial, off–the–shelf information technologies has expanded and complicated the problem of information support to counter–C² efforts. Further, it remains true that information required for protection against military deception and PSYOP is difficult to collect and suffers from relatively low priority in US collection strategy.

If a counter–C² strategy is to be effective, intelligence support must perform all of its former tasks and take on the additional burden of identifying the internal functions of adversary C². Advanced sensor technology and space–based systems can provide accurate data on the locations and equipment operating parameters, but they do not reveal how information is processed and used by decision makers. Knowledge of an adversary's C² infrastructure provides targets but cannot yield predictions on how the primary counter–C² targets—adversary commanders and staffs—are influenced or otherwise directly affected by our counter–C² actions. This does not prevent attaining such objectives as C² decapitation, but it does limit the array of possibilities needed in operations other than war or in wartime situations where political considerations override pure military targeting logic. The bottom line is the same as with other aspects of warfare: The ability to conceive new forms of military operations is unhampered by intelligence requirements, but the ability to plan and execute such new concepts is always affected.

C²W Training

Soldiers who perform the individual tasks that contribute to the C²W effort must be trained in their individual disciplines. Operators and soldiers must learn new skills in adjusting to alternative battlefield environments to make them fully capable of performing the new tasks that arise as new C²W methods and systems are perfected. But this training provides only the individual threads for the fabric that is ultimately woven within the headquarters where C²W is organized and controlled. Thus, it is critical that effective C²W training be developed for the commanders and staff officers who must direct, plan and control the variety of activities required to attain C²W objectives.

Current and projected training systems in all spheres of military activity must take the new C² and C²W environment into account. Models, simulations and distributed interactive networks—and the computer–generated forces and C² functions played within them—will be called on to provide a realistic training environment in which to practice and hone these skills, particularly those of commanders and their staffs. This poses a particularly difficult challenge for both software developers and trainers, who must replicate an integrated C²W planning and execution capability for all levels of friendly and opposing forces in a wide variety of training environments.

C^2W Modeling and Decision Aids

The modeling issues associated with C^2W training are difficult, but they are not the only ones facing the modeling community. To a certain degree, training simulations will continue to use human operators to perform some of the more difficult aspects of C^2W play. Conversely, models used to support analysis of future systems requirements, force structure and operational doctrine should operate in less than real time and without extensive reliance on human intervention. To date, models can accurately simulate the system–on–system effects of EW and physical destruction, but the ability to depict the effects of information engagements on commanders and operational outcomes is much less developed. Indeed, this relatively new modeling area has not yet reached any significant degree of maturity.

The problem is exacerbated by myriad missions, potential threats and circumstances in which the future Army must prepare to operate. The solution must account for effective ways of modeling adversary C^2 processes, including both the functional aspects of C^2 infrastructure and the cognitive processes of the human decision makers in the C^2 system. Without this capability, C^2W model functionality will continue to be limited to communications interdiction activities or intelligence collection degradation.

C^2W Systems Development

The principal issue in C^2W systems development is how to obtain the greatest combat power at least cost. Threat–based systems development is no longer considered an adequate approach, and the alternative of determining capabilities–based requirements begs the question of how to establish the cost effectiveness of systems supporting C^2W objectives. This is a much more complex task than assessing the cost effectiveness of systems that directly affect sensors, communications and other end items. Counter–C^2 and C^2 protection systems must compete against C^2; intelligence; and reconnaissance, surveillance and target acquisition systems to determine the mix that provides the greatest overall information operations benefit for limited budget dollars available.

Although sensors and C^2 facilities are important targets, physical destruction is most often applied against opposing troops and weapons. PSYOP measures are applied best against large audiences and only in certain cases to influence a specific military leader. Thus, combining all the activities of these disciplines under the rubric of C^2W loses sight of the purpose of adopting a C^2W strategy in the first place—achieving an exploitable level of C^2 superiority.

Competition with other military programs is also a crucial issue. There is an urgent need to determine how warfare's changing nature will affect Army modernization objectives and priorities. The pendulum now appears to be moving toward the information sphere, but how much this swing should benefit C^2W versus C^2 and intelligence systems is still an important issue to be resolved. Analytic methods to address these questions cannot rest on modeling alone; they require a clear and comprehensive view of what missions the Army must prepare for and how it will operate 15 to 20 years in the future.

The belief that today's Army is entering the information age has implications far beyond sensor, communication, computer and software procurements. Correctly assessed, those implications are likely to—and should—reshape the basic tenets of Army operations. The national requirement to prudently and properly develop the Army's future capabilities demands that a systematic identification process for dealing with these challenges begin now. ***MR***

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A New Leader Development Paradigm

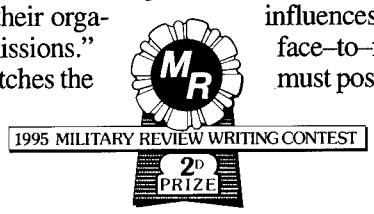
Lieutenant Colonel Dean A. Nowowiejski, US Army

For America's Army to emerge fully prepared to meet 21st-century challenges, leaders must be skilled in military operations and battle command. As our author suggests, the Army must radically change the way it develops leaders by cultivating necessary battle command qualities today. To develop these qualities in future leaders, he offers several suggestions for implementing a more dynamic leader development model and redirecting the way we teach officers.

PUBLICATION OF US Army Field Manual 100–5, *Operations*, in 1993 created a lively assessment forum and debate concerning the Army's future direction. This new operations doctrine assesses the post–Cold War and post–*Desert Storm* environment and offers sound principles for transitioning to the 21st century. The manual set the stage for Battle Lab, Louisiana Maneuvers Task Force and Digitization Task Force activities. If information age warfare presents a revolutionary change, as futurists like Alvin and Heidi Toffler propose, then we must quickly accept the key concepts which enable us to adapt to this dangerous new world order. America's Army is in a fundamental assessment and evolution period, sparked by the operations manual's new ideas.

One such response is the battle command concept. Battle command is "the art of battle decision making, leading and motivating soldiers and their organizations into action to accomplish missions."[1] This enlarged notion of command matches the Army's ever–expanding requirements. Battle command includes many subelements requiring a special kind of leader. The battle commander's two most significant activities are leading and deciding. He must possess *vision*—the ability to clearly see the end state of a proposed operation—and derive a *concept of operation* that unifies all his unit's actions.[2] Battle command employs specific information requirements tailored to the commander's needs through such tools as the commander's critical information requirements and priority intelligence requirements.

The battle commander develops his vision and concept of the operation despite information shortfalls. Intuition, a key component of battle command, compensates for missing information and allows the battle commander to assess the situation and formulate his concept and intent. The commander moves to the decisive point at the decisive time; he influences the action at this decisive point by face–to–face leadership and force of will. He must possess in–depth knowledge of the seven combat functions so these functions may be synchronized to mass



effects rather than forces. The commander uses real-time information on a fluid battlefield where decisions have immediate effect. The commander himself becomes a key combat multiplier. Clearly, much depends on his ability to accomplish several demanding requirements.[3]

This expansive battle command idea, with all its significance for successful 21st–century operations, describes a commander with several key traits. These traits vary with the particular battle command description, but they include: adaptation, flexibility, judgment, agility, initiative, versatility, creativity, integration, vision, empathy, intuition and will.

Not many military leaders possess these qualities inherently; they must be developed by training, self–study and experience. These qualities describe a person who can interpret a situation, formulate solutions where none are readily apparent and adapt to a changing environment. They describe a person with great, but flexible, intellectual capacity. Taken collectively, these qualities paint a picture of a uniquely qualified leader with special abilities.

Carl von Clausewitz wrote in *On War*, "What we must do is survey all those gifts of mind and temperament that in combination bear on military activity. These, taken together, constitute the essence of military genius."

Within this context, how do we develop battle commanders? The world situation, the battle command concept and information age warfare are so revolutionary that they demand radical changes in the way we develop Army leaders. Futurist Joel Barker stated that there is a "paradigm effect"—we fail to see possible solutions to new problems because we are blinded by the old paradigm.[4]

Developing Leaders for Battle Command

It is time to look for a new leader development paradigm in response to battle command and FM 100–5. The new paradigm will be described using the current leader development structure. Though the structure for leader development analysis remains the same, the thrust of the paradigm changes dramatically. Within this construct, the capstone of leader development rests on three pillars: institutional training and education, operational assignments and self–development.[5] The current leader development program, particularly the institutional training and education pillar, emphasizes imparting knowledge and mastering specific subjects and ideas. The leader development paradigm that corresponds with battle command should emphasize the development of particular qualities in leaders. We must teach 21st–century leaders how to demonstrate the qualities of battle command and then, rather than teaching them particular facts, give them practice in using those traits. The emphasis must be on how leaders handle information, rather than text book solutions. We must develop fast–thinking, innovative and creative leaders, who possess the battle command characteristics mentioned earlier. Our emphasis must switch from "what to know" to "who to be." We must emphasize a particular state of mind, rather than a set of stock, situationally correct answers. The future battlefield depends on process, not predetermination.

Intuition, a key component of battle command, compensates for missing information and allows the battle commander to assess the situation and formulate his concept and intent. . . . It is best developed through experience in similar circumstances, so the mind becomes accustomed to the information pattern.

How do you develop leaders to possess certain qualities rather than specific knowledge? Since leaders are made, not born, the high–order skills required for battle command must be intentionally cultivated. They will not develop by chance, nor can they be fully developed only in operational assignments—the best way to learn is by doing. Practicing under simulated battle command conditions is the key to obtaining necessary experience. It is not enough to teach battle command in special courses designated only for commanders. Battle command attributes must become characteristic of the entire officer corps, because all must demonstrate the same capacities on commanders' staffs. The consequences of information war, digitization and battle command have revolutionary implications that require leader development redirection. Some suggestions for this redirection follow.

FM 100–5 states that "no peacetime duty is more important for leaders than studying their profession, understanding the human dimension of leadership, becoming tactically and technically proficient and preparing for war."

Self–development. The self–development culture within the Army needs to be strengthened in execution. The focus here remains on gaining vicarious knowledge through battle command environment self–study. Much emphasis needs to remain on

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The Army should . . . stretch an officer's intellectual abilities toward creativity, intuition and vision. We must use the schoolhouse to train leaders to deal with ambiguous conditions requiring improvisation. Institutional education should focus on qualities of high–order thinking that demonstrate synthesis and integration, innovation, intuition and will, information management and world vision.

history but with more attention on battle command decisions. Officers should study the innovative choices made by victorious commanders who made intuitive estimates in fluid, uncertain environments or who fought successfully using new technologies. Examples include Adna Chaffee between the world wars and General Erwin Rommel in North Africa. Military history, particularly the experience of command through the eyes of others, is one of the few ways to develop intuition for battle so essential in battle command. History is vicarious experience. In this continuing self–study, books such as *Killer Angels* or *The Limits of Glory* keep the focus on battle leadership's human element.

We need increased emphasis on changing technology and its impacts. Digitization, as the mechanism for battle command, depends inherently on technological improvements. Changing technology will impact warfare with increasing speed and frequency. To keep doctrine current, officers must maintain awareness of new technological developments that have military applications.

Whether we study military history or technology, there is always room for more carefully directed self–development. This leader development pillar should remain each individual's responsibility, but it needs more direction from those in charge of leader development. Some directed reading lists and measured gates might provide needed vitality to the self–development programs of leaders who need more encouragement or guidance.[6] Only self–development can allow leaders to keep up with changes that occur when they are away from operational assignments and during intervals between institutional development.

Institutional training and education. The Army should eliminate classroom routine that teaches subjects irrelevant to developing battle command qualities and which do not stretch an officer's intellectual abilities toward creativity, intuition and vision. We must use the schoolhouse to train leaders to deal with ambiguous conditions requiring improvisation. Institutional education should focus on qualities of high–order thinking that demonstrate synthesis and integration, innovation, intuition and will, information management and world vision. In this regard, there is great merit in the rudiments of classical education: art, language and culture. Yet classroom modeling, simulations and technology will be key techniques in developing leaders for the 21st century.

Army schools have successfully maintained readiness for war during times of extended peace. Examples are the US Army War College and Command and General Staff School before World Wars I and II or service schools, such as the Infantry School, in the 1930s. General George C. Marshall's tenure as the Infantry School commandant is an example of the radical change we need today.[7] Marshall's contributions to victory in World War II during this brief period of peacetime leadership are common knowledge. What made the Infantry School experience memorable for a generation of officers was Marshall's breaking the mold of cut–and–dried military education and forging a new community of professional thought. He forced officers to develop innovative solutions to tactical problems, deal with uncertainty and think on their feet. Marshall disdained school solutions and focused instead on leadership qualities. With scarce resources, he required leaders to develop simple answers to problems full of uncertainty. We are faced with a similar need for innovative institutional leadership today.

The capstone of leader development rests on three pillars: institutional training and education, operational assignments and self–development. The current leader development program, particularly the institutional training and education pillar, emphasizes imparting knowledge and mastering specific subjects and ideas. . . . We must teach 21st–century leaders how to demonstrate the qualities of battle command and then, rather than teaching them particular facts, give them practice in using those traits. The emphasis must be on how leaders handle information, rather than text book solutions.

Suggestions for Institutional Education

According to FM 100–5, "In modern battle, the magnitude of available information challenges leaders at all levels." Our institutional education must foster disciplined thought and intellectual aggressiveness. Battle commanders must synthesize the flood of information provided by digital communications. They must think quickly in three physical dimensions and ahead in time. They must formulate concepts clear enough for execution in fast–moving situations. Specific classes that might foster improved thinking skills are logic, problem–solving techniques, decision making and time management. Training new generations of leaders to "think" will

undoubtedly be a challenge but can be accomplished through careful selection of mental exercises that tax a battle commander's ability.

Institutional education should foster willingness to innovate, embrace change, be creative, improvise and cope with uncertainty. We must adapt to rapid changes in the world situation and in technology. Army school scenarios must be based on uncertain situations, avoid "school solutions" and require students to deal with circumstances where there is inadequate or misleading information or limited resources. Willingness to risk and make mistakes in these uncertain situations must be rewarded. We must develop battle commanders' capacity to accommodate new ideas, models and solutions and encourage them to deal with uncertainty and change by taking calculated risks and being innovative.

Simulations allow the leader to practice reacting to a multiple set of circumstances, including those requiring improvisation and uncertainty. Tactical simulations require thinking on your feet and can be tailored to illustrate certain key principles, such as planning in depth. . . . With its capabilities for virtual reality, digitally linked, interactive simulation holds great promise for allowing institutional instruction to train future battle commanders.

We must create a world vision that goes beyond reading the morning paper and discussing it in class. Understanding the regional nature of threats, rapid change in economic and military power worldwide and new power bases must be a target of Army institutional learning. Every professional leader must become a foreign area specialist in his own right, and we need increased emphasis on foreign language capability. Additionally, Army schools should include training in the capabilities and structure of other federal agencies, such as the State Department, and non–governmental organizations, such as the American Red Cross, since these organizations will become operational partners in operations other than war (OOTW). We must also better understand how to intelligently employ media as a combat multiplier, a task sufficiently complex as to require more training than an obligatory lecture. In this way, Army leaders will expand their understanding of the global information environment.

Battle commanders must be computer literate and versatile in information management systems. Computer literacy has been emphasized within the schoolhouse already, but it cannot be an individual option. All officers should remain current with the rapidly changing capabilities of computers, not necessarily to know how to operate particular hardware or software, but to comprehend what new systems bring to the digital battlefield. Battle command demands leaders trained in organizing and synthesizing information and who know how to sort information files and use them to rapidly assimilate the relevant common picture presented by digital systems. The capability to use information technology should be continuously taught in Army classrooms.

The classroom should be where we learn to use the systems and devices we must operate in information warfare. Use of laptop computers, battlefield input devices, digital information nets and programmed and distributed interactive simulations should begin in the classroom. Third wave warfare makes information management systems training arguably more important than advanced radio communications training. Information warfare has become so significant that it might someday rank as a battlefield operating system (BOS) in its own right. The classroom should eventually become fully computerized and interactive in anticipation of this change.

Essential battle commander requisites are intuition and will. *Intuition* is "the ability to demonstrate immediate cognition without evident rational thought and inference."[8] It is best developed through experience in similar circumstances, so the mind becomes accustomed to the information pattern. For commanders, this means battlefield experience, but real battle experience is infrequent and short in duration. Military history's contributions to battle intuition have already been discussed. Besides, repetitive tactical concept formulation, with the ability to review results, should assist fledgling commanders in developing intuition.

The best way to offer multiple opportunities to learn battle command qualities—to take risks and fail—is through battle simulations or "device–based training."[9] This idea is not new, but more fully incorporating simulations into the Army classroom is. Simulations allow the leader to practice reacting to a multiple set of circumstances, including those requiring improvisation and uncertainty. Tactical simulations require thinking on your feet and can be tailored to illustrate certain key principles such as planning in depth. Interactive simulations portray a

live, thinking enemy and create a demanding environment. Simulations can also be used to practice OOTW. Most of the emphasis on using simulations such as the unit conduct of fire trainer (UCOFT) or simulation network (SIMNET) is in unit training. The use of computer simulations for the Tactical Commander's Development Course is the right idea, but needs to be expanded to other classrooms.

Distributed interactive simulations hold great promise for teaching operating systems integration. Various branch schools can be digitally linked to one common tactical scenario to demonstrate BOS capabilities, changing circumstances, fast pace and resource shortages. With its capabilities for virtual reality, digitally linked, interactive simulation holds great promise for allowing institutional instruction to train future battle commanders.

Much of what we are already doing in operational assignments appears to set the stage for better battle command quality development. Operational assignments' main advantages are the experience leaders gain which later becomes the basis for intuition. The problem is the limited opportunity for everyone to participate. The same operational requirements that prevent repetitive troop assignments prevent a majority of leaders from enjoying the full benefits of battle command development. Nevertheless, the use of simulations in units, computer–driven scenarios for command post exercises and the experience of leaders at the combat training centers will do much to strengthen battle command qualities. Nothing compares to actual field experience. The challenge is to make the most of opportunities when they arise and to go further to foster true integration among the several branches and services.

Much emphasis needs to remain on history but with more attention on battle command decisions. . . . Military history, particularly the experience of command through the eyes of others, is one of the few ways to develop intuition for battle so essential in battle command. History is vicarious experience.

In facing tomorrow's challenges, FM 100–5 emphasizes leadership as the most essential element of combat power. It also presents a new battlefield leadership concept: battle command. To fully implement battle command, the Army must radically change the way it develops leaders so that we cultivate the necessary battle command qualities, rather than a store of particular facts. To educate battle command qualities, we must implement a more dynamic model for leader development and redirect the way we teach officers. ***MR***

NOTES

1. US Army Field Manual (FM) 100–5, *Operations* (Washington, DC: US Government Printing Office, 1993), Glossary 1. Battle command is the art of battle decision making, leading and motivating soldiers and their organizations into action to accomplish missions. It includes visualizing current state and future state, then formulating concepts of operations to get from one to the other at least cost. It also includes assigning missions, prioritizing and allocating resources, selecting the critical time and place to act and knowing how and when to make adjustments during the fight.

2. All generic references to the masculine gender in the context of this paper will be taken to refer to the feminine gender as well.

3. This summary was taken from the *Battle Command Concept* (draft), *Battle Command Handbook* (working draft) and several briefing packets, including significant briefings by the Battle Command Battle Lab and LTG John E. Miller, commander, Combined Arms Command, Fort Leavenworth, Kansas.

4. Joel Barker's film "Discovering the Future" was shown in the Command and General Staff Officer's Course elective A312, *Application of Future Warfighting Technologies.*

5. Department of the Army Pamphlet (DA Pam) 600–32, *Leader Development for the Total Army: The Enduring Legacy* (Washington, DC: Headquarters, Department of the Army, 31 May 1991).

6. The military qualification standards in DA Pam 600–32 provide the kind of structure needed to guide the officer corps, and the Army produces an annual contemporary military reading list under the auspices of Army Regulation 28–86, but these programs do not receive the emphasis or enforcement needed to make them viable.

7. Forrest Pogue, *George C. Marshall, Education of a General, 1880–1939* (New York: Viking Press, 1963), 247–69.

8. *Battle Command Concept* (draft), 8.

9. LTC Thomas Mastaglio and LTC Thomas R. Rozman, "Expanding Training Horizons," *ARMY* (February 1994), 38–42, describes the range of potential simulations.

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Leader Development and Why It Remains Important

Major Donald H. Horner Jr., US Army

As America's Army addresses future challenges, it must develop leaders who can understand and exploit doctrine's full potential. To achieve this end, the author contends that leader development must incorporate formal and informal training; progressive and sequential duty assignments; and assessment, counseling, coaching and feedback. In short, leader development must be a continuous, progressive and sequential process that teaches leaders the requisite skills, knowledge and behavior characteristics to execute Force XXI operations.

ASK 100 PEOPLE what leader development means and you will get 100 different responses. This obfuscation is due in no small part to the confusion surrounding the basic notion of leadership itself. Often studied, practiced by many, leadership has been characterized as "one of the most observed and least understood phenomena on earth."[1]

Despite bewilderment with this topic, people tend to have highly personalized conceptions of leadership, because most gainfully employed Americans are somehow engaged in leading or being led. Indeed, one is hard–pressed to describe an organizational scenario without some form of leadership or followership present.

The apparent ambiguity of the phenomena inclines people to insist that they know what leadership means. Their reasoning is quite simple: They have experienced leadership; therefore, they feel comfortable enough to describe it. The problem is that descriptions of leadership are highly relative because individual experiences are highly relative. Paradoxically, these highly inconsistent descriptions of leadership result from an overfamiliarity, rather than an underfamiliarity, with the phenomena. Because of this, the conception of leadership on both micro and macro levels remains opaque and mired in uncertainty.

This uncertainty has stimulated an enormous amount of empirical inquiry by social scientists interested in unraveling the web of intrigue concerning leadership. Bernard Bass' most recent revision of *Stogdill's Handbook of Leadership* has more than 4,700 references to leadership studies.[2] As of 1989, over 10,000 articles and books had been published on the subject.[3] This enormous amount of attention continues to proliferate interpretations of what leadership is and what it entails. Literally thousands of leadership definitions have been proffered, leading Morgan McCall to dimly conclude that it is time "to abandon the concept of leadership altogether."[4] Other scholars, however, see the wine glass half full, not half empty. Most would agree with T. R. Mitch-

ell that there seems to be continuing progress in the realm of leadership studies, especially during the last 30 to 40 years.[5]

The same cannot be said about leader development. As a subset of the larger leadership genre, leader development is neither well studied nor well understood. Reports of investigations pertaining to leader development are rare. Most reputable texts attempting a comprehensive review of leadership literature have few, if any, references to leader development. In Gary Yukl's exhaustive review of the literature, for example, a scant two pages are devoted to leader development.

