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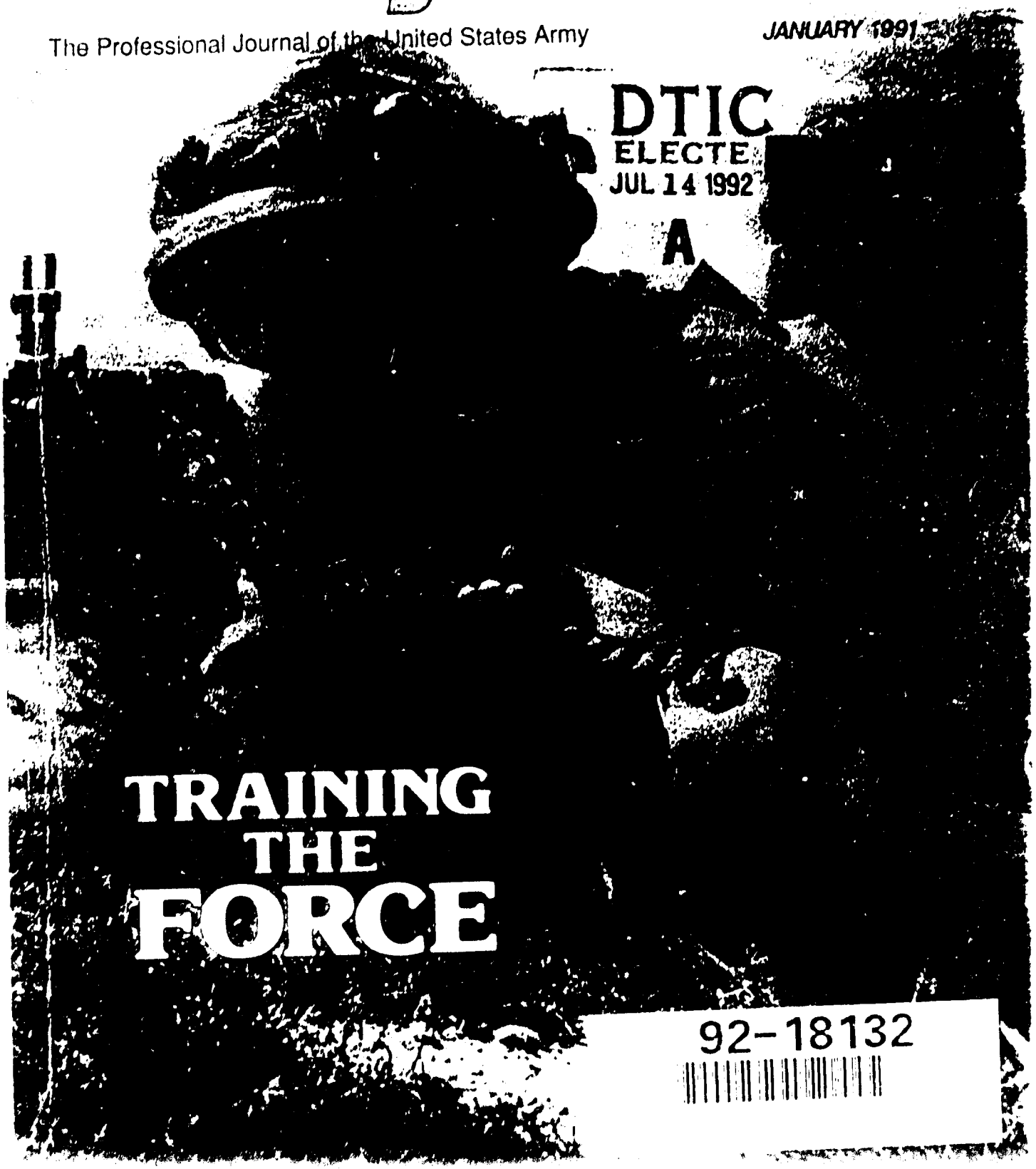

TRAINING THE FORCE

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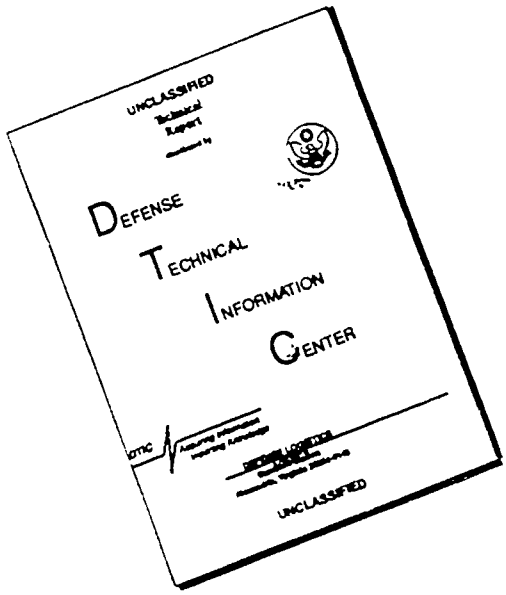

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TRAINING

Cornerstone of Readiness and Key to Victory

Over the past several weeks, a few editorial writers have made the astounding discovery that American soldiers could die during a war with Iraq. Really. At the same time, stories about soldiers refusing to deploy to Saudi Arabia in favor of conscientious objector status have received considerably more attention than they are due. Even harder to fathom are stories about how Army recruiters have duped large numbers of recruits, offering the promise of a college education while masking the possibilities of potential combat until the contract is made. Obviously, such stories suggest a naivete about the current crisis or the results of a slow news day. Perhaps both. Thankfully, not many remain totally oblivious to the real reason for the Army. A *Kansas City Star* editorial writer observed that a conscientious objector's "flashes of revelation" are especially questionable "long after the enlistment and only at the approach of a clear and present danger."

We are also seeing the testimony of former secretaries of defense and former and serving commanders recommending careful consideration before exercising the military option. The scribes suggest that our warrior leaders have feet of clay and are losing their resolve to wield military force. Nothing, repeat nothing, could be further from reality. Rather, the military professional, seeing the potential futility and waste in the precipitous use of force, is a realist who knows the uncertainty of war. To their credit, military leaders are going to extreme lengths to inform the public concerning the risk of entering a war. "If war comes," they warn, "it will be intense, high-speed, ferocious, fought night and day, but not quick, easy, or 'surgical.'"

The reluctance to use force should not be construed as a lack of confidence or the inability to use it. If Saddam Hussein believes that such stories indicate a weakening US resolve regarding his naked aggression, then he will have made his second mistake.

What does all this have to do with training, our theme for this month? Everything. By the middle of the month, the current generation of soldiers may very well face the first real test of its war-fighting capability. The results will show how well this Army has trained and has been equipped for combat against an adversary with a broad range of weaponry, the demonstrated willingness to use it and a combat capability forged and tempered during a grinding eight-year war with Iran. Already, US logistics, mobilization and support systems are being validated in the unprecedented troop deployment. Combat, if it is necessary, will further validate the resurgence in combined arms training during the last 10 years, the management and personnel systems that have grown since the end of the Vietnam War, the Volunteer Army concept, CAPSTONE and, most of all, the philosophies and the systems of training anchored by the combat training centers and fueled by lessons learned in the Mojave Desert.

The importance and the challenge of training are punctuated in Army Chief of Staff General Carl E. Vuono's article, "Training and the Army of the 1990s." Other theme articles address aspects of this critical topic. Training is much too broad to cover in a single issue, and we will return to this theme later. What we intend to do is whet your appetite to read, study and write on training. That you carry even one idea from this issue and adapt it to your training regimen is our goal.

My grade school teacher used to say, "It is too late to study, when you are called upon to recite." The Army may soon be called upon to recite in Southwest Asia. The outcome will show how well we have done our homework.

SFR

TRAINING and the ARMY of the 1990s

General Carl E. Vuono, US Army

In no other profession are the penalties for employing untrained personnel so appalling or so irrevocable as in the Army. —Douglas MacArthur

IN THE spring of 1950, the United States was at peace—an exhausted and uneasy peace in which the world was still reeling from the great cataclysm of World War II. Nobody expected another war; nobody wanted one. Yet, on 25 June, the peace was suddenly and violently shattered as the armies of Kim Il Sung swept into South Korea. A small group of American soldiers was hastily organized into an *ad hoc* task force and was thrust into the breach to try to stem the tide of the North Korean onslaught. These men fought with courage, but they were ill-prepared, poorly equipped and, most importantly, inadequately trained for the tasks they were given. As a result, many of them never came home, and the United States was very nearly run off the Korean peninsula by the army of a backward and impoverished nation.

The lessons of those early days of the Korean War are many and varied, but they all reinforce a powerful message that has been pervasive throughout the history of armed conflict and is of singular relevance to the US Army of today. That message reminds us from across the ages that training is the decisive factor in the outcome of battle and the ultimate determinant of the fate of the nation.

In this article, I want to discuss the significance of training in the Army of today and the "why" and "how" of training in the Army of tomorrow. For it is training that prepares soldiers, units, and leaders to fight and win in combat—the Army's basic mission.

The Army Today. As we enter a new decade, the US Army bears little resemblance to the force of 40 years ago. Indeed, as we have witnessed in a year of great challenge, the Army of 1990 is the finest fighting force this nation has ever fielded and the best in the world today. This is more than rhetorical flourish. It is a reality that has been repeatedly demonstrated in exercises throughout the globe, in the crucible of combat in Panama and in Operation *Desert Shield*—the most complex military undertaking in more than a generation.

This Army did not come about by accident. It is the product of a comprehensive and visionary plan that has as its foundation the Army's six fundamental imperatives—principles that are the benchmark by which we measure every pro-

US Army Chief of Staff General Carl E. Vuono visiting troops at a base camp in Saudi Arabia, October 1990.

posal and every program, and form the architecture by which we are building the Army of the future. These imperatives include an effective warfighting doctrine; a mix of armored, light, and special operations forces; continuous modernization; the development of competent, confident leaders; and an unbending commitment to a quality force. At the base of each of these is the sixth imperative and the top priority for the Army in the field: tough, demanding, realistic training relentlessly executed to uncompromising standards.

For it is training that brings our warfighting doctrine to life; it is training that gives us the indispensable capacity to integrate the various elements of our mix of forces into packages that are effective against specific threats we face. It is training that enables our soldiers to bring to bear the awesome potential of our modern weapons; it is training that builds the kinds of sergeants and officers that our soldiers deserve. And it is training that makes quality Americans commit themselves to join our ranks and quality soldiers commit themselves to a lifetime of selfless service. In short, it is training that undergirds the Army of today, and it is training that we must sustain as we shape the Army of the future.

It is training that enables our soldiers to bring to bear the awesome potential of our modern weapons; it is training that builds the kinds of sergeants and officers that our soldiers deserve. And it is training that makes quality Americans commit themselves to join our ranks and quality soldiers commit themselves to a lifetime of selfless service.

Why We Train. The fundamental importance of training—a truth that is self-evident to military leaders—is not widely understood by many outside of the profession of arms. In the aftermath of the collapse of the Soviet empire, some have called into question the need to maintain readiness and training within the Army. After all, the argument goes, since the Soviet threat has receded and since the West would have greatly extended warning times of any renewed Soviet military challenge, we can afford to scale back the training and readiness of many of our forces. That is the same argument that we have faced after every war in our history,

and the end of the Cold War is apparently no different.

The events of 2 August 1990 have dampened the public enthusiasm for this perspective, but we can expect it to surface again in the years ahead. So it is important that, within our profession, we clearly understand why training will remain so vital in the years ahead, and that we carefully articulate our training rationale to those whose support is so critical to our future.

As we marvel at the collapse of the Soviet empire, we also witness the birth of a new era of uncertainty and peril, an era in which the threats we will confront are themselves ill-defined . . . we must also prepare for the implications of the instability and chaos that historically trail in the wake of the collapsing empires. It is, therefore, critical that we retain the high levels of training that we have achieved within the US Army

The training imperative is driven by three basic and interrelated responsibilities: the Army's strategic obligations in the evolving international environment, the Army's requirement to shape the force for tomorrow, and our sacred duty to our soldiers. Each of these responsibilities is of central importance to the Army and the nation.

The International Environment. Tough, realistic training has always been crucial to our national success, and in the years ahead, the nature of the international environment will reinforce that importance yet again. As we marvel at the collapse of the Soviet empire, we also witness the birth of a new era of uncertainty and peril, an era in which the threats we will confront are themselves ill-defined. Although we applaud the political trends that are occurring within the Warsaw Pact, we must also prepare for the implications of the instability and chaos that historically trail in the wake of the collapsing empires. It is, therefore, critical that we retain the high levels of training that we have achieved within the US Army, Europe and in those forces earmarked to reinforce our forward deployed units there.

But the days are over in which the major challenges to our national interests rested exclusively on the continent of Europe. The brutal and unprovoked aggression by Iraq against Kuwait is a vivid preview of the nature of the international system in the decade of the 1990s and beyond. Two features of the Iraqi attack underscore the enduring importance of training. First, the attack came with virtually no warning. Had our forces across the entire Army not been trained and ready, the credibility of our response would have been negligible.

Second, we no longer have the luxury of considering the developing world to be militarily insignificant. Iraq struck its neighbor with a sophisticated array of weapons and forces, and with demonstrated capabilities that were once thought to be reserved to the major powers. If we were to deter Iraqi aggression against Saudi Arabia and be prepared to defeat an attack if deterrence proved unsuccessful, our forces had to be trained and ready from the moment they arrived in the Arabian desert. Moreover, they had to be trained and ready to fight and win on a high-intensity battlefield—a battlefield that included the specter of chemical warfare.

Iraq's aggression in the Persian Gulf highlights the perilous nature of the evolving international environment and reinforces the undiminished requirement for the Army to be trained and ready. If the wave of the future is the "come as you are" war, then we must be ready to go at all times.

Reshaping the Army. The mandate for trained and ready forces is reinforced by our plan for reshaping the Army of the future. In response to revolutionary developments abroad and resource constraints at home, we have begun to shape a smaller Army—one with fewer soldiers and fewer units.

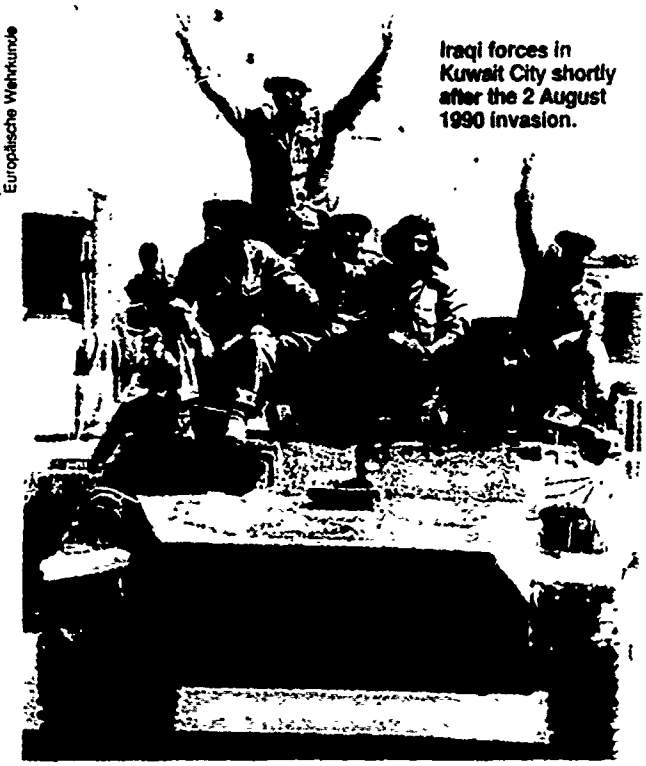
But even as we shape the future Army, our strategic responsibilities will continue to span the globe. So every soldier, every unit, and every leader within our smaller force structure must be fully trained to fight and win. We cannot afford to adopt a course which some have proposed—a course of so-called tiered readiness in which some of our units are fully trained while others are not. Under such a proposal, it is likely that the forces that are fully trained would be inadequate in number to deter or defeat Iraq-like aggression throughout the world, while short warning times and sophisticated adversaries would deny us the time necessary to bring other forces up to full readiness.

So if we are to be a smaller Army—and we will be—then we can never relax our efforts to establish and achieve the highest standards of training throughout the Army.

Commitment to Soldiers. Finally, we must train with our eyes firmly fixed on our sacred responsibilities to the sons and daughters of this nation who are entrusted to our care. Our soldiers depend upon their leaders to train them in peacetime so that they can fight, win and survive in battle. General "Light Horse" Harry Lee of Revolutionary War fame clearly captured our responsibility when he cautioned that "a government is the murderer of its own citizens when it sends them to the field untrained and untaught." No leader in America's Army must ever be guilty of that most inexcusable lapse of professional responsibility.

So whenever a sergeant takes the extra time to plan his training in precise detail, whenever he spends those extra hours executing his training to exacting standards, whenever he devotes that extra effort to scrupulously assessing his training, he is investing in the lives of his soldiers.

Thus, it is clear that the nature of the evolving international environment, the Army's responsibilities to shape the force for the future, and our enduring obligations to our soldiers all require that the Army of tomorrow be as trained and ready as the Army of today. Accordingly, every Army leader—every sergeant and every officer—must understand, attain, sustain and enforce the highest standards of combat readiness through tough, realistic, multiechelon combined arms training designed to challenge and develop soldiers, units and leaders.



Europäische Wehrkunde

Iraqi forces in Kuwait City shortly after the 2 August 1990 invasion.

We no longer have the luxury of considering the developing world to be militarily insignificant. Iraq struck its neighbor with a sophisticated array of weapons and forces, and with demonstrated capabilities that were once thought to be reserved to the major powers . . . Iraq's aggression in the Persian Gulf highlights the perilous nature of the evolving international environment and reinforces the undiminished requirement for the Army to be trained and ready. If the wave of the future is the "come as you are" war, then we must be ready to go at all times.

How We Train. That is the "why" of training. The "how" is embodied in the Army's comprehensive training strategy. As we confront an environment of constrained resources, we must move forward aggressively to shape our training programs at all levels to make the best use of the

assets we are given. Over the past five years, the Army has taken great strides in developing and articulating the training strategy that is presented in US Army Field Manual (FM) 25–100, *Training the Force* and its companion FM 25–101, *Battle Focused Training*. FM 25–100 establishes the Army's training doctrine, and FM 25–101 applies this doctrine and assists leaders in the development and execution of training programs. Together, they are mandatory reading for every leader, sergeant and officer, in the Army.

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The overarching principle that will guide our training in the decade of the 1990s will remain straightforward: we will train as we will fight, and we will train to exacting, uncompromising standards. This is an immutable principle that undergirds the entire Army and applies equally to combat, combat support and combat service support units in TOE (table of organization and equipment) organizations and in our general support forces.