A quick perusal of leadership texts shows that one is likely to find information about leader development lumped under the heading of "leadership training." The discussions about leadership training quickly lead to the realization that training is but one aspect of leader development. One must conclude that there remains a lot of work to be done with leader development issues.

A fairly bleak picture emerges with respect to leader development in American organizations. The military in general, and the Army in particular, tends to do a far better job at it than any other American public or private organization.[7] Leader development is absolutely essential if organizations wish to maximize the performance of human beings in pursuit of organizational goals.

What is Leader Development?

Conceptually, leader development is built on two fundamental premises: Leadership can be taught and human beings are capable of learning. While few people question whether humans can learn, some still doubt whether leadership can be taught. The doubters tend to view leadership as a set of innate, God–given abilities and espouse the view that "great leaders are born, not made."

Thankfully for those of us not well endowed with the innate qualities of a successful leader, social science has repeatedly demonstrated that leadership *can* be taught. John Gardner, eminent scholar, author, counselor to six US presidents and founder of Common Cause, states, "The notion that all the attributes of a leader are innate is demonstrably false. No doubt certain characteristics are genetically determined—level of energy, for example. But the individual's hereditary gifts, however notable, leave the issue of future leadership performance undecided, to be settled by later events and influences. . . . Most of the capabilities that enable an outstanding leader to lead are learned. Ronald Reagan's extraordinary communication skills were the product of many decades of professional experience. Douglas MacArthur's strategic and tactical brilliance in World War II was the product of a lifetime of study and action."[8]

Accepting Gardner's argument, it follows that people can improve their knowledge, skills and abilities in ways that make them better leaders. Gardner tersely adds that "it is possible to describe the tasks that leaders perform."[9] Describing leader tasks and specifying acceptable performance standards gives would–be leaders a legitimate chance at success. People can also learn about appropriate and inappropriate leader behaviors so they can modify and engage in more sound leadership behaviors. The theoretical thread weaving its way through this school of thought is that people can develop their leadership capabilities in ways that increase—or (sadly) decrease—their capacity to lead others.

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After reviewing the intellectual underpinnings of leader development, a formal definition can now be proposed, albeit with some trepidation. This article defines leader development as a lifelong process that attempts to produce positive attitudinal, intellectual and behavioral changes in individuals to make them more effective leaders, increase their capacity to lead and prepare them for new and greater responsibilities consistent with the accomplishment of organizational goals.

This somewhat turgid definition can give the impression that leader development is so complex that it is difficult to understand. It is not. The definition can easily be broken down into several noteworthy points, as follows:

- Leader development is an ongoing, continuing process that occurs throughout one's life.
- Leader development's objective is to effect

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—John Gardner, founder of Common Cause

positive change in individuals identified as leaders. These changes may be directed at the individual's attitude, intellect or behavior.

- Leader development tries to help leaders function more effectively in their current jobs.
- Leader development's intent is to increase an individual's capacity to lead. This is often referred to as "helping leaders grow."
- Leader development helps prepare leaders for the more significant and sophisticated responsibilities associated with higher–level jobs.
- Leader development is inextricably tied to organizational goals so that individuals grow in ways that are both productive and beneficial to the organization.

An important point that one might not glean from this leader development definition is the duality of responsibility for the process. The responsibility for leader development is equally distributed between the person being developed and the organization doing the developing. Balancing responsibility ensures mutual interest in the process and promotes loyalty, compatibility and reciprocity between the individual and organization. The Army's philosophy toward leader development is especially indicative of this balanced approach.[10]

Three metaphors help formulate an answer to the question: "What exactly *is* leader development?" These metaphors, and their accompanying discussions, paint a clearer picture of the underlying value and purpose of developing leaders. Compiled from an array of sources, these metaphors are described as follows:

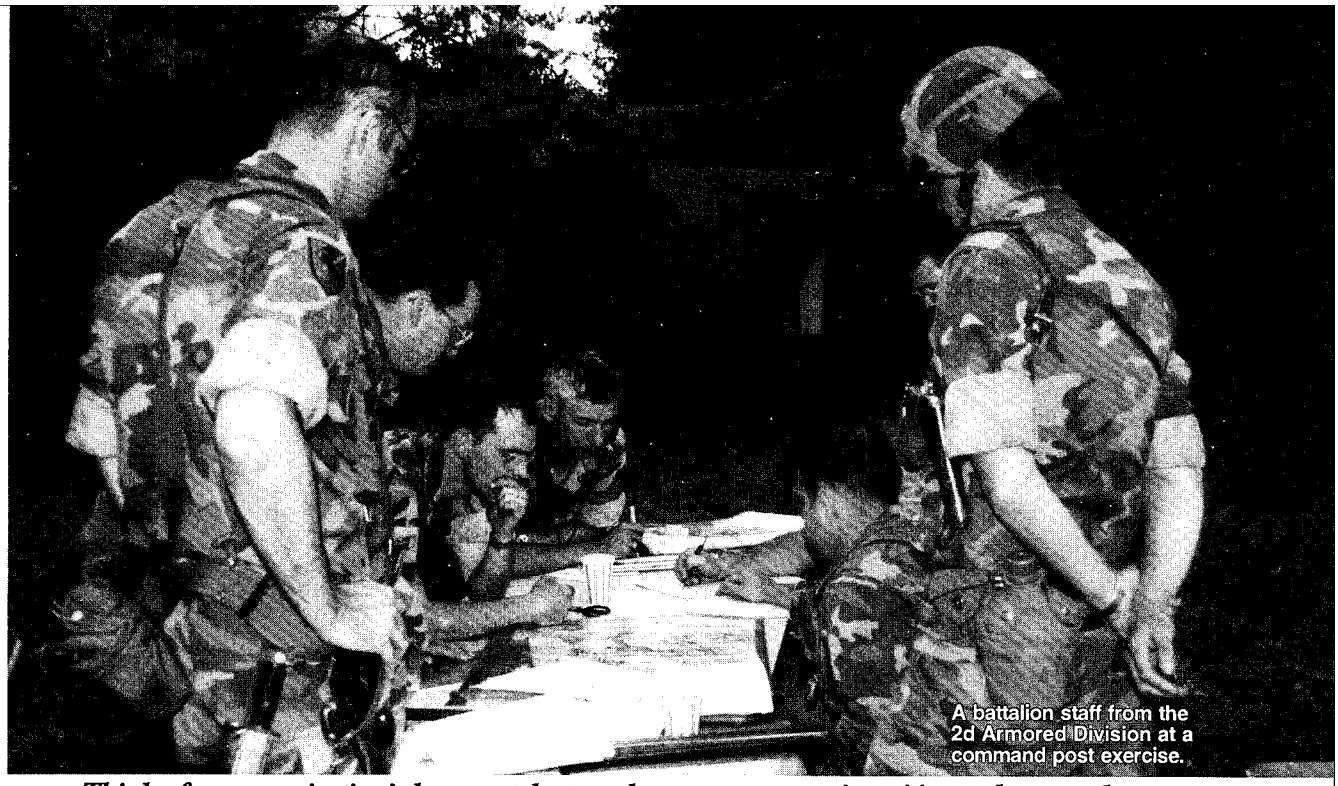
Tapping a reservoir. Think of an organization's human talent pool as a vast reservoir waiting to be tapped. Leader development's role is to tap the reservoir, unleash the potential of leaders and harness and direct their raw energy in ways that are both individually and organizationally rewarding. Gardner suggests that "learning to tap that reservoir effectively is one of the exciting tasks ahead for humankind."[11]

Sowing seeds. Farmers take great pains during planting season to sow their seeds properly, nourish them with adequate amounts of fertilizer and water and cultivate the ground around them to stimulate maximum growth. So it is with leader development. Organizations serious about developing subordinates demand that senior leaders serve as farmers and help "grow"—or mentor—junior leaders. Senior leaders must nurture junior leaders by giving them proper amounts of training, education and other behavioral and intellectual nutrients. They must plow organizational ground to ensure capable junior leaders are not stuck in dead–end jobs that stagnate individual growth.

Investing capital. Businesses customarily invest capital to garner some immediate and long–term benefits. The best investments are those that combine the benefits of low risks and high payoffs over a long period. This strategy typifies the leader development process. By developing leaders via training and education programs, organizations make investments in their people. These investments grow over time as the benefits of productive leadership permeate the organization, making it more effective and efficient. This increased effectiveness and efficiency pays dividends in the form of reduced costs, increased profits and greater use of employees' inherent capabilities. By developing leaders and investing in the firm's human resources, the benefits are compounded immediately and over the long term. Benefits continue to accrue as long as the developed leader remains within the organization.[12]

From this discussion, one could get the impression that American organizations are fairly adept at leader development and rigorously enact developmental processes and programs. The sad truth, however, is that American organizations regularly fail in leader development, assuming they attempt any development at all. There is room for dramatic improvement.[13]

A large American firm's chairman described this lack of leader development, saying, "We recruit young people fresh out of college, and for 30 years we reward them for keeping their noses to the grindstone and doing their narrow jobs unquestioningly. Then when a top post opens up, we look around in frustration and say: 'Where are the statesmen?'"[14]



A battalion staff from the 2d Armored Division at a command post exercise.

Think of an organization's human talent pool as a vast reservoir waiting to be tapped. Leader development's role is to tap the reservoir, unleash the potential of leaders and harness and direct their raw energy in ways that are both individually and organizationally rewarding. Gardner suggests that "learning to tap that reservoir effectively is one of the exciting tasks ahead for humankind."

Even well–intentioned leaders find that leader development initiatives are frequently squeezed out by more pressing issues. Yukl observes that "developing subordinates is a major responsibility of most managerial [and leadership] positions, but it seldom receives the attention it deserves from managers [and leaders] preoccupied with immediate problems and crises."[15]

But what of the leader development programs implemented in the private sector? Although there is a relative dearth of information, the available data yields less than exciting results. Studies demonstrate that 57 percent of the participants believe leader development programs are valuable, but only 14 percent could cite concrete evidence supporting their contentions.[16] These inadequacies do not bode well for leader development in the private sector. One observer noted, "We have barely scratched the surface in our feeble efforts toward leadership development."[17]

However, all is not doom and gloom. Some American organizations appear to be doing appreciably better than others in developing leaders. In reviewing the leader development programs across all sectors of society, Bass contends that the military does a better job in developing leaders, and "the heaviest continuing investment in leadership training occurs at all levels for military leaders."[18]

Many cite our recent Gulf War victory as evidence that the military's emphasis on leader development is paying off. Fatima Mernissi, a Moroccan sociologist who studied the Gulf War, alludes to the military's investment in leader development as a key reason for American success. She believes "The supremacy of the West . . . is not so much due to its military hardware as to the fact that its military bases are laboratories and its troops are brains, armies of researchers and engineers."[19] Alvin and Heidi Toffler echo this view and suggest that by emphasizing individual development, the military has produced a radically new organizational culture—new, at least, to stereotypical conceptions of the Army. The Tofflers propose that "the willingness to *ask* and *think* may well be more prevalent in the US Armed Forces than in many businesses."[20] They also note that the military's leader development process places "a massive emphasis on training and education at every level, and their systems for delivering the right training to the right person are part of the knowledge–distribution process."[21]

Though the military seems to be doing better at developing leaders than private or public sector organizations, there are indications that the Army promotes leader development more than the other services. Informal discussions at the US Army Command and General Staff College (USACGSC)

with student officers from the US Navy, Air Force and Marine Corps uniformly suggest that the other services do not have the leader development programs in place that the Army does. These discussions also provide anecdotal evidence indicating that

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the Army places more command and systemic emphasis on leader development in its day–to–day activities and long–term planning than do the other services.[22] This observation is reinforced by Army doctrinal and official publications that outline the leader development process in vivid detail. Neither the scope nor depth of similar literature is available from the sister services.

The preliminary, though cautious, conclusion is that the military in general, and the Army in particular, does a better leader development job than most other American institutions. The military, and especially the Army, is on the cutting edge of leader development because it takes leader development seriously enough to devote the requisite energy and resources to make the process individually and organizationally profitable.

Today's Army Leader Development Model

How did the Army get where it is today and how did its emphasis on leader development evolve? Department of the Army Pamphlet (Pam) 350–58, *Leader Development for America's Army*, provides the Army's leader development vision. The document explains that "leadership and leader development have received continuous attention" throughout the Army's history.[23] From its inception, the Army seems to have advanced an organizational culture promoting individual development as a means of achieving the ultimate success on the battlefield.

Given a favorable organizational culture as a backdrop, one can more directly trace the Army's formal emphasis on leader development to events occurring over the last 25 years. Before 1987, the Army had sanctioned several reviews of personnel management systems for officers, warrant officers and noncommissioned officers.[24] Though these studies did not address leader development for the Army as a whole, they did begin the process of determining how specific career fields "could best be managed to ensure proper development."[25]

Out of these studies came then US Army Training and Doctrine Command (TRADOC) Commander General Carl E. Vuono's recognition that "we need to develop a strategy that will focus all our efforts on the common theme of leader development."[26] On 22 April 1987, Vuono tasked Major General Gordon R. Sullivan, USACGSC deputy commandant, to chair a special study group conducting a comprehensive leader development study for the Army. The study group's overarching goal was to "assess where we are in leader development and determine what leader development needs TRADOC must meet 15 years in the future."[27]

The study group published its final report 24 August 1987. Often referred to as the *Sullivan Study*, this report led to the Army's current leader development system and process. Among other things, the study documented the need for "a support system to monitor and adapt to the effects of change on Army leader development . . . and leader development action plans for officers, warrant officers, noncommissioned officers, Department of the Army civilians and the Reserve Component."[28]

The Army's first official publication communicating leader development doctrine and policy grew out of the *Sullivan Study*. Published on 31 May 1991, DA Pam 600–32, *Leader Development for the Total Army*, codified "the Army's approach to leader development for all categories of leaders."[29] The leader development discussion depicts three separate, but equally important, pillars: institutional training, operational assignments and self–development. This first attempt at modeling the way the Army develops leaders used pillars to symbolically represent the separate domains in which leader development occurs. Having undergone modifications since their original formulation, the pillars' typological nature has survived. The pillars continue to be included in current official publications, albeit in revised format.

DA Pam 350–58 superseded DA Pam 600–32. Published 13 October 1994, DA Pam 350–58 provides an extension and improvement over its predecessor and describes in greater clarity and depth the intricacies of the Army's leader development process. Notable refinements include: a concise history of leader development in the Army; a more clearly articulated leader development process; an enhanced

7th Infantry Division officers confer during a live–fire exercise.

Yukl observes that "developing subordinates is a major responsibility of most managerial [and leadership] positions, but it seldom receives the attention it deserves from managers [and leaders] preoccupied with immediate problems and crises." . . . Bass contends that the military does a better job in developing leaders, and "the heaviest continuing investment in leadership training occurs at all levels for military leaders."

description of self–developmental programs; a differentiation between progressive and sequential development; and a definition of mentoring.[30]

Most prominent in DA Pam 350–58 is the Army's updated version of its leader development model. As illustrated in Figure 1, the model retains the three pillars originally described in DA Pam 600–32. These pillars symbolize the separate domains in which Army leader development occurs.

The Army's formal school system is emblematic of the institutional training and education pillar. By giving leaders the opportunity to study and train in a formal setting, the Army hopes to imbue its leaders with the requisite skills, knowledge and abilities necessary to perform tasks and demonstrate behaviors at their current and future levels of responsibility. Institutional training and education lay the foundation for individual leader development.

Army leaders spend most of their time in operational assignments. Development is prevalent here inasmuch as leaders have an opportunity to convert theory—what was learned in the institutional domain—into practice. The goal is to keep leaders in positions long enough for them to gain sufficient depth of knowledge and master the behaviors associated with that job. Leaders are then rotated to other positions to expand their professional knowledge and expertise. Throughout operational assignments, senior leaders play the critical roles of mentor, counselor, coach and evaluator to provide the assessment, remediation and reinforcement necessary to sustain the subordinate's growth.

Often overlooked but just as important to the developmental process, self–development occurs throughout an Army leader's career. Self–development can occur, for example, when the leader is attending an Army school or is assigned to an operational unit. In this domain, the onus for development is squarely on

Leader Development Model*

*DA Pamphlet 350-58, *Leader Development for America's Army*

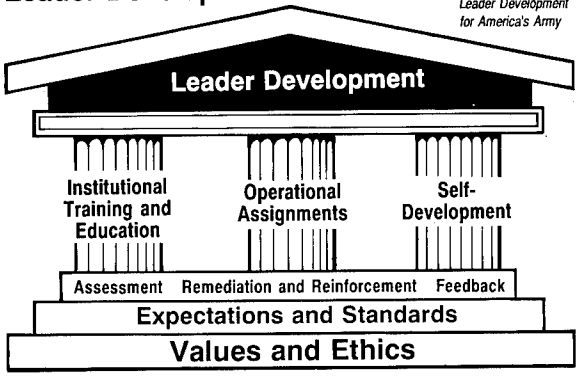

Figure 1

the leader. Superiors can, however, make suggestions as to how junior leaders might engage in specific, self–paced activities to remedy deficiencies or improve duty–related performance. Professional reading, civilian education and correspondence courses are examples of self–development programs.[31]

Before 1987, the Army had sanctioned several reviews of personnel management systems for officers, warrant officers and noncommissioned officers. Though these studies did not address leader development for the Army as a whole, they did begin the process of determining how specific career fields "could best be managed to ensure proper development." Out of these studies came General Vuono's recognition that "we need to develop a strategy that will focus all our efforts on the common theme of leader development."

Four final points can be made about the model in Figure 1 and its depiction of the Army's leader development process. First, the model notes that the three pillars are *interconnected.* This signifies that the development which occurs during institutional training affects what happens during a soldier's operational assignments and vice versa. In a theoretical nutshell, the pillars are interconnected, because the three domains of leader development are mutually interdependent: What happens in one domain affects what happens in the other domains. This interconnectedness is also notable in a leader's daily activities. A young squad leader, for instance, may spend the morning at an installation nuclear, biological and chemical school (institutional domain), the afternoon back in the unit (operational domain) and the evening at home doing some professional reading (self–development domain). Incessantly intertwined, these familiar activities typify the enmeshed dynamics of leader development. Leaders tend to be immersed in the three domains without ever realizing it.[32]

Second, the model signifies that the leader development process is *progressive.* The Army's leader development system "prepares leaders for increased levels of responsibility, complexity and difficulty."[33] The watchword here is "progress," meaning growth. The Army's system is predicated on the belief that leaders should have the opportunity to grow over the course of a career to handle the increased levels of responsibility accompanying promotion.

Third, the model shows that the developmental process is *sequential.* Part of the Army's overall personnel management process, leader development supports efforts to logically sequence a soldier's career so that future assignments build upon prior assignments. The leader development process intent is to set soldiers up for success, not failure. Enabling leaders to receive institutional training and education prior to assuming key positions is one example of this process. It can also entail grooming leaders for future positions by assigning them increasingly sophisticated and complex duties as part of their current jobs.

Finally, one must fully comprehend that the Army's leader development model is a symbolic, pictorial representation and simplification of the inherently more complex, real world process. Therefore, the model fails to capture some leader development nuances. Because the model *is not perfect,* it maximizes simplicity at the expense of reality. The Army views it as an unfinished piece of art, a work in progress to be tweaked and improved upon over time. The model itself is dynamic, reflecting theoretical and practical improvements suggested by soldiers in the field.

Why is Leader Development Important?

Arguments vary as to why leader development is so important. For this reason, it is instructive to survey some of the more respected sources on the subject. The Army's position is straightforwardly stated in DA Pam 350–58. The Army proposes quite simply that developing leaders will help win our nation's wars. Describing the development of competent, confident leaders as "our most enduring legacy to the future of the Army and the nation," the Army links the process of growing leaders with the necessity to fully exploit present and future doctrine.[34]

Only through leader development can the Army hope to field a cadre of leaders at all levels who are:

- Versatile
- Adaptable to change
- Professional
- Standard bearers of ethical conduct
- Proficient, technically and tactically
- Great communicators
- Cohesive team builders
- Analytical problem solvers
- Initiative seizers
- Minimal guidance operators
- Visionary.[35]

Because the Army views these skills, knowledge, abilities and behaviors as the result of a lifetime of learning, it is committed to leader development.

Officers receive institutional training and education at the US Army Command and General Staff College, Fort Leavenworth, Kansas.

The Army's formal school system is emblematic of the institutional training and education pillar. By giving leaders the opportunity to study and train in a formal setting, the Army hopes to imbue its leaders with the requisite skills, knowledge and abilities necessary to perform tasks and demonstrate behaviors at their current and future levels of responsibility. Institutional training and education lay the foundation for individual leader development.

Samuel Huntington's views about leader development are equally important. Author of the now classic *The Soldier and the State*, he stresses that the professional nature of the Army—and the military in general—dictates the necessity for and devotion to leader development. Huntington says the military is a profession because it satisfies the three criteria he uses to classify an occupation as a profession: *expertise, responsibility* and *corporateness.* He observes that the military leader's expertise is "acquired only by prolonged education and experience."[36] The test of responsibility is met because the military leader "performs a service . . . that is essential to the functioning of society."[37] Finally, Huntington believes that military leaders experience the corporateness typical in a profession because of a shared sense "of organic unity and consciousness of themselves as a group apart from laymen."[38]

Huntington espouses the view that leader development is important to the military because it is an essential ingredient of all professions. He further notes, "It is readily apparent that the military function requires a high order of expertise. No individual, whatever his inherent intellectual ability and qualities of character and leadership, could perform these functions efficiently without considerable training and experience. . . . Only the person who completely devotes his working hours to this task can hope to develop a reasonable level of professional competence. . . . The employment of his expertise promiscuously for his own advantage would wreck the fabric of society. As with the practice of medicine, society insists that the management of violence be utilized only for socially approved purposes. . . . The legal right to practice this profession is limited to members of a carefully defined body."[39] Simply put, Huntington believes that leader development is important because it is *foundational* to the Army profession.

A vocal advocate of leader development, Gardner argues that "most men and women go through their lives using no more than a fraction—usually a small fraction—of the potentialities within them."[40] He sees leader development as the means by which the organization favorably exploits these potentialities. For this reason, Gardner conceives leader development as not merely important but essential to the organization and individual leader. Specifically, he envisions the developmental process as a way to challenge, renew and reinvigorate leaders, allow them to become generalists and force them to know themselves.

Gardner is convinced that challenging leaders is important, because it gives them an opportunity to break with old patterns and ways of doing things. In effect, challenging leaders helps them shift paradigms. Colonel Barney Forsythe of the US Military Academy's Department of Behavioral Sciences and Leadership echoes this view. He notes that challenging a leader "sets the stage for development because it forces a restructuring of our frames of reference to take into account new experience."[41] In this vein, Gardner quickly adds that leaders "are not given to prolonged loitering in an unchallenging environment."[42] In this "use them or lose them scenario," the organization with an eye toward leader development "reassigns leaders periodically to give them new challenges."[43]

The Army's leader development system "prepares leaders for increased levels of responsibility, complexity and difficulty." The watchword here is "progress," meaning growth. The Army's system is predicated on the belief that leaders should have the opportunity to grow over the course of a career to handle the increased levels of responsibility accompanying promotion.

The time–sensitive nature of careers means that what one experienced as a young leader 15 years ago might not match what junior leaders experience today. Gardner describes the problem, saying, "By the time you are in midcareer, your 'experience' will have been gained in a world that no longer exists."[44] In this milieu, leader development is indispensable for updating and renewing leaders' training and education levels so they remain current in their professions.

Leader development can also help reinvigorate the burned–out leader. Gardner posits that sabbaticals, new assignments, fellowships, advanced education programs and off–site training experiences can reinvigorate leaders low on midcareer energy and enthusiasm. Development is important in these situations because it recognizes the intrinsic limitations of human beings and allows leaders to take a productive, highly beneficial breather before getting back on the professional treadmill.

Leader development makes leaders generalists. In today's specialized organizational environment, however, most leaders are likely to have been "specialists turned generalists."[45] In this setting, leader development's role is to add some breadth of experience to the leader's in–depth knowledge of a narrow field. Typically, this is done through rotating assignments and attending formal education and training programs or off–site conferences sponsored by professional associations or universities. Acknowledging these views, it is more than coincidence that the Army refers to its most senior leaders as "generals."

Leader development forces leaders to know themselves. According to Gardner, a key leader development byproduct is self–knowledge. His message is remarkably similar to what is stated in US Army Field Manual 22–100, *Military Leadership*: "You must have an honest understanding of who you are, what you know and what you can do. You must know your strengths, weaknesses, capabilities and limitations so that you can control and discipline yourself and lead your soldiers effectively. . . . Assessing others may be easier than looking honestly at yourself."[46]

This citation echoes the critical self–examination Gardner champions. Very reminiscent of the self–development pillar in the Army leader development model, Gardner's emphasis specifies self–knowledge as a primary subset of genuine self–development. He affirms that only through deepened self–knowledge can leaders "come to understand the impact they have on others."[47]

The Tofflers see leader development in terms of what they call "third wave" warfare.[48] Ushered in during the coalition victory in Operation *Desert Storm*, third wave war stands in stark contrast to the machinelike, brute force use of massive amounts of "dumb" weapons typical of "second wave" wars. The Tofflers proffer that, in the Gulf War, "the allied force was not a machine but a system with far greater internal feedback, communication and self–regulatory adjustment capability. It was, in fact, in part at least, a Third Wave 'thinking system.'"[49]

The phrase *thinking system* lends insight into how the Tofflers see leader development fitting into preparation for war. Quite simply, the increasing sophistication of third wave warfare—the leveraging of technology, the increased requirements for near real–time information processing, the ability to synthesize information rapidly, the maximum use of precision–guided "smart" munitions and the decentralization of decision making—demands increasingly sophisticated leaders. Leader development produces sophisticated leaders.

The Tofflers note that "smart weapons require smart soldiers."[50] Not to imply that the former are more important than the latter, they hasten to add that the human dimension of war continues to be of paramount importance. "The idea that the Gulf War was a 'high–tech' war in which the human element in combat was eliminated is fantasy. The fact is that the

forces sent by the allies to the Gulf were the best–educated and technically expert army ever sent into battle. . . . It took almost 10 years to prepare the American military for the new kind of warfare based on AirLand Battle.[51]

Obviously, leader development is central to the notion of an educated and technically expert Army. Today's military integrates leader development into the very fabric of its existence because of the need for leaders "who can use their brains, can deal with ambiguity, take initiative and ask questions, even to the point of questioning authority."[52] Reaffirming that the military continues to be on the cutting edge of leader development, the Tofflers assert that "advanced education today is more common in the military than in the highest levels of business."[53] They argue that the emphasis on leader development must continue if the military is to exploit the full potential of a war-fighting paradigm which values initiative, ability to make quick but informed decisions, rapid adaptation to changing conditions, versatility and the use of increasingly advanced weaponry.

Evolving Army Leader Development

Realizing the changing nature of world conditions and the increasing rapidity with which changes occur, one wonders how environmental conditions affect the Army's leader development process. Recognizing the need to evaluate the leader development process in light of global changes, the Army continues to review, assess and update its leader development model. Far from resisting changes to its model, the Army views the model as dynamic and subject to continual critique and improvement. Former Army Chief of Staff General Gordon R. Sullivan is known to have used different versions of the model as a mechanism for stimulating discussions during professional development sessions with senior Army staff members.[54]

As America's Army evolves into the 21st century, it will face dramatic challenges, which include:

Global changes brought about by the demise of the former Soviet Union, the re-emergence of ethnic and cultural conflicts and an increasingly interdependent world economy.

Increased operating tempo for military forces worldwide as the range of military activities and operations increases while the number of available units decreases.

Constrained resources as the nation grapples with reducing its budget deficit and cuts military expenditures.

Undefined missions that proliferate under the rubric of operations other than war. The Army's recent participation in operations in Somalia, Rwanda and Haiti are good examples.

The Army's position is straightforwardly stated in DA Pam 350–58. The Army proposes quite simply that developing leaders will help win our nation's wars. Describing the development of competent, confident leaders as "our most enduring legacy to the future of the Army and the nation," the Army links the process of growing leaders with the necessity to fully exploit present and future doctrine.

By including these four categories of change into the leader development model, Figure 2 incorporates the presumption the Army acknowledges that leader development may be affected by the changing world's volatility. Implicit in the model is the recognition that the Army must respond to these changes. Likewise, these changes suggest a greater depth, breadth and complexity in the Army's role in American national security and international affairs. It follows that the Army's leader development process will require a greater level of depth, breadth and complexity to adequately prepare leaders to successfully function in increasingly challenging environments. The leader development model—as an attempt to reflect reality—must also incorporate the essence of these changes.

With this thinking, Figure 2 portrays the three–dimensional leader development revised model. Reflecting the complexities of a changing world, it depicts the leader development process with greater depth and breadth and includes:

A soldier–leader. The soldier–leader in the center of the structure is symbolic of a fully trained and ready force capable of fighting and winning our nation's wars. The soldier–leader represents the

Revised Model

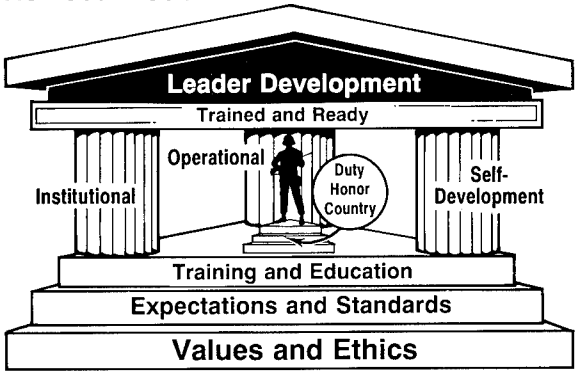

Figure 2

Army's continuing recognition that the human element and its development are the most important determinants of battlefield success.

Duty, honor, country. Having originated with General George Washington, this motto is the basis upon which the soldier–leader derives strength and is symbolic of the pedestal upon which the American people place him.

Colonel Forsythe of the US Military Academy's Department of Behavioral Sciences and Leadership . . . notes that challenging a leader "sets the stage for development because it forces a restructuring of our frames of reference to take into account new experience." . . . Gardner quickly adds that leaders "are not given to prolonged loitering in an unchallenging environment." In this "use them or lose them scenario," the organization with an eye toward leader development "reassigns leaders periodically to give them new challenges."

Leader development's foundation continues to be training and education, expectations and standards and values and ethics. Unchanged from the earlier version, these attributes retain their prominence in the revised model and form the foundation for the entire leader development process.

Trained and ready. This phrase relates back to the fundamental purpose of developing leaders who form a trained and ready force capable of winning our nation's wars. Superimposing the words "trained and ready" above the pillars underscores the necessity of genuine development in each of the three domains. If there is a weakness in the institutional, operational or self–development domain, the overriding objectives of a trained and ready leader and force are weakened.

Multidimensional Model

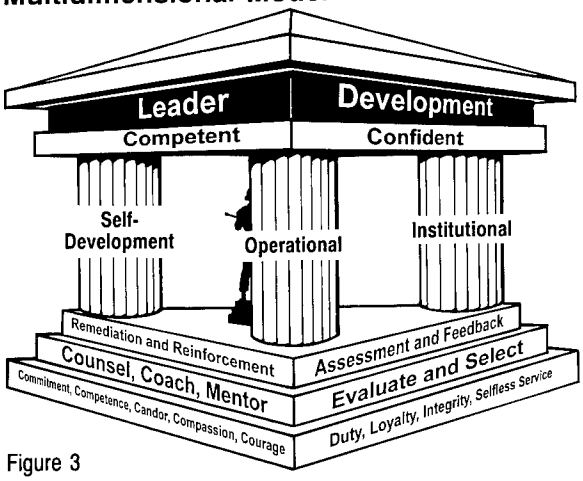

Figure 3

Revealing the truly multidimensional nature of the model, Figure 3 provides richer details about the Army leader development process. This new view shows the centrality of the soldier–leader. It also retains the soldier–leader's perch atop the duty, honor, country pedestal and the tripartite nature of the developmental domains.

This different perspective, however, yields several new features such as:

The words competent *and* confident. The Army wants trained and ready leaders who are competent and confident.

The training and education foundational layer. Remediation, reinforcement, assessment and feedback are integral to training and educating leaders. Remediating, reinforcing, assessing and providing feedback are as important to the leader as to the led.

The expectations and standards foundational layer. Recognizing that the only way to communicate expectations and standards is to counsel, coach, mentor, evaluate and select, the new model chooses to highlight these points.

The values and ethics foundational layer. Core values include commitment, competence, candor, compassion and courage; while duty, loyalty, integrity and selfless service typify the Army ethic. Spelling out which values and ethical practices are inherent in leader development leaves no question about which to include, which to exclude or which to focus on. The revised model helps leaders at all levels concentrate on modifying behaviors inconsistent with Army values and ethics.

A few final comments address the continuing evolution of the Army's leader development model. First, the tweaking, adjusting and fine tuning of the original model are consistent with DA Pam 350–58. In fact, none of the refinements are actually new at all. Figures 2 and 3 visually capture what has already been described via word pictures in official publications. This underscores the utility of the revisions and adjustments inasmuch as the new model better captures Army leader development process details that were formerly omitted.

Second, the revised model is an artifact of the Army's underlying commitment to making leader development a dynamic, rather than static, process. The model is being continually revised and reviewed to incorporate and adjust to change, thus there is little cause for concern that the Army's leader development process will stagnate.

Finally, the new model accomplishes the transition

from a one–dimensional to a multidimensional model, providing greater clarity and information about the Army's leader development process. The model also captures the increasing depth and breadth of activities required to develop Army leaders. *Leader development cannot be ignored.* Especially today, the combined challenge of decreasing resources and increasing mission requirements demands that leaders at all levels maximize the use of all available assets. Given the "people–intensive" nature of the Army, it follows that our most available and precious resource—our soldiers—are probably the greatest single source of unused, unrealized potential. The mechanism for tapping the unused potential in every soldier–leader is leader development.

Unfortunately, this argument does not appeal to everyone. The ongoing movement in Congress to reduce the budget further has actually led some to question the Army's investment in leader development. For decision makers afflicted with the current form of fiscal myopia, the focus on saving leader development dollars today skews any sense of what might happen in the future. Those less than enamored with leader development fail to see that diluting the development of today's leaders incurs significantly higher human costs on tomorrow's battlefields.

Budget cutters must realize that expenditures on leader development are analogous to maintenance of the Army's infrastructure. Without adequate budgetary support, the infrastructure will gradually erode, weaken and eventually begin to crumble. Like the bridge that has had its basic maintenance deferred for years, this decaying of the Army's infrastructure would be virtually invisible until the system collapsed from neglect. The bottom line is that if investment in leader development is allowed to wane, the *real* costs may not show up for another 10 to 15 years. By then it will be too late. ***MR***

NOTES

1. James MacGregor Burns, *Leadership* (New York: Harper & Row, 1978), 2.
2. Bernard M. Bass, *Stogdill's Handbook of Leadership: A Survey of Theory and Research*, revised edition (New York: The Free Press, 1981).
3. Gary A. Yukl, *Leadership in Organizations* (Englewood Cliffs, NJ: Prentice Hall, 1989).
4. Bass, 616.
5. Summarized from Bass, 617.
6. Yukl, 284–86.
7. Although universally applicable, the scope of this paper is limited to American organizations.
8. John W. Gardner, *On Leadership* (New York: The Free Press, 1990), 157.
9. Ibid., xv.
10. See Department of the Army Pamphlet (DA Pam) 350–58, *Leader Development for America's Army: The Enduring Legacy* (Washington, DC: Superintendent of Documents, US Government Printing Office [GPO], 1994), 11.
11. Gardner, xv.
12. The basic idea for using this metaphor is attributed to LTC Joel Buck, Center for Army Leadership, Fort Leavenworth, Kansas. In an electronic mail note to the author, Buck outlined the notion that leader development is analogous to a business investment.
13. Gardner, 173.
14. Ibid.
15. Yukl, 286.
16. Bass, 575.
17. Gardner, 182.
18. Bass, 577.
19. As quoted in Alvin and Heidi Toffler, *War and Anti–War* (Boston: Little, Brown & Co., 1993), 71.
20. Ibid., 74.
21. Ibid., 146.
22. Based on my informal research and interviews from September 1994 through May 1995. Discussions with sister service officers strongly indicated that neither the US Air Force, Marine Corps nor Navy could match the Army's investment in leader development. The research was performed and reported in my unpublished student paper "Research Report: The Roots of the Army's Leader Development Model" (US Army Command and General Staff College, Fort Leavenworth, KS: 6 March 1995).
23. DA Pam 350–58, 1.
24. This section has been summarized from DA Pam 350–58, 3.
25. Letter to selected commanders and general officers, GEN Carl E. Vuono, US Army, commander, US Army Training and Doctrine Command, titled "Special Study Group on Leader Development" (Fort Monroe, VA: 22 April 1987), 1.
26. Ibid.
27. Ibid., 4.
28. DA Pam 350–58, 3.
29. DA PAM 600–32, *Leader Development for the Total Army: The Enduring Legacy* (Washington, DC: Superintendent of Documents, US GPO, 1991), 4.
30. DA Pam 350–58, inside cover. GEN Gordon R. Sullivan was the Army chief of staff when DA Pam 350–58 was published. This is a rare organizational instance in which the person initially tasked to study a problem not only made recommendations on how to address it but also how to enact it and then saw the recommendations come to fruition.
31. This discussion was summarized from DA Pam 350–58, 4–7.
32. A conversation with Buck stimulated my thinking in this area. The term "enmeshed dynamics" first came from Buck.
33. DA Pam 350–58, 4.
34. Ibid., 2.
35. Summarized from DA Pam 350–58, 2.
36. Samuel P. Huntington, "Officership as a Profession," *A Study of Organizational Leadership*, edited by the associates of the Office of Military Leadership, US Military Academy (USMA) (Harrisburg, PA: Stackpole Books, 1976), 524. This essay is reprinted from Huntington's *The Soldier and the State* (Cambridge, MA: Harvard University Press, 1960).
37. Ibid., 525.
38. Ibid.
39. Ibid., 527–30.
40. Gardner, xv.
41. George Forsythe, "The Preparation of Strategic Leaders," *Parameters* (Spring 1992), 43. For a thorough literature review of the topic, see also Gary M. Burden, "Officer Professional Development: A Contemporary Literature Review," unpublished student paper (West Point, NY: USMA, 19 May 1994).
42. Gardner, 173.
43. Ibid., 174.
44. Ibid., 176.
45. Ibid., 165.
46. US Army Field Manual 22–100, *Military Leadership* (Washington, DC: Superintendent of Documents, US GPO, 1990), 4.
47. Gardner, 174.
48. See especially Chapter 9 of *War and Anti–War.*
49. Toffler, 80.
50. Ibid., 73.
51. Ibid., 74.
52. Ibid.
53. Ibid.
54. BG Randall Rigby, deputy commandant of the US Army Command and General Staff College, Fort Leavenworth, Kansas, shared this insight during an interview on 6 February 1995. His description of the evolutionary nature of the leader development model and the continuing need to revise it assisted me in framing the discussions that follow.

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Trail Blazers: US World War II Military Women

Lieutenant Colonel Dianne P. Fisher, US Army

Women's struggle for equity and progress in the US military has not been characterized by a steady, even pace but by a series of breakthroughs. World War II gave women their greatest military opportunity. Their performance across a broad spectrum of military assignments paved the way for their eventual recruitment into our Armed Forces. As American author Emily Dickinson aptly phrased it, "We never know how high we are till we are called to rise, and then if we are true to plan, our statures touch the skies."

Since our nation's birth, women have provided combat support to the US military. Some were camp followers; others cared for the sick and wounded; and some found themselves in actual combat. Molly Pitcher reportedly assumed her wounded husband's duties as a cannoneer during the American Revolution.[1] Others, including Deborah Samson during the Revolutionary War and Lucy Brewer in the War of 1812, disguised themselves as men so they could participate in combat.[2] During the American Civil War, women, including Harriet Tubman and other black women, served as scouts, spies and nurses.[3] In World War I, more than 20,000 women served as US Army and Navy nurses.[4]

Plans for a women's service corps were submitted to the US War Department as early as 1926. Its members were to receive full military status and be used in wartime. However, the proposal was viewed with suspicion and hostility by the War Department and rejected, as were three subsequent plans.[5] Not until the eve of US involvement in World War II and the British women's courageous role in the Battle for Britain did serious planning take place to accept women into the US Armed Forces.[6] Even then, opposition from the Army staff and the US Congress delayed the passage of legislation creating the Women's Army Auxiliary Corps (WAAC) until May 1942.[7]

The WAAC faced numerous inconsistencies from the start. It was not part of the Army, but it was run by the Army. Women were not entitled to the same pay and promotion opportunities as men. Consequently, WAAC members had no binding contract and, therefore, could quit at any time.

After much debate and numerous attempts to impose amendments, a bill was passed in May 1943 establishing a Women's Army Corps (WAC) with full military status. The Navy Department followed suit in July 1943, establishing the Women Accepted for Volunteer Emergency Service (WAVES) and the Marine Corps Women's Reserve (women Marines had no official acronym). Four months later, the US Coast Guard Women's Reserve was established using the acronym SPAR, derived from the Coast Guard motto "*Semper Paratus*—Always Ready."

Following the attack on Pearl Harbor, women's enlistments surged but soon tapered off. With enlistments decreasing and realizing all the services were competing for the same resources, the Navy and Marine Corps hired advertising experts to set up and run their recruitment programs. The Army conducted rallies, nationwide publicity campaigns and door-to-door searches for new recruits. Women from every walk of life—debutantes, pilots, college professors, businesswomen, law students, housewives and factory workers—volunteered to take part in the war effort.

Despite massive efforts to recruit women, servicemen openly displayed hostility and disdain toward their joining the military. The campaign to recruit women for the war effort began in earnest with the themes "Release a Man for Sea" and "Release a Man to Fight." To some servicemen, this meant they could be moved from their safe jobs and reassigned to the front lines. To family members, it meant these women were responsible for sending their men away from home.

At the enlistment campaign's peak in late 1943, a humiliating and demoralizing campaign of a different kind began—a nationwide underground campaign of dirty jokes, obscenities and accusations that servicewomen were either sexually promiscuous or lesbians. The jokes and gossip soon moved from military bases into the civilian community where the news media joined in. The campaign was so widespread and disheartening that the president, first lady and service secretaries tried to minimize the rumors. A Federal Bureau of Investigation report determined it was US servicemen, not German agents, who invented and spread the rumors about the women, who were only responding to their perceived patriotic duty.[8]

Army Chief of Staff General George C. Marshall advocated respect and appreciation for the women's efforts. He was outraged by some circulated materials about the WAC, including negative general officer statements. Marshall wrote a letter to all commanders reminding them of their leadership responsibilities for their men's attitudes. Marine Corps Commandant Lieutenant General Thomas Holcomb warned his officers against "treating women Marines with disrespect. . . . In some cases, coarse or even obscene remarks are being made without restraint by male Marines. This conduct indicates a laxity in discipline and will not be tolerated. Commanding officers will be held responsible to this headquarters."[9]

As Normandy and New Guinea invasion preparations mounted, the War Department, faced with a diminishing pool of eligible men, estimated that more than 1.3 million military jobs could be done by women.[10] The War Department even proposed drafting women, stating that "an obligation rests with women, as well as men," to participate in the war.[11] Congress rejected the proposal. Women were eligible for 406 of the Army's 628 military occupational specialties, yet women's enlistments never reached

Army nurses prepare to disembark from a troop transport at Liverpool's Mersey River Princess Dock, 1944.

the War Department's recruitment goals—due primarily to the effects of the slander campaign, service competition for the same resources and the continuous male opposition to women in uniform.

While WAVES and SPARs were not allowed overseas, WACs were assigned to every theater. The WACs' largest deployment was to the European Theater of Operations (ETO). The first battalion of 555 enlisted and 294 officers landed in England in July 1943. They were assigned to various Army Air Forces stations, primarily as photographic interpreters, censors and cryptographers.[12] By December 1943, 1,200 WACs were in England. Their number peaked at 4,715 in 1944. The WACs in London withstood the German bombardment, and during the Normandy invasion, they closely followed the fighting forces aboard LSTs (landing ships, tank) and moved with advancing forces into France and Italy. On Victory in Europe Day, the total number of ETO WACs was 7,530.

The second largest deployment was to the Southwest Pacific Area (SWPA), where 5,500 women served. The first WACs arrived in Australia in May 1944. From there, WACs deployed to New Guinea and the Philippines. Compared to those serving in the ETO, WAC living conditions in SWPA were appalling. The standard diet was canned and dehydrated food. Housing ranged from wooden barracks with cement floors and outside showers and toilets to mud–floored tents and no laundry facilities.