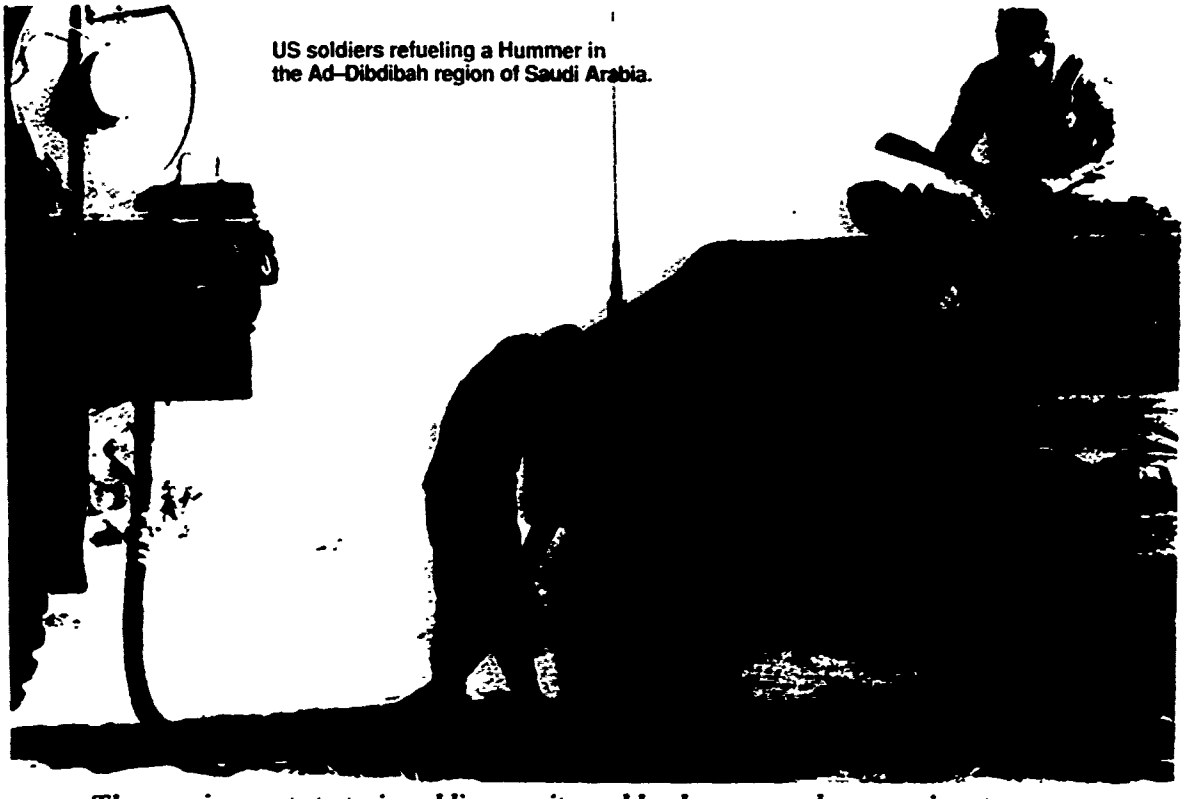
Although conditions may change, our standards will not, for they are the yardstick by which we measure our readiness for combat. This fundamental principle means, at its most basic level, that we will train soldiers, units and leaders in combined arms and multiservice joint operations—the kinds of operations that will be required by an environment growing increasingly complex.

Training Soldiers. First, we must develop soldiers who are proficient in battlefield skills, disciplined, physically tough and highly motivated. The training of our individual soldiers is now, and will continue to be, a primary responsibility of our noncommissioned officers—sergeants who, in this first year of a new decade, are the best in our history. Their unparalleled capabilities and unmatched professionalism provide the Army with a vast reservoir of expertise for training our soldiers. Gone are the days in which we had to rely on centralized and inflexible training mechanisms to ensure that standards were being met throughout the Army. Our sergeants are now fully capable of assuming principal responsibility for the development of every soldier.

The training of our soldiers will be focused primarily at home stations and will concentrate on the basics that win in battle. For proficiency in the basics is an unalterable prerequisite for higher level training in every MOS (military occupational specialty).

Training Units. Well trained soldiers are, of course, not enough; they must be molded into cohesive, effective units from squad to corps, and in combat, combat support and combat service support units throughout the Army. Collective training begins at home stations where basic soldier skills are integrated into small–unit proficiency. Unit training then builds warfighting capabilities in successively larger organizations while reinforcing the individual and collective skills upon which the entire structure rests.

The centerpiece of collective proficiency at battalion and brigade levels resides in our combat training centers (CTCs), the National Training Center (NTC) at Fort Irwin, California, the Joint Readiness Training Center (JRTC) at Little Rock Air Force Base and Fort Chaffee, Arkansas, and the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany. The CTCs provide us the indispensable capability to synchronize all elements of the combined arms team in an environment that comes as close to actual combat as our technology permits. The



US soldiers refueling a Hummer in the Ad–Dibdibah region of Saudi Arabia.

The requirements to train soldiers, units and leaders are no less prominent in our Reserve Components. Indeed, as we have seen in Operation* Desert Shield, *the Total Force concept is fundamental to the defense of our nation in an era of increasing uncertainty and challenge. Today in the Arabian desert, soldiers from the Army Reserve and the Army National Guard are serving shoulder–to–shoulder with their Active Component counterparts.

value of the CTCs cannot be overstated, and the payoff is measured in the performance of our units in battle. In an analysis of the fight in Panama, commanders repeatedly said that the JRTC was the single most important element in their units' success. And a decade of investment in the NTC has created a level of proficiency in desert operations that is the foundation of deterrence—and the basis for victory if battle should become necessary—on the Arabian peninsula today.

A crucial element in achieving unit proficiency is the training of battle staffs. The battle staff, consisting of primary representatives from all staff and slice elements, must be trained to integrate the seven battlefield operating systems. These major functions must be executed if we are to fight and win in combat.

Special mention must also be made of the Battle Command Training Program (BCTP) which hones critical command and control skills at division and corps levels. BCTP represents the top of the training pyramid that rests upon the foundation of individual soldier skills and forms an Army that is trained and ready to fulfill its strategic mandate worldwide. BCTP is now being used by *Desert Shield* units to reinforce the skills required of commanders and staffs.

Training Leaders. Even as we develop the combat skills of our soldiers and units, we must continue to ensure that our leaders are fully trained at every echelon as an investment in the Army of today and tomorrow. For, in the profession of arms, there is no substitute for the leadership of a team of professionals who are competent in the art of war, responsible for their soldiers, and committed to the defense of the nation.

Training of leaders is the primary focus of the Army's leader development program—a progressive, sequential and comprehensive

The centerpiece of collective proficiency at battalion and brigade levels resides in our combat training centers . . . [They] provide us the indispensable capability to synchronize all elements of the combined arms team in an environment that comes as close to actual combat as our technology permits. The value of the CTC's cannot be overstated, and the payoff is measured in the performance of our units in battle [as during] the fight in Panama.

approach that embraces officers, sergeants and civilians. It rests on the three pillars of institutional education, operational assignments and self-development, and has been embedded in a range of Army courses, regulations, field manuals, pamphlets and circulars. In the near future, the Army will promulgate a single, capstone document that will provide guidelines for leaders at all levels to ensure that their subordinates grow into the kinds of leaders that the Army will need in the future.

Our leader development program has already produced legions of leaders — sergeants and officers — who form an unbreakable team and who are competent and confident in leading our magnificent soldiers. Moreover, as a result of our leader development program and the commitment of our leaders today, tomorrow's Army leaders will be even better.

The requirements to train soldiers, units and leaders are no less prominent in our Reserve Components. Indeed, as we have seen in Operation *Desert Shield*, the Total Force concept is fundamental to the defense of our nation in an era of increasing uncertainty and challenge. Today in the Arabian desert, soldiers from the Army Reserve and the Army National Guard are serving shoulder-to-shoulder with their Active Component counterparts and, together, they form a single Army force that has deterred Iraqi aggression and is poised to respond to the call of the president.

The rapid assimilation of Reserve Component forces in *Desert Shield* is a testimony to the standards of training that these units have achieved. In the future, these standards must not be relaxed. To be sure, training in the Reserve Components presents unique challenges that are not faced by Active Component forces. In recognition of this fact of life, the Army's Reserve Component Training Development Action Plan (RCTDAP) has been specifically

designed to focus reserve component training and to help commanders make the best use out of the resources (time and money) that they are given. As in the active forces, the conditions may change, but the standards do not.

Training Mandate. Thus, the Army's training strategy, our "how to" principles, are based on our enduring commitment to train as we fight, and to train each of our soldiers, units and leaders to exacting, uncompromising standards that must be maintained in every combat, combat support and combat service support unit throughout the Army.

As we look to the future, we must build on this strategy, and we must design our training programs to maximize the efficient use of the resources we are given. We must fully exploit the opportunities afforded by simulation technology to polish battlefield skills at all levels while continuing to conduct realistic maneuver and live fire training. We must train with imagination, diligence and innovation, while maintaining a steady course towards our ultimate objective: an Army that is trained and ready to meet the challenges of the 21st century.

Nearly 40 years after the tragedy of those first days of Korea, the Army was again called upon to confront a threat to our nation's security, this time in Panama. But, unlike the Army of 1950, the Army of 1989 was trained and it was ready. Striking with deadly precision and overwhelming force, the Army's airborne, Ranger, mechanized, armor and special operations forces crushed the enemy in a massive, coordinated strike and restored freedom to a people long oppressed.

Seven months later, that same Army was directed to meet the challenge of ruthless aggression in the Middle East. Responding to a complex requirement with unprecedented success, the Army projected more combat power over greater distances in a shorter time than at any other point in the history of armed conflict. Aggression was stopped and a multinational alliance headed by the United States stood ready to execute any option elected by the president.

The overarching principle that will guide our training in the decade of the 1990s will remain straightforward: we will train as we will fight, and we will train to exacting, uncompromising standards. This is an immutable principle that undergirds the entire Army and applies equally to combat, combat support and combat service support units in TOE organizations and in our general support forces.

Just Cause and *Desert Shield* were successful only because the soldiers, units and leaders of the US Army were trained to fulfill their strategic responsibilities to the nation. That is the final standard that we, as leaders in the Army today, must achieve in this decade and far into the next century.

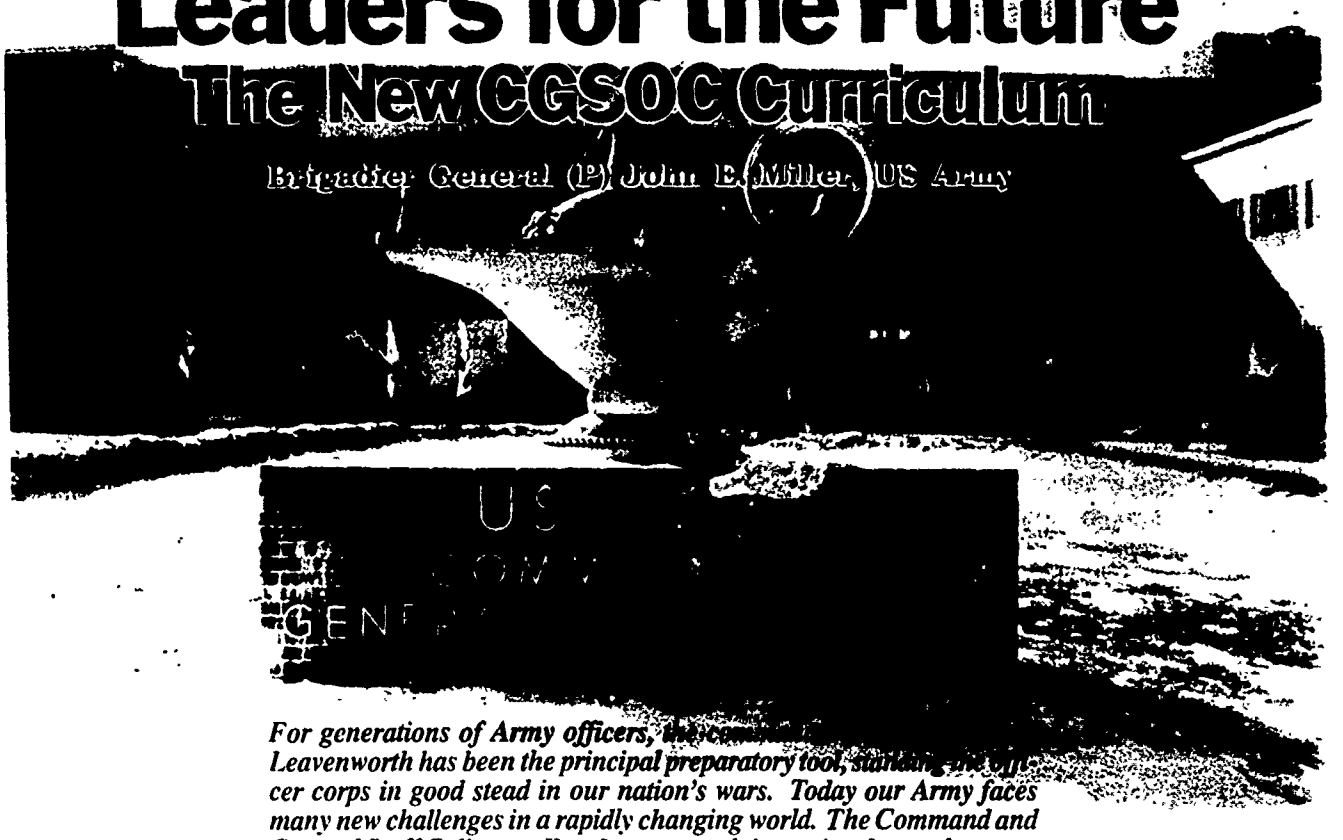
Training remains the Army's top priority; it prepares us to fight. As leaders—as sergeants and officers—it is our sacred responsibility to ensure that no soldier ever dies in combat because that soldier was not properly trained. The American people—and America's soldiers—expect and deserve no less. **MR**

General Carl E. Vuono assumed the duties of the chief of staff of the US Army in June 1987. Prior to that, he was commanding general of the US Army Training and Doctrine Command. His recent assignments include: Army deputy chief of staff for operations; commanding general, 8th Infantry Division (Mech); and commanding general, Combined Arms Center. He also served as: assistant division commander, 1st Infantry Division; and commander, 82d Airborne Division Artillery. During the Vietnam War, he commanded two artillery battalions in the 1st Cavalry Division. His article, "Professionalism and the Army of the 1990s," appeared in the April 1990 issue of Military Review.

Training and Educating Leaders for the Future

The New CGSOC Curriculum

Brigadier General (P) John E. Miller, US Army



For generations of Army officers, [illegible] Leavenworth has been the principal preparatory tool, standardizing the officer corps in good stead in our nation's wars. Today our Army faces many new challenges in a rapidly changing world. The Command and General Staff College at Fort Leavenworth is moving forward aggressively to meet the educational and training needs of our Army's future leaders. This article outlines the school's new curriculum, designed to prepare officers to meet the demands of the 1990s and beyond.

IN HIS January 1990 White Paper, *A Strategic Force for the 1990s and Beyond*, Army Chief of Staff (CSA) General Carl E. Vuono outlined his vision for the Army of the future. Included in the vision are the Army's strategic roles and imperatives linked to a force that is versatile, deployable and lethal.

Guided by the CSA's White Paper and influenced by the AirLand Battle Future and other Department of the Army studies that underlie Vuono's vision, the US Army Command and General Staff College (CGSC) began revising its Command and General Staff Officer Course (CGSOC) curriculum in October 1989. The revisions, to be implemented in academic year 1991–1992, are designed to train leaders to meet the Army's challenges in the 1990s and beyond, while remaining consistent with the Army's leader development program.

The Need for Change

Since World War II, one of the Army's principal missions, even during the wars in Korea and Vietnam, has been the defense of Europe. Consequently, CGSC has kept its curriculum focused predominantly on that area. Generations of Army officers graduated from CGSC with the knowledge and skills needed to combat Soviet

aggression in the "Fulda Gap" region of Central Europe. Events of the late 1980s changed the way the Army views its role in Europe and throughout the world. Army leaders realize that the evolving, multipolar world now places unusual demands on US military institutions, particularly on our Armed Forces and leaders. This realization has led to the identification of the five strategic roles for the Army, contained in the CSA's White Paper. The centerpiece of this concept is the maintenance of a smaller number of forward-deployed forces, backed by combat-ready forces (heavy, light and special operations) in the United States, prepared for immediate worldwide deployment in response to various contingencies.

A powerful development has been occurring simultaneously with the growing need to refocus our Army's efforts on immediate readiness for contingency operations. The development of leaders, one of the Army's six imperatives for the 1990s, has continued to mature with significant positive impacts on our Army's mission capabilities. This influence has been vividly demonstrated in Operation *Just Cause* and, to this point, in Operation *Desert Shield*. Competent, confident leaders are being developed daily in the officer and noncommissioned officer (NCO) corps in a well-established, sequential and progressive professional education system. The leader development system provides the professional foundation for success throughout progressive assignments to positions of increasingly higher levels of responsibility, a promotion system based upon demonstrated potential and the encouragement of continuing self-development through self-study. Leader development efforts are also directed toward the nurturing of civilian leaders, as well as their uniformed peers.

Any discussion of future requirements for leaders must consider the extraordinary release of potential that our leader development system now achieves and will, predictably, achieve in the future. Thus, at CGSC and throughout the Army, we will shape officer education not only by an understanding of external challenges but, very importantly, by a clear understanding of the substantial present capabilities of our leaders at all levels, who must be made ready to meet these and other new challenges. The officer and NCO Leader Development Action plans with their corresponding education systems, the Military Qualification Standards System (MQS I and II) and the emerging Civilian Leader Development Action Plan and system of courses, are powerful mechanisms for shaping the Army's leadership for the future and, in so doing, they contribute to the execution of worldwide contingency missions.

Generations of Army officers graduated from CGSC with the knowledge and skills needed to combat Soviet aggression in. . . Europe. Events of the late 1980s changed the way the Army views its role in Europe and throughout the world. Army leaders realize that the evolving, multipolar world now places unusual demands on. . . our Armed Forces and leaders.

Using our best assessment of present and future Army roles, as well as the present and future contributions of our leader development programs, leaders at CGSC have begun to reshape the CGSOC curriculum to reflect the Army's future roles.

Process for Change

The first steps in the design process were an analysis of where the Army is going (an environmental assessment), a review of CGSC's missions and goals, and a needs analysis focused on the various types of graduates. The environmental assessment was based upon the CSA's vision for the 1990s, current and emerging doctrine (AirLand Battle Future) and various Department of the Army-level regional analyses. In light of this process, CGSC reviewed its mission and goal statements to ensure they were focused on the Army of the future, while also responding

to key parts of the Army's leader development action plan.

The result of this review was a broadening of the CGSC mission and goals statements to provide more focus on recognition of the *values* of the military profession and an increased cognizance of CGSC's external mission to promote the study of military art and science. Mission and goals were sharpened to reflect the Army's expanded role in peace, conflict and war, and to emphasize division and corps operations. This led to the third preparatory process, the needs analysis.

This year. . . about half of the CGSOC officer students are Combined Arms and Services Staff School (CAS^3) alumni. By 1992, 100 percent of US Army students entering CGSOC will be CAS^3 graduates.

The needs analysis sought to provide a reasonably precise answer to the question of what the CGSOC graduate needs to know. The product of this effort was a comprehensive list of task statements, which integrated concepts for the Army of the future with important skills and knowledge needed by commanders and staffs. Additional considerations addressed those skills and knowledge that should be expected of the student upon entry and those that would have to be taught in CGSOC.

The result was a final task list to guide curriculum design. It is the intention of CGSC that this task list be reviewed annually as the leader development system continues to mature. This year, for example, about half of the CGSOC officer students are Combined Arms and Services Staff School (CAS^3) alumni. By 1992, 100 percent of US Army students entering CGSOC will be CAS^3 graduates. In addition, beginning this month (January 1991), we are fielding the MQS II common task guides for lieutenants and captains. Task guides for each branch will be fielded through April 1991.

These professional development "road maps" lay out the critical knowledge and skills an officer must acquire prior to attendance at CGSOC, either from his or her service school, unit assignment experience or self-study. By the time the CGSOC class of 1992–1993 arrives at Leavenworth, MQS II will be the assumed professional development level for all entering Army officers. Diagnostic examinations will likely be used to validate an officer's common task knowledge upon entry to CGSOC, with failure resulting in a remedial requirement for that individual. With MQS II fully in place, there will be a clear start point for the CGSOC curriculum.

The intent of the review process, then, was to develop a curriculum that conformed to a number of design principles. It affirmed that the Leavenworth graduate is to have a broader understanding of the world and the Army's role in selected, potentially critical regions. He or she must have a grasp of the Army's roles in direct action (combat) and indirect action (nationbuilding), as well as special missions such as counternarcotics operations. The defense of Europe is to remain a key part of the curriculum, but CGSC will give equivalent emphasis to a variety of military operations in other parts of the world. In light of the changing nature of the Army's roles, the curriculum has to place more emphasis on preparing for war, mobilization, strategic deployment, contingency planning and force tailoring. The curriculum will address joint and combined operations, the reinforcement of forward-deployed forces, contingency operations and low intensity conflict (LIC). Emphasis is to be on combined arms warfighting at the division and corps levels; while CGSC remains the Army's senior tactical school.

The concept for overall course design includes a central tactical curriculum that falls into three primary subdivisions. The first will be a relatively short "process-oriented" subcourse designed for instructor-centered learning, focused on reinforcement of doctrine and fundamental staff action skills. The medium for this first subcourse will be a brigade-level combined arms scenario.

A CGSOC student makes a point during a classroom discussion.

By the time the CGSOC class of 1992–1993 arrives at Leavenworth, MQS II will be the assumed professional development level for all entering Army officers. Diagnostic examinations will likely be used to validate an officer's common task knowledge upon entry to CGSOC, with failure resulting in a remedial requirement for that individual. With MQS II fully in place, there will be a clear start point for the CGSOC curriculum.

This is to be followed by two additional advanced subcourses, now student-oriented in administration, designed to address division- and corps-level actions. These three subcourses will be framed against several strategic contingencies and located in different theaters to which US forces face likely deployment.

The remainder of the common curriculum is to be arrayed realistically around this central tactical core so that the whole will proceed sequentially and progressively throughout the year, addressing joint issues, LIC and operations short of war, various leadership and other necessary subjects. A program of electives, designed to build on the common core, will add depth and permit specialization required by the individual officer's short- and long-term professional needs. The goal is a course design that will keep the entire student body in approximately the same place in the core course of instruction, while protecting the concept of small-group instruction.

Synthesis of all course material is to be facilitated by administration of block exams and the creation of a capstone tactical "graduation exercise" at the end of the year. The whole course of instruction will have as its foundation a yearlong history survey that will begin with an introduction to military theory, then progress through a survey of military history from the 18th century to the present.

The Curriculum Model

The need to build a sequential and progressive curriculum presented a considerable challenge to curriculum designers. For years, internal CGSC scheduling constraints prevented a

CGSOC will continue to employ small-group instruction, which it adopted in 1987 as its principal teaching methodology. Eighty percent of all instruction takes place in a small-group setting. The objective is to provide an active learning environment where officer students are routinely required to demonstrate their mastery of material through discussions and practical exercises.

major overhaul such as this. Consequently, students received instruction that did not necessarily build on previous learning. The breakthrough came when a six-block, yearlong core curriculum model was developed (fig. 1).

The model eliminates instruction solely by discipline and replaces it with integrated instruction based on six areas of study. The military history course alone remains outside of the block structure to provide a historical foundation and perspective on the curriculum as a whole. Historical vignettes and case studies are also integrated within the various blocks to serve immediate pedagogical needs.

Curriculum Content. The curriculum is divided into a short preparatory program and six blocks of core instruction. The focus of instruction in the six blocks of core instruction is on planning, execution and sustaining military operations at the tactical and operational levels of war in five different regional settings: Continental United States (CONUS), Europe, Central America, Southwest Asia and the Pacific Command (PACOM). Emphasis is on division and corps operations. In addition to addressing LIC in PACOM, the sixth block contains those subjects that do not lend themselves to incorporation in this regional scheme.

The preparatory program is made up of basics learned prior to starting core instruction. It consists of three parts: fundamentals booklets completed prior to arrival at CGSC; preparatory courses for international, sister service and non-OPMD officers (those categories of officers not managed centrally by the Army Personnel Command); and introductory instruction for all officers during the first week of the course. The fundamentals booklets will be linked to MQS II skills.

Block I is a fundamentals course of 170 contact hours (hours of instruction where students and instructors interact in the classroom). Students will study the development, projection, employment and sustainment of combat power; the intelligence preparation of the battlefield; sequence of command and staff actions; and the

preparation of a combat operations order for a combined arms brigade. They will learn how the United States employs armed forces as an element of national power and the nature of joint and combined operations.

Block II (67 hours) continues fundamentals instruction. Students learn the Joint Operations Planning Systems, training, mobilization, deployment of forces and logistic sustainment. The block will culminate with each student writing an operations order.

Advanced instruction begins with block III (79 hours). Students apply the doctrine and fundamentals taught in the first two block· ısing a Central European scenario. They an. e and plan for the commitment of a heavy di ,on to reinforce the forward–deployed forces and take part in subsequent operations.

In block IV (63 hours), the core curriculum shifts to Central America. During this block, the students study mission analysis and staff estimates related to corps contingency operations, conduct LIC operations and plan for the tailoring, deployment, employment and redeployment of a light–heavy corps supported by Special Operations Forces (SOF) as the Army component of a joint task force. The scenario includes a return to nation building activities upon the conclusion of direct action operations.

Block V (81 hours) is set in the Middle East. Students are required to deploy a heavy–light–SOF mix of ground forces from CONUS for integration with other services and allies. The threat is a fully equipped, sophisticated, lethal force from the developing world. Officer students develop plans for operational and tactical levels of employment. Execution of the plans occurs during the elective portion of the curriculum.

In light of the changing nature of the Army's roles, the curriculum has to place more emphasis on preparing for war, mobilization, strategic deployment, contingency planning and force tailoring. The curriculum will address joint and combined operations, the reinforcement of forward–deployed forces, contingency operations and LIC. Emphasis is to be on combined arms warfighting at the division and corps levels.

Block VI (90 hours) moves the students' focus to the Philippines, where they further develop and apply skills required in a LIC environment. Students examine · · avironment, analyze the ongoing insur… ıes and plan appropriate strategies to combat the insurgents. Students also receive some core instruction in administrative law, resource management, force development and various analytic tools.

Throughout each of the six blocks, students receive instruction in senior leadership, the law

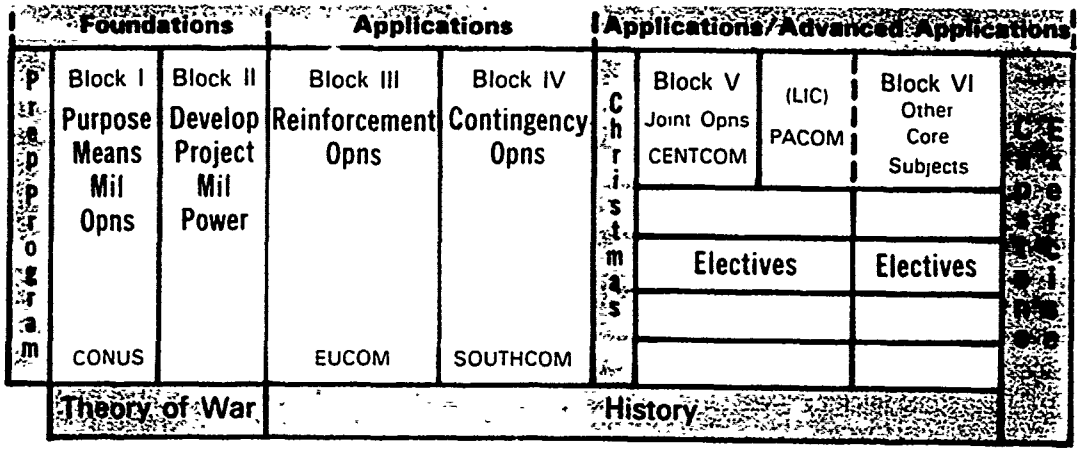


Figure 1. Academic Year 1991-1992

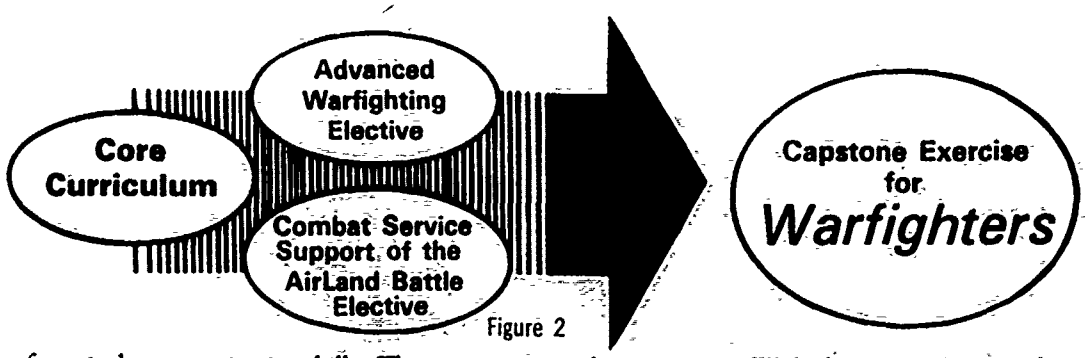


Figure 2

of war and communicative skills. These important subjects will be fully integrated into the curriculum through case studies, practical exercises and other learning methodologies. Four comprehensive block exams are scheduled through the year to provide instructors and students feedback concerning competency in course objectives.

The focus of instruction in the six blocks of core instruction is on planning, execution and sustaining military operations at the tactical and operational levels of war in five different regional settings: Continental United States, Europe, Central America, Southwest Asia and the Pacific Command. . . The sixth block contains those subjects that do not lend themselves to incorporation in this regional scheme.

Methodology. CGSOC will continue to employ small-group instruction, which it adopted in 1987 as its principal teaching methodology. Eighty percent of all instruction takes place in a small-group setting (16 students, with one or two instructors). The objective is to provide an active learning environment where officer students are routinely required to demonstrate their mastery of material through discussions and practical exercises.

In designing the new curriculum, CGSC leaders realized that students must have adequate time outside class to study, spend time with their families and participate in fitness programs and other activities. With this in mind, constraints were placed on student workload. Students will have no more than 6 hours of contact time, 8 hours total classroom time (contact time and laboratory or work group time), or 10 hours of academic work (total classroom time plus homework) daily. These limits, coupled with the requirement to maintain staff group-level instruction for 80 percent of the core curriculum, required the college to develop innovative scheduling techniques for students and faculty.

Advanced Applications. A highlight of the 1991-1992 academic year curriculum will be its advanced applications program. This program is designed to provide officer students with the opportunity to enhance personal and professional growth while conducting advanced studies in greater depth. It, like the core curriculum, will support the long-term leader development of officers, not just the requirements of the next duty assignment. It will allow the officer the opportunity to tailor his or her studies to meet professional development needs and goals within certain institutional limits.

The program will occur in the second half of the course (after Christmas) and be offered in two 10-week terms. Students will complete seven advanced applications (elective) courses (210 hours) and participate in a capstone tactical exercise. Electives will be linked more directly to the core curriculum than has been the case in the past and will be directed primarily toward the conduct of military operations and development of military skills.

Also, all students will continue to be required to participate in an area of concentration based upon their branch or speciality. Previously, areas

of concentration focused on combined arms operations and combat service support. These areas have been expanded to include two new concentrations for 1990–1991: joint and combined operations and general military studies.

Each concentration will require that four of the seven total electives be drawn from an approved, multidisciplinary list. The st ·nts may select the remaining three electives b. ! upon their individual professional needs and desires, in consultation with their academic counselor–evaluator or ACE (a member of the CGSC faculty assigned to advise each 16–member staff group). In addition, the CGSC skill programs, such as joint planner and space operations, are still available. Also, the Master of Military Art and Science Degree Program and Cooperative Degree Program leading to graduate–level degrees remain unchanged.

The final element of advanced applications is the CGSOC Capstone Warfighter Program, which terminates in a major coursewide exercise at the end of the year. This exercise will require an officer to perform complex command and staff actions during a week–long Battle Command Training Program (BCTP) *WARFIGHTER* exercise (a computer–driven simulation that combines the key elements of a major command post exercise against a world–class opposing force). The capstone program will link the officer students' warfighting knowledge from core curriculum, advanced application courses and the exercise experience itself. Officer students will be required to synthesize and apply knowledge gained during the core curriculum, write and assemble battle plans during electives and then execute their plans during the exercise (fig. 2).

The world continues to change and the potential for further adjustments to the Army's role is real. The principles and processes that undergird our leader development programs for officers, NCOs and civilians are sound and will allow us to meet the challenges of leader development in the future across our Army, not just within CGSC.

The CGSOC Capstone Warfighter Program . . . will require an officer to perform complex command and staff actions during a week–long BCTP* WARFIGHTER *exercise. The capstone program will link the officer students' warfighting knowledge from core curriculum, advanced application courses and the exercise experience itself.

Beginning with the 1991–1992 school year, Leavenworth students will attend a course significantly different from that encountered by their predecessors. The course will challenge them to study warfighting via a curriculum that is fully integrated across a broad spectrum of military operations. Their learning experience will take them to these places throughout the globe where they must demonstrate the ability to plan and conduct complex operations across the spectrum of conflict. In revising its curriculum, CGSC is investing in the future of the Army. As warfare, the Army and the world change, the curriculum at CGSC must also change. Without change, Leav-enworth cannot maintain its place as one of the foremost military institutions in the world and the intellectual soul of the Army. Leavenworth is keeping pace with the future. ***MR***

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RELIABLE STRIKE
The Challenges of Brigade Training at Home Station

Major General Charles H. Armstrong, US Army,
Lieutenant Colonel Larry Saunders, US Army,
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and Major Joseph S. Purser, US Army

A constant challenge for division and brigade trainers has been to conduct collective training exercises above the battalion level at home station. Making these exercises resemble a rotation at a combat training center in scope and realism is even more difficult. The authors present experiences and lessons from a recent brigade level exercise conducted by the 9th Infantry Division that was successful in doing both.

DAWN comes radiating over the horizon on a dust–filled desert valley. Tanks of the pseudo–Soviet 210th Motorized Rifle Division close on the defensive positions of a US motorized brigade combat team. Engineer–emplaced obstacles segment and channelize movement in the valley. Smoke mingles with the dust and obscures the valley floor. Here and there, reconnaissance vehicles lay scattered and silent, the blinking of MILES (Multiple Integrated LASER Engagement System) lights tells a tale of earlier violent destruction, a product of the counter-reconnaissance battle. Enemy engineers and infantrymen struggle to clear away the mines and wrestle with the obstructing wire. Friendly artillery observers accurately work simulated mortar and cannon fires on the attackers while vigilant controllers tabulate the action. The attacking commander intensifies the tempo of his advance, knowing that the rising sun may bring a swarm of attacking helicopters.

Deeper into the motorized brigade sector, anxious infantrymen, Dragon gunners, and TOW (tube–launched, optically tracked, wired–guided) missile crews lie concealed in hide positions, covering carefully shaped engagement

areas. They wait to destroy the enemy's main body battalions.

Deeper still, more infantry and combat vehicle crewmen, along with nearly exhausted combat engineers, struggle to prepare subsequent battle positions and shape patterns of obstacles on still more engagement areas.

The resupply challenge was met the previous night, making possible the current flurry of combat and combat support activity. Now liaison officers carefully trace the developing situation and at the map boards, plotters watch the plan unfold.

Field Training Exercise

Although it may seem so, this is not a rotation at the National Training Center (NTC), Fort Irwin, California. This is the recently completed Exercise *RELIABLE STRIKE III* at the Yakima Firing Center, located in the sagebrush country in central Washington state. There the 3d Brigade of the 9th Infantry Division (Motorized) executed the most challenging part of its METL (mission essential task list), a brigade defense in depth. The training was achieved in the most realistic and intense training environment possible, closely akin to what could be expected in a rapidly approaching rotation at the (NTC).

The 9th Division's premier home station training event is *RELIABLE STRIKE*, which is a division-level deployment to the Yakima Firing Center, 120 miles east of Fort Lewis, Washington. The division uses the *RELIABLE STRIKE* FTX as a brigade-level external evaluation; it caps a brigade's collective training cycle.

RELIABLE STRIKEs require units to be MILES-equipped and feature force-on-force, free-play scenarios exercising both battalion task force and brigade-level missions. The latter are truly the capstone of the Field Training Exercise (FTX) and, as the introductory scene indicates, the defense in depth is typically the most challenging of the brigade-level missions.

Conducting NTC style (and tempo) training at home station is challenging, but achievable. Several potential constraints must be overcome: adequate depth in the maneuver box, an opposing force (OPFOR) of sufficient density to truly test the defense and enough personnel to efficiently evaluate, control and support MILES-enhanced, free-play training of this scope.

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This article will present the principles of the defense in depth, the lessons learned when a middleweight force—the motorized brigade task force—executes a mobile defense in depth in an NTC-like training environment, and the techniques, costs and benefits of developing such an environment locally. First, we must consider the doctrine behind a modern defense in depth.

AirLand Battle Doctrine

Depth is integral to the AirLand Battle concept of defense. It lends space for maneuver, time for planning and executing sequenced engagements and ultimately provides the resources to win through persistent attrition of the enemy. The defense gains depth in several ways. Reconnaissance is pushed well forward for early identification of the enemy's main and supporting attacks. Dominating positions are prepared in depth and defended by friendly combined arms forces, either simultaneously or sequentially.

Friendly fires (Air Force, Army aircraft and artillery) reach deep to weaken the enemy even before he crosses the line of contact, then pursue him relentlessly throughout the battlefield. Obstacles, smoke, electronic warfare (EW) and fires stall the momentum of enemy forces projected for destruction in the main effort of the defense and isolate them from reinforcing or supporting elements, including higher command and control. Mobile reserves are positioned in depth at key points to protect the integrity of the defense and strike decisive blows to wrest the initiative

Lead elements again crested the first rise in time to view what seemed to be the rapid retrograde of German lorries and towed artillery. Sensing victory, they pressed over the second rise and into withering fires of the German guns hidden on the final slope. In less than 5 minutes, 17 [more tanks] were destroyed or disabled. By then, two tank regiments were combat ineffective.

from the enemy. Finally, friendly forces protect their own ability to concentrate at critical points and times and to shift support as the commander redirects the main effort of the defense.

There are two techniques for the defense: mobile and area. The mobile defense aims to destroy the enemy. Depth is essential to provide the maneuver space for a large, heavy reserve to defeat the enemy by counterattacks to his flanks and rear. Supporting units are disposed in forward, prepared positions to channel the enemy along desired avenues and to isolate enemy elements selected for destruction.