The WACs were confined to barbed–wire camps, guarded by military police, and allowed to leave the camp only to work 12 to 15 hour shifts, 7 days a week. Most served 12–month tours, but nurses often served longer. The WACs were not allowed passes or leaves like their male counterparts, who could use Australian rest and rehabilitation centers. The military flights set up to take men on leave were off–limits to WACs. The official reason for this "camp policy" for WACs throughout SWPA was that "the women required protection from US troops who had not seen white women in 18 months." This policy was bitterly resented by both men and women. In spite of adverse conditions, the women triumphed. The SWPA authorities rated the WAC deployment as very successful.

The World War II record is full of testimonies to American servicewomen's outstanding performance. Once a woman was assigned to a unit, proved her competence and made it clear that she did not want special favors, most men responded favorably, even though some still deeply resented the invasion of their "world." Women became known early on as hard workers and fast learners. Those who said "over my dead body will I take a military woman" soon demanded their "fair share."[13] Leaders from every service had nothing but praise for their servicewomen.

Supreme Allied Commander General Dwight D. Eisenhower wrote, "During the time I have had WACs under my command, they have met every test and task assigned to them. . . . Their contributions in efficiency, skill, spirit and determination are immeasurable." Chief of Naval Operations Admiral Ernest J. King praised the WAVES for their competence, hard work and enthusiasm. He said, "They have become an inspiration to all hands in naval uniform."[14] Allied Air Forces SWPA Commander Lieutenant General George C. Kenney praised the women's caliber and stated that "each had better than replaced a soldier."[15] One commanding general called them "courageous soldiers," who, from Australia to Manila, "more than carried their own."[16]

From 1941 to 1945, more than 350,000 US military women served in nearly every conceivable noncombat function, including nurses, pilots, control–tower operators, gunner instructors, medical technicians and transporters. At war's end, women's recruitment came to a grinding halt. All but a few hundred nurses were separated from service. Women's Army, Navy and Marine line components declined to 14,000 who were kept only to help with demobilization.[17] The SPARs were totally disbanded. Many women found military service interesting and satisfying and volunteered to stay, hoping for permanent places in peacetime service. For all their commitment and bravery, the fate of those wanting to stay would wait until 1948 when President Harry S. Truman approved the Women's

Armed Services Integration Act. The act established permanent peacetime line components, with the number of women not to exceed 2 percent of the total military.[18] The act's intention was not to provide equity for military women but to serve as a nucleus for future wars.

The military's needs created a wealth of opportunities for women during World War II. Barriers against women fell one after another. Yet, at war's end, they were unable to maintain their gains. Their struggle for equity and progress in the US Armed Forces continues today. ***MR***

NOTES

1. *Minerva: Quarterly Report on Women and the Military* (Spring 1988), 2.
2. Ibid.
3. Martha S. Putney, *When the Nation Was in Need: Blacks in the Women's Army Corps During World War II* (Metuchen, NJ: The Scarecrow Press, Inc., 1992), vii.
4. In addition to the 20,000 nurses serving during World War I, some 12,500 women yeomen served in the US Navy Reserves and 300 women served in the US Marine Reserves as draftswomen, translators, camouflage designers, recruiters and clericals. The War Department did not enlist women for any purpose other than nursing.
5. In 1920, the War Department appointed Anita Phipps as director of women's relations under the G–1 General Staff Office. In 1926, Phipps proposed establishing a women's service corps.
6. In December 1941, the National Service Act No. 2 made British women subject to conscription. The only significant difference between conscription of men and women was women were not required to use or touch a lethal weapon without written consent. During the three years of conscription, 74,000 British women were inducted into the army.
7. House of Representatives Bill 4906 establishing the WAAC, was passed in May 1942. First Lady Eleanor Roosevelt and Oveta Culp Hobby, WAAC director, worked together for the bill's passage.
8. The president accused the press of a "deliberate newspaper job." Mrs. Roosevelt claimed the rumors were Nazi propaganda and "that Americans fall for Axis–inspired propaganda like children."
9. Letter sent to all commanders reminding them of their responsibility for the behavior of male Marines toward their female counterparts.
10. By mid–winter 1943–1944, there were 11 million men in uniform, and more were needed.
11. Major General Jeanne Holm, USAF, Ret., *Women in the Military: An Unfinished Revolution* (Novato, CA: Presidio Press, 1982), 57.
12. Of the major Army commands, the Army Air Forces welcomed the WAAC/WACs' assignments most enthusiastically. When the anti–WAC slander campaign swept through the service and civilian sectors, Army Air Forces Commander General Henry R. Arnold directed his field commanders to take prompt disciplinary action against any man who participated in or encouraged the gossip or jokes.
13. Holm, 50.
14. Ibid., 101.
15. Ibid., 90.
16. Ibid.
17. The demobilization target date was set for June 1946.
18. Permanent status for the Nurse Corps was established in 1947.

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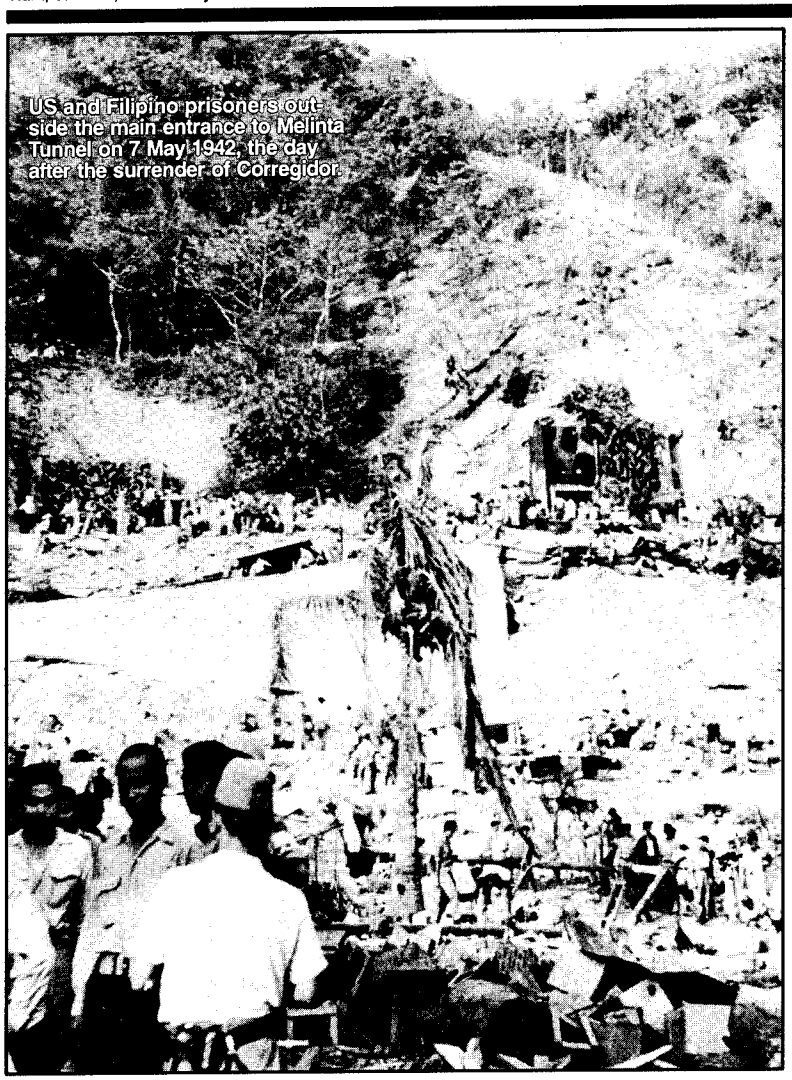


US and Filipino prisoners outside the main entrance to Melinta Tunnel on 7 May 1942, the day after the surrender of Corregidor.

Staying Alive

Joy Kitchens

Charles B. Jordan, now 71, was a 19–year–old corporal with the 59th Coast Artillery when the Japanese conquered the Philippines and took him prisoner. This is his story.

When the Japanese attacked, I had been in the Philippines since April 1942. I was stationed at Fort Drum on the small El Fraile Island, one of the fortified islands at the entrance to Manila Bay. El Fraile had been leveled below the waterline, and Fort Drum was built on it like a cement battleship. Fort Drum had four 6–inch and four 14–inch guns, with some of the gun shells weighing 1,660 pounds. The guns were operated electronically except for the closing and opening of the breech block, just like on a battleship. I was a battery electrician on two of the guns, working on a platform with electrical switches all around. On command, I gave the guns power.

When the Japanese attacked all the fortified islands at the mouth of Manila Bay, we were just like gophers in their holes. Anytime we stuck our heads up, the Japanese shot at us. We were under constant bombardment because we had no air cover. We fired six rounds to the left and six rounds to the middle with our 14–inch guns. The night of 5 May 1942, on a barge

US soldiers in Lateral 12 of Melinta Tunnel, Corregidor. Four days after this photo was shipped out on the last submarine leaving the island, these men were taken prisoner by the Japanese.

under the white flag of truce, the Japanese went to see Lieutenant General Jonathan M. Wainwright at his headquarters on the largest island at the bay's entrance—Corregidor. He was told, "We'll come back and we'll come back, until we starve you out, and then, we will kill every one of your men and all the men on Bataan too." Wainwright agreed to surrender at noon the next day, 6 May. We took all our rifles and ammunition and threw them into the ocean, threw nuts and bolts into the gun barrels, drained the big guns' recoil oil and dumped our fuel oil into the water.

When the Japanese came, I thought we would be shot. They lined us up, aiming their machineguns at us. I was on the front row, looking right down the barrel of a machinegun. The Japanese officer in charge held his sword over his head. We knew if he dropped his sword, the Japanese would start firing. I thought we were goners. We stood there for 30 minutes until he ordered the guards to back off with their machineguns.

We were then taken in boats to a bombed-out dock where they made us pass rocks to fill holes. Surrounded by guards with machineguns, we just kept passing rocks. For almost three days, they didn't feed us or give us any water but drank water in front of us. I had read about a trick to fight thirst. I took a button off my shirt and kept it in my mouth. I think this saved me.

One night, we decided we would not allow our captors to starve us to death. If they were going to kill us, they would have to shoot us. We planned to jump them when they changed the guard. When our colonel heard our plan, he went to the Japanese captain in charge. He walked the length of the dock, right past a guard with a bayonet pointed straight at him. The colonel calmly pushed the gun aside. I knew he was going to get a bayonet in his back, but he didn't.

When he got back, the colonel told us he had been worried about how he would talk to the captain without knowing how to speak Japanese. When he got to the office, though, the Japanese captain said in perfect English, "Where in the hell did you come from?" He had graduated from Stanford University. Our colonel told him, 'I've got 248 men. You can't get rid of them all before we kill a lot of your men and whoever is running this show." The captain said, "I just follow commands." He made a phone call, however, and tried to get something done about the situation. That night, they stopped the work and gave us water.

The next day, the Japanese picked 10 men for a "work detail." I asked to go, but they wouldn't take me. They took the biggest, strongest, best-built soldiers and the youngest, strongest officer. They executed all of them in front of the local people to save face. They also made us march for about 2 1/2 hours in the hot sun in front of the locals. Some men went crazy. I remember a Filipino lady with tears streaming down her face who handed me a raw egg. I have never liked eggs, but I ate that egg, shell and all. We were then marched to Manila.

From there, they took us on a train to Cabanatuan 1. Later, they moved us 18 miles to Cabanatuan 3. I was there only three days before I got diarrhea. The Japanese had dug trench latrines, but we were so weak, we couldn't even get to them. I was lying on the ground with a friend on my right and a friend on my left, trying to encourage them. After a while, the one on the right shut up, and I knew he was dead. That evening, the one on the left didn't answer me, so I knew he was gone too.

The men who were healthy would go past us on the trail to the latrine. One man stopped and introduced himself as Bill Krunk from Smackover, Arkansas. I told him my name and said I was from Pine Bluff, Arkansas. He asked how I was doing. I told him my friends had died, and I believed I would be the next to die because I couldn't do anything to stop my diarrhea. He said, "Wait a minute." A little while later, he came back with some cheese and crackers. He had gotten out on a work detail, and he had a little US money. He had been buying things from the Filipinos and selling half for what he had put into it and eating the rest. He shared his food with me and saved my life.

Near Cabanatuan 3, the Filipinos who had once been headhunters were decapitating the Japanese guards. The guards would call back and forth to each other all night. Sometimes, we would hear one of them squawk and

Joy Kitchens is from Iuka, Mississippi. She has a B.A. from the University of North Alabama. This "World War II Almanac" is based on her interviews with Charles B. Jordan and is an account of his life as a Japanese prisoner of war during World War II.

knew his head had been cut off. The Japanese would find their headless bodies the next day.

Because so many Japanese guards were beheaded at Cabanatuan 3 and so many Americans had died at Cabanatuan 1, the Japanese moved us back to Cabanatuan 1. There, diphtheria broke out. Of course, I caught it. Three other men and I were the first ones to live through it. The Japanese were frightened to death of diphtheria. They kept us in an area to wait on the others who were sick.

Many of us were then shipped to Japan. The night before we left, I caught malaria. The doctor told the guards I had it, but they said they didn't care. They had orders to take us, and I was going. I went to Manila with a high fever, shaking terribly, and was put on a boat to Japan. On the boat, one prisoner of war (POW) had an acute appendicitis. A US doctor, another POW, said the appendix had to come out. The Japanese lent us a pocket knife, which we sterilized over a candle. The doctor operated without anesthesia, while several other POWs and I held the man down. The doctor then sewed him up with a sewing kit lent to him by a Japanese soldier. The patient lived.

The boat took us to Omuta, Japan, on the coast of Kyushu, about 60 miles from Nagasaki. There, we were forced to strip a worked–out coal mine. It was like knocking out the walls of a house and trying to leave the ceiling up. I was working with a crew of 10 POWs and a Japanese civilian who watched over us. We went down a side passageway to mine out a wall, taking jackhammers, picking out holes and dynamiting them with clay. Whoever was in charge of getting the clay that day forgot it, so I was told to walk back about a mile, get it and return. I had started off when I heard this big boom. I was knocked to the ground, rocks falling all around me. Right there, where I had just been, the mine had caved in and those men were buried alive.

I told the Japanese, but they just sealed off the mine, saying it was unsafe to do anything. I still have awful nightmares about this. In my dreams, the people who died come up and say, "Why didn't they send me for the clay? Why did you live?" Toward the end of our captivity, some POWs used their picks to break their own arms and legs to get out of working in the mines, they were so dangerous.

Year–round, we wore short–sleeved shirts and knee–length pants. In winter, we wrapped our legs in orange leggings and wore the Japanese two–toed shoes, walking 2 miles through cold and ice to the coal mines. Down in the mines, we took off everything, except a g–string, because it was about 125 degrees. After work, we went back up the shaft into the cold. I had pneumonia several times. Five or six times they put me in a pile of men who were left to die.

For food, we ate mostly rice. The rice bowl was leveled off if you worked in the mines. If you worked above the mines, it was cut back by a third. If you were sick, it was cut in half. We were also fed a little bit of so–called soup, which, if we were lucky, had a few vegetables floating around in it. And we got some hot water that was supposed to be tea.

When I got out of the POW camp, my 5–foot, 9–inch frame weighed 98

JULY-AUGUST 1945

Combat Studies Institute, USACGSC

JULY

Monday 2—At Balikpapan on Borneo, after landing the day before, the 7th Australian Division captures the rich oil facilities there.

Tuesday 3—French, British, Soviet and US forces officially occupy their administrative zones in Berlin, Germany.

Wednesday 4—Filipino guerrillas and US forces continue to clear Mindanao.

Thursday 5—Australia's wartime leader, Prime Minister John Curtin, dies.

Monday 9—On Borneo, Dutch troops land north of Balikpapan Bay.

Tuesday 10—In its largest bombing attack to date, Tokyo is bombed by 1,000 US and British aircraft.

Wednesday 11—In Berlin, the first Allied council meeting takes place; the French agree to ally with the British, Soviets and Americans.

Thursday 12—Japan requests the Soviet Union's help to negotiate a settlement with the Western Allies.

Friday 13—Italy declares war against the Japanese Empire.

Saturday 14—For the first time, US Navy ships fire their guns against the home islands of Japan, shelling Hokkaido.

Sunday 15—US Army Air Corps bombers inflict massive damage on 10 Japanese cities.

Monday 16—At Alamogordo, New Mexico, the United States conducts the first atomic weapon test.

Tuesday 17—The final Allied conference begins in Potsdam, Germany, with heads of state Winston Churchill, Joseph Stalin and Harry S. Truman.

Wednesday 18—On Borneo, Australian troops find the Sambodja oil fields undefended and occupy the facilities.

Thursday 19—The US Congress ratifies the Bretton Woods (New Hampshire) Conference Agreement, which sets up the International Bank for Reconstruction and Development, the International Monetary Fund and other postwar financial structures.

Friday 20—US radio broadcasts begin demanding the surrender of Japan.

Monday 23—England and the United States begin a series of air and sea strikes against the Japanese islands of Kyushu and Shikoku.

Tuesday 24—Truman decides the atomic bomb will be used against Japan.

Wednesday 25—At Potsdam, Allied leaders issue a statement calling on Japan to surrender or be destroyed.

Thursday 26—The final results of England's election are made public, ousting Churchill and the Conservative Party.

Friday 27—The Allies drop leaflets on Japan's larger cities, urging surrender.

Saturday 28—Off Okinawa, the destroyer USS *Callaghan* is sunk by a *kamikaze* attack.

Monday 30—As Japanese citizens begin starving, the Japanese government officially rejects the Potsdam ultimatum.

Tuesday 31—Pierre Laval, premier of the French Vichy government that pursued a policy of collaboration with Germany, surrenders to US Army units in Linz, Austria. He is later turned over to the French army, found guilty of treason and executed by a firing squad.

AUGUST

Wednesday 1 — Allied mines, dropped by air, disrupt traffic on the Yangtze River in China.

pounds instead of its usual 165 pounds. I had weighed as little as 58 pounds during my captivity. When I got back to American food in a US hospital, in three months I weighed 190 pounds, the most I have ever weighed. Every week or two, I was changing my uniform. I started out with a 14 1/2–inch neck and a 28–inch waist and ended up with a 16 1/2–inch neck and a 38–inch waist.

For the first six months in Japan, we would work for six days with the seventh day off. After that, I guess the war was going so badly for them, they gave us no time off. What saved the day was a big bath house with its very hot water. When we came in from the coal mines, we were so cold that even if the water had been boiling, we wouldn't have known it. It took about 10 minutes for out bodies to thaw and begin tingling.

I worked in the coal mines for a little more than two years. Then, I developed chronic bronchitis. I couldn't stay in the mines more than two days before I became so stopped up I couldn't breathe. The Japanese finally gave up and put me to work above ground with the Japanese civilians.

I learned a lot about those poor people. The US civilians might have thought they had it hard during the war, but their hardship couldn't compare to that of the average Japanese citizen. Everything was controlled. The emperor was god, then came Prime Minister Tojo and then the army, air force and navy. The civilians were at the bottom of the heap. From the time they were born, the government told them what they would do, including what work.

Toward war's end, the United States began bombing Japan. One night, the Americans bombed the town where we were. Half our camp burned down that night. In the town, the people lived in little old grass shacks, under which the Japanese government had made them dig bomb shelters. The Americans dropped fire bombs from B–17 bombers that night, setting the shacks on fire. We could hear the Japanese screaming below their houses.

I was on fire–fighting detail with two other men the day they dropped the atomic bomb on Nagasaki. I don't know what the Japanese thought we were going to do since we didn't have anything to fight fires with. This was the first time I saw a B–24 bomber. I had never seen anything larger than a B–10. The B–24s started strafing us. The bullets were coming down right beside me. I didn't even notice. One man grabbed me and said, "Come on you fool! Do you want to get shot to death?" I said, "Did you see those planes? Have you ever seen anything like that?" He replied, "No, but I don't want to get killed for it, either."

Later that day, they dropped the atomic bomb. We felt the ground shake, and we saw the mushroom cloud rising. We knew it was Nagasaki and that it was a naval base, but we couldn't imagine what they had hit to have caused anything like that.

A few days later, we knew something was up because the Japanese told us, "No work today. This is a holiday." Well, that had never happened before. The next morning when we got up, the Japanese soldiers were all gone, and the Japanese commander handed his sword to our commander, telling him, "The war is over."

Thursday 2—US Army Air Corps B–29s bomb five Japanese cities.

Friday 3—Japanese forces under Major General T. Koba suffer heavy losses attempting to break out of Burma.

Sunday 5—In northeast China, the Chinese 58th Division captures Changch'un.

Monday 6—A B–29 bomber, the *Enola Gay*, detonates an atomic bomb over Hiroshima, Honshu Island, Japan, killing an estimated 70,000 to 80,000 people and destroying the city.

Wednesday 8—The Soviet Union declares war on Japan.

Thursday 9—A B–29 detonates the second atomic bomb over Nagasaki, Kyushu Island, Japan, killing 40,000 to 70,000 people and destroying much of the city.

The Soviet Union launches a massive assault against Japanese forces in Manchuria.

Friday 10—Japanese radio announces Japan will agree to armistice terms based upon the Potsdam Declaration, as long as Emperor Showa Hirohito's position remains unchanged.

Saturday 11—The Allies announce that the Potsdam terms are agreeable, but Emperor Hirohito must be subservient to Allied policy.

Sunday 12—Red Army forces invade Sakhalin Island.

Monday 13—While Allied aircraft drop surrender leaflets on Japanese cities, 1,600 Allied aircraft bomb Tokyo.

Tuesday 14—Hirohito stops the feuding of his generals over whether to surrender and demands an end to the war. Late at night, palace guards foil the attempt of right–wing army officers to steal the emperor's surrender speech.

Wednesday 15—Over the radio, Hirohito announces the surrender of Japan. All offensive action against Japan ends. The Allies announce Victory in Japan Day, which results in widespread celebration. The US government announces the end of rationing for canned goods and gasoline.

General Douglas MacArthur receives notice that he is Supreme Commander for the Allied Powers.

Sunday 19—The Japanese delegation arrives in Manila for a conference on formal surrender arrangements.

Thursday 30—After an advance party's arrival two days before, occupation of Japan begins in force by the US 11th Airborne Division at the Atsugi Airfield and the 4th Marines, 6th Marine Division, at Yokusuka Naval Base.

On 2 September, hostilities with Japan officially end with the signing of the instrument of surrender aboard the USS *Missouri* in Tokyo Bay. US Army battle casualties during World War II total 936,259, or about 9 percent of the 10,420,000 military personnel who served in the US Army and Army Air Forces. Not until 31 December 1946 are hostilities declared terminated by presidential proclamation.