In contrast, the area defense is terrain-based. It relies on devastating fires from numerous mutually supporting positions overwatching key terrain. Its aim is to deny the enemy access to the protected terrain for a specified period of time. The intent is to set conditions for more decisive action against the enemy force elsewhere or later in the battle. Depth is used to absorb the momentum of the enemy attack when the defender is heavily outnumbered. The attack is weakened, splintered and isolated as it pushes through the defensive web, ultimately allowing its defeat in detail. Numerous local reserves are used to prevent any penetration in force, thus protecting the integrity of the defense.

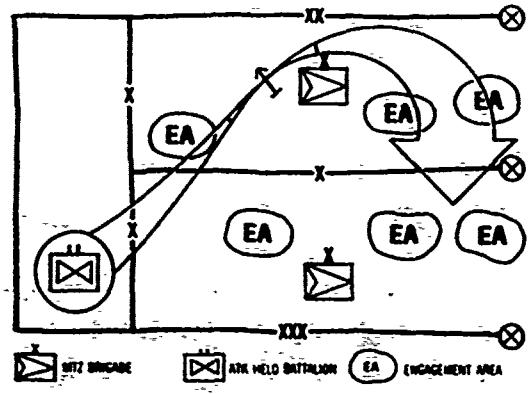

Figure 1. Motorized division sector defense

Typically, a competent defense combines both techniques, the balance varying with the conditions expressed in METT-T (mission, enemy, terrain, troops, and time available). Force structure also determines the defensive technique; heavy forces are best suited for mobile defense while light, foot-mobile forces emphasize the area defense. Motorized forces favor a variation of the mobile defense, modified to accommodate unique firepower considerations.

Under its original organization and operational concept, the motorized execution of a defense differed little from the classic mobile defense. A series of engagement areas were used to shape the battlefield and set the conditions for decisive counterattacks to the flanks and rear of the attacking enemy force. Employment of the TOW ATGM (antitank guided missile) as the primary weapon system has forced changes in the techniques for defense used by this middleweight force. Not really capable of closing with the enemy, the motorized task force uses engagement areas as the decisive rather than supporting component of the battle. Immense effort is invested in funneling the enemy into a primary killing zone, delaying him once there, then crushing him with the tightly synchronized destructive force of TOWs, artillery, attack helicopters and close air support fires (fig. 1).

Historical Perspective

While this adjusted motorized organization and operation plan is not the prototypical application of the AirLand Battle mobile defense, there are historical precedents for destruction of large armored forces by middleweight forces executing a combined arms "stand-off" defense.

In 1941, a reinforced German company and two batteries of antitank guns decisively defeated

A friendly TOW missile system in overwatch position

The area defense is terrain-based. It relies on devastating fires from numerous mutually supporting positions overwatching key terrain. Its aim is to deny the enemy access to the protected terrain for a specified period of time. The intent is to set conditions for more decisive action against the enemy force elsewhere or later in the battle. Depth is used to absorb the momentum of the enemy attack when the defender is heavily outnumbered.

two tank regiments of the British 7th Armored Brigade at Hand Ridge, a German strongpoint overwatching the main route west from the Egyptian frontier across the Libyan desert. The low ridge actually consisted of three separate rises. German antitank guns were carefully disposed in camouflaged positions among the successive ridgelines. They were protected by dug-in infantry and artillery sited on reverse slopes.

The initial columns of British cruiser tanks stumbled unsuspectingly into deadly antiarmor cross fires as they crested the first ridgeline and were thrown back. A rapidly organized attack subsequently flanked the positions guarding the first rise, only to become ensnared in the kill zones of supporting positions from the second rise. The lighter A9 and A10 cruiser tanks were then pulled back to allow heavier, more potent A13 Crusaders to take up the battle. Lead elements again crested the first rise in time to view what seemed to be the rapid retrograde of German lorries and towed artillery. Sensing victory, they pressed over the second rise and into withering fires of the German guns hidden on the final slope.

In less than 5 minutes, 17 Crusaders were destroyed or disabled by the 7th's two tank regiments were combat ineffective. The British 7th Armored Brigade limped back across the Egyptian frontier under pressure from the 5th Light Division. Of particular note, the British mechanized attack was defeated with minimal use of German armor. Erwin Rommel had preserved the tanks of the *Afrika Korps* for slashing counterthrusts deep into the rear of the British columns, to disrupt their ability to reorganize and resupply their now splintered elements. In great part due to the success of the "stand-off" antiarmor defense at Hand Ridge, and to a similar infantry and antitank gun defense at Halfaya Pass, the British campaign—Operation *Battleaxe*—crumbled (fig. 2).[1]

METT-T Considerations

The mission of the motorized brigade during the portion of *RELIABLE STRIKE III* under review was to conduct a defense in sector as part of the notional motorized division. The sector that the brigade was given closely resembled a defense of a mountain pass, as the terrain was marked by a long, open valley that gradually increased in elevation to the crest of a steep ridgeline that could be crossed in only three key spots. A series of low, evenly spaced hills, known as the

The brigade commander planned to mass his attack helicopter squadron . . . three times. The squadron was assigned a deep engagement area forward of the brigade and was given priority of artillery fires initially to begin attrition of the enemy force before it closed with the ground maneuver forces.

knuckles, provided the only broken terrain in the valley floor and created a hidden valley that offered an alternate avenue of approach by masking fires from the ridgeline. On the other side of the ridgeline, the terrain falls off gradually to an intermittent stream bed with sheer banks that could be crossed at only four sites. The brigade's sector—10 kilometers wide by 45 kilometers deep—was perfect for a middleweight force.

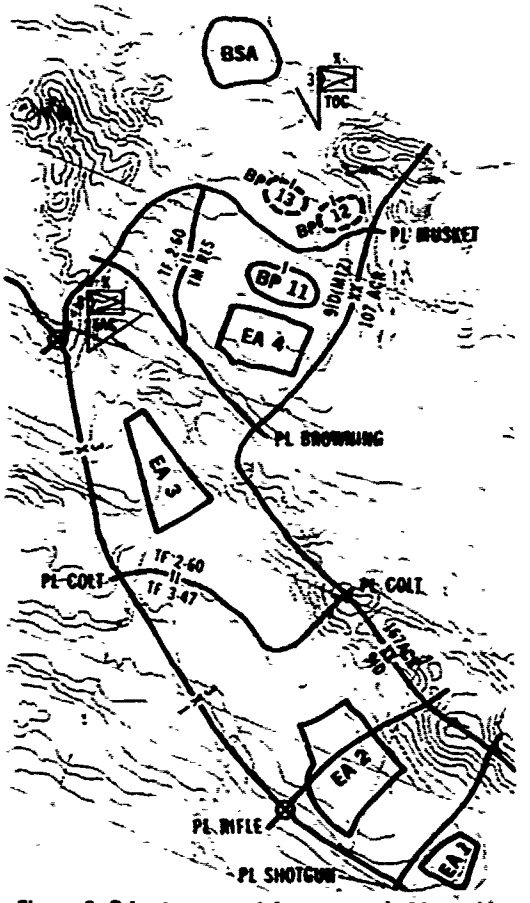

Figure 2: Brigade sector defense operational graphics

The OPFOR was made up of elements from the 9th Division's heavy brigade. An armored battalion task force was created to replicate, as nearly as possible, the target array of a Soviet tank regiment moving to contact in an advanced guard formation with a follow-on battalion. Fifty-six M60A3 tanks imitated Soviet T-72s. Sixteen HMMWVs (high mobility multipurpose wheeled vehicles) represented BRDMs (Soviet combat vehicles), and 12 M113 armored personnel carriers acted as BMPs (Soviet armored personnel carriers). The OPFOR could field a total of 84 combat vehicles. In short, every effort was made to make the *RELIABLE STRIKE III* OPFOR appear realistic and doctrinally consistent to the soldier on the ground. The intent was that as a part of his training the soldier would actually meet the enemy, see his tactics and execute the battle against realistic opposition. Timing and dispersal were also worked into OPFOR operations so that enemy units made their appearance on the battlefield in appropriate vehicle densities and sequenced as could be expected on an actual battlefield.

Concept of Operation

Based upon the threat, the considerable depth of sector and the defensible terrain afforded by the ridgelines, the brigade commander chose to array his task forces in depth to minimize extensive repositioning of forces during the battle. Further, the battlefield was shaped into four engagement areas to focus combat power and synchronize direct fires, massed artillery fires, attack helicopters, close air support and electronic warfare at key times. To capitalize on the brigade's primary weapon system, the HMMWV-TOW, and the relative strength over the enemy in infantry, decisive (close) engagement with the TOW systems had to be avoided while allowing the OPFOR to close within range of our infantry's Dragons, LAWs and MK-19 grenade launchers.

OPFOR tanks moving to forward assembly area

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The brigade was allocated 40 hours for preparation from time of receipt of the defend mission until it was to be ready to execute the defense. The brigade was task organized with the infantry heavy task force forward, the TOW heavy task force framing the primary engagement area and a mobile reserve in depth. The aviation task force was planned into three critical phases of the battle.

Thus, the infantry heavy task force, TF 3-47, was positioned well forward with responsibility for one engagement area. Broken ground would cause the enemy to close with and engage our infantry upon entering the brigade sector. This TF was to remain forward and accept bypass by any enemy penetrations and to attack, weaken and delay second echelon forces while the brigade destroyed the remnants of the first echelon battalions in engagement areas in depth. Additionally, this TF was positioned to force the enemy to remain in the open areas along the main avenue of approach, where he would be most vulnerable to long-range TOW fires. This positioning would also cause the enemy to accept heavy losses from the brigade's infantry systems and a slowing of his momentum if he attempted to move through the hidden valley.

The task force in depth was the combined arms battalion-heavy, TF 2-60, which controlled the bulk of the brigade's HMMWV-TOWs. This TF was given an area defense mission, anchored on the defiles leading to the passes over the ridgeline and commanding the open ground into which the main avenue and the hidden valley approaches inexorably flowed. TF 2-60's job was to take advantage of the TOW's stand-off range and engage the enemy throughout the valley as he attempted to move up the ridgeline.

The antitank heavy reserve was formed based upon the light attack company. This organization melded nine HMMWV-TOWs and nine MK-19 grenade launchers. Additionally, it was given operational control of the two Vulcan platoons to cover air avenues of approach into the brigade support area (BSA) and to give the reserve company a BMP-killing system when used in the ground support role. Further, the reserve was provided a direct support engineer platoon to prepare an engagement area in depth. The front and flank of this engagement area were to be executed by the reserve company; TF 2-60 would attack by fire into the rear of the enemy formations as they entered the engagement area.

Artillery batteries were initially positioned in depth to allow the artillery battalion to provide counterbattery fires as the enemy began his attack, then to support the attack squadron in EA 1 with massed fires. Conducting only short survivability moves, the artillery batteries would always be able to provide fires throughout the sector and into each successive EA.

The brigade commander planned to mass his attack helicopter squadron, TF *Saber*, three times. The squadron was assigned a deep engagement area forward of the brigade and was given priority of artillery fires initially to begin attrition of the enemy force before it closed with the ground maneuver forces. As the enemy entered direct fire range of TF 3–47, the attack squadron would recycle in preparation for an attack in concert with TF 2–60 near engagement area (EA) 3. Finally, the squadron was to be prepared to support the reserve battle. TF 3–47 had primary responsibility for EA 2, TF 2–60 was the brigade main effort in EA 3, and Team *Reserve* was responsible for EA 4. TF *Sabre* was to be employed in EA 1, EA 3 and EA 4 (fig. 3).

Artillery batteries were initially positioned in depth to allow the artillery battalion to provide counterbattery fires as the enemy began his attack, then to support the attack squadron in EA 1 with massed fires. Conducting only short survivability moves, the artillery batteries would always be able to provide fires throughout the sector and into each successive EA. Forward observation lasing teams (FOLTs) were employed in mutually supporting teams from hide positions, framing all engagement areas, to direct precision artillery munitions onto critical targets. Typically used under brigade control, FOLTs offer motorized units a unique ability to direct precision antiarmor fires throughout the battlefield.

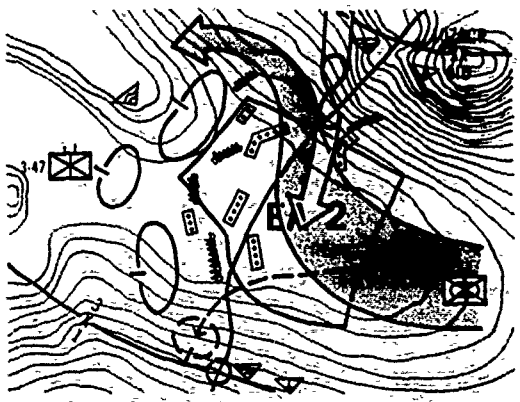


Figure 3: Battle freeze: execution of EA 2

The commander's overall intent was to employ the attack squadron in EA 1, using aerial TOWs, artillery fires and precision munitions to locate and kill enemy reconnaissance vehicles, causing the enemy confusion and delay. TF 3–47 was to destroy one of the two first echelon battalions in EA 2 and further delay the second, channeling it along the open valley floor into EA 3. TF 2–60, TF *Saber*, massed artillery and close air support (CAS) were to destroy the remaining two battalions in EA 3. Team *Reserve* was standing by to protect the BSA and prevent any penetration of the brigade rear boundary. The following summary reveals how the battle actually was fought.

Battle Execution

It is barely 0630 when the first spot reports reach the brigade tactical operations center (TOC). Forward-deployed scouts and FOLT have spotted enemy tanks approaching the first of the obstacle belts. OPFOR smoke drifts across the first engagement area concealing the enemy's intentions. Cobras from TF *Saber* hug the ridges as they maneuver into concealed firing positions—more missile launches—more kills.

Suddenly, the second echelon is identified closing sooner then predicted by the S2's (intelligence officer's) template—and they are swinging south. The enemy is trying to avoid the strength of the defense by driving through TF 3–47 positions and into the hidden valley.

The brigade commander decides to reorient a portion of TF 2–60 to cover the exit to the hidden valley approach. EA 3 will still be the

place to stop them (fig. 4).

Elements of TF 3–47 also displace to assist TF 2–60 with the destruction of the enemy in EA 3. Remaining forces allow enemy units to bypass and continue engaging enemy follow–on forces from dug–in positions. TF 2–60 now takes on the lead enemy columns at long range from positions covering EA 2 and EA 3. FOLTs call for DPICM (dual–purpose improved conventional munition) and Copperhead on both engagement areas. The Cobras continue to go after the tanks.

Still, the enemy advance is not broken. The closing speed and the rapid rate of fire from the tanks begin to have an effect. TF *Saber* and supporting artillery counter with devastating fires, delaying the enemy and allowing the HMMWV–TOWs to scoot safely along folds in the terrain to alternate firing positions. The enemy hit TF 3–47 hard, but paid a heavy price. The first echelon is stalled; EA 3 is awash in blinking MILES lights with remaining OPFOR vehicles scurrying for cover. The sector is still intact, there is still room to maneuver and the reserve remains unengaged.

Then, suddenly, the second echelon pushes through the melee and drives for the ridge. TF 2–60 Dragon gunners engage from well concealed positions, but the breakthrough battalion surges on. The brigade commander sees this and realizes the reserve must finish the fight. TF *Saber* is alerted to recycle and stand ready to attack again into EA 4 as HMMWV–TOWs from TF

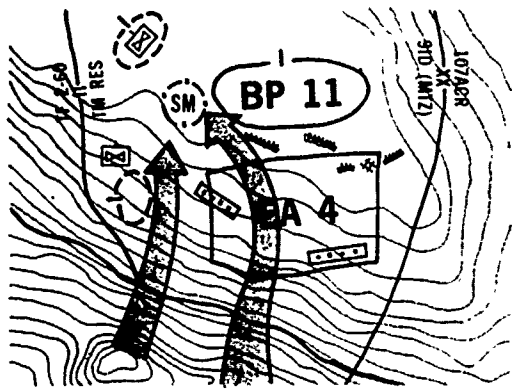


Figure 4: Battle freeze: execution of EA 4

The troops disengage from the OPFOR to conduct a series of after–action reviews, from platoon level through the brigade headquarters itself. Much of the value to be gained from the training effort depends on the quality of these AARs. Therefore, considerable effort is expended doing quality AARS during [the] exercises.

2–60 scamper over the ridge into new positions looking down into the engagement area. In mere minutes, the defenders are set.

The penetration hangs up on the obstacles at the mouth of EA 4. Cobras quickly engage. FOLTs control artillery fires on targets of opportunity. Disrupted, the enemy edges slowly into the engagement area as the reserve company lies in overwatch. Abruptly, the ground TOWs systematically engage at long range. MILES lights start blinking and the tanks go dead. The survivors turn west and the reserve company commander launches his platoons in pursuit on a parallel course. The TOW gunners get flanking shots and score hit after hit.

There are only six enemy tanks, two platoons, left as the enemy approaches phase line Musket: The brigade commander calls on the Cobras to finish them off. As the attack birds move in, it is over . . . the senior controller calls "change of mission."

Battle Review Procedure

The troops disengage from the OPFOR to conduct a series of after–action reviews (AARs), from platoon level through the brigade headquarters itself. Much of the value to be gained from the training effort depends on the quality of these AARs. Therefore, considerable effort is expended doing quality AARs during *RELIABLE STRIKE* exercises.

For *RELIABLE STRIKE III*, observer/controllers actually attended a pre–exercise school, where O/Cs studied the exercise scenario, rules of engagement and safety criteria. The O/Cs also built evaluation packets while in the school.

Motorized units are best employed staying behind to engage successive echelons rather than passing through lines while in heavy contact. Battle handover almost always mandates close combat with the enemy, a mission motorized forces are not well equipped to execute.

These packets consolidated the ARTEP tasks, conditions and standards underlying the missions that the brigade selected to exercise. Last, the O/Cs rehearsed AAR techniques.

Once at Yakima Training Center, the O/Cs used a centrally located, permanent facility for battalion- and brigade-level AARs. It contained a sand table, appropriate maps, lots of chartboards and video recorders for documenting lessons learned.

What lessons did the division capture after all this effort to collect and present the training outcomes? Quite a few, as we shall examine.

First, resynchronizing the full weight of the combat team components to execute multiple engagement areas was a challenge. This does not mean the battle should not be fought in depth. Bypassed units and minor engagement areas must be used to delay and channel the enemy advance. Still, the combat team should plan to execute a decisive engagement area only once.

Second, the attack helicopters can hit the enemy and maintain contact by "cycling" the aircraft. Motorized units cannot move and shoot at the same time; therefore, they have difficulty staying with the enemy. Attack helicopters must continuously screen the enemy to fill that void. A limiting factor is time required to rearm/refuel.

Moreover, motorized units are best employed staying behind to engage successive echelons rather than passing through lines while in heavy contact. Battle handover almost always mandates close combat with the enemy—a mission motorized forces are not well equipped to execute.

Engineer efforts must both channel the enemy toward the decisive engagement area and delay him once there to allow synchronized fires of a pure motorized unit to destroy an armored opponent.