Editor's Note—Military Review *thanks Dr. Samuel J. Lewis, Combat Studies Institute, US Army Command and General Staff College, who has prepared the "World War II Almanac Chronology" since September 1993. With the end of World War II hostilities 50 years ago, the "Chronology" also ends with this issue. The "World War II Almanac," however, will continue through 1996, covering related follow–on subjects such as demobilization and the armies of occupation. Again, our thanks to Dr. Lewis.*

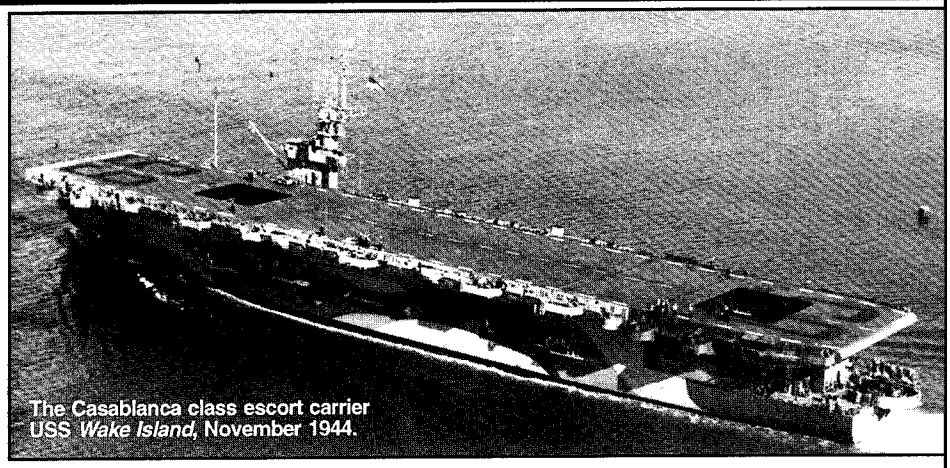
The United States then began dropping rations via parachutes, a very dangerous thing since the rations break away from the parachutes. A good friend of mine was in a barracks when some rations came through the straw roof. They hit him across his legs, cutting them off. He died instantly. He had lived through the Bataan Death March and all those months as a POW and was killed like that.

We decided not to wait for any liberation Army. We hopped trains, even freight trains, to get to the southern part of Kyushu Island where American planes were flying to Okinawa. On our flight to Okinawa, we flew over Nagasaki before it was cleaned up. When I looked down, there was nothing in the center where the bomb had been dropped—no trees, no houses, nothing. Just burnt earth. Out from that circle was an area that looked like it had been hit by a tornado. A little farther out, the land looked like it had been hit by a hurricane.

From Okinawa, we flew to the Philippines in a B–17 bomber. When we got to Manila, US soldiers were preparing to invade Japan. It's a good thing they didn't have to. The atomic bomb saved many lives. The Japanese were prepared to fight to the death. ***MR***

The Jinx Slot—Portside Aft

Joe A. Ricciardi



The Casablanca class escort carrier USS *Wake Island*, November 1944.

During World War II, Japanese pilots were recruited for one–way suicide missions and trained to dive headlong with explosive–laden planes into US ships, especially aircraft carriers. Called *kamikaze* pilots, they were told their flight to glory was an immediate ascent to heaven. The word *kamikaze* means "divine wind." Its origin is from Japanese history, when a huge Chinese armada, coming to invade Japan, was suddenly engulfed by a fierce typhoon and destroyed.

In the fall of 1944, those of us on board the escort carrier USS *Wake Island* began to realize that the last three carriers sunk by *kamikaze* pilots had been in the portside aft fleet position. The first, the escort carrier *St. Lo*, which was attached to another fleet, was 150 miles east of Leyte Island in the Philippines on 25 October 1944 when it was struck and sunk by a *kamikaze*. Its fleet formation slot was portside aft.

Then, on 4 January 1945, while our fleet was en route through the island straits near Luzon, a *kamikaze* caught us by surprise. The escort carrier *Ommaney Bay*'s elevator was down, exposing a large, open hole leading directly to the carrier's bombs, gas and planes and providing the perfect attack target. The *kamikaze* strike created an instant holocaust on the *Ommaney Bay*—also in the portside aft slot—as it sank. From our carrier, we heard the loud, muffled explosions and saw tall, pine tree–shaped orange flames licking skyward and billowing black and gray smoke. The fleet could not stop. Three destroyers were dispatched to the doomed, sinking carrier to pick up survivors. Luckily, most of the crew was saved.

Later, at dusk on 21 February 1945, as we watched Iwo Jima being bombed, rocketed and strafed, two *kamikazes* broke through the massive fire screen and sank the *Bismarck Sea*—the third portside aft escort carrier sunk. We saw heavy smoke on the port quarter as "tin cans" (destroyers) streaked toward the stricken carrier for rescue and defense. By now, the portside aft position was a condemned position, a jinx slot!

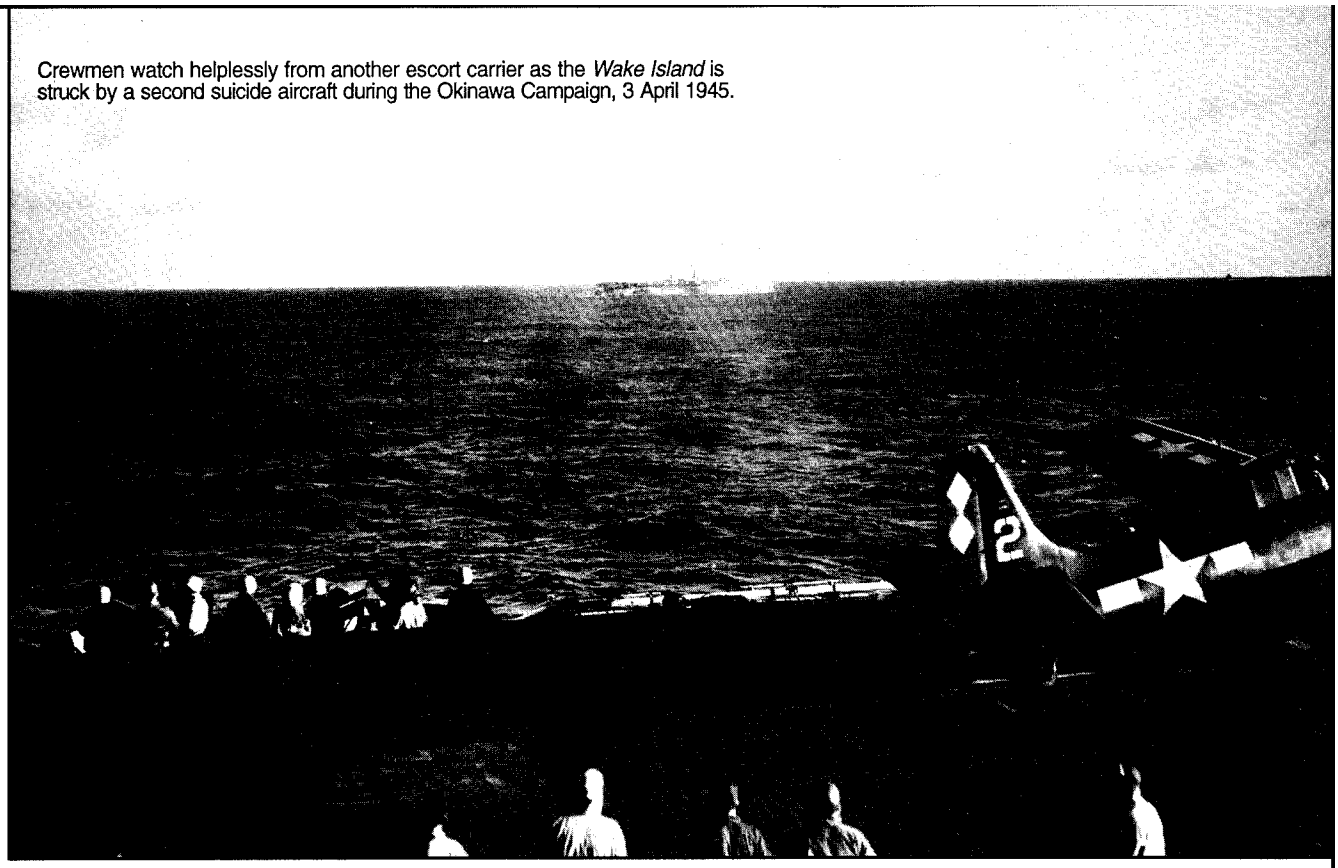
Joe A. Ricciardi joined the US Navy in September 1943 at age 18. After basic and flight training as an Avenger (torpedo dive bomber) pilot, Petty Officer Third Class Ricciardi was assigned in October 1944 to the escort carrier USS Wake Island *out of Pearl Harbor. His aircrew remained intact, participating in the Philippine, Iwo Jima and Okinawa campaigns and flying 78 missions, of which 49 involved enemy air or bombing missions. His aircrew was awarded two Distinguished Flying Crosses, six Air Medals and two Navy Unit Commendation awards, among others. He was discharged from the Navy in October 1945. He worked for Raytheon Company for 38 years, where he was a senior cost estimator on the Hawk and Patriot missile systems.*

While building the new fleet formation for the Okinawa invasion, most scuttlebutt and anxiety focused on which carrier would draw the jinx slot. Would it suffer the same fate as the other three carriers? As we headed north, our carrier, the *Wake Island*, drew the jinx slot. We gulped and mulled our pending fate.

On Easter Sunday morning, 1 April 1945, the invasion began. On a bombing strike that morning with my aircrew, I had an unrestricted view from above. It was a spectacular panoramic scene—scores of landing craft in a fairly even line, trailing long, white wake streamers, as they headed into the enemy beach and a nest of fire.

We had begun to forget the jinx when, on 3 April 1945, two *kamikazes* flew through the destroyer screen and chose our carrier. Caught by surprise, we could only muster light fire against them. They bore in through moderate flak, one trailing the other. The first dove into *Wake Island*'s starboard side, forward of the island superstructure. It hammer–punctured the hull, blowing an opening 45 feet by 18 feet at the waterline. The violent explosion spelled disaster. The wounded ship vibrated and convulsed. It seemed to stop dead.

Crewmen watch helplessly from another escort carrier as the *Wake Island* is struck by a second suicide aircraft during the Okinawa Campaign, 3 April 1945.



There was no time to recoup before the trailing *kamikaze* bore down on the flight deck. From the dive angle, the pilot's dynamite–laden plane was going to strike forward of midship, about 20 feet from where a buddy and I stood on the port catwalk. As the gap closed, our eyes were transfixed on the "red meatball" (rising sun) painted on the wing. We watched spellbound at this downward–plunging human bomb. In our stupor, we did not realize our possible imminent deaths.

At the last instant, like a car swerving to avoid a head–on crash, the *kamikaze* aborted his dive, pulling up and veering to the left. His speed and low altitude did not allow him to clear the ship. The plane's wing tip caught the flight deck edge. The plane somersaulted and corkscrewed into the ocean just off the port bow. My friend and I, still standing mesmerized on the catwalk 40 feet aft of where the wing hit, simultaneously unglued our feet and dove head first into an adjacent open hatchway. A huge eruption and tremor followed when the plane smashed into the ocean, shaking the ship again. Sprawled in the passageway, we saw the light flash from the blast. Luckily, the plane's distance from the carrier and ocean water density absorbed the explosion's brunt.

Shaken, we got up and ran to our general quarters stations, not knowing how serious the ship's damage was or whether abandon ship would be sounded. The portside damage was minimal except for hull leakage. The starboard side blow was the most serious. Our crippled carrier was taking in water and developing a noticeable list. Watertight compartments and pumps kept the *Wake Island* afloat. Fire control and damage repair parties were in action. The injured were being cared for. With its eerie list, our damaged escort carrier, with tin can protection, slowly hobbled for emergency repairs at Naha, an Okinawa port in US hands.

Why the second *kamikaze* pilot pulled up will never be known. After three in a row, the portside aft jinx had been broken. We did not sink. The *Wake Island* was repaired and later rejoined the fleet. ***MR***

Letters continued from page 3

its application. Peacekeeping operations developed over time when UN attempts to use Chapters VI and VII authorization were blocked by a UN Security Council veto. In *The Blue Helmets*, the UN explains that "the differences among the member nations of the UN Security Council . . . affected the functioning of the organization. As conflicts arose, they could not be resolved by peaceful means. A policy developed out of necessity to stop these hostilities and prevent their spreading"—called peacekeeping. No theory or doctrine within the UN Charter supports it. M. A. Vogt, a peacekeeping scholar, says in her book *The Problems and Challenges of Peacemaking* that "the major aim of peacekeeping is to create the appropriate secure environment within which the conflict can be negotiated."

After the UN Persian Gulf success, the UN Security Council met on 31 January 1992 to endorse an enhanced UN role in the post–Cold War era. The council noted the expansion of peacekeeping tasks in recent years, including election monitoring, human rights verification and the repatriation of refugees. The council invited the Secretary General to provide his analysis and recommend ways to strengthen peacekeeping, which resulted in his book *An Agenda for Peace: Preventive Diplomacy, Peacemaking and Peacekeeping.*

Boutros–Ghali reviewed the entire spectrum of UN operations and provided definitions for preventive diplomacy, peacemaking, peacekeeping and peace building. He defined

peacekeeping as "the deployment of a UN presence in the field, hitherto with the consent of all parties concerned, normally involving UN military and/or police personnel and, frequently, civilians as well. Peacekeeping is a technique that expands the possibilities for both the prevention of conflict and the making of peace."

He outlined a UN vision that went beyond traditional UN definitions of activities and proposed an expansion of UN authority. By qualifying the definition of peacekeeping, saying that such a UN presence had until now been deployed only "with the consent of all the parties concerned," Boutros–Ghali indicated his willingness to expand the idea. He also redefined peacekeeping as carrying the potential to make (enforce) the peace.

The UN's actions since the publication of *An Agenda for Peace* indicate that the UN Security Council shares his views. In Somalia, Yugoslavia and Rwanda, humanitarian concerns led the council to expand the scope of situations determined to constitute "a threat to international peace and security"—the trigger mechanism for UN force deployment under Chapter VII. The traditional requirement for the consent of the parties to a dispute has been relaxed.

Peacekeepers, once faced with supervising and assisting in cease–fires and troop withdrawals and serving as buffer forces between opposing sides, are now dealing with civil wars, secessions, ethnic clashes and tribal struggles. Boutros–Ghali has taken on the cause of rescuing "failed states." An article, "UN Operations: Not Only Expanding, but Breaking New Ground," in the *UN Chronicle*, September 1993, addressed this point. In a failed state endeavor, the UN has increasingly used military force to "strengthen institutions, encourage political participation, protect human rights, conduct humanitarian relief, organize elections and promote social and economic development." Boutros–Ghali defines, in theory and practice, peacekeeping as going beyond the traditional role and sees peacekeepers being emplaced to create an environment to sustain peace.

The results of this lack of understanding between the US and UN definitions of peacekeeping were readily apparent in Somalia. Boyd says the US–led Operation *Restore Hope* was actually a tremendous success. He is right. Unfortunately, the operation was rapidly turned over to the UN Operation–Somalia II (UNOSOM II) with an expanded mandate. After Mohammed Farrah Aideed's attack on Pakistani peacekeepers, Boutros–Ghali called on the UN to take "all necessary measures . . . to establish the effective authority of UNOSOM II throughout Somalia." The United States fell victim to this expanded UN policy in Somalia, drawing the military rapidly into a peace enforcement role for which it was unprepared. US public support for the operation plummeted. The United States publicly announced the withdrawal of all US forces, which was followed by UN withdrawal. Once again, the warring clans battled for control of Mogadishu.

The expanded UN peacekeeper role has created a complex, challenging environment for the military forces charged with peacekeeping. Peacekeepers are finding themselves in environments where their presence is not welcomed by all parties. In such a situation, they find it nearly impossible to remain neutral. Equipped and trained to do no more than observe and protect themselves, modern–day peacekeepers find it increasingly difficult to accomplish their mission. US soldiers preparing for a peacekeeping mission have a valuable tool in FM 100–23. However, an important step to include in mission preparation is an understanding of the differences between the US and UN definitions of peacekeeping: the United States draws a distinction between peacekeeping and peace enforcement; the UN does not. Any US force sent on a peacekeeping mission under UN control needs to be aware of the possible escalation of its role. As the war in Bosnia escalates, this understanding may be all too critical.

CPT John W. Loffert Jr., *USA,*
A Company (CI), 527th Military Intelligence Battalion, Augsburg, Germany

Correction

In the March–April 1995 review of Paddy Griffith's book *German Battle Tactics of the Western Front: The British Army's Art of Attack, 1916–18*, reviewed by Colonel Richard M. Swain, US Army, retired, Shelford Bidwell's name was incorrectly spelled as Shelford Biowell (page 107).

DTIC to Hold Annual Conference

The Defense Technical Information Center (DTIC) will hold its Annual Users Meeting and Training Conference 30 October to 2 November 1995 at the Stouffer Renaissance Hotel in Arlington, Virginia. This year's conference will include speakers and sessions addressing numerous information types available to the Department of Defense community through the Internet, DTIC and other government agencies. For more information or conference registration, call Julia Foscue, conference coordinator, at (703) 274–3848 or DSN 284–3848. Electronic access to DTIC can be routed through E–mail, jfoscue@DTIC.dla.mil.

Army Aviation Association to Host Annual Symposium

The Army Aviation Association of America's Aviation Electronic Combat (AEC) Symposium will be held 30 October to 1 November 1995 at the Galt House Hotel in Louisville, Kentucky. The symposium will explore "Joint Aviation Electronic Combat." For more information, call Bill Harris at (203) 226–8184. Electronic access to the association can be routed through CompuServe; 34023, 7400@compuserve.com.

ALMC Hosts Annual Symposium

The 34th Army Operations Research Symposium will be held 10 to 12 October 1995 at the US Army Logistics Management College (ALMC), Fort Lee, Virginia. The theme for this year's symposium is "Force XXI: Changing the Way We Change." This year's symposium will focus on participative working groups aimed at fostering discussions on what analysis types should be retained, modified or replaced to best support decisions shaping Force XXI. Due to concurrent session scheduling, abstracts are invited for papers, case histories or briefings. Contact Fred McCoy at (703) 756–0854 or DSN 289–1818 for more information.

MR Insights

Clausewitz and Military Genius

Thomas H. Killion

No great commander was ever a man of limited intellect.

—Carl von Clausewitz

In the classic *On War*, Carl von Clausewitz presents a comprehensive war theory—the military genius concept.[1] In Clausewitz's view, commanders significantly influence the war's conduct through setting objectives, combat decision making and leadership during war's chaos and confusion. Military genius reflects the instinct great commanders display for assessing the situation and making the right choices on the battlefield. Additionally, a primary goal of Clausewitz's war theory was to capture the essence of such genius, since "what genius does is the best rule, and theory can do no better than show how and why this should be the case."[2]

Defining Military Genius

Clausewitz's starting point for defining military genius is his assessment of the commonly accepted meaning of genius: "A very highly developed mental aptitude for a particular occupation."[3] He then identifies and discusses various characteristics that contribute to the overall military genius quality. These characteristics fall into two general categories: intellectual and personality (or temperament), as depicted in Figure 1.

On the intellectual side, Clausewitz identifies three basic components. First, a military genius must have a broad knowledge base, specifically focused on military–related information. Second, this knowledge must be so ingrained as to become innate, directly influencing the commander's perceptions and decisions. As Clausewitz states, "The commander's knowledge must be transformed into a genuine capability."[4] This fosters an ability to perceive the situation's truth during uncertainty and chaos. This *coup d'oeil* (intuition) allows the commander to quickly recognize the truth ordinarily missed or only perceived after significant study and reflection.[5] The ability to assess the situation rapidly and accurately gives a great commander the presence of mind to deal quickly and confidently with the unexpected and the ability to make rapid and accurate decisions in the presence of uncertainty.

Finally, the commander must possess a "sense of locality"— spatial awareness that allows him to visualize the battlefield and account for the terrain influence on operations.[6] This capability is a component of what is now called the "commander's image."[7] This image incorporates the commander's perceptions of unit positions, status of friendly and enemy forces and relevant terrain and battle objectives.

Clausewitz summarizes the importance of intellectual capabilities in warfare by stating, "The vital contribution of intelligence is clear throughout. No wonder then, that war, though it may appear to be uncomplicated, cannot be waged with distinction except by men of outstanding intellect."[8]

Concerning temperament or personality, Clausewitz identifies factors equally important to military genius intellectual capabilities. Primary among these factors is courage—personal courage in adversity and the courage of one's convictions concerning the consequences of decisions for the soldiers under one's command. Factors such as determination, firmness or stability, endurance and strength of character are essential for effective leadership. This includes sticking to decisions and motivating troops to overcome war's wearing effects. Boldness, energy and vigor must be tempered by self–control and a calm nature.

Clearly, these intellectual and personality characteristics are interdependent. The firmness, self–confidence and decisiveness that military geniuses display are due in no small measure to the knowledge level they have achieved. Conversely, energy, determination and ambition directly contribute to the necessary pursuit of education, training and experience essential to developing this knowledge and capability.

Genius and Expert Concepts

In many ways, Clausewitz's military *genius* concept has much in common with today's *expert* concept. Various expertise studies have shown the importance of having a large, well–integrated knowledge base. This allows the expert to recognize many situations as representing certain classes of problems and to rapidly identify or adapt appropriate strategies for action. Such analogical problem solving and decision making are characteristic of experts.[9]

Characteristics of Military Genius

Intellectual	Personality
Sensitive and discriminating judgment	Courage
Coup d'oeil (intuition)	Determination
Presence of mind	Strength of character
Sense of locality (spatial awareness)	Self–control
Comprehensive knowledge	Boldness
Firmness of convictions	Energy and vigor
Understanding of human nature	Ambition (for honor or fame)
Understanding of friction	Firmness and stability
Experience in war	Endurance

Figure 1

Beyond such purely intellectual factors, James Shanteau has identified numerous expert decision-maker characteristics that correspond in many ways to the essence of military genius described by Clausewitz.[10] The similarities between the two descriptions, shown in Figure 2, accentuate Clausewitz's insightfulness and the identified characteristics' continuing relevance. Figure 2 also has implications for the ability to learn or acquire each factor.