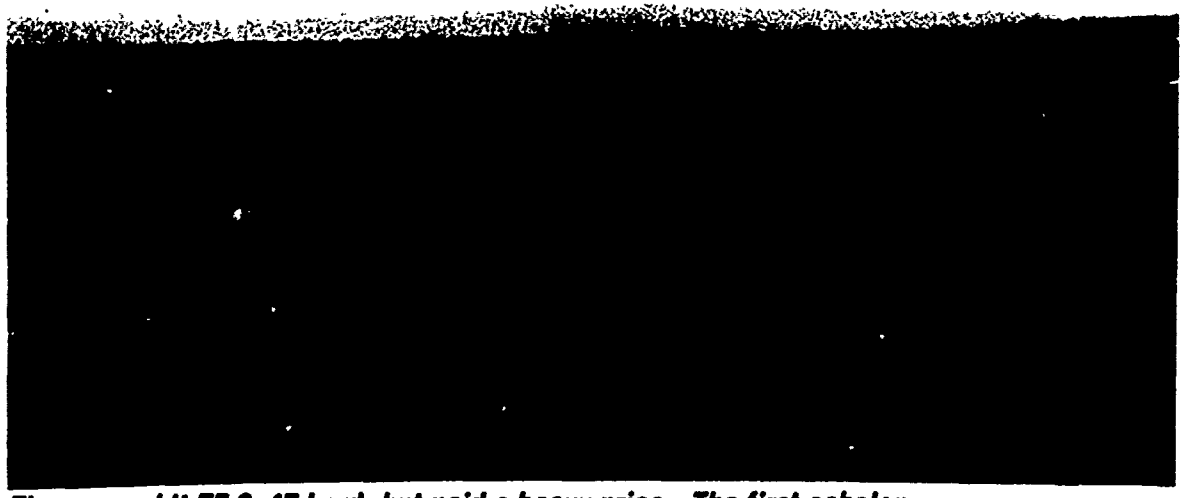
Towed artillery cannot displace and mass fires in pace with motorized operations. To assure the full effect of artillery fires, towed artillery should be placed off the main avenues of approach and left in position, shifting fires as appropriate, but avoiding actual displacement.

Finally, the impact of junior leader initiative was momentous. As the defense's main effort shifted, aggressive young commanders grasped the intent and stayed in the battle. Even young leaders, commanders of vehicles effectively bypassed, continued to seek and engage targets, having a dramatic impact on the final outcome. (On the other hand, young officers confused by the shift who hung back were profiled by their meager contribution.)

The review of training on the brigade defense in depth is now complete. The brigade and the division learned some indispensable lessons by conducting the training in the most realistic, demanding environment that could be produced at home station. Before closing, it is appropriate to explore some possibilities for offsetting the constraints inherent in executing brigade-level NTC style training locally.

The size of the maneuver box is the most inflexible of the constraints. Yet, however unyielding, the requirements are not insurmountable. Specifically, the terrain must at least support a two-battalion front, a reconnaissance zone, main battle area and a rear area large enough for reserves, fire support and a brigade support area to set up and periodically relocate. Even for heavy units, 10 kilometers by 30 kilometers will generally work. There must also be sufficient open terrain and usable roadways to support the tactical marches of the evaluated brigade and the OPFOR, as well as tactical resupply and backhaul for casualties and maintenance recovery. Finally, there must be approved air corridors for integration of both Army aviation and Air Force tactical air. The 9th ID has access to such a complex at the Yakima Firing Center. Other divisions are likely to have a similar resource with-

Joint air attack team attacking the OPFOR.



The enemy hit TF 3–47 hard, but paid a heavy price. The first echelon is stalled; EA 3 is awash in blinking MILES lights with remaining OPFOR vehicles scurrying for cover. The sector is still intact, there is still room to maneuver and the reserve remains unengaged.

in a reasonable commuting distance.

Second, there must be a motivated, professional and "uncooperative" opposing force. The size of the OPFOR turns out to be less consequential than the range of its capabilities. It must replicate a robust combined arms force: air and ground. In particular, it must contain Hind helicopter surrogates, a highly mobile shock component to spearhead and exploit penetrations, and sufficient overall mobility to threaten concentration at multiple points on the battlefield. A reinforced battalion task force is adequate. Its size can be made to portray a larger force through greater densities of simulations, echeloning early kills back into the battle, and careful positioning and repositioning to produce selective massing.

Perhaps the biggest cost is the overhead. Nonpersonnel resources required for a *RELIABLE STRIKE* are no greater than any other brigade level training of comparable length. The potential overhead constraint is *people*, not money.

To maintain realism, accurately tabulate training outcomes and ensure safety, observer/controllers are needed down to platoon level for each evaluated unit. The chief O/C should be an assistant division commander. He will need the support of a healthy slice of the division battle staff to drive the exercise and provide a response cell. Remaining O/C requirements to actually control and evaluate training consume most of the officer cadre of an additional brigade combat team.

Finally, DIVARTY must provide firemarkers and the division support command must furnish a logistics support base. It simply takes soldiers in abundance to administer and support an exercise of this scope. And yet, the investment is clearly worthwhile based solely on the splendid training it gives to the combat teams. But with smart training, the payback extends well beyond the units actually being evaluated. Several initiatives are key.

By maintaining strict unit integrity when laying down the O/C structure, a unit's O/C tasking can turn into a "leaders recon in force." Periodic AARs just among the groups of O/Cs further this, allowing the lessons from their evaluations to be applied directly to techniques and procedures within their own unit. The movement to and from Yakima of a division slice and the equivalent of two brigade combat teams is a great forum for training on division-level tactical marches. Training value can also be gained by insisting that all support for the exercise be pro-

The impact of junior leader initiative was momentous. As the defense's main effort shifted, aggressive young commanders grasped the intent and stayed in the battle. Even young leaders, commanders of vehicles effectively bypassed, continued to seek and engage targets, having a dramatic impact on the final outcome.

vided from a tactical setting (even if it is located outside the immediate maneuver box) and executed in accordance with the same standards required of the maneuver task forces.

Finally, with careful planning it may be feasible to overlay a division command post exercise, and so ensure more meaningful training for the division battle-staff, or extend the FTX scenario to include general support forces in a division–controlled rear area. In sum, the constraint addressed is one of the potential costs for the support people in the exercise who have to give up other training opportunities. By innovatively and aggressively training them as they support, that cost can be turned to benefit.

During *RELIABLE STRIKE II*, the soldiers of the 3d Brigade learned a great deal. Bottom line, they learned that with good use of depth, they could defeat a Soviet tank regiment. The quality and detail of the lessons they gained were simply not possible without replicating an NTC standard of training.

The division learned some lessons, too. The defense in depth is vital to the success of combat team operations. The division was willing to invest considerable resources to obtain an NTC analogue at Yakima. However, the division discovered NTC-style training at home station to be more affordable than expected. The real expense was the overhead used to support and administer the training. To the extent the support can become a training experience as well, even that cost is greatly offset. ***MR***

NOTES

1. Paul Carell, *The Foxes of the Desert* (New York: E. P. Dutton & Company, Inc., 1961), 40.
2. Barrie Pitt, *Crucible of War: Western Desert 1941* (New York: Paragon House, 1989), 300-301.
3. Carell, 42-43.

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Expanding the Role of Fire and Maneuver Centers

Lieutenant Colonel Thomas R. Rozman, US Army

The Army's training needs and strategy are now coming under intense scrutiny. In these times of budget cuts and other pressures, the Army must ensure that it is getting the training it really needs and at the best price. The author sees the need for a comprehensive plan to manage all those resources that provide soldiers and units with the most realistic peacetime training—the "full up" maneuver and gunnery training that can be best done at the large and expensive combat training centers.

WITH EACH new weapons system the Army introduces, we are shooting farther and making more noise. The air and ground systems move faster and with greater range. Thus, in order to train our forces in tactical- and operational-level skills—everything from gunnery to movement to maneuver—more space is required. When this trend is considered against growing fiscal and environmental constraints for Defense Department initiatives, locations capable of supporting full-scale gunnery and maneuver for battalion and higher level units equipped with major weapons systems will probably decrease. Home station training opportunities for many combat units may soon be limited to training simulation and simulators at centralized locations for much of the gunnery and maneuver training for these larger formations. This article discusses a conceptual approach for how such a system of fire and maneuver centers (FMCs) might be planned and managed.

To some extent, US Army, Europe (USAREUR) has been using a system of FMCs for some time. The system was inherited from the World War II German army. Its basis was the *Truppenübungsplatz* or what USAREUR calls today a major training area (MTA). Some of these MTAs can be traced to the pre-World War I Imperial German army when a disposition of one per army corps was maintained. As early as the 19th century, the German army was confronted with a need to provide areas for large-scale unit training that could not be supported by the limited assets of the garrisons. This reality continued and became more pronounced in the 20th century, leading to the refinement and expansion of the system. Currently, USAREUR operates three MTAs, all of them having come from the German army program: Grafenwöhr, established during the imperial period; Hohenfels and Wildflecken, which opened during the pre-World War II period.

The Army in the Continental United States (CONUS) began to experience limitations similar to those of the German system during the pre-World War I era. Some of the older garrisons such as Jefferson Barracks, Missouri, and Fort Adams, Rhode Island, became increasingly limited in their capabilities to support maneuver above battalion level because weapons and tactics demanded more space. These installations were in areas where, as in Europe, available land

nearby became increasingly difficult to acquire due to expansion of towns or economic value of the land. Capital investment already made by the nation in the existing installations, politics and limited War Department appropriations during this period limited the Army's options at that time to relocate.

A trend emerged during the World War I era and continues to the present where new installations are opened in areas with possibilities of terrain expansion [sush as] Fort Benning and Fort Bragg. During World War II, Fort Carson and Fort Hood were opened. Some older 19th century installations, by coincidence, were in areas where access to additional terrain was convenient; for example, Fort Riley, Fort Bliss [and] Fort Sill.

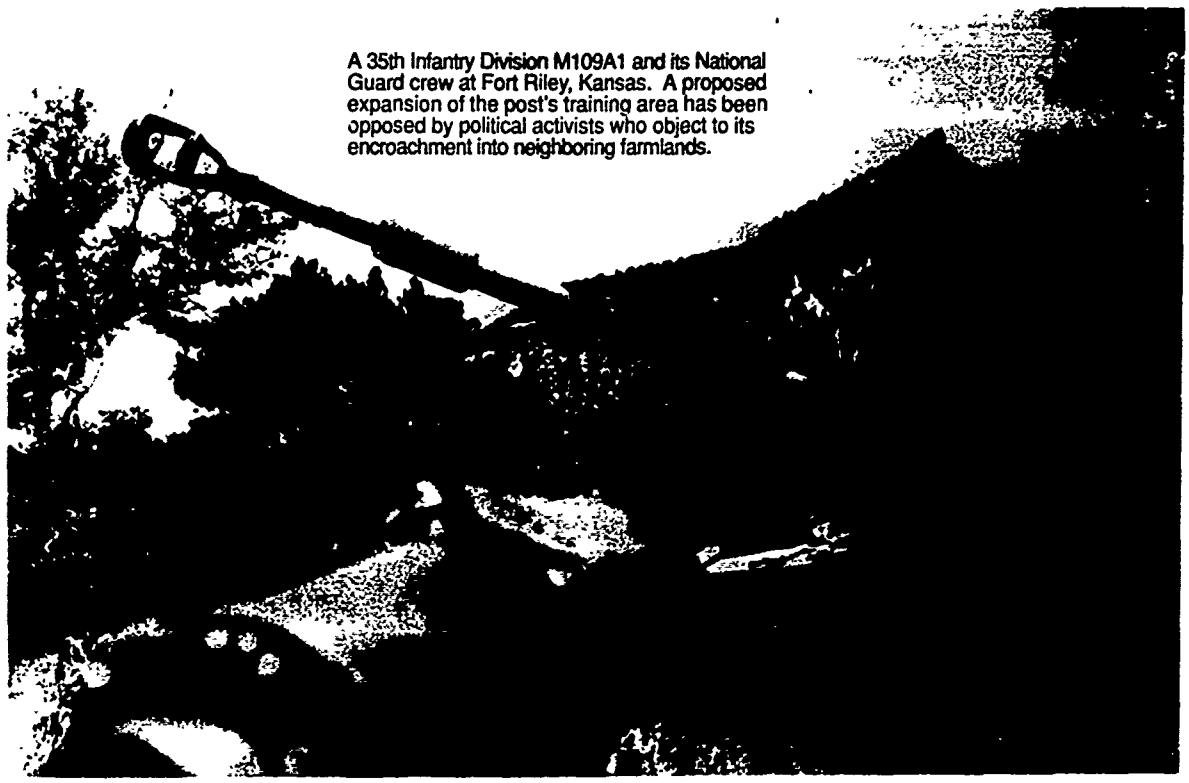
However, in the period beginning with World War I, in CONUS there were still significant opportunities for the Army to relocate installations to regions with plentiful, more available and affordable real estate. This is in fact what happened. Outside of political or fiscal factors, a trend emerged during the World War I era and continues to the present where new installations are opened in areas with possibilities of terrain expansion. Examples during the World War I period are Fort Benning, Georgia, and Fort Bragg, North Carolina. During World War II, Fort Carson, Colorado, and Fort Hood, Texas, were opened. Some older 19th century installations, by coincidence, were in areas where access to additional terrain was convenient; for example, Fort Riley, Kansas; Fort Bliss, Texas; Fort Sill, Oklahoma; and Fort Huachuca, Arizona.

Older garrisons that could not expand, in most cases possessing substantial red brick cantonments for up to brigade-size units, were declared surplus by the Army during and after World War II. (Examples are: Plattsburg Barracks, New York; Fort Ethan Allen, Vermont; Jefferson Barracks; and Fort Adams. Three of these posts were garrisoned by infantry regiments up to World War II.) Thus, the US Army, until recently, did not experience what European armies had to confront as early as the middle 19th century—a scarcity of maneuver and gunnery range facilities that was continually exacerbated as tactical training requirements expanded. Consequently, the general US military psychology in CONUS, relative to maneuver and gunnery training in this century, has been different than in Europe and not as constrained by space and land resource concerns.

A subset of the US military experience in this area was that of the National Guard and its federal comrade-in-arms, the Army Reserve. The Guard tended to reflect the European experience more then the Regular Army. The system that evolved was a network of armories or centers in civilian communities for unit drill and equipment storage and maintenance. As tactics and training requirements changed in response to technology, the need for larger areas to exercise the unit, battalion and above, was also felt by the reserves.

As a result, the tendency was for maneuver and artillery units to increasingly use periods of summer training at the nearest Regular Army post that had adequate maneuver and range facilities or, increasingly after World War II, to go to a regional state or federal installation maintained for that purpose. (Examples of such posts are Camp Edwards, Massachusetts; Camp Blanding, Florida; and Camp Shelby, Mississippi.) These regional maneuver and range complexes became increasingly critical to the training of Reserve maneuver units from densely populated areas where terrain expansion was difficult. The importance of these facilities grew during the 1970s and 1980s as the Reserves assumed a more pronounced readiness role. In short, the CONUS Reserve Component's experience approximated the European experience.

Today, as technology continues to enhance the capability of weapons and vehicle systems, with the attendant mirror effect on tactics and



A 35th Infantry Division M109A1 and its National Guard crew at Fort Riley, Kansas. A proposed expansion of the post's training area has been opposed by political activists who object to its encroachment into neighboring farmlands.

Even the large expanded installations, such as Forts Riley, Bragg, Hood and Benning, are experiencing inability or difficulty in supporting "full up" maneuver and gunnery training exercises of battalion and larger-size units. This is particularly true of heavy forces that use these posts. The environmental implications of these developments are having a particular effect on Army planning.

environmental and fiscal issues becoming increasingly restrictive, the Active Army in CONUS has found itself moving to consider the same approach. Even the large expanded installations, such as Forts Riley, Bragg, Hood and Benning, are experiencing inability or difficulty in supporting "full up" maneuver and gunnery training exercises of battalion and larger-size units ("full up" meaning units maneuvering fully deployed at normal combat speed on the open terrain, and gunnery using service ammunition at maximum effective ranges).

This is particularly true of heavy force (armored and mechanized infantry units) that use these posts. The environmental implications of these developments are having a particular effect on Army planning. The realization that careless and ill-considered practices or policies are potentially destructive to the earth has caused the US Army Corps of Engineers, in its Corps of Engineers Research Laboratory's (CERL) Environmental Compliance Initiative, to consider a more conservational approach to maneuver and gunnery facility management and development.

Combat Training Centers

Additionally, the quest for greater fidelity to real battle in the maneuver exercise format has led to development and implementation of the combat training center (CTC) concept. This concept employs newly available laser technology to replicate tank cannon and missile systems firing at opposing force (OPFOR) targets. Sensors on friendly and OPFOR vehicles, with links to sophisticated instrumentation, allow a very close facsimile to real battle, with a record of performance for later analysis by the unit. It uses a dedicated OPFOR that is intended to be "better" than non-OPFOR units. It employs an extensive staff of observer/controllers (O/Cs) to provide the highest quality of performance feedback to maneuvering units.

The ability to experience full gunnery is becoming a greater challenge to the Army as follow–on generation weapons systems demand greater space for the extended range capabilities of weapons and ammunition and the increased speeds of their vehicle platforms. Even in an expanse as vast as the training areas at the NTC, capabilities of new, larger–caliber, direct–fire systems with necessary safety fans would overlap major portions of maneuver space. Gunnery and maneuver training could not be conducted simultaneously.

However, the expense of necessary supporting systems (for example, lasers, sensors, instrumentation, OPFOR, O/Cs, and so on) could not be afforded on every post in the Army. Also, the maneuver space sufficient to allow operations without competition from other activities demanded a dedicated maneuver area. The result to date has been the creation of several facilities for the Army. The National Training Center (NTC) at Fort Irwin, California, was developed in the early 1980s and has evolved into the premier training facility in CONUS for heavy forces. Next, the Joint Readiness Training Center (JRTC) at Little Rock Air Force Base and Fort Chaffee, Arkansas, was established and provides the same capability for light forces. There is now an initiative toward regionalization of the capability with activation of the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany.

Along with the CTC initiative, investigation and planning are occurring on two other subsets to the same general theme, facilities where combat units are able to exercise gunnery and maneuver as realistically as possible in a "full blown" tactical environment. One of these is a national gunnery center. Though the NTC does include live–fire exercises, it currently does not offer the opportunity for a complete "full up" gunnery program for heavy forces. The ability to experience full gunnery is becoming a greater challenge to the Army as follow–on generation weapons systems demand greater space for the extended range capabilities of weapons and ammunition and the increased speeds of their vehicle platforms.

Even in an expanse as vast as the training areas at the NTC, capabilities of new, larger–caliber, direct–fire systems with necessary safety fans would overlap major portions of maneuver space. Gunnery and maneuver training could not be conducted simultaneously. Additionally, firing of dud–producing munitions further compromises dual terrain use.

Actually, the Air Defense Artillery adopted a

form of this approach with the introduction of the Nike Hercules missile over 40 years ago. Not being able to fire this system from the battery locations around US cities, units deployed to White Sands Missile Range, New Mexico, near Fort Bliss, in order to be able to shoot the system live.

The second initiative is the "large-unit training center" concept being developed by the National Guard Bureau. The general objective of this concept is to develop regional centers where Reserve Component units are able to conduct maneuver and gunnery training.

If we add to this array of training areas and facilities large tracts of maneuver terrain maintained by parent installations, such as Yakima Maneuver Area, a subinstallation of Fort Lewis, Washington, and Pinion Canyon, operated by Fort Carson, Colorado, the extent of types of installations that support Total Army maneuver and gunnery exercises is apparent. With a period of resource constraint looming ever closer on the Army's horizon, maybe it is time to review the approach the Army is taking to managing and projecting the critical training resource of maneuver and gunnery facilities. The trend of growing restrictions to home station live maneuver and gunnery on many of the CONUS Active Army garrisons, as well as existing regional Reserve Component facilities, indicates a comprehensive Armywide master plan to manage this critical training resource area is now needed.

The remainder of this article will discuss an approach to management. It outlines a concept for an FMC master plan. This plan would be a major supporting plan of the Army's Combined Arms Training Strategy (CATS), along with other vital training resource master plans such as the Family of Simulations Master Plan and the Standards in Training Ammunition Commission. It would eventually absorb, as a subplan, the current CTC master plan.

FMC Master Plan

As the background discussion implied, it may be time to consider managing all facilities to which units deploy to their home stations or garrisons for large-scale maneuver or gunnery training as a single major training resource area. This does not mean to suggest, at this point, that all the current piece parts that draw funding from different sources would be "balled up" into one massive funding line. Rather, the suggestion is that this category of training resource be articulated in the context of a Total Force training concept and managed in relation to other major training resource categories such as training aids, devices, simulators and simulations, operational tempo and ammunition.

The National Guard [and] Army Reserve. . . tended to reflect the European experience more then the Regular Army. The system that evolved was a network of armories or centers in civilian communities for unit drill and equipment storage and maintenance. As tactics and training requirements changed in response to technology, the need for larger areas to exercise. . . was also felt.

Such an approach forces a disciplined method of defining force training resource requirements that is in accord with the resource acquisition strategy. As dollars become scarce and the Army shrinks, a system of multiple, parallel initiatives owned by different Army agencies, but providing the same or similar capabilities, becomes less supportable.

It is understood that some level of autonomy between certain initiatives may be desirable for operational, political and mission reasons. For example, CTCs may continue to work as a primary subset of FMCs, as would large-unit training areas and other fire and maneuver installations. However, all would be managed within the larger framework in terms of general concept for this training resource category.

To illustrate more specifically the necessity of operating in this fashion, the following areas are highlighted:

- Land management and land use justifications should respond to clear and uniform policy

requirements across the force. An example is space requirements for gunnery and maneuver for each type of force—heavy, light, special operations forces (SOF), Active and Reserve.

- With an articulated concept, defined requirements can be clearly identified. These requirements can be incorporated into a plan that establishes what the acquisition strategy will be. From this plan the Army can better focus its scarce research, development, test and evaluation (RDTE) and acquisition dollars. From such a focus, the Army will obtain the best mix of technology, hardware and software. It will be as common as possible, with optimum levels of interface among systems. Such an approach will yield the Army reasonably obtainable economies of scale.
- Application of the resource in peace and war (mobilization, reinforcement and sustainment) may be more effectively accomplished.

The master plan approach does not suggest a wholesale transfer of facility ownership and management to some central joint program manager or TRADOC system manager. . . at least for the immediate future. However, facility development would respond to an Army-wide requirement definition, acquisition and funding strategy.

There are others, but these capture the essence of need. The current trend is something of a "hodgepodge" of existing capabilities and ongoing and planned initiatives that appear to be responding to a deliberate Army or CONUS-wide plan in only the most general sense.

Given this observation, it is probably time to develop these vital assets through a master plan. An outline approach might look as follows:

- Build the plan as a subset of the Army's Combined Arms Training Strategy.
- Articulate the FMC concept as one for all Army units required to conduct unit gunnery and maneuver training at other than home station or garrison training facilities.
- Define requirements.
- State necessary strategy for land acquisition; existing terrain modification such as tank trails, crossing sites and so on; targetry; instrumentation and buildings.

Facilities and programs that might be considered by the master plan include:

- CTCs.
- Current Active and Reserve training areas that have the potential to provide the desired training opportunities such as Camp Shelby and Camp Blanding (issues regarding federal versus state ownership would have to be resolved).
- Large unit training centers for the National Guard.
- A national gunnery training center.
- Other noncontiguous maneuver sites, such as Yakima, McGregor Range, and so on.
- Major Training Areas overseas or in other countries.

Another resource that might ultimately enter the list would be large maneuver gunnery areas contiguous to major garrisons such as Fort Hood.

The master plan approach does not suggest a wholesale transfer of facility ownership and management to some central joint program manager or Training and Doctrine Command system manager. Ownership would essentially, at least for the immediate future, reside in the hands of current owners. However, facility development would respond to an Armywide requirement definition, acquisition and funding strategy.

For instance, hypothetically, the CATS objective for this resource might be to assure that CONUS Active and Reserve Component units would have an assured level of live-fire maneuver and gunnery training opportunities within a specific region (regions might be built around current Army areas). Such a capability would not only provide units with a high stress, just short of war, CTC-type experience, but would assure a regional (and less costly) capability to maneuver up to brigade-size formations.

Three sites might be identified per region that

would be supported by a certain level of instrumentation and other key resources designed to meet a progressive and successive unit training concept, derived ultimately from CATS. It could consist of initial soldier, crew and collective work on simple to more complex training aids, devices and simulators, followed by more sophisticated training conducted by simulation networking (SIMNET), building toward a full regional gunnery and maneuver exercise and finally followed by a CTC rotation.

To realize this concept, all FMC master plan managment should be oriented toward developing the resource base, through requirement definition and the acquisition strategy. The end product would be a force that has the means to train as the Army said it intended to train. Through such a plan, the increasingly scarce resource pool can be better focused and more effectively applied.

With the deep budget cuts and force reductions already having significant impacts on Army operational and training strategies, now is the time to consider such a plan. Past practices of maneuver and gunnery facility management in CONUS may no longer be affordable from a funding and capability standpoint. Environmental concerns and the Army's efforts to comply with mandated and proposed guidelines are working at cross purposes with the standing requirement to properly train soldiers and units with the enhanced capabilities of modern weapons and vehicle systems. Soldiers and leaders must continue to be trained in a manner that allows the correct employment of weapons and units on suitable terrain. We may have to move more toward the European model found in Germany to assure that our soldiers will train as they will have to fight.

[The master plan] could consist of initial soldier, crew and collective work on simple to more complex training aids, devices and simulators, followed by more sophisticated training conducted by simulation networking, building toward a full regional gunnery and maneuver exercise and finally followed by a CTC rotation. . . The end product would be a force that has the means to train as the Army said it intended to train.

Whatever the Army does, we probably need to give more structure to an array of actions, initiatives, programs and existing "capital and real estate" resources that currently endeavor to meet the maneuver and range–firing requirement. Most of these assets are currently operating relatively independent of each other. To give them scope and focus so that we may better apply our scarce RDTE, acquisition, major construction and other applicable dollars, we should implement a master plan approach.

Success or failure on this issue may well determine the quality of "full up" maneuver and gunnery facilities, and perhaps even the Army's ability to maintain them as a training resource in the future. A plan that addresses how we intend to train our force in this area and defines essential resource requirements to be developed, bought and fielded, offers a better prospect of success. The current divided effort can only compromise success. Without clear central planning, budget, environmental and other pressures may win the maneuver gunnery battle at the expense of realistic training and combat readiness. ***MR***

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Centralized Battalion Evaluations

Colonel Robert H. Sulzen, US Army Reserve, and Lieutenant Colonel Stephen C. Rasmussen, US Army

Since the inception of the combat training center (CTC) concept, units have tried to devise training exercises and programs that replicate the CTC environment. The authors describe the 7th Infantry Division (Light)'s* BOLD THRUST *exercise program for training and centralized evaluations of the division's combat, combat support and combat service support battalions. The reality and rigor of recent exercises have paid huge dividends in training value and combat readiness.

DURING the past two years, a dramatically innovative new training strategy has been unfolding at the 7th Infantry Division (Light) at Fort Ord, California, to prepare light battalions for success at the combat training centers (CTCs) and, ultimately, in actual combat. It is a division centralized battalion evaluation system called "BOLD THRUST," in which each battalion—combat, combat support (CS) and combat service support (CSS)—is given an external evaluation periodically by a permanent division team, strictly adhering to the unit's mission training plan as outlined in the Army Training and Evaluation Program (ARTEP).

The evaluations are performed under realistic conditions using the full range of combat simulation techniques and are supported as much as possible with MILES (multiple integrated laser engagement system) equipment. The exercises are performed according to the rigorous standards of both the National Training Center (NTC), Fort Irwin, California, and the Joint Readiness Training Center (JRTC), Little Rock Air Force Base and Fort Chaffee, Arkansas, and are implemented primarily from the division's resources. The training is expensive for the division, intensive for the units undergoing evaluation and requires constant general officer emphasis. At the same time, it is also the best way to develop the highest levels of unit combat readiness, and the best way to prepare for success at the CTCs.

BOLD THRUST Philosophy and Organization

The intent of the *BOLD THRUST* exercise is to focus the division's training effort by multi-echelon evaluations of the combat readiness of the 7th ID (L) units in deployment and advanced tactical operations in low- and mid-intensity conflicts. Since the division does not train for a specific theater of combat at present, the training objectives can best be achieved when the training environment parallels the NTC and JRTC training environments.

The *BOLD THRUST* initiative is unique among Army light divisions today. Although other divisions may have similar training requirements, they tend to delegate responsibility for the conduct and evaluation to lower echelons, thereby removing or diminishing command emphasis. In *BOLD THRUST*, however, critical assets are centrally managed at division level, and general officers are present to provide command emphasis, observe results and actually perform the evaluations.[1]

The *BOLD THRUST* system is innovative and intense in the same manner as the NTC and JRTC. These training centers provide the honest broker missing from usual Army collective training. Generally, ARTEP evaluations are given by headquarters so closely associated with the results that they can rarely remain objective.

If a battalion's parent brigade administers the evaluation, the training problems and detractors present in the training environment are usually considered by evaluators because of their closeness to those problems. If training is abbreviated by big division events such as *REFORGER*, the evaluators tend to take that into consideration as a factor affecting the results. In such an environment, excuses are made and accepted for training problems that seem beyond the evaluated unit's ability to change.

CTCs, on the other hand, ignore situational training problems. They concentrate on field exercise performance alone, measuring it objectively against a highly proficient opposing force (OPFOR). *BOLD THRUST* seeks to emulate the CTCs and provide a similar environment within the confines of the division, thereby improving both tactical training and combat readiness. The current 7th ID (L) goal is to have the light infantry, artillery and aviation battalions participate in a *BOLD THRUST* exercise at least once annually, while CS and CSS battalions participate at least once every 18 months.

The training is expensive for the division, intensive for the units undergoing evaluation and requires constant general officer emphasis. At the same time, it is also the best way to develop the highest levels of unit combat readiness, and the best way to prepare for success at the CTCs.

The current light infantry battalion *BOLD THRUST* exercise is designed to resemble, as closely as possible, the exercises conducted at the JRTC. This was difficult to achieve initially, and the first *BOLD THRUST* exercises in many ways resembled the battalion ARTEP evaluations conducted on many posts. In the early stages of *BOLD THRUST*, competing requirements prevented full availability of MILES equipment. The result was diminished realism, differing greatly from the JRTC.

Instrumentation. The *BOLD THRUST* operations improved when the division insisted that all exercise participants have operational MILES gear and that those who did not have MILES did not participate. Enforcing the working MILES rule is not a trivial or easy matter. Almost all Army units violate this fundamental and necessary rule during MILES-enhanced exercises. On each *BOLD THRUST* rotation, some soldiers, often the support troops or attachments, do not have MILES. No matter how often the policy is announced or written down, some units either do not get the word, assume it does not apply to them or think they cannot get MILES.

In time, most of the division's rifle platoon leaders will have had a chance to serve as platoon O/Cs, where they can observe and benefit from the experiences of many of their fellow platoon leaders. . . Initially thought to be another support tasking, the program now has lieutenants volunteering for it to obtain the O/C experience.

Everyone who participates must wear MILES gear. No one is invulnerable to enemy fire. Some of the most important learning points occur when the leaders or supporters become casualties, and the subordinates must take over during an engagement.[2] Failure to enforce the MILES rule renders much of the training ineffective. Controllers must insist on this fundamental rule and oftentimes a general officer's support is needed. Much of the success of the *BOLD THRUST* program is derived from this ability to conduct proper MILES exercises on a continuing basis. The credit for this success goes to the division's general officers, who provided the necessary command emphasis, and to the members of the permanent *BOLD THRUST* control staff, who have ensured that the rules of engagement are properly enforced.

Staffing. The permanent *BOLD THRUST* staff consists of a lieutenant colonel (the senior observer/controller or O/C), one major (chief of operations), a sergeant first class and one clerk/typist. Additionally, there is a semipermanent *BOLD THRUST* staff. This staff consists of 90-day special duty personnel: one major/captain operations officer, one master sergeant/sergeant major and three lieutenants who serve as platoon O/Cs.

The three lieutenants are rotated every 90 days from infantry line platoons. One is detailed from each infantry brigade on a continuous basis as the exercise approaches, six additional lieutenants are attached for pre-exercise training so that all tested infantry platoons have a qualified O/C. In time, most of the division's rifle platoon leaders will have had a chance to serve as platoon O/Cs, where they can observe and benefit from the experiences of many of their fellow platoon leaders. The rotation of lieutenants is one of the most valuable side benefits of the program. Initially thought to be another support tasking, the program now has lieutenants volunteering for it to obtain the O/C experience.

The captain O/Cs come from the supporting infantry brigade as well. They are required to be, or to have previously been light infantry company commanders. During *BOLD THRUST*, they join together with the permanent staff for evaluations and provide key input to the written after-action report.

The permanent and semipermanent *BOLD THRUST* staff are also augmented on each *BOLD THRUST* exercise with personnel from a supporting light infantry battalion. These people serve as evaluators for the battalion staff and specialty platoon positions within the unit undergoing training. These evaluators also gain tremendous training benefit as they observe their counterparts. They are able to share practical ideas that they have used and, at the same time, learn from those techniques employed by the battalion undergoing training.

The cost for this staffing is borne entirely by the division with no additional personnel resources provided from outside. This is admittedly one of the most contentious issues surrounding the program.

The division's senior leadership, however, has repeatedly validated that the benefits of the program in terms of combat readiness are well worth the cost. The same general officers also validate this commitment daily by having at least one of their number present as the senior evaluator for every battalion task force mission of every *BOLD THRUST* evaluation. Additionally, they are present at each after-action review following every mission to provide senior perspective, insight and mentoring for those officers and senior NCOs being evaluated. This commitment is perhaps the single most important requirement of the program, as well as its biggest benefit.

[Divisions] tend to delegate responsibility for the conduct and evaluation [for training] to lower echelons, thereby removing or diminishing command emphasis. In* BOLD THRUST, *however, critical assets are centrally managed at division level, and general officers are present to provide command emphasis, observe results and actually perform the evaluations.

Missions. The current battalion *BOLD THRUST* exercises include both low-intensity conflict (LIC) missions and mid-intensity conflict (MIC) missions. The MIC missions use either the armored vehicles assigned to the Fort Hunter Ligget, California, Test and Experimentation Command's tank company or those of the California Army National Guard. As at the JRTC, the armored OPFOR conducts an attack against a "defend in sector" mission by the infantry battalion receiving its evaluation.

Offensive operations, such as movement-to-contact/hasty attack or deliberate attack, using infiltration or envelopment, are executed against a light infantry OPFOR from sister units. In- and out-of-sector air assault missions are also coordinated and executed during offensive operations.

The *BOLD THRUST* staff sets up its division tactical operations center in a headquarters facility located on main post, Fort Hunter Liggett. The function of the brigade in each *BOLD THRUST* exercise is threefold. First, the brigade commander, in conjunction with the assistant division commander, develops the METL (mission essential task list) and training objectives for the evaluated battalion. Second, the brigade staff functions as the intermediate headquarters, thus achieving a significant amount of multi-echelon training. Third, both the brigade commander and the division's general officers are able to observe and evaluate the participating battalion. This provides for the formulation of correct follow-on training and allows the division to see all of its battalions in detail on a regular basis.

Recent changes in the *BOLD THRUST* operation have resulted in development of a common scenario supported by standard division staff products such as an area study, order of battle and INTSUMS (intelligence summaries). On the support side, the G1 (personnel) and G4 (logistics) now participate in the *BOLD THRUST* evaluation process. Finally, a senior NCO chain of command extensively evaluates individual soldier skills.

Combat Systems Simulation[3]

The most difficult to implement, and also the most valuable, aspect of the program is the combat systems replication. This is the creation—within a single division's resources—of the systems that replicate combat actions at both the CTCs and in actual combat. They create the stress of combat in which the most valuable training occurs and provide an accurate combat environment in which all echelons must devise their own workable procedures. Finally, these combat systems test the effectiveness of training that has occurred since the last evaluation.

The creation and maintenance of these systems—though generally hidden from view—are the most difficult, most expensive and most time-consuming part of the program. This is so much so, in fact, that the program's deputy director, the operations major, devotes his full time to

7th Infantry Division light fighters during a recent live-fire exercise.

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managing these combat systems. The realism of the combat systems, however, is what renders the program successful.

Fire Marking. The most obvious combat system is the fire marker system. In order to both replicate the CTCs and provide a realistic training environment, a successful fire marking system was implemented during the May 1988 *BOLD THRUST* exercises at considerable resource cost. Since then, each *BOLD THRUST* has refined the system.

The fire marking system is run by the division artillery (DIVARTY) commander. Other methods of management proved less than acceptable. The DIVARTY commander accomplishes the fire marking mission by assigning it to the assistant fire support coordinator, who personally supervises the effort. Assisting him is the fire direction center of a direct support field artillery battalion that is in the division's support cycle. The markers themselves are the scout platoon of the support cycle infantry battalion. They are mounted either on motorcycles or in HMMWVs and also have one of their number walking with each line company in both forces. Recent purchase of seven all-terrain vehicles (ATVs) is expected to further improve the system and increase safety.

The fire marker radio net is separate from all tactical nets, but the fire marker control center monitors the fire direction nets and dispatches fire markers to mark sites as actually requested by the infantry units and provided by the supporting artillery. The fire markers are, in effect, the rounds. They report what they see at the targeted sites to the fire marker center where an appropriate number of casualties are assessed. Key fire markers also have a universal kill gun (a handheld MILES device) that activates the casualties' MILES laser detectors. This system works well and is affordable by the division. While complaints are made by both sides, they tend to be fairly balanced and on the whole cancel each other out.

Casualty Evacuation. Casualty evacuation proves to be the second most troublesome system to operate efficiently. Whereas a truly effective fire marking system will literally stop a battalion in its tracks, a fully implemented casualty system will also grind a battalion's administration and

logistics to a halt. The dead do not talk, the wounded must be handled according to the directions on their MILES casualty cards and the battalion must task organize *before* the battle to handle casualties. Once triage has been performed and soldiers have been treated at the battalion aid station, some must be evacuated to the brigade support area. The brigade acts as both player and controller here, because the brigade S1 must then take the casualties and recycle them as replacements.