The military genius concept was critical to Clausewitz, given his emphasis on the senior commander's or commander in chief's (CINC's) central role in setting objectives, assessing the battle situation, making decisions and motivating troops. The CINC's understanding of the political purpose allows him to establish appropriate military objectives. The military genius' intuition provides accurate battle perception during chaos and confusion, allowing the commander to select the proper course of action. The commander's energy and strength of character enable him to overcome the effects of friction on his troops. Throughout his work, Clausewitz places heavy emphasis on warfare's psychological aspects, which he refers to as the "moral factors" in war. One of his three principal moral elements is "the

Expert and Military Genius Concept Comparisons

Expert Decision Makers*	Military Genius**
A highly developed perceptual ability—experts can *see* what others cannot.	"*Coup d'oeil*: the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection." (102)
An awareness of the difference between relevant and irrelevant information—experts know how to concentrate on what is important.	"What this task requires in the way of higher intellectual gifts is a sense of unity and a power of judgment raised to a marvelous pitch of vision, which easily grasps and dismisses a thousand remote possibilities that an ordinary mind would labor to identify and wear itself out in doing so." (112)
An ability to simplify complexities—experts can *make sense out of chaos.*	"Circumstances vary so enormously in war, and are so indefinable, that a vast array of factors has to be appreciated. . . . The man responsible for evaluating the whole must bring to his task the quality of intuition that perceives the truth at every point. Otherwise a chaos of opinions and considerations would arise and fatally entangle judgment." (112)
A strong set of communication skills—experts know how to convince others of their expertise.	"As each man's strength gives out, as it no longer responds to his will, the inertia of the whole gradually comes to rest on the commander's will alone. The ardor of his spirit must rekindle the flame of purpose in all others; his inward fire must revive their hope. Only to the extent that he can do this will he retain his hold on his men and keep control." (105)
A knowledge of when to make exceptions—experts know when and when not to follow decision rules.	"it lay in the realm of genius, *which rises above all rules.*" (136)
A strong sense of responsibility for their choices—experts are not afraid to stand behind their decisions.	"Determination [is] the courage to accept responsibility, courage in the face of a moral danger. Looked at in this way, the role of determination is to limit the agonies of doubt and the perils of hesitation when the motives for action are inadequate." (103)
A selectivity about which problems to solve—experts know which decisions to make and which not to [make].	"War is the realm of uncertainty; three quarters of the factors on which action in war are based are wrapped in a fog of greater or lesser uncertainty. A sensitive and discriminating judgment is called for; a skilled intelligence to scent out the truth." (101)
An outward confidence in their decisions—experts believe in themselves and their abilities.	"Often there is a gap between principles and actual events that cannot always be bridged by a succession of logical deductions. Then a measure of self-confidence is needed." (108)
An ability to adapt to changing task conditions—experts avoid rigidity in decision strategies.	"The commander continually finds that things are not as he expected. This is bound to influence his plans, or at least the assumptions underlying them. If this influence is sufficiently powerful to cause a change in his plans, he must usually work out new ones." (102)
A highly developed content knowledge about their area—experts know a lot and stay up with the latest developments.	"The knowledge needed by a senior commander is distinguished by the fact that it can only be attained by a special talent, through the medium of reflection, study and thought: an intellectual instinct which extracts the essence from the phenomena of life, as a bee sucks honey from a flower. In addition to study and reflection, life itself serves as a source." (146)
A greater automaticity of cognitive processes—experts can do readily what others can only do with difficulty.	"As with a man of the world, instinct becomes almost habit so that he always acts, speaks and moves appropriately, so only the experienced officer will make the right decision in major and minor matters—at every pulsebeat of war. Practice and experience dictate the answer: 'This is possible, that is not.'" (120)
An ability to tolerate stress—experts can work effectively under adverse conditions.	"*Strength of mind*: the ability to keep one's head at times of exceptional stress and violent emotions." (105)
A capability to be creative—experts are able to find novel solutions to problems.	"Bonaparte rightly said in this connection that many of the decisions faced by the commander in chief resemble mathematical problems worthy of the gifts of a *Newton* or a *Euler*." (112)
An inability to articulate their decision processes—experts make decisions [based] on *experience.*	"Knowledge must be so absorbed into the mind that it almost ceases to exist in a separate, objective way. . . . By total assimilation with his mind and life, the commander's knowledge must be transformed into a genuine capability." (147)

* From James Shanteau's "Psychological Characteristics of Expert Decision Makers," *Expert Judgment and Expert Systems* (see endnote 10).
** Carl von Clausewitz's *On War* source pages in parentheses (see endnote 1).

Figure 2

skill of the commander."[11] Military genius is a key in influencing war's outcome.

Lieutenant Colonel Patrick Thornton echoes this position by emphasizing the continuing importance of these military genius qualities in the command and control (C^2) arena.[12] He identifies three primary areas where such factors are important: the situation assessment; the operational decision (the commander's intent); and the organization and C^2 process tailored to the commander's needs.

Thornton states, "Despite the progress of [C^2] support systems, the nature of war remains the realm of danger, exertion and uncertainty. Because of these elements and the inherent friction involved with waging war, Clausewitz saw the need for genius in the military commander to successfully operate in such an environment. The requirement for genius remains today."[13]

Developing Military Genius

Given the options of "nature versus nurture" as military genius developmental factors, Clausewitz supports both. He believes both intellectual and temperament factors are important in such genius, saying, "Great things alone can make a great mind."[14] In the intellectual domain, education, training and experience are needed to develop the great commander. The most critical factor in Clausewitz's mind is war experience, which cannot be sufficiently duplicated in drills or exercises, since this is what prepares the commander to deal with the effects of friction.

Clausewitz states, "No activity of the human mind is possible without a certain stock of ideas; for the most part, these are not innate but acquired and constitute a man's knowledge. . . . Clearly, most of these are not qualities that can be acquired through book learning. If they can be taught at all, a general will have to receive his instruction from sources other than the printed word. . . . We have identified danger, physical exertion, intelligence and friction as the elements that coalesce to form the atmosphere of war and turn it into a medium that impedes activity. In their restrictive effects, they can be grouped into a single concept of general friction. Is there any lubricant that will reduce this abrasion? Only one, and a commander and his army will not always have it readily available: combat experience."[15]

Clausewitz considers education and experience essential to developing military genius' intellectual aspects. He views personality factors such as boldness, courage and decisiveness as innate or untrainable. At best, one can expect them to be shaped or focused by training and experience. This is similar to Shanteau's position that such personality factors are more a matter of selection than experience.[16]

Genius and Expert Similarities

What implications can be drawn from the similarities between Clausewitz's military genius concept and current expert concept? First, there is the continuing importance of effective leadership. Clausewitz attributed military success, in large part, to the commander's capabilities. Key factors include the ability to accurately perceive the situation, make effective decisions and motivate troops. As Thornton argues, such factors are important on today's battlefield.[17] In the information age, with its accelerated planning and decision–making pace and increasing dependence on dispersed operations, the criticality of such capabilities is magnified.[18]

Second, training plays a critical role in developing military expertise. Although Clausewitz felt that only combat could provide the necessary experience, this is an area where training and warfare technology advances have made it easier to provide the appropriate experience outside of combat. Today, most senior commanders interact with the battlefield through synthetic environments created by command, control, communications and intelligence (C^3I) systems. This makes it feasible to create live, virtual and constructive environments using modeling and distributed interactive simulation that are realistic and challenging. Thus, training and exercises can approach combat's realism, at least as far as the commander's interfaces are concerned.

Understanding the essential factors in expertise development can help us provide the appropriate training environment to foster military genius. Advances in cognitive task analysis techniques and training methods can contribute to effective training regime development. However, as suggested by both Clausewitz and Shanteau, we must also recognize that personnel selection plays a role in identifying potential leaders who have the essential characteristics that cannot be achieved through training. Factors such as decision–making speed, information synthesis from multiple sources and battlefield visualization will become increasingly important for the next generation's leaders. Ongoing research at the US Army Research Institute on leader skill assessment and developmental technologies, battle command and battlefield visualization will provide insights into this issue's selection and training aspects.[19]

Finally, consideration of the characteristics and information needs of military commanders who represent the expertise spectrum must inform the design of the C^3I systems that support the commanders. For example, the Army Research Laboratory (ARL) is investigating the capabilities essential for an integrated battlefield intelligence system and has identified these essential features:

- Commander's intent
- Operations battlefield area (such as terrain and weather)
- Current situation
- Battle analysis tools and the mission–critical support data

ARL is using a rapid prototyping tool—Commander (and staff) Visualization Research Tool (CoVRT)—to investigate content and format issues supporting integrated battlespace visualization. The information content and format must be responsive to the varying levels of experience and expertise of the commanders using CoVRT. This requires some

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adaptability in the resulting displays.

In a related vein, recent work by Gary A. Klein and his associates on naturalistic decision making has led to some specific recommendations for new approaches to decision aiding.[20] Through studies of *real world* decision makers, including tactical commanders, Klein and associates developed the Recognition–Primed Decision (RPD) model. Simply put, the RPD model asserts that decision makers draw upon their experience to identify a situation as representative of or analogous to a particular class of problem. This recognition process then leads to the generation of an appropriate course of action—either directly when prior cases are sufficiently similar, or through adaptation of previous approaches, if necessary—which the decision maker evaluates through a *mental simulation* process. This approach to the decision–making process differs markedly from earlier analytical models that focused on generation and option comparisons based on weighted features.

The RPD model has led to the design of decidedly different decision support systems that focus on accurate situation assessment and case–based reasoning as opposed to feature–based option comparisons. Studies of decision making in natural settings prove that decision makers employ RPD and analytical strategies at different times, depending on the problem situation, their experience level and other factors.[21] Display format and decision aid designs must take such alternative strategies into account to support optimal performance.

Clausewitz's military genius view is surprisingly modern in terms of the elements it shares with current expert concepts. Involving both intellectual and personality factors, it influences the extent to which we can expect such genius to be developed as opposed to being an innate individual quality. Concern for the nature of such expertise should inform our processes of personnel selection, training and system design. By doing so, we can improve command quality and ensure our leaders are prepared for information age warfare. ***MR***

NOTES

1. Carl von Clausewitz, *On War,* edited and translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976).
2. Ibid., 136.
3. Ibid., 100.
4. Ibid., 147.
5. Ibid., 106.
6. Ibid., 109.
7. James Kahan, D. Robert Worley and Cathleen Stasz, "Understanding Commanders' Information Needs," RAND Report R–3761–A (Santa Monica, CA: The RAND Corporation, 1989).
8. Clausewitz, 110.
9. Gary A. Klein, *Naturalistic Decision Making: Implications for Design* (Wright–Patterson Air Force Base, OH: Crew System Ergonomics Information Analysis Center, 1993).
10. James Shanteau, "Psychological Characteristics of Expert Decision Makers," *Expert Judgment and Expert Systems,* edited by J. Mumpower, L. D. Phillips, O. Renn and V. R. R. Uppuluri (Berlin, Germany: Springer–Verlag, 1987), 289–304.
11. Clausewitz, 186.
12. LTC Patrick Thornton, US Army War College studies program paper, "Genius Revisited: Human Aspects of Command and Control" (Carlisle Barracks, PA: US Army War College, 1991).
13. Ibid., 45–46.
14. Clausewitz, 145.
15. Ibid., 145, 262 and 122.
16. Shanteau.
17. Thornton.
18. Alvin and Heidi Toffler, *War and Anti–War: Survival at the Dawn of the Twenty–First Century* (New York: Little, Brown & Co., 1993).
19. US Army Research Institute (ARI) corporate authors, *Fiscal Year 1994 Science and Technology Program* (Alexandria, VA: ARI for the Behavioral and Social Sciences, 1993).
20. Klein.
21. Klein, "Strategies of Decision Making," *Military Review* (May 1989).

MR Doctrine Update

This update was prepared by the Concepts and Doctrine Directorate (CDD), US Army Command and General Staff College, Fort Leavenworth, Kansas. Future joint doctrine updates will appear periodically in Military Review.*—Editor*

Joint doctrine is being rapidly developed. The summary below lists current and proposed joint publications with accompanying current (C) or predicted (P) publication dates as of 22 February 1995. Sources used to compile the summary are the 22 February 1995, Headquarters, Department of the Army (HQDA), Concepts, Doctrine and Force Policy Division (DAMO–FDQ) letter, and the 4 May 1995 Joint Staff J–7/Joint Doctrine Division Joint Publications Milestones message.

Units with immediate or recurring joint publication needs should subscribe to the automated Joint Electronic Library (JEL). JEL provides on–line access to all approved joint publications and numerous US Air Force, Navy, Marine Corps and Army manuals, along with joint publications milestone messages that include updated publication status. New publications usually appear on JEL within a few weeks of final approval. With JEL, users can eliminate the time–consuming ordering process, meet time–sensitive operational requirements and download publications for local reproduction. All that is needed to access JEL is a personal computer, modem, communications software and an approved JEL subscription.

To open a JEL account, contact Gary Bounds, HQDA point of contact, at DSN 227–6949 or (703) 697–6949. Written queries should be sent to: Headquarters, Department of the Army; ODSCSOPS (Attn: DAMO–FDQ/Mr. Bounds); 400 Army Pentagon; Washington, DC 20310–0460.

Another joint publication source for units and organizations is the CD–ROM (compact disk, read only memory) JEL. The $16 CD–ROMs may be ordered from the Superintendent of Documents, Government Printing Office, PO Box 371954, Pittsburgh, PA 15250–7954 (telephone number [202] 512–1800). All joint manuals are on a single disk that will fit the battle dress uniform breast pocket.

Joint Publications Update

0–2, *Unified Action Armed Forces (UNAAF),* (P) 01/18/02, (C) 08/11/94

1, *Joint Warfare for the U.S. Armed Forces,* (P) 12/04/01, (C) 11/11/91

1–0, *Doctrine for Personnel and Administrative Support to Joint Operations,* (P) 07/01/96

1–01 (CH1), *Joint Pub* [Publication] *System, Joint Tactics, Techniques and Procedures Development Program,* (P) 11/14/95, (C) 09/14/93

1–01.1, *Compendium of Joint Doctrine Publications,* (P) 05/09/95, (C) 07/14/93

1–01.2, *Joint Electronic Library Users Guide,* (P) 10/17/00, (C) 10/30/93

1–02, *DoD* [Department of Defense] *Dictionary of Military and Associated Terms*, (C) 03/23/94

1–03, *Joint Reporting Structure (JRS) General Instructions*, (P) 12/03/00

1–03.03, *JRS Status of Resources*, (P) 07/03/00, (C) 08/10/93

1–03.17, *JRS Personnel*, (C) 06/15/94

1–03.21, *JRS (JOPES* [Joint Operations Planning and Execution System]*/JOPESREP* [Joint Operations Planning and Execution System Reporting System]), (C) 05/24/94

1–05, *Religious Ministry Support for Joint Operations*, (P) 06/26/00, (C) 08/03/93

1–06, *Joint Symbols and Graphics* (Canceled)

1–07, *Doctrine for Public Affairs in Joint Operations*, (P) 11/28/95

2–0, *Joint Doctrine for Intelligence Support to Operations*, (P) 09/05/98, (C) 10/12/93

2–01, *JTTP* [Joint Tactics, Techniques and Procedures] *for Intelligence Support to Operations*, (P) 04/25/96

2–01.1, *JTTP for Intelligence Support to Targeting*, (P) 10/28/95

2–01.2, *JTTP for Counterintelligence Support to Operations*, (P) 02/28/01

2–02, *JTTP for Intelligence Support to Joint Task Force (JTF) Operations*, (P) 05/25/96

2–03, *JTTP for Mapping, Charting, and Geodesy Support*, (P) 09/02/96

3–0, *Doctrine for Joint Operations*, (P) 10/27/01, (C) 09/09/93

3–01, *Joint Doctrine for Counterair and Missile Defense*, (P) 05/08/96

3–01.1, *Doctrine for Unified Defense of the United States Against Air Attack*, (P) 09/19/95, (C) 02/01/82

3–01.2, *Joint Doctrine for Theater Counterair Operations*, (C) 04/01/86

3–01.4, *JTTP for Joint Suppression of Enemy Air Defense (J–SEAD)*, (P) 10/27/00, (C) 12/03/93

3–01.5, *Doctrine for Joint Theater Missile Defense*, (P) 02/22/01, (C) 03/30/94

3–01.6, *JTTP for Joint Air Defense Operations/Joint Engagement Zone*, (P) 02/07/97

3–02, *Joint Doctrine for Amphibious Operations*, (P) 09/01/99, (C) 10/08/92

3–02.1, *Joint Doctrine for Landing Force Operations*, (P) 11/29/95

3–02.2, *Joint Doctrine for Amphibious Embarkation Operations*, (P) 03/11/00, (C) 04/16/93

3–03, *Doctrine for Joint Interdiction Operations*, (P) 10/13/95

3–04, *Doctrine for Joint Maritime Operations (Air)*, (P) 06/24/98, (C) 07/31/91

3–04.1, *JTTP for Shipboard Helicopter Operations*, (P) 05/21/00, (C) 06/28/93

3–04.11, *HERO* [Hazard of Electromagnetic Radiation to Ordnance]*/EMI* [Electromagnetic Interference] *Susceptibility Matrices for Shipboard Helicopter Operations* (Canceled)

3–05, *Doctrine for Joint Special Operations*, (P) 09/21/99, (C) 10/28/92

3–05 (CH–1), *Doctrine for Joint Special Operations*, (P) 08/15/95

3–05.3, *Joint Special Operations Operational Procedures*, (P) 07/18/00, (C) 08/25/93

3–05.5, *Joint Special Operations Targeting and Mission Planning Procedures*, (P) 07/03/00, (C) 08/10/93

3–06, *Doctrine for Joint Riverine Operations*, (P) 09/29/96

3–07, *Military Operations Other Than War*, (P) 06/01/95

3–07.1, *JTTP for Foreign Internal Defense (FID)*, (P) 11/13/00, (C) 12/20/93

3–07.2, *JTTP for Antiterrorism*, (P) 05/18/00, (C) 06/25/93

3–07.3, *JTTP for Peacekeeping Operations*, (P) 03/24/01, (C) 04/29/94

3–07.4, *Joint Counterdrug Operations*, (P) 07/03/01, (C) 08/09/94

3–07.5, *Joint Doctrine and JTTP for Contingency Operations*, (P) 09/29/95

3–07.6, *Foreign Humanitarian Assistance*, (P) 10/08/96

3–07.7, *Domestic Support Operations*, (P) 02/08/97

3–08, *Interagency Coordination During Joint Operations*, (P) 03/26/96

3–09, *Doctrine for Joint Fire Support*, (P) 08/01/96

3–09.1, *Joint Laser Designation Procedures*, (P) 04/25/98, (C) 06/01/91

3–09.2, *JTTP for Ground Radar Beacon Operations (J–Beacon)*, (P) 03/18/00, (C) 04/23/93

3–09.3, *JTTP for Close Air Support*, (P) 07/15/95

3–10, *JTTP for Joint Rear Area Operations*, (P) 01/20/00, (C) 02/26/93

3–10.1, *JTTP for Base Defense*, (P) 02/08/00, (C) 03/15/93

3–11, *Joint Doctrine for Nuclear Biological and Chemical (NBC) Defense*, (P) 03/10/01, (C) 04/15/94

3–12, *Doctrine for Joint Nuclear Operations*, (P) 03/24/00, (C) 04/29/93

3–12.1, *Doctrine for Joint Nonstrategic Nuclear Weapons Employment*, (P) 07/30/95

3–12.2, *Nuclear Weapons Employment Effects Data*, (P) 01/22/02

3–12.3, *Nuclear Weapons Employment Effects Data (Notional)*, (P) 12/13/01

3–13, *C3CM* [Command, Control and Communications Countermeasures] *in Joint Military Operations*, (P) 09/05/95

3–14, *JTTP for Space Operations*, (P) 09/01/95

3–15, *Joint Doctrine for Barriers, Obstacles and Mine Warfare*, (P) 05/23/00, (C) 06/30/93

3–16, *Doctrine for Multinational Operations*, (P) 05/08/96

3–17, *JTTP for Theater Airlift Operations*, (P) 06/01/95

3–18, *Joint Doctrine for Forcible Entry Operations*, (P) 08/29/95

3–18.1, *Joint Doctrine for Airborne and Air Assault Operations*, (P) 01/26/96

3–50, *National Search and Rescue Manual, Vol 1: National Search and Rescue System*, (P) 12/26/97, (C) 02/01/91

3–50.1, *National Search and Rescue Manual, Vol 2: Planning Handbook*, (P) 12/26/97, (C) 02/01/91

3–50.2, *Doctrine for Joint Combat Search and Rescue (CSAR)*, (P) 06/06/01, (C) 01/12/94

3–50.21, *JTTP for Combat Search and Rescue*, (P) 09/15/95

3–50.3, *Joint Doctrine for Evasion and Recovery*, (P) 07/01/95

3–51, *Electronic Warfare in Joint Military Operations*, (P) 06/01/95, (C) 06/30/91

3–52, *Doctrine for Joint Airspace Control in a Combat Zone*, (P) 10/27/00, (C) 12/03/93

3–53, *Doctrine for Joint Psychological Operations*, (P) 06/23/00, (C) 07/30/93

3–54, *Joint Doctrine for Operations Security*, (P) 07/18/98, (C) 08/22/91

3–55, *Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA)*, (P) 03/09/00, (C) 04/14/93

3–55.1, *JTTP for Unmanned Aerial Vehicles*, (P) 07/20/00, (C) 08/27/93

3–56, *Tactical Command and Control Planning Guidance and Procedures for Joint Operations (Information Exchange Planning Guidance)*, (P) 02/09/96

3–56.1, *Command and Control for Joint Air Operations*, (P) 10/06/01, (C) 10/31/94

3–57, *Doctrine for Joint Civil Affairs*, (P) 07/15/95

3–58, *Doctrine for Joint Operational Deception*, (P) 04/30/01

3–59, *Joint Doctrine for Meteorological and Oceanographic Support*, (P) 11/15/00, (C) 12/22/93

3–59.1, *JTTP for Meteorological and Oceanographic Support*, (P) 10/29/95

4–0, *Doctrine for Logistics Support of Joint Operations*, (P) 12/16/01, (C) 09/25/92

4–01, *Mobility System Policies, Procedures and Considerations*, (P) 08/28/95

4–01.1, *Airlift Support to Joint Operations*, (P) 07/15/95

4–01.2, *JTTP for Sealift Support to Joint Operations*, (P) 10/29/95

4–01.3, *JTTP for Movement Control*, (P) 03/21/00, (C) 01/26/94

4–01.5, *JTTP for Water Terminal Operations*, (P) 05/09/00, (C) 06/16/93

4–01.6, *JTTP for Joint Logistics Over the Shore (JLOTS)*, (P) 07/15/98, (C) 08/21/91

4–01.7, *JTTP for Use of Intermodal Containers in Joint Operations*, (P) 09/11/95

4–02, *Doctrine for Health Service Support in Joint Operations*, (P) 10/09/01, (C) 11/15/94

4–02.1, *JTTP for Health Logistics Support in Joint Operations*, (P) 07/30/95

4–02.2, *JTTP for Patient Evacuation in Joint Operations*, (P) 01/26/96

4–03, *Joint Bulk Petroleum Doctrine*, (P) 06/15/95

4–04, *Joint Doctrine for Civil Engineering Support*, (P) 01/18/02

4–05, *Mobilization*, (P) 06/01/95

4–06, *JTTP for Mortuary Affairs in Joint Operations*, (P) 08/29/95

5–0, *Doctrine for Planning Joint Operations*, (P) 01/06/02, (C) 08/15/94

5–00.1, *Doctrine for Joint Campaign Planning*, (P) 01/30/96

5–00.2, *Joint Task Force Planning Guidance and Procedures*, (P) 02/27/96, (C) 09/03/91

5–03.1, *Joint Operation Planning and Execution System, Vol I: Planning Policy and Procedures*, (P) 06/27/00, (C) 08/04/93

5–03.11, *Joint Operation Planning and Execution System Execution Planning*, (P) 12/11/95

5–03.2, *Joint Operation Planning and Execution System, Vol II: Planning and Execution Formats and Guidance*, (P) 02/03/99, (C) 03/10/92

5–03.21, *Joint Operation Planning and Execution System, Vol II: Planning and Execution Formats and Guidance (Secret Supplement)*, (P) 10/12/95, (C) 03/10/92

5–03.3, *Joint Operation Planning and Execution System, Vol III: ADP* [Automatic Data Processing] *Support*, (To Be Determined)

6–0, *Doctrine for Command, Control, Communications and Computer (C4) Systems Support to Joint Operations*, (P) 04/27/97, (C) 06/03/92

6–02, *Joint Doctrine for Operational/Tactical Command, Control and Communications Systems*, (P) 05/20/95, (C) 03/07/78

MR 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***

MR Review Essay

Strategic Mobility's Stem

Colonel Kenneth L. Privratsky, US Army

POWERLIFT: Getting to Desert Storm—Strategic Transportation and Strategy in the New World Order by Douglas Menarchik. 197 pages. Praeger Publishers, Westport, CT. 1993. $49.95.