Often this task was seen as simply returning soldiers back to their unit as fast as possible. This is wrong. They must be returned correctly. This means keeping them for the required period (6 hours is the JRTC norm) and then returning them through replacement channels—if and when they have been both properly documented as casualties and requested as replacements.

The MILES system, unfortunately, is usually only half used, in that only direct fire casualties are evacuated. What is not done in most cases, however, is the complete and proper evacuation of all crewmen and other casualties produced by vehicle kills and indirect fires as required at the CTCs and, of course, in combat.

. Similarly, damaged or destroyed vehicles and equipment must be both evacuated and replaced through the S4 channels. Doing these things properly requires two efforts: discipline, imposed and evaluated by the division and battalion G1/S1 and G4/S4 O/Cs, and the rigorous training to standard by the participating battalions.

Ammunition Resupply. A third difficult system that must be instituted, managed and disciplined is ammunition resupply. Small arms is not a problem because actual rounds of blank ammunition are normally used. Indirect and antitank ammunition is another matter. The problem is so difficult that during usual training, units simply play these assets notionally. Again, this is the wrong answer for quality training.

The correct, albeit more difficult way, is to require proper ammunition resupply in order to give credit for rounds fired. A sufficient supply of 105mm howitzer boxes and 81mm/60mm canisters must be accumulated at the brigade support area. These are filled with gravel of a consistent and easily identifiable grade by the division ammunition transfer point team. In the case of light infantry, individual 60mm mortar canisters with gravel are also supplied, since each soldier at company level normally carries one round of 60mm ammunition.

[CTCs] ignore situational training problems. They concentrate on field exercise performance alone, measuring it objectively against a highly proficient opposing force.* BOLD THRUST *seeks to emulate the CTCs and provide a similar environment within the confines of the division.

Similarly, canisters of gravel for the antitank rounds are used: TOW, Dragon and LAW (Viper). In the case of all of these weapons systems, the controllers give no credit for a round fired unless the gravel is emptied from the box or canister, and no credit for additional rounds will be given until new—and filled—containers are brought forward. Again, as with casualty evacuation, this realistic requirement is extraordinarily difficult for units accustomed to notional procedures.

Other systems that are exercised as much as possible are air defense, chemical, aviation and engineer. All of these are difficult to fully simulate and require increasing amounts of both materiel and personnel support. As a minimum, however, fire marking, casualty and equipment evacuation and ammunition resupply systems should be fully implemented. These are constant problems for all units at all times. A quality training and evaluation program should force units to deal effectively with them from the beginning.

BOLD THRUST as Preparation for the JRTC

As a program, *BOLD THRUST* is designed to prepare the battalion for success in both actual combat and at the CTCs. The experience of one

The fire markers are, in effect, the rounds. They report what they see at the targeted sites to the fire marker center where an appropriate number of casualties are assessed. Key fire markers also have a handheld MILES device that activates the casualties' MILES laser detectors. This system works well and is affordable by the division.

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infantry battalion, 2d Battalion, 27th Infantry, dramatically illustrates how the program can be used to accomplish the latter.

In preparation for their JRTC rotation, the 2/27 infantry "Wolfhounds" underwent *BOLD THRUST* exercises in September and October 1988 to prepare them for their JRTC rotation in December 1988. This essentially gave them two practice rotations, and the results were dramatic. The initial mission of the first *BOLD THRUST* saw the battalion becoming almost ineffective due to the experience of coming into contact with real (effectively simulated) artillery, the need to fully evacuate extremely large numbers of casualties and the requirement to resupply proper weights and amounts of ammunition and Class IV (barrier material), to name just a few problems.

Few light battalions have the benefit of encountering these problems in training prior to arriving at the JRTC. The 2/27 rebounded professionally and by the end of the first five-day *BOLD THRUST* as handling these and many other problems routinely. The second *BOLD THRUST*, a month later, allowed them to both practice again and to test the new systems they had developed. Following these *BOLD THRUST* results, the brigade and battalion commanders agreed that a series of small-unit exercises were needed in November to add the final polish.

In a concentrated period, individual tactical skills were honed in a miniature MILES exercise called "two-on-one," where two soldiers attacked one. Rifle squads participated in three movement-to-contact exercises, and rifle platoons were given a situational training exercise. These training exercises for individuals and small units greatly improved the 2/27's ability to inflict casualties on the OPFOR. These small-unit exercises, following the collective training of *BOLD THRUST*, are an invaluable addition and have sometimes been included as a mandatory part of the *BOLD THRUST* exercise.

The result of the 2/27 Infantry *BOLD THRUST* and the small-unit exercises was a dramatically increased level of preparation for the JRTC in December 1988. The 2/27 Infantry was successful in hitting the OPFOR with MILES and causing casualties. Although there were plenty of other lessons learned at the JRTC, the battalion was lethal when it found and engaged the OPFOR.[4] As a result of its *BOLD THRUST* experience, it was arguably one of the best-prepared units to undergo a JRTC rotation.

Benefits of *BOLD THRUST*

It is difficult for a brigade to amass the resources necessary to adequately conduct battalion-level exercises. This is especially true if we are to follow the training principles that require us to train as combined arms and services teams and to train as we intend to fight.[5] Due to the diversity of requirements and the lack of assets, divisions usually task battalion-level evaluations to the parent brigade of the evaluated battalion and provide it with only cursory supervision. The result is often a less than satisfactory preparation for combat operations and an inadequate evaluation. A division centralized evaluation system such as *BOLD THRUST* corrects this situation. It pro-

vides the division the command emphasis, the support and the resources necessary to successfully conduct realistic battalion evaluations.

A degree of objectivity similar to the JRTC's is possible only when the division has the responsibility to control the exercises. However, objectivity (or suppressing subjective consideration for local training problems) can only be maintained through continuing command emphasis on high-quality training. Division general officer support has sustained this high level of objectivity for the 7th ID (L)'s *BOLD THRUST* exercises.

The *BOLD THRUST* exercises conducted by the 7th ID (L) have clearly increased the combat readiness of the division. The realism possible with full resources focused by the division makes for superior tactical training. Ample opportunity is still provided for brigade, battalion and company commanders within the *BOLD THRUST* framework to exercise initiative. Finally, the quality and consistency of both battalion training and evaluation are maintained at a uniformly high level throughout the division.

The resources required are, of course, considerable. They include extensive MILES instrumentation, ammunition, experienced O/Cs and publication of the lessons learned from conducting continuing battalion-level evaluations. The institutional memory necessary to be successful in this operation requires an assigned full-time staff and committed participation from the division's general officers. This personnel requirement is the most serious drawback to instituting a centralized program. This kind of commitment must be made, however, if we believe (as we say) that training is our top priority and that we must train as we plan to fight. Only realistic, demanding training to this standard will prepare our battalions to accomplish wartime missions and keep our soldiers alive. ***MR***

Everyone who participates must wear MILES gear. No one is invulnerable to enemy fire. Some of the most important learning points occur when the leaders or supporters become casualties, and the subordinates must take over during an engagement.

The authors wish to acknowledge the contribution of Lieutenant Colonel Archibald Galloway II, the deputy G3, BOLD THRUST chief, 7th Infantry Division (Light) during the period May 1989 to May 1990, for information on practices that changed in the conduct of the exercises.

NOTES

1. Some officers of the 7th ID (Light) reviewing this article were of the opinion that too much emphasis was placed on the role of the division's general officers in the *BOLD THRUST* program. It was apparent to us that emphasis changes with different personalities and this was certainly true of the general officers of the 7th ID (Light) during the period that *BOLD THRUST* has been in effect. Nevertheless, in our opinion, a division centralized evaluation program, such as *BOLD THRUST*, has little chance of success without a continued high level of general officer interest.

2. For more information on the proper use of MILES (Tactical Engagement Simulation), see COL Robert H. Sulzen, "Winning with Tactical Engagement Simulation," *Military Review* (May 1987):8–19.

3. Combat systems are closely related to the battlefield operating systems as set forth in US Department of the Army Field Manual (FM) 71—2, *The Tank and Mechanized Infantry Battalion Task Force* (Washington, DC: US Government Printing Office [GPO], 1988), 1–10 through 1–13 and as employed at the training centers to observe the performance of units. Training guidance in US Army FM 25—100, *Training the Force* (Washington, DC: GPO, 1988), 2–7, suggests that the battlefield operating systems should be integrated into training tasks. Division officers familiar with the *BOLD THRUST* program were of the opinion that some of the most important aspects of the training came in attempts to synchronize the different battlefield operating systems during the exercise.

4. Dennis Steele, "Eleven Days in Arkansas Test Light Infantry Mettle," *ARMY* (February 1989):38–42 and 46.

5. FM 25—100, 1–3.

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Lieutenant Colonel Stephen C. Rasmussen is commander of 4th Battalion, 10th Infantry, Fort Leonard Wood, Missouri. He has served as deputy G3, BOLD THRUST chief, 7th ID(L); senior observer/controller for BOLD THRUST *exercises; and as the executive officer, 2d Brigade, 7th ID(L).*

Structured Annual Training

Major Walter E. Wright, US Army, Reserve

As the Reserve Component (RC) role becomes more and more critical to the readiness of the Total Force, new and better ways to train Guard and Reserve units will be aggressively sought. The author challenges the "business as usual" approach to planning and conducting RC annual training (AT). He offers a tightly structured AT program built around the "slice" concept and the training principles expounded in US Army Field Manual 25—100,* Training the Force.

THE ARMY's training mission as outlined in US Army Field Manual 25—100, *Training the Force*, focuses a unit's training on its wartime mission and provides the framework for realistic, sustained, multiechelon, totally integrated, combined arms training. The manual states that intensive training must be stressed at all levels. This is vitally important to Reserve Component (RC) units, which must meet required readiness standards for their wartime missions within the constraints of limited training time and resources. RC units must find effective and efficient ways to identify and meet their specific training needs.

The identification problem has been eased in recent years by the progress made in the refinement of the CAPSTONE program, which aligns units with missions and provides guidance for training priorities. The ways and means of executing an effective and efficient training program, however, seem to be harder to master and will only become more complicated by budget restraints and force structure changes that will be part of the equation for some time to come.

One way to add some measure of effectiveness and stability to the training regimen of RC units is through a structured annual training (AT) program. Structured training is a method of using a directed, standardized and doctrinally correct training program to focus the unit's efforts and resources toward a specific training event while reducing its associated administrative, planning and logistic burdens. For RC units, these events and associated tasks are based on the unit's mission essential task list (METL) and CAPSTONE guidance.

Integrating units into a slice has been effectively practiced at brigade and higher units for many years in the AC and by some of the major RC units. These brigade slices have been task organized and their training methodically scheduled in order to have all support units participate in the same training cycle as the maneuver units.

The first principle of training, listed in Chapter 1 of FM 25—100, is the importance of combined arms and services team training. Army doctrine requires this important teamwork in its tenet—train as you will fight. The primary train-

ing mission of the Total Force cannot be met without an efficient meshing of combat arms, combat support and combat service support units into the peacetime training cycle. This principle is now a regular practice in the cross attachment of [illegible] of the three elements to mirror their wartime [illegible] organization.

[illegible] outlined in FM 25-[illegible] integrating units into [illegible] practiced at brigade and [illegible] for many years in the Active Component (AC) and by some of the major RC units. These brigade slices have been task organized and their training methodically scheduled [illegible] all support units participate in the [illegible] maneuver units. [illegible] most efficiently and [illegible] by the RC through [illegible].

Structured [illegible] an evolutionary progression from the Combat Service Support Training Readiness (COSSTAR) program. This program scheduled combat support and combat service support units, together with brigade–size maneuver units, during the same AT period to train the supporting units in their wartime mission, provide support to the maneuver units and integrate all units into a single exercise scenario. The COSSTAR program places the maneuver and supporting units into a more realistic training environment than an ordinary stand–alone AT cycle. Structured AT also has important implications in scheduling by placing units, equipment, training support and training aids at the same time and place in the most efficient possible manner.

Coordination for the structured annual training program should be maintained at Continental US Army (CONUSA) level. The CONUSA is the most effective focal point for this training because it can have access to the war plans of the units in the CONUSA area, as well as the long– and short–range training plans for the units. It also can coordinate for access to consolidated training aids and other training support, equipment and exercise control organizations.

Brigade packages or slices are built around a brigade–size maneuver unit as the foundation. Combat support and combat service support units from within and external to the geographical area of the CONUSA are then added to make up the complete slice. These brigade slice organizations should support an approved war or contingency plan. Communication and coordination are critical in the initial design of the brigade slice since the majority of the maneuver units are in the Army National Guard, while most of the nondivisional support units are in the Army Reserve.

The CONUSA. . . develops the slice . . . in accordance with Army doctrine, the primary wartime mission of the units, and the types and locations of specific units relative to the maneuver brigade headquarters. Once staffed through the appropriate TAGs and ARCOMs, the brigade–size task organized slices become the basis for all further AT scheduling actions.

The brigade slice concept provides all of the players a more realistic training scenario along with better, more efficient training support. By structuring the brigade slices into firm training packages, the required support can be better tailored to meet their needs. Instead of the CONUSA having to spread out all of its resources and those allocated by US Army Forces Command(FORSCOM) from AC installations to meet all AT site support requirements, the training support can now be placed at the right place at the right time. This conserves scarce resources, yet provides the best possible support to the training units.

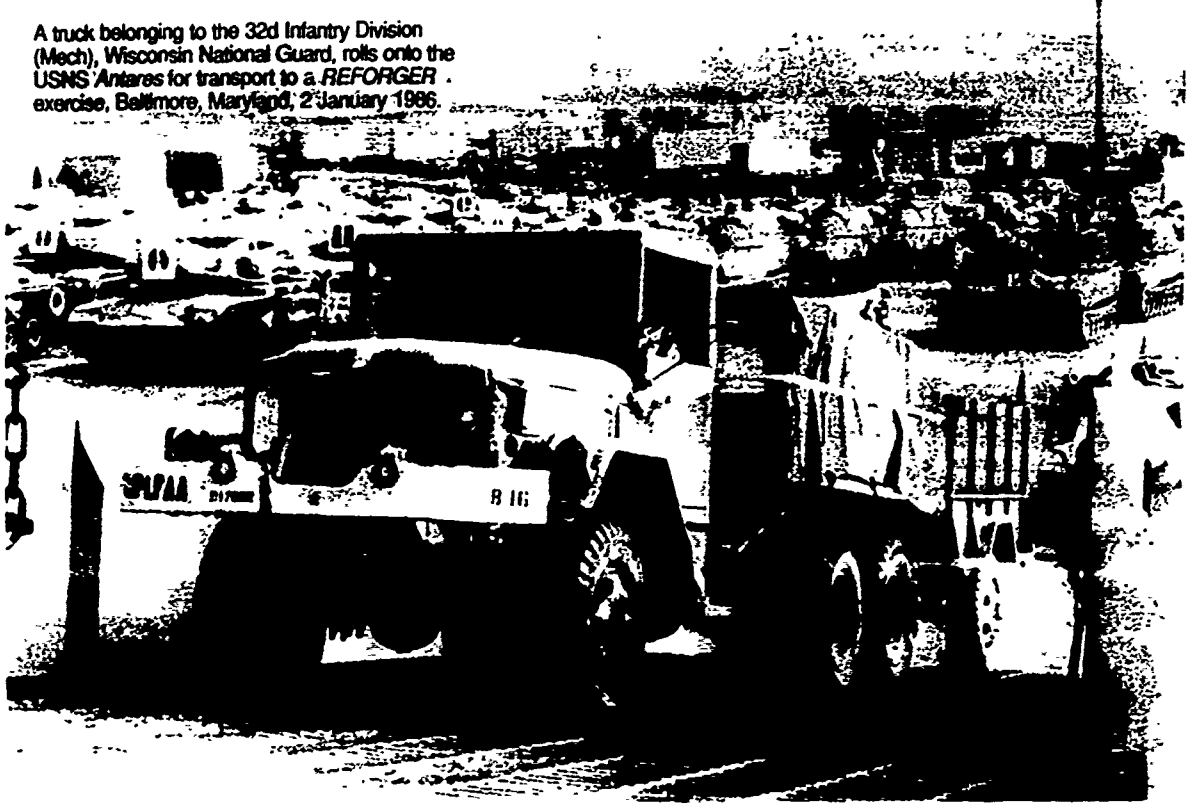
Parochial concerns and the "it has always been done this way" attitude must be overcome for the greater benefit of all units in the slice. The CONUSA would establish the slice by using a tier system. The first tier is the maneuver

Brigade packages or slices are built around a brigade–size maneuver unit as the foundation. Combat support and combat service support units from within and external to the geographical area of the CONUSA are then added to make up the complete slice . . .The majority of the maneuver units are in the Army National Guard, while most of the nondivisional support units are in the Army Reserve.

brigade headquarters and its organic subordinate units. The second tier is made up of the combat and combat support units, which would normally be provided from division– or corps–level assets. The third tier is combat service support units, which were originally included in the COSSTAR concept. Each brigade slice would have the same basic makeup. Small differences may exist based on the types of units physically located within their geographic areas.

Once the brigade slice packages are developed and approved by the responsible headquarters at the State Adjutant General (TAG) and Major US Army Reserve Command (MUSARC) levels, the slice package becomes the basis for all AT scheduling activities by the CONUSA. Obtaining the understanding and support of the TAGs and MUSARCs for the macro training strategy is essential for the success of the program.

Once the brigade slice package is established, the maneuver headquarters is the only element for which schedule makers at the CONUSA are responsible. They must, however, coordinate with AC installations to accommodate AC training cycles and keep the number of RC elements to be scheduled to a minimum. The brigade headquarters is scheduled into a particular time and place, then all other units of the slice task organization are automatically scheduled to join. If a change must be made, the only shift would be within the brigade headquarters unit. All other elements of the slice would move with the "parent" unit. This reduces confusion and ensures that coordinated training packages are on line when one of the original elements change as in the current COSSTAR program. This reduces the coordination from 1,500 different units to possibly 11 or 12 slice units, based on the density of maneuver



A truck belonging to the 32d Infantry Division (Mech), Wisconsin National Guard, rolls onto the USNS *Antares* for transport to a *REFORGER* exercise, Baltimore, Maryland, 2 January 1986.

The CONUSA would establish a four-year cycle for each brigade slice. The year a brigade slice undergoes an external ARTEP, it would receive first priority on all available resources and assets. In other years, the same group would conduct individual training, unit MOS sustainment, multiechelon training, or go through school cycles. . . all units in the slice are in the same cycle at the same time.

brigade-level units in each CONUSA.

Fourth US Army area, for example, has the following scheduling variables:

- 11 maneuver brigade/regiments
- Four primary AT sites
- Six primary two-week periods (windows) per site
- 24 possible AT windows
- One external ARTEP (Army Training and Evaluation Program) requirement every four years (FORSCOM/National Guard Bureau [NGB] Regulation 350-2, *Reserve Component Training*).
- A schedule of three external ARTEPs a year for three years and four external ARTEPs for one year (based on 11 major units)

Based on these variables, Fourth Army, as the coordinating AT scheduling agent, develops 11 brigade-size slice packages from within its area. The CONUSA then develops the slice or task organization in accordance with Army doctrine, the primary wartime mission of the units, and the types and locations of specific units relative to the maneuver brigade headquarters. Once staffed through the appropriate TAGs and US Army Reserve Commands (ARCOMs), the brigade-size task organized slices become the basis for all further AT scheduling actions.