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 leaders 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

1½ months to get the first heavy division to the gulf—the 24th Infantry Division (Mechanized), which was conveniently located near the Port of Savannah, Georgia, for quick deployment. This inability to get heavy forces on the ground earlier could have been disastrous.

Unfortunately, the last two chapters starkly contrast with the first three, lacking their focus and depth. In about a dozen pages each, they attempt to address the war's logistics and discuss logistic theory and future considerations. Menarchik's repeated efforts in these chapters to highlight strategic transportation's importance to the overall war effort are aggravating. He states, for instance, that "the salient military features of the gulf conflict were logistics and technology, not operational strategy." He even asserts that the "American transportation system won the gulf conflict." Such statements, and there are many, will quickly wear thin with readers. Menarchik adequately portrays the problems of getting forces into the theater. He paints a flattering picture of the transporters everywhere who worked nonstop to make things happen as fast as they could. His book would be better served had he left it at that and added depth to his last two chapters.

He is absolutely on target, though, when he states at the end, "Strategic transportation is the crux of America's new world order military strategy, especially with declining forces and defense budgets." This nation's inability to quickly get forces to the gulf provides sobering lessons and some embarrassment. To the credit of politicians and military leaders alike, they did not forget mobility problems once the war was over. Much has changed besides strategy and budgets since then, and a lot has happened that is not mentioned in *Powerlift* to provide real punch to this nation's power–projection capabilities.

Soon after the war, the US Congress mandated an analysis, now called the Mobility Requirements Study (MRS), to decide what was needed to project US forces to a major regional contingency. The MRS concluded, "To support national interests, deployment capability must increase through expanded investment in sealift, pre–positioning and transportation infrastructure in the United States, and in sustained investment in aircraft."

What resulted cut a clear path toward greater strategic mobility. The MRS recommends, for example, that roll–on/roll–off ships in the Ready Reserve Force (RRF) for surge shipping be expanded from 17 to 36 ships; that up to 20 large, medium–speed roll–on/roll–off ships, now commonly called LMSRS, be procured to provide 5 million square feet of storage for Army equipment; and that 16 ships be pre–positioned in Southwest Asia with Army equipment. The MRS also recommends continuation of C–17 aircraft procurement to provide a total of 120 C–17s within the next decade. And it mandates sweeping changes in deployment enablers to assist unit deployments, totaling about $3.5 billion for Army installations alone through fiscal year 2001: railcars to be pre–positioned at installations; containers for unit equipment; and other infrastructure improvements from road–track repairs to major construction projects at forts, ports and depots nationwide.

The net result is that the Gulf War problems detailed in *Powerlift* have not gone unnoticed. Progress, to date, has been remarkable. Of 36 required RRF ships, 29 are on hand. Four more are scheduled for procurement in the next two years. The first of 19 LMSRSs is scheduled for delivery late this year. Hundreds of railcars and thousands of containers have already been procured. These numbers will triple and quadruple over the next few years as procurement programs continue to be executed. Today, in Southwest Asia, 14 ships are pre–positioned with Army equipment, all configured to tactical commanders' needs. This equates to three times the number of pre–positioned ships there when Hussein invaded Kuwait in 1990.

Colonel Kenneth L. Privratsky is the chief, Strategic Mobility Division, Office of the Deputy Chief of Staff for Logistics, Department of the Army, Washington, D.C. He received an M.A. from Purdue University and an M.B.A. from Adelphi University and was a fellow at the Hoover Institution, Stanford University. He is a graduate of the US Army Command and General Staff College and the School of Advanced Military Studies. He has served in a variety of command and staff positions in the Continental United States to include commander, Division Support Command, 6th Infantry Division (Light), Fort Richardson, Alaska; senior forward support battalion trainer, Operations Group, National Training Center, Fort Irwin, California; and chief, Plans Division, 13th Support Command, III Corps, Fort Hood, Texas.

Strategic lift improvements have proved their worth in recent deployments to Somalia, Kuwait and Haiti. Other lessons have been learned, with more corrections forthcoming. There has been, without question, a significant change in the US ability to project forces worldwide. Whereas it took many weeks to get the first heavy units to the gulf in 1990, it took only hours during Iraq's recent, short–lived buildup in 1994. The quickness and credibility of that US response left the Iraqis much to ponder.

Nevertheless, much remains to be done. To date, programs are strengthening transportation shortfalls. Strategic transportation and strategic mobility, however, are not synonymous. The former pertains to an ability to lift forces from one place to another. The latter encompasses this and a lot more: the readiness of units to deploy quickly; the materiel on hand in various places to allow them to do so; the adequacy of infrastructure supporting their movements from forts to bases and ports, both here and abroad; and the ability of in–theater organizations to get units and equipment to tactical assembly areas. All this and more determines a nation's true strategic mobility.

Before, strategic mobility was defined as movement from "fort to far port." The military now needs to think beyond this to the tactical assembly areas where units will consolidate before fighting. It should also consider the distribution systems and C^2 organizations in–theater that make this possible. This is where future strategic lift will extend—from the fort to the foxhole. If we fail to consider this, we may find our forces in the right theater but not in the right place.

Powerlift points out the consequences of past oversights. But true progress has been made in strategic mobility over the last few years. Programs are now in place to prevent us from making these same mistakes. Our future challenge will be to keep the programs on track, refocusing them as necessary to support new military strategy. ***MR***

MR Book Reviews

AIR POWER AND MANEUVER WARFARE by Martin van Creveld, with Steven L. Canby and Kenneth S. Brower. 268 pages. Air University Press, Maxwell Air Force Base, AL. 1994. No charge.

This book examines air power through the maneuver warfare lens. Unfortunately, its two-dimensional view of the battlefield confuses more than it explores or expands the subject. Rather than pursue air power possibilities and constructive alternatives for future integrated operations and joint warfare, Martin van Creveld fuels an already divisive "roles and functions" debate with his conclusions.

There is something in this book to make soldiers and airmen alike mad. Soldiers will use the book as proof that aviation is and should only be a combat support element—and that they are not getting enough of it. Airmen will likely quit reading the book because van Creveld's view of modern warfare is stuck in the 19th century with airplanes and helicopters as newer forms of cannons and wagons.

If we accept the premise that maneuver warfare is "exploiting an enemy weakness to strike deep into an opponent's rear, hard and fast, to disrupt or destroy his ability to command and control (C^2) combat power," then modern air power is an important capability in the joint force commander's toolbox. It has become exceedingly clear that the US military will not conduct operations as a single service, and theater planners must know exactly what capabilities their operations require and what each service can offer the commander in chief to achieve campaign goals. Joint Publication 1, *Joint Warfare for the U.S. Armed Forces*, makes it clear that we fight as a team, capitalizing on each service's strengths and trusting each other as competent, confident and responsive warfighting partners. This book does not give air power such trust.

In the last 10 years, the United States has recognized the need for and developed the doctrine, organizations and equipment to overcome numerical disadvantages in ground forces with its air forces. This strategy has paid off. We have seen how air power can disrupt the enemy's rear, generate confusion and disorder, dislocate and disrupt his C^2 systems and degrade the opposing combat units' cohesion and morale. All this can be achieved before ground units become engaged.

The military lesson of the last 10 years' doctrinal and technological evolution is that air power does not replace, but is an equal partner with, other elements of maneuver warfare. This book discounts air power's ability to be a distinct maneuver element and seeks to bind aviation to ground maneuver forces. This forfeits the tremendous capability and flexibility of current and future aviation systems and organizations.

Airpower and Maneuver Warfare begins by discussing the fundamentals of, but never defining, maneuver warfare. Chapter 1, "The Nature of the Beast," promises to establish the maneuver warfare foundation but never really does. An unambiguous maneuver warfare definition providing the promised foundation cannot be found anywhere in the chapter. Adding further confusion is that operational warfare and maneuver warfare are used interchangeably, despite the fact that the terms are not synonymous. Operational warfare is a level of war or environment, whereas maneuver warfare is a theory or concept of operations.

The next few chapters use German, Soviet and Israeli case studies to illustrate historical maneuver warfare theory applications. Van Creveld falls into the trap Sir B. H. Liddell Hart cautions against by making too much of historical analogies. The Germans and the Soviets during World War II, and the Israelis since then, are not the United States at the 20th century's end. Unlike the air forces in the case studies, US air power has been resourced, organized and employed to achieve operational ends through indirect means. Van Creveld would have better served the subject had he chosen case studies where the resourcing and relationships between combat forces more closely resembled the 1990s US military.

Chapter 6, "Maneuver Warfare and Air Power in the 1990s," concludes the book by applying lessons learned in the previous case studies to the present. The logic does not flow, and the chapter often stretches to make the lessons learned. Sometimes I could pull a nugget from the text, but those thoughts were usually random and undeveloped. Halfway through the final chapter, van Creveld writes, "The objective is to orchestrate air's attributes to best accomplish the theater commander's mission." This is a key point that airmen continually make. While the author admits it is important, he leaves it hanging, burying it at the end of the book. The point is never developed to show how air power can or should be sequenced with other operational warfare elements. More important, the book does not explore possibilities for air power to conduct or contribute to maneuver warfare.

I wanted more from this book. The title and author's reputation held tremendous promise, but I found the book terribly lacking. It is a rehash of history, rather than an exploration of potential. Air power has come a long way in its evolution, especially in the last decade. Airmen from all our services have worked long and hard to establish and maintain their credibility as full partners on the combined arms battlefield. Unfortunately, this book adds little to the professional discussion of air power, maneuver warfare or operational warfighting.

LTC Richard D. Newton, *USAF,*
Headquarters, Air Combat Command,
Langley Air Force Base, Virginia

STRIKE EAGLE: Flying the F–15E in the Gulf War by William L. Smallwood. 218 pages. Brassey's (US), Inc., Washington, DC. 1994. $23.00.

William L. Smallwood wrote the highly acclaimed *Warthog: Flying the A–10 in the Gulf War.* His newest book on the F–15E Strike Eagle community during the Gulf War will not disappoint either. Building on his own experiences as a US Air Force Korean War veteran and accomplished pilot, Smallwood conducted detailed interviews with 106 crewmen who flew the F–15E during the war, accurately piecing together their story. The result is an action–packed, insightful look into modern air warfare as experienced and related by those who saw combat in the Strike Eagle.

Smallwood picks up the narrative of the 335th Tactical Fighter Squadron *Chiefs* and the 336th Tactical Fighter Squadron *Rockets* at their home base in North Carolina on 2 August 1990, the day Saddam Hussein's forces invaded Kuwait. From there, he takes the reader through subsequent deployments to Oman and Saudi Arabia and on the squadrons' major combat missions during Operation *Desert Storm.* He gradually introduces the individual crewmen, recounting their views, hopes and fears. He also provides the background necessary to understand the F–15E's technical aspects and its combat environment.

This masterful blending of material produces a book that reads like a great novel. As the crews approach their targets through some of the most heavily defended areas ever encountered, violently maneuvering to avoid Iraqi antiaircraft artillery and surface–to–air missiles, one feels the heart–pounding terror they experienced. When crewmen are killed or shot down and taken as Iraqi prisoners, the reader gains a rare glimpse into the emotional impact on this small, tightly knit fighting force. As political imperatives force the Strike Eagle community to redirect its major effort to countering the mobile Scud threat, the frustrations and pressures of those struggling with the missions' futility is shared.

Clearly, Smallwood has done his homework. As a fighter pilot myself, I am prone to be critical of any effort describing fighter operations. I found this book accurate in every respect. It is a vivid account that effectively ties together aerial combat's human, technological and operational facets. The reader's sole concern should be planning ahead for a long night. This is a tough book to put down.

MAJ Michael W. Ford, *USAF, Air Force Element, USACGSC*

AIR MOBILITY: The Development of a Doctrine by Christopher C. S. Cheng. 225 pages. Praeger Publishers, Westport, CT. 1994. $55.00.

Christopher C. S. Cheng examines US Army aviation development in *Air Mobility.* He covers from 1942, with the creation of organic aviation in support of field artillery, to 1965, with the 1st Cavalry Division (Air Mobile) deployment to Vietnam. He examines the wide range of combat developments that fashioned air mobility theory.

Most readers, however, will be disappointed with this book, even without considering its price. While the combat developer will find a wealth of historical information, most other military professionals will find *Air Mobility* falls short in scope and methodology as a stand–alone reference on US Army aviation development.

Unfortunately, the book plays out in 1965—with the reader eagerly waiting to see the combat payoff of the Army's evolving aerial theory. Cheng excludes the logical continuations of this work—discussions of the Army's Vietnam War aviation experiences, post–Vietnam War development, 1983 designation as a branch and the influence of deep operations theory on the Gulf War victory. According to Cheng, "The creation of the air mobile division [in 1965] . . . represent[s] the fulfillment of [the] innovation."

The book's title also implies a doctrinal development discussion of Army aviation, but in reality, *Air Mobility* deals with the entire spectrum of combat development. Nevertheless, there is a credible review of the US Army's slow adaptation of the air mobility concept that provides interesting insights into the 1940s and 1950s Army.

Additionally, Cheng's research is limited, excluding the use of the National Archives, the US Army Center of Military History and oral interviews "because of time and financial constraints." However, his detailed research of open–source literature reveals many unusual facets and twists on traditional history. For instance, Cheng asserts that the much–touted Howze Board recommendations played only a minor role in the total air mobility development scheme. He relates that US Air Force opposition was not a significant obstacle to air mobility development during the period. It was the compromises in roles and missions doctrine and procurement planning that enabled the Army's various aviation combat development activities to succeed.

LTC Greg R. Hampton, *USA, Combat Studies Institute, USACGSC*

AIR POWER'S GORDIAN KNOT: Centralized Versus Organic Control by Stephen J. McNamara. 191 pages. Air University Press, Maxwell Air Force Base, AL. 1994. No charge.

This is a provocative illustrated history of how wartime air power was employed and commanded from World War II's beginning to the Gulf War's end. The author, Lieutenant Colonel Stephen J. McNamara, shows that the US Air Force's positions on centralized control, the decisiveness of flexible and concentrated air power and the priority of air missions have remained unaltered since World War II.

Land and sea commanders desiring responsive air power have generally argued that air assets should be decentralized and controlled by them. Each service has separate, spirited views on how the joint force air component commander (JFACC) should exercise authority. This Gordian Knot—a problem solvable only by drastic action—must be dealt with. One effective but controversial method used by the JFACC to exercise authority is the air tasking order.

McNamara details each service's

view of centralized versus organic control of air power and the resulting problems. Because each service has strong parochial views about controlling its own air power assets, McNamara believes some outside authority is needed to intercede and cut air power's Gordian Knot.

LTC T. Drew Peck, *USAF,*
Air Combat Command, Joint Programs Office, Fort Leavenworth, Kansas

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LIGHTNING: The 101st in the Gulf War by Edward M. Flanagan Jr. 255 pages. Brassey's (US), Inc., Washington, DC. 1994. $25.00.

Lieutenant General Edward M. Flanagan Jr.'s *Lightning* is an operational account of the 101st Airborne Division (Air Assault) from arrival in Southwest Asia at the beginning of Operation *Desert Shield* through the ground war's end. The last chapter takes the 101st home but is really an epilogue.

This is a book about combat operations. Flanagan makes no claim that it is an authoritative operational analysis. He produces an unpretentious, useful narrative very unlike the flash and bang of Tom Carhart's *Iron Soldiers* or the "I am going to preserve my place in history no matter what" General Norman Schwartzkopf approach.

Setting the *Screaming Eagles'* operational context clearly throughout the book, Flanagan leads the reader to conclude that their operations, whether in the early days or later, were not easy. In doing so, he rightfully corrects the record. CNN and the "instant" books following the war often leave the impression that the Iraqis were easily defeated by US technology in a nearly bloodless fight with no strain on US forces. This, of course, was never the case. The catastrophic defeat of Saddam Hussein's forces was produced by giving superb weapons to superbly trained troops. The best–armed and best–trained army in the world, acting in accordance with a good plan, won a great battlefield victory.

Flanagan illuminates the 101st's contribution with clarity. He reveals several important developments in its employment that validate the air assault division as an effective tool in a mid–intensity environment. The power and tactical mobility of the division's helicopters proved to be the division employment key. Colonel Thomas W. Garrett's 4th Brigade became the essential element of the 101st's combat power. Major General J. H. Binford Peay III, 101st's commander, often used his infantry to develop bases from which to project Garrett's attack helicopters. This twist was a departure from the original concept, in which US Army planners assumed that helicopters would position the infantry, who would then carry the fight to the enemy. In Operation *Desert Storm*, the infantry positioned the helicopters to carry the battle to the Iraqis.

This new role did not mean the infantry were superfluous or of less importance than the attack helicopter

battalions but demonstrates the growing maturity of Army aviation. In *Desert Storm*, the 101st demonstrated balanced combat capability both in the air and on the ground. Antiarmor ambushes and air assaults proved as important as the attack helicopters in assuring the enemy's defeat. The emerging picture is of a balanced, lethal force with tremendous operational and tactical mobility.

Finally, *Lightning* compels the conclusion that warfare is changing. Alvin and Heidi Tofflers' assertion in their book *War and Anti–War*, that *Desert Storm* was the first third–wave war may be overdrawn, but the 101st's operations show the third wave is upon us, if not actually a fact. For this reason alone, *Lightning* deserves to be read.

COL Gregory Fontenot, *USA,*
1st Brigade, 1st Armored Division, Kirchgoens, Germany

MIG–15: Design, Development and Korean War Combat History by Yefim Gordon and Vladimir Rigmant. 144 pages. Motorbooks International, Osceola, WI. 1994. $24.95.

Virtually unknown until it surprised UN air forces over Korea in 1950, the MiG–15 is the best known of all Soviet aircraft, serving worldwide in many conflicts and remaining in service in some smaller countries even today. For all its fame, the MiG has retained great mystery, particularly about who flew it over Korea and how it performed in comparison with its great contemporary—the F–86 Saber.

This book by Yefim Gordon and Vladimir Rigmant, two Russian aviation authors from the organization *AviaData*, sheds light on the Korean War and much else. Since *MiG–15* was prepared primarily for aviation enthusiasts, it might be overlooked by orthodox military historians. This would be a serious mistake, for it contains a wealth of significant historical material from Soviet sources unavailable elsewhere.

More than half the book is devoted to a technical history and description of the MiG. It documents rare developmental varieties, including ground attack variants; single and two–seater MiGs equipped with radar for night intercept duties; and many experimental MiGs not seen in the West. While this ground has been well covered in other books, *MiG–15* provides the most complete information yet.

The book's most valuable portion comes in the last two chapters, which detail Soviet participation in the air war over Korea through the authors' own eyes. Units are identified, and names are named. One of the top Soviet regiments identified in Korea is the *Proskurovsky* Guards, now the well–known show unit at Kubinka, outside Moscow. There are also details of the Soviet campaign to capture an intact Saber Jet, to include an appendix comparing it to the MiG. Named is Ivan Kozhedub, the top–scoring World War II pilot (62 kills), who commanded an air division. However, P. S. Kutahkov, the later air forces commander, also rumored to have flown in Korea, is not mentioned.

Similar to their US counterparts, Soviet pilots, almost all World War II combat veterans, chafed under restrictive rules of engagement they believed yielded the initiative to the enemy. The Soviets found US opponents challenging; they regarded the Chinese and Korean pilots with a mixture of pity and contempt. Many Chinese went into combat suffering from malnutrition and without gravity suits. As a result, they frequently passed out during combat.

This is an honest rendition of how it looked from across the Yalu.

MiG–15 promises a basis for further reconciliation of accounts as is being done by World War II historians working with Axis and Western Allied records.

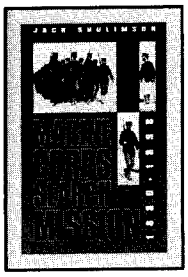
George M. Mellinger, ***Soviet Armed Forces Review Annual, Richfield, Minnesota***

MARINE CORPS: Search for a Mission, 1880–1898, by Jack Shulimson. 210 pages. University Press of Kansas, Lawrence, KS. 1993. $35.00.