The next step is to align all of the external ARTEP exercises of each unit in the slice within the same fiscal year. Chapter 7 of FORSCOM/NGB Regulation 350-2 *Reserve Component* states that the external ARTEP is scheduled every fourth year for all company-size units. The CONUSA can waive the requirement once in order to shift the current schedules and align all units into brigade slice time periods. When a brigade slice is scheduled to have an external ARTEP, the Maneuver Exercise Command (MEC) or Maneuver Area Command (MAC) of the

Certain units can receive special skill training such as at a depot, regional training site or service school. Some units may be tasked to provide dedicated OPFOR or installation support. During this time, units could participate in overseas deployment training, combat training center rotations or other major exercise participation.

CONUSA develops an exercise scenario for the entire slice to include the coordination for training support and evaluation and the employment of an opposing force (OPFOR) during the entire exercise.

Training support resources, especially Multiple Integrated Laser Engagement System (MILES) equipment, Directed Training Association and Readiness Group support, training areas and other critical requirements are centrally controlled or managed. The CONUSA would establish a four-year cycle for each brigade slice. The year a brigade slice undergoes an external ARTEP, it would receive first priority on all available resources and assets. In other years, the same group would conduct individual training, unit MOS (military occupational specialty) sustainment, multiechelon (non-ARTEP) training, or go through school cycles. The key to the training cycle is that all units in the slice are in the same cycle at the same time.

During an external ARTEP cycle, the brigade slice receives all of the training resources in a replication of conditions at a combat training center. The CONUSA tasks the MEC/MAC to coordinate, develop and execute the consolidated external ARTEP. When there are multiple slices in an external ARTEP cycle, the CONUSA schedulers ensure that no two slice organizations will be scheduled back to back (horizontal) or in the same (vertical) two-week annual training period. No more than two external ARTEP cycles would be scheduled at the same installation, thereby allowing maintenance time for the equipment and vehicles drawn from the equipment concentration site or training aids support center. The schedulers also spread out the external ARTEP slices to ensure the individual installation is also not overloaded. Other slice elements can be scheduled around the external ARTEP slice, but the nonexternal ARTEP slice realizes it will receive whatever resources are available and may not have access to the same level of support.

When out of the external ARTEP cycle, the brigade commander provides a training outline

for all units in the slice. A comprehensive training plan is put together, integrating all units into an overall scenario. In the cycle after the external ARTEP, the brigade commander schedules an AT period for all units. The slice would still train as a unit during the AT period, but those units receiving training elsewhere would be considered detached for exercise purposes. These detached units would still participate in inactive duty for training (IDT) sessions or other slice-related training, coordination or planning. For example, this is the time when certain units can receive special skill training such as at a depot, regional training site or service school. Some units may be tasked to provide dedicated OPFOR or installation support. During this time, units could participate in overseas deployment training, combat training center rotations or other major exercise participation (such as *BRIGHT STAR* or *TEAM SPIRIT*).

A secondary benefit of the slice concept is that during IDT periods, the brigade can conduct command post exercises or staff drills. The headquarters of each of the slice units may also participate. This reinforces what is accomplished at AT. Units also continue to work and coordinate together. The brigade commander is responsible for the overall training direction of the brigade slice, but the subordinate commanders become responsible for their own units' training assessment and for ensuring that their specific training requirements are integrated into the overall scenario. The brigade commander is evaluated on his ability to integrate and coordinate the training and support requirements of all subordinate units into the overall brigade training program, as well as into the scheme of maneuver for the AT period.

The structured annual training program presented here is an attempt to provide a more realistic and integrated multiechelon training environment for the RCs—with the goal of increased combat readiness. Once the CONUSA establishes an organizational slice, it becomes easier and more efficient to coordinate and schedule units' training, support, resources and use of training areas. Through structured training, the units receive more realistic training and better support. Through better planning, supporting installations do not become overcommitted, and the allocation of limited training aids and personnel support can be better managed and coordinated.

During IDT periods, the brigade can conduct command post exercises or staff drills. The headquarters of each of the slice units may also participate. This reinforces what is accomplished at annual training.

Overcoming the initial "we–they" and other parochial attitudes is key in the development of the correct brigade slice packages at all levels, from the units through the TAG and ARCOM headquarters and the CONUSA staff. Cooperation by all participants is essential to improved training readiness. All parties must support the concept and execution of the structured training program to improve the combat readiness of all units in a slice. Structured annual training supports all of the training principles outlined in FM 25—100 and ensures the realistic practice—not just lip service—of the principles in training the Total Force. ***MR***

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Too Important to Ignore

Training Field Grade Officers in Units

Lieutenant Colonel Thomas V. Morley, US Army

One of Chief of Staff General Carl E. Vuono's six imperatives for the Army of the 1990s is leader development. The author contends that a very important area of leader development, training of field grade officers while they are in line units, is deficient in today's Army. He argues that in most units busy schedules and other priorities divert the efforts and interests of both senior officers and their subordinates. He calls on senior officers to participate in an active and demanding training and counseling program for field grade officers.

War, like most other things, is a science to be acquired and perfected by diligence, by perseverance, by time and by practice. Alexander Hamilton[1]

VOLUMES have been written about officer education and training. Since 1978, three major Army study groups have examined this subject in order to create an effective officer development study. Even the US Congress has been involved in the enactment of legislation—in most cases, after extensive debate—establishing the requirements and regulations governing the officer corps. All of this attention has clearly demonstrated the almost universal acceptance of the essential role of officer development in the creation of a competent military establishment. As stated in the 1985 Professional Development of Officers Study (PDOS), "the bedrock of the officer corps must be officers . . . expert in the tasks of those arms and services; at the very core of their expertise must be the ability of these officers to fight."[2]

Officer training and education in the US Army has traditionally been divided into three major components: self-development, training in units and formal schooling within educational institutions. The fundamental question of this overall officer development program has been that of determining what should comprise each of these three components. For example, the Review of Education and Training for Officers Study (RETO) of 1978 was established to "develop training and education policies and programs which combine self-development, unit

development and institutional development in a phased schedule from precommissioning or preappointment training through career completion."[3]

The development of the company grade officer has received the vast majority of research and attention. In the literature search for this article, almost all of the professional literature found focused on these young officers. The few documents or articles that discussed field grade officers' training and education dealt almost exclusively with institutional schooling. In contrast, reams of paper have been expended on the discussion of the training of company grade officers within units.

Yet, the official Army philosophy on officer development requires training within units without any hint of a justification for a reduced emphasis on individual training of field grade officers within units. The 1985 Leader Development Study clearly defined the essence of an officer training program within a unit. "Commanders and supervisors have the responsibility to develop their subordinates by assisting them with on-the-job practice to gain experience. They must also provide subordinates with feedback through assessments indicating progress along a professional development road map that lays out capabilities expected to be achieved at each phase of development."[4] Thus, the foundation of this type of training development is an individualized program based on direct involvement in an officer's development by his senior who must provide personalized feedback and counseling.

Unfortunately, the majority of units lack this type of individual field grade officer development program. The normal counseling program for these officers centers on task accomplishment and not on individual development. Their senior officers—raters and senior raters in officer evaluation report (OER) terminology—provide only limited, long-range counseling as a by-product of these event-oriented discussions.

This article will take a look at the concept of field grade officer development within units. Hopefully, it will serve as a starting point for further analysis and discussion by other professionals. Clearly, it will not be the conclusive study, nor will it provide the ultimate model for unit development programs. However, given the lack of discussion in our professional journals and our fixation on company grade officer training, a focal point is needed to rekindle debate within the officer community.

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The methodology discussed here focuses on maneuver brigades and divisions. The exclusion of other type units is not meant to imply that field grade training is not a critical function in those organizations. The general characteristics and specific events provided in the discussion of a division- or maneuver brigade-level sample program can provide valuable insights for a program in any type of organization.

Field Grade Officership

Promotion brings new and greater responsibility with challenges in both command and staff assignments, but does not automatically bring wisdom or broader horizons.[5]

The transition from company grade to field grade officership is a remarkably complex and convoluted one. As an officer progresses from the company grades, the balance between technical, human and conceptual skills shifts. The field grade officer focuses more on human and conceptual skills.[6] Field grade officers "... rely heavily on synthesizing processes for decision making while retaining skills from earlier analytic processes which enable them to assess, allocate and integrate forces required to plan and execute

tactical and operational plans to meet any contingency."[7]

Obviously, the field grade officer must have a solid, in-depth foundation of tactical and technical knowledge that has been formed in the company grade years. In those years, an officer dealt with small units and organizations. Most of the integration of complex systems was done for him by field grade officers from the battalion to corps level. Now as a field grade officer, he must be able to integrate and synchronize a wide variety of systems on a chaotic, uncertain battlefield. His knowledge base will expand almost exponentially as he is forced to master areas far outside of his prior narrow branch focus. The new field grade officer will be given tasks that cannot be attacked with previously learned solutions. Each action will require an individual plan predicated on unique circumstances and varying groups of participants. The field grade officer's decision-making process will be severely hindered by the lack of information and high level of uncertainty associated with the higher-unit formation in which he will be serving.

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A company training program is normally oriented on mastering a long list of technical skills and acquiring a certain level of analytical abilities. The field grade officer program must expand this base to create an officer who can lead large formations to success on the modern battlefield. This program "focuses its efforts on the development of a bold, innovative leader who is confident of his own technical and tactical competence and willing to take risks as needed to accomplish the mission within the commander's intent."[8]

A field grade training program is more individual-oriented than a unit's company grade program. Each officer enters the field grade years with his own unique capabilities and knowledge base. The length of the field grade years, varying from 15 to 19 years, from promotion to major to retirement or promotion to general officer, causes an incredible diversity between individual officers. For example, a battalion commander could have spent anywhere from one year to five years as a major in division units. This clearly would produce a wide range in the level of skills and knowledge possessed by individual commanders. This creates an incredible training challenge for the officer's seniors—his brigade and division commanders.

The very nature of field grade officership, the various experiential foundations created by different progressions of assignments and the variety of field grade positions all justify the need for an individualized officer training program. Army schools can never prepare an officer for all of these challenges. Self-development cannot meet the demands of the field grade years since it lacks the essential progressive counseling and feedback by a senior. Only a unit training program can meet these demands.

Why Isn't It Happening?

Given the self-evident nature of its importance, field grade training and developmental programs should be one of the main priorities within a division or brigade training program. Yet, in countless discussions with former battalion and brigade commanders and other field grade officers, few have ever witnessed a viable individualized developmental program. Officer professional development (OPD) sessions have been group-oriented, mostly once-a-month, lecture-type classes. The individual counseling that occurs is normally performance-oriented, dominated by ongoing actions. In fact, the attitude most commonly expressed about counseling is that no news is good news. In other words, an officer believed he would be counseled only

M1 Abrams tanks of the 2d Armored Division (Forward) preparing for a live-fire exercise at Bergen, Germany

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if he or his unit did something very wrong. This should not be surprising in an Army where most officers receive their efficiency reports from the personnel system and not from their bosses.

The fundamental question that must be answered is why this type of individualized, field grade training has not been undertaken by most units. Two major theories are normally used to justify the lack of a field grade development program within units. The first holds that a unit is just too busy a place for any real officer education and training. The second theory claims that the age and experience of field grade officers has produced an already developed and competent officer. Not only does the officer not need a strong developmental program, he would probably be unresponsive to such an effort. After discussing these two theories, another rationale will be proposed for the lack of training based on the dynamics of a senior-subordinate relationship.

Unit versus School. A former U.S. Army Training and Doctrine Command (TRADOC) commanding general claimed that "officers cannot receive a first-rate military education while attending to unit responsibilities. They must act in units, for the most part, on the basis of what they already know."[5] This statement was not intended to argue that no individual training could occur in a unit. However, it does reflect a sentiment that officers are too busy executing missions, tasks and daily unit life to attend to a developmental program. Interestingly enough, the schoolhouse has often pushed itself into unit life through requirements for completion of various self-study courses prior to enrollment in a school's resident course.

Many would argue that it is the job of the school system to provide the theoretical and doctrinal foundations that will then be the basis for individual behavior within a unit. The PLOS claimed that the role of the unit in the development of field grade officers was to "provide experiential development opportunities to relate school theories to the real world."[6] The school system will provide not only the doctrinal framework, but also the tactics, techniques and procedures for almost all unit activities.

History has produced numerous examples of individualized officer training programs in periods of peace or conflict. Perhaps one of the best examples was Field Marshal Sir Bernard L. Montgomery's training program in England after

the near-disaster at Dunkirk. In this time of chaos and confusion, with the British army undergoing a rapid rearming and reorganization punctuated by a fear of an imminent German invasion, Montgomery found the time for a demanding and exciting officer training program.[11] If time could be found in that period, surely a Continental US or US Army, Europe unit can find the time and energy today.

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Our Army is a unique institution formed by individual commanders and personalities. A unit's tactics, techniques and procedures are normally unique to that organization. The combat training centers and the Battle Command Training Program have accelerated the development of these unit individualized procedures. The school system has been unable to keep up with the pace of development in the "real world." Units with commanders who possess highly refined tactical philosophies tend to have strong leader training programs to infuse the unit with their vision of warfighting. Perhaps this is the way it should be, with the school serving as the conduit to spread all of these developments in techniques, tactics and procedures throughout the entire Army for deliberation and experimentation.

The PDOS had an officer survey as one of its components. In it, 57 percent of the officers surveyed identified duty assignment/on-the-job training as the experience making the greatest contribution to their professional development.[12] In my opinion, this reflects the ability of a unit to tailor a program to fit the needs and interests of an individual officer. Most of an officer's development, especially that of a field grade officer, must take place within a unit.

Already Formed and Knowledgeable. Many officers have heard this argument that claims that a field grade officer has already been formed and trained. Further officer training is seen as superfluous and a waste of time. There are several underlying themes to this argument. First, it infers that the field grade officer is set in his ways, incapable of further growth or expansion. This theme would hold that biological age, coupled with experience, had produced a rigidity of outlook and philosophy not amenable to change.

The second underlying theme infers that the numerous boards to which a field grade officer is subjected provide a stamp of approval on the survivors. These boards, in effect, certify an officer's competence and abilities as reflected in competition with his peers. These two themes combine to argue that an individualized training program for field grade officers is both unneeded (already competent) and a waste of time (already set in their ways).

Obviously, much of a field grade officer's leadership style is tightly formed in the company grade years and early service as a major. However, an essential characteristic of any successful field grade officer is flexibility—the ability to adapt to an ever-changing environment. Learning is a lifelong event, with periods that vary in degree of intensity and duration. The very nature of field grade assignments dictates that few officers are ever prepared for these positions. The PDOS claimed that 80 percent of all field grade authorizations were in non-TOE assignments (TOE refers to the table of organization and equipment and generally can be equated to standard line unit organizations).[13] Only a stubborn, flawed officer would reject professional growth or the need to acquire new knowledge or skills in these positions.

The results of the numerous field grade boards cannot be equated to the level of competence of a particular officer. These boards are clearly dependent on the OER process, which is, in turn,

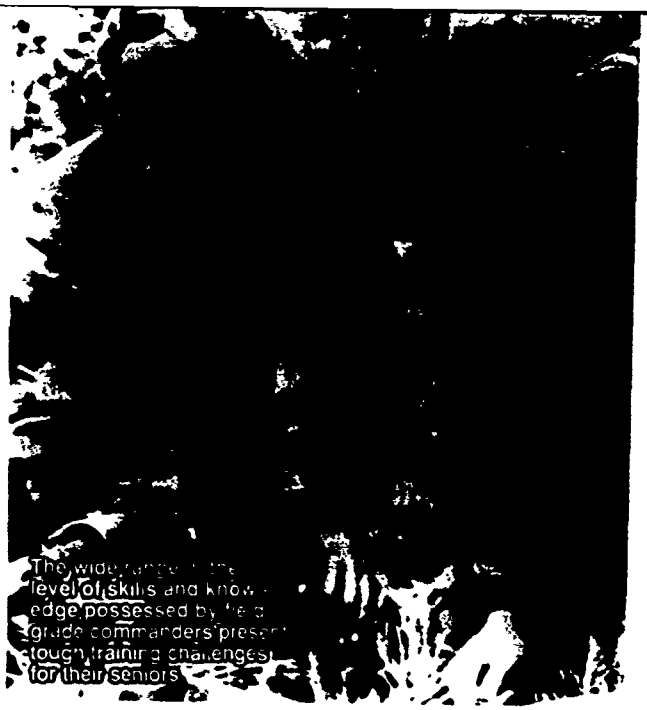
only as valid as the effort expended by the rater and senior rater. An average or marginal officer can receive an exceptional rating by his senior rater under several sets of circumstances. A selection produced by a large number of OERs from positions outside of the TOE Army does not mean that the officer possesses the skills required of a brigade or division staff officer or a battalion commander.

Senior–Subordinate Dynamics

Perhaps both of the major justifications for the lack of an individualized field grade training program are really reflections of a deeper problem founded in the interpersonal relationships of the officers involved. Each (senior and subordinate) has an expectation of his or her individual role and how it should be perceived by the other. These perceptions help create a mental framework and a resulting pattern of behavior that greatly hinders the effective training of the field grade subordinate.

Prior to the field grade years, the years of service and level of experience differ greatly between a senior and his subordinate. For example, the battalion commander normally has at least double the time in service of his company commanders. Yet in the field grade years, this gap is significantly narrowed in terms of time. A brigade commander might have only four more years of service than his battalion commander. Unfortunately, many officers equate these measurements of longevity as equivalent to levels of knowledge. A brigade commander could feel that his level of knowledge and competency is not significantly greater than his subordinate commanders. If he believes that the difference can be made up merely by experience, then he would feel no urge to create an individualized training program.

More important, the perception of their roles by the subordinate and senior creates a stronger incentive against field grade training. The senior believes that his subordinates must have total confidence in his competence. Since this feeling of competence is partially founded on a possession of professional knowledge and technical proficiency, the senior is reluctant to embark on any undertaking that would indicate that he is deficient in any of these areas. An individualized training program, especially in its counseling and feedback, requires that the senior be able to discuss his profession in great detail. Many would be afraid of departing the normal world of generalizations to enter into this demanding realm of hard knowledge. He erroneously believes that his subordinates expect him to be totally proficient at all times; therefore, he is reticent about learning a subject at the same time his subordinates do. Fearful of jeopardizing his leadership position, he will avoid any area that could demonstrate his ignorance in that subject.



The various experiential foundations created by different progressions of assignments and the variety of field grade positions all justify the need for an individualized officer training program. Army schools can never prepare an officer for all of these challenges. Self–development cannot meet the demands of the field grade years since it lacks the essential progressive counseling and feedback by a senior. Only a unit training program can meet these demands.

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Given the nomadic pattern of field grade assignments and the fact that the schools cannot publish materials fast enough to keep up with the new information gained in units, the senior cannot be totally knowledgeable in all areas. The final result is often a senior officer who feels a strong sense of inadequacy in his technical skills. Fearing the reaction of his subordinates, he will avoid those individual learning experiences that could expose his weak areas.

The junior field grade officer also makes a significant contribution to this senior–subordinate relationship. The subordinate has a great uneasiness about permitting