At the turn of the century, American social fabric was facing dramatic changes—for the US Marine Corps, these changes were even more dramatic. Historically, Marines had been used as sharpshooters in the riggings of naval ships. They had been successful at clearing the decks of boarders and had displayed the ability to man gun batteries and act as ship's policemen. However, with the advent of steam and the replacement of sailing ships, the Marine Corps' main mission of repelling borders was quickly becoming anachronistic. Increasingly, questions arose regarding the viability of even having a Marine Corps.

This is the period of Marine Corps history Jack Shulimson covers. He presents, in an easily readable fashion, the struggle that two disparate groups of Marine Corps officers waged. One group, led by Marine Corps Commandant Colonel Charles G. McCawley, linked reform of the Marine officer corps with forming the entire Marine Corps into an elite guard of the US Navy. He wanted Marines to remain aboard Navy ships to man gun positions and pushed to have all new officers be graduates of the US Naval Academy.

The second group was a loose confederation of junior officers who wanted to change the very nature of the Marine Corps. These were men such as Captain James Fomey and First Lieutenant Daniel Pratt Mannix. In concert with the Commandant, they wanted to increase the professionalism of the officers assigned to the Marine Corps, but they also wanted to expand the Marine Corps' mission scope to increase its prestige. Undermining the efforts of both groups of officers was the "old guard" that was quite satisfied with the status quo and wished for no changes at all.



Most naval officers saw a need for a Marine Corps, but many had differing views of whether Marines should

PASS IN REVIEW

THE GREAT RAID ON CABANATUAN: Rescuing The Doomed Ghosts of Bataan and Corregidor by William B. Breuer. 280 pages. John Wiley & Sons, Inc., New York. 1994. $27.95.

On 30 January 1945, the US 6th Ranger Battalion led a successful 30–mile raid behind Luzon's Japanese lines, liberating 500 US prisoners of war (POWs) near Cabanatuan. This dramatic mission account is based on hundreds of participant, liberator and POW interviews. Unfortunately, most of the book covers the broader aspects of the war, and the research is scanty and selective.—**Brooks E. Kleber,** ***Newport News, Virginia***

WAR IN THE BOATS: My WWII Submarine Battles by William J. Ruhe. 303 pages. Brassey's (US), Inc., McLean, VA. 1994. $22.95.

Captain William J. Ruhe's personal account of his eight World War II submarine patrols will be relished not only by men who have served aboard submarines but by anyone who enjoys stories of historical significance and high–powered adventure. Ruhe, a US Naval Academy graduate, served aboard three types of submarines—the World War I S–boats, the pre–World War II fleet submarines and the much improved craft built during the war. This book is a real page–turner from start to finish.—**Bud Feuer,** ***Roanoke, Virginia***

BLOODY SKIES: A 15th AAF B–17 Combat Crew; How They Lived and Died by Melvin W. McGuire and Robert Hadley. 424 pages. Yucca Tree Press, Las Cruces, NM. 1993. $22.95.

Melvin W. McGuire's gripping tribute to his B–17 bomber crewmates is a compelling story of ordinary men and their evolution into a cohesive entity in the crucible of aerial combat. Unusually well footnoted, *Bloody Skies* provides a rare glimpse of the Army Air Force's day–to–day strategic bombing operations staged out of Italy. McGuire goes back to the Second Bomb Group (Heavy) base in Italy to recount how the men bent, but did not break, under the protracted stress of combat.—**MAJ Robert H. Brown,** ***USAF, Headquarters, Air Combat Command, Langley Air Force Base, Virginia***

KGB: Death and Rebirth by Martin Ebon. 227 pages. Praeger Publishers, Westport, CT. 1994. $24.95.

This is an excellent KGB historical review, beginning with the August 1991 attempted coup against President Mikhail Gorbachev. Martin Ebon discusses the political infighting, the KGB disintegration and subsequent reorganization within the various republics and perceived threats from external forces. Although the Soviet Union and the KGB are now officially dead, Ebon says a threat still exists and that we should not let our guard down.—**MAJ Kerry L. Kimble,** ***USAR, 24th Psychological Operations Company, Fitzsimons Army Medical Center, Aurora, Colorado***

be permanently assigned aboard naval vessels. All of these different groups had their adherents in Congress, and all showed a willingness to argue their positions whenever possible.

This book is a lively presentation of the struggle for the Marine Corps' identity and existence, told impartially and without passing judgment, through the eyes of the participants. Today's Marine Corps is a direct outgrowth of the struggles presented. There are no sweeping conclusions that tie lessons learned then to today. The book is a historical essay that should be read by anyone interested in how military and governmental decisions were made at the turn of the century, or how the Marine Corps of today began.

MAJ David G. Rathgeber, ***USMC, School of Advanced Military Studies, USACGSC***

PANZERHELD: The Story of Hauptsturm-führer Michael Wittmann by Gregory T. Jones. 114 pages. Published by the author, 3704 Pontoon Road, Granite City, IL, 62040. 1994. $23.95.

Panzerheld (Tank Hero) is a pleasure to read. Gregory T. Jones' subject is *Hauptsturmführer* Michael Wittmann, the greatest tank–killing ace of all World War II ground forces. Wittmann was a fascinating soldier, a tank commander on both the Eastern and Western fronts and a legend in the German military for his prowess in fighting tank against tank. With 132 tank kills (mostly Soviet), he and his crew met their end on the Norman fields in August 1944.

For those who enjoy individual exploits of soldiers in combat, *Panzerheld* provides insight into an extraordinary opponent. The book will especially appeal to the serious military historian. Unlike the imaginary "Guy Sajer" in the popular novel, *The Forgotten Soldier*, Michael Wittmann's story is corroborated by exacting facts, personal recollections of comrades and cross–references to historical records. A number of previously unpublished photos, interviews with not only Wittmann's veteran peers but also the crew members of the British armored unit that most likely destroyed Wittmann's tank and access to family information through Wittmann's widow also lend credibility to Jones' work.

What emerges is the picture of a young armor leader who is idealistic, determined and intensely loyal. Peers and friends characterize this soldier who rose through the ranks as an extremely humble soldier who continuously shunned publicity even after winning the Knight's Cross with oak leaves and swords. Jones validates this reputation with interesting

DISASTER AT D–DAY: The Germans Defeat the Allies, June 1944, by Peter Tsouras. Stackpole Books, Mechanicsburg, PA. 236 pages. 1994. $29.95.

Among the multitudes of World War II 50th–commemoration books, *Disaster at D–Day* is destined to fade into obscurity. This fiction book offers a series of D–Day "alternate realities" concluding in the Allies' defeat. The author's alternative choices are flimsy and without basis. Unlike quality historical fiction, this book teaches no lesson, nor enlightens us about the personalities and events shaping our world.—**MSG James H. Clifford,** ***USA, 149th Ordnance Detachment (Explosive Ordnance Disposal), Andrews Air Force Base, Maryland***

FAREWELL DARKNESS by Ron Zaczek. 344 pages. Naval Institute Press, Annapolis, MD. 1994. $26.95.

Ron Zaczek's book is an emotionally probing account of the Vietnam War's psychological toll. Zaczek relates his exciting combat experiences in Vietnam and his ensuing post–traumatic stress disorder (PTSD). *Farewell Darkness* provides new information that can be used as a healing tool for those with PTSD. This is not merely a war story or just a book on war psychology—it is a well–written combination of both.—**MAJ A. Cox,** ***USA, USACGSC***

PRISONERS OF THE JAPANESE: POWs of World War II in the Pacific by Gavan Davis. 462 pages. William Morrow & Co., Inc., New York. 1994. $25.00.

As the Department of Defense World War II 50th commemoration nears an end, *Prisoners of the Japanese* is a fitting tribute to the 140,000 Allied prisoners of war captured by the Japanese at the war's beginning and imprisoned in the Philippines, China, Singapore, Thailand, Japan and the Dutch East Indies. Gavan Davis' detailed and graphic depiction draws heavily upon interviews with American, British, Australian, Dutch and Canadian survivors.—**LCDR John R. O'Donnell,** ***USN, USACGSC***

THE HALT IN THE MUD: French Strategic Planning from Waterloo to Sedan by Gary P. Cox. 258 pages. Westview Press, Boulder, CO. 1994. $44.95.

This account of French strategic planning between 1815 and 1870 fills a void in historical scholarship. No other English work is as in–depth or detached. Gary P. Cox does not allow the French debacle at Sedan in 1870 to totally dominate his perspective. He appreciates the many constraints—political, social and economic—that limited the strategic options of the Second Empire generals. I recommend this book to those interested in 19th–century European military history.—**LTC Arthur T. Coumbe,** ***Florida ARNG, 260th Military Intelligence Battalion, Miami, Florida***

vignettes about Wittmann's sharing of difficult tasks and dangers with his soldiers.

The book is not without flaws. Jones, as his own editor, makes minor grammatical errors and sudden transitions without apparent connection, and his organization and style are somewhat stilted. He also includes a shallow parallel between World War I fighter ace Manfred von Richthofen and Wittmann that adds little to the book. Finally, the price is a little higher than its contents warrant.

What cannot be faulted is Jones' impartial analysis of how Wittmann and his unit were destroyed in Normandy. For years, the story of their demise was lost in the "fog of war" and official records that initially said they died by carpet bombing. In the early 1980s, Wittmann's unmarked grave was discovered. Several competing claims regarding Wittmann's death that have been advanced are carefully eliminated by the author's logic. Jones, however, leaves it up to the reader to determine which is the most plausible.

This is an interesting, enjoyable account "from the trenches." I highly recommend *Panzerheld* for company–level leadership reading.

LTC Edwin L. Kennedy, *USA,*
Combat Studies Institute, USACGSC

INTERVENTION: The Use of American Military Force in the Post–Cold War World by Richard N. Haass. 258 pages. A Carnegie Endowment Book, Washington, DC. (Distributed by The Brookings Institute, Washington, DC.) 1994. $24.95.

Intervention should be read and debated by anyone interested in the current and future use of the US military. Richard N. Haass implies that the US military must be able to respond constantly and simultaneously to a long gamut of missions and that its role in the post–Cold War world is intervention.

Haass places the great variety of missions assigned to military organizations into perspective. He summarizes many recent US interventions and proposes a list of types that includes deterrence, preventive attacks, compellence, punitive attacks, peacekeeping, peacemaking, warfighting, nation assistance, interdiction, humanitarian assistance, rescue and the indirect use of force. It takes effort to reconcile Haass' list with the way military missions are doctrinally organized in the new US Army Field Manual 100–5, *Operations*, but there is no contradiction.

His presentation of the controversy as to when, where, why and how to intervene is even–tempered, undogmatic and nonpartisan. More important, he does not waste ink on national self–doubt or moral circumspection. The question of whether the United States has a right to intervene is finessed behind the assertion that US isolationism is no longer possible. He states outright that "popular and congressional support are desirable but not necessary."

The Weinberger Doctrine is used by Haass as a counterpoint, especially on the question of public support. In Weinberger's words, "Before the United States commits combat forces abroad, there must be some reasonable assurance we will have the support of the American people and their elected representatives in Congress." Haass states, however, that "there is declining popular and congressional support for military interventions. The proper response is not to bow to this mood but to take it into account. Sustaining interventions will require substantial political effort from the most senior levels of government."

On the question of using separate or dedicated troops that have received specialized training for different missions, Haass gives the opinion that "US force levels are already barely adequate . . . that the better approach is the current policy—one army prepared to undertake a range of missions, with personnel receiving special mission–specific training just prior to departure." Some readers will think that events in Somalia, Rwanda and Haiti seem to contradict this position.

Downplaying the idea of national interest, Haass quotes Alexander George, who says, " 'National interest' has become so elastic and ambiguous a concept that its role as a guide to foreign policy is highly problematical and controversial." In Haass' own words, "To draw a direct connection or parallel between the importance of an interest and a willingness to intervene on its behalf would be wrong." He does not say national interest is irrelevant but recommends making decisions to intervene depend even more on the personal criteria and judgment of a foreign policy elite.

In this book, we are exposed to the assumptions of one of the influential intellectual circles that determined the azimuth of President Bill Clinton's *1994 National Security Strategy of Engagement and Enlargement.* Many readers will find *Intervention* aggravating if they do not share these assumptions. Haass implies that the United States can provide effective nation assistance, ought to provide nation assistance and can do it with warfighting military forces. If you like interventions, you will love *Intervention.*

LTC Geoffrey B. Demarest, *USA,*
Foreign Military Studies Office,
Fort Leavenworth, Kansas

ARNHEM 1944: The Airborne Battle by Martin Middlebrook. 501 pages. Westview Press, Boulder, CO. 1994. $34.95.

The Arnhem airborne operation was designed to end World War II in Europe. The initial operations were successful with the US 82d and 101st Airborne divisions seizing their bridges and being relieved by ground troops. However, General Dwight D. Eisenhower's attempt to outflank the 400–mile Siegfried Line, easing the Ruhr encirclement, failed due to the British inability to link quickly with the Americans.

Arnhem 1944 is Martin Middlebrook's 16th and, by his own admission, probably final book. While much has been written about the Allied gamble in Holland, Middlebrook claims the fighting in and around Arnhem has "still not been described in the detail that it merit[s]." His approach is not revisionist, nor does he claim any dramatic disclosures about the 1st British Airborne Division's heroic but flawed attempt to capture the Dutch town. Instead, he describes the action in great detail with the "correct balance."

Arnhem 1944's focus is on the units in Holland and the fighting in and

around the drop zones. Middlebrook correctly claims that the often–told story of 2d Parachute Battalion's holding of the Arnhem road bridge area often overshadows other aspects of the battle. In contrast, *Arnhem 1944* is a meticulously researched, thorough chronicle of the entire battle.

From the lower–ranking soldiers' perspectives, Middlebrook describes the actions of all the battle's units. He uses 501 soldier contributions, carefully placing their quotations throughout and giving credence to their actions. Many are regular contributors to Arnhem battle authors, but hundreds have never before told their stories and convey specific new aspects of the nine–day battle.

Arnhem 1944 is easy to read and essential for those interested in World War II airborne operations focusing on British units. Middlebrook gives honor to those paratroopers who strove to succeed in the last major battle lost by the British army in World War II.

CPT Dominic J. Caraccilo, ***USA, US Military Academy, West Point, New York***

MASTERING TACTICS: A Tactical Decision Games Workbook by John F. Schmitt. 108 pages. Marine Corps Association, Quantico, VA. 1994. $14.95.

Mastering Tactics includes two articles, a scenario section with 15 tactical decision games and a section discussing possible solutions. Also included are five appendixes: "Glossary of Tactical Terms," "Glossary of Map Symbols," "Combat Orders," "USMC [US Marine Corps] Infantry Battalion Organization and Weapons" and a "Typical Marine Expeditionary Brigade (MEB) Organization." Major John F. Schmitt has 12 years' active duty infantry experience. He has written several combat operations manuals, including Fleet Marine Force Manual 1 (FMFM 1), *Warfighting*; FMFM 1–1, *Campaigning*; and the Operational Handbook 6–1, *Ground Combat Operations*. He also instructed at both the US Marine Corps Basic School and Marine Corps Command and Staff College.

Mastering Tactics' genesis comes from the informal wargaming sessions Schmitt conducted during his staff college assignment. Marines and civilians from many professional career fields were involved in the scenario development process. These analytical wargaming scenarios evolved into the more formal games appearing in the Marine Corps *Gazette* beginning in April 1990. These games are now a permanent gazette feature.

As I read *Mastering Tactics,* I began to see the games' process relevance. The games teach military leaders to think about how military concepts and tactical principles are applied. In combat, a leader reacts not without thought but with "instant thought." The leader must instantaneously integrate practical experience with educational experience to apply the most appropriate response to a given situation. One method enhancing this process is tactical decision game training.

I recommend this book to all military leaders, from squad leaders to brigade and regiment commanders, as a method to improve their ability to think under the moment's pressure. I hope future decision games will be added to reflect joint and combined operations and operations other than war.

Richard Milligan, ***US Army TRADOC Analysis Command, Fort Leavenworth, Kansas***

CROSSING THE DEADLY GROUND: United States Army Tactics, 1865–1899, by Perry D. Jamieson. 230 pages. The University of Alabama Press, Tuscaloosa, AL. 1994. $29.95.

Perry D. Jamieson is a US Air Force historian and co–author of *Attack and Die: Civil War Military Tactics and the Southern Heritage*, an excellent book on American Civil War tactics. *Crossing the Deadly Ground* is his outstanding follow–on book. Beginning where his previous book left off, Jamieson extends his meticulously researched, detailed study of tactical doctrine development into a period of incredibly rapid technological change. This change produced the most profound impact on the battlefield since the first Napoleonic era almost 100 years earlier or even since gunpowder's introduction in Europe 500 years before.

Looking back 40 years from World War I's unimaginative frontal assaults that killed millions of soldiers on both sides between 1914 and 1918, it is easy to conclude that from the end of the American Civil War to the beginning of World War I, there was no serious study of what impact new deadly, mass–produced weapons would have or what tactics needed to be changed to cope with the new, incredibly lethal environment. In reality, a significant amount of study and reasoned debate took place in the years leading up to World War I.

Jamieson clearly shows us the debate was not confined to the traditional military powers in Western Europe but occurred in a substantial and thoughtful manner in the United States as well. Thinkers and writers on both sides of the Atlantic were in surprising agreement concerning the future battlefield's lethal nature and the supreme tactical challenge it presented. Far from ignoring the terrible threat presented to unprotected infantry by the magazine rifle, rapid–firing artillery, the machine-gun, barbed wire and powerful chemical explosives, this tactical nightmare was quite well interpreted and extensively documented.

Jamieson describes the US interpretation of the problem as a "terrible challenge faced by advancing infantry" and quotes an officer writing in 1882 that it was "a certain space of from 1,500 to 2,500 yards swept by fire, the intensity of which increases as troops approach the position from which that fire is delivered." This "deadly zone" must be gotten through, but "how shall it be crossed?" The solution of how to get across did not produce the same degree of agreement the problem's description elicited, and therein lay the roots of the 1914 to 1918 disaster.

Crossing the Deadly Ground merits careful reading. If any criticism can be levied against Jamieson's book, it is only that one wishes he had extended it to cover the period from 1900 to 1914. One can hope for a third volume.

COL Jerry D. Morelock, ***USA, Combat Studies Institute, USACGSC***

LONE WOLF: The Life and Death of U–Boat Ace Werner Henke by Timothy P. Mulligan. 247 pages. Praeger Publishers, Westport, CT. 1993. $22.95.

Timothy P. Mulligan's biography of German U–boat commander Werner Henke is an excellent World War II German submarine force study. The German submariners and their US and British counterparts were as different as the boats in which they served. During the 1930s, while the US Navy was switching from World War I S–boats to the much larger fleet submarines, Germany was only modernizing its outdated underwater craft. Mulligan states, "Both generations of [German] submarines could only submerge for limited periods, during which time they could barely move. They were not true submarines, but submersibles intended primarily for surface movement and action."

German army and air force needs took precedence over newer, more efficient submarine development. By the time modern U–boats appeared on the scene, they became victims of Allied technology. Depth–charge racks on US and British ships were replaced by the deadly hedgehog—a mortar–type weapon that fired 24 projectiles about 250 yards in front of a warship. The hedgehog explosives would detonate only upon contact with a solid object.

Mulligan describes Henke's November 1942 sinking of the British converted passenger liner *Ceramic*. Reminiscent of the World War I *Lusitania* disaster, the *Ceramic* carried 150 civilian passengers, including 50 women and children. The 226 military personnel aboard the ship supposedly classified the vessel as a legitimate target. The *Ceramic*'s sinking became a propaganda nightmare for both the English and Germans, with accusations flying back and forth but eventually disappearing in a flood of new sinkings and atrocities.

This is a thoroughly researched book with many photographs and excellent source material for scholars.

Bud Feuer, *Roanoke, Virginia*

Trinity Shatters the World

Trinity is a name Christian religions associate with divinity. In July 1945, *Trinity* was among the most closely guarded secrets in the United States. It was the code name for the first atomic bomb test.

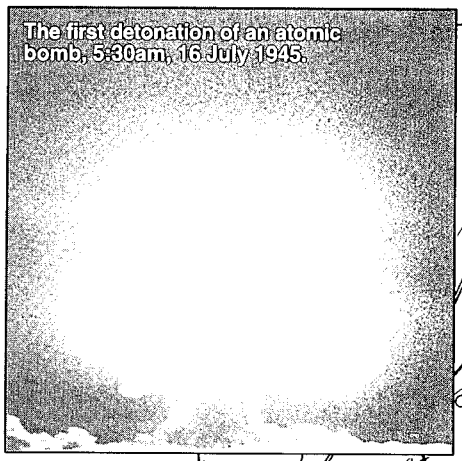
Since 1939, the United States had been researching a bomb. The War and Navy departments had sunk billions into the effort. The world's leading physicists—many of whom had escaped from Adolf Hitler's Europe—worked at a former boys school in the New Mexico mountains. The laboratory at Los Alamos saw thousands of scientists and support personnel arrive in 1943. Secrecy was paramount. Residents of the lab received their mail through a post office box in Santa Fe.

Huge industrial complexes sprouted across the country, and even the people designing the plants could not tell what they were to be used for. The plant at Oak Ridge, Tennessee, literally separated the usable isotope of uranium U–235 atom by atom from U–238. The plant at Hanford, Washington, created plutonium—a fissionable man–made element.

Design of the "gadget," as the scientists called it, took up much time and was extremely complex. Finally, the whole atomic bomb effort came down to a tower in the New Mexico desert 50 miles from Alamogordo. Natives of the area called the site *Jornada del Muerto*—Death Tract. Scientists placed the test bomb atop the scaffold and set the test for 4 a.m., 16 July. Thunderstorms delayed the test until 5:30 a.m. No one really knew what would happen. Some physicists theorized an atomic explosion would set the atmosphere on fire. Others thought it might resemble several carloads of dynamite exploding. The countdown started at 5:29:50—10 seconds later, the world's first flash of atomic fire appeared. The bomb exploded with the force of 18,600 tons of TNT. Residents of New Mexico and western Texas were awakened by a mysterious flash and a storm wind. The metal scaffold at "ground zero" had turned to gas and blown away. The bomb hammered flat the area around the site and killed all plant and animal life within a mile. The mushroom cloud over the explosion reached 41,000 feet. *New York Times* reporter William L. Laurence wrote, "One felt as though one were present at the moment of creation when God said: 'Let there be light.'"

Los Alamos lab chief J. Robert Oppenheimer completed the religious analogy. He was reminded of two passages from the Hindu *Bhagavad–Gita*. "If the radiance of a thousand suns were to burst into the sky, that would be the splendor of the Mighty One" and "I am become Death, the shatterer of worlds."

—Armed Forces Information Service



The first detonation of an atomic bomb, 5:30am, 16 July 1945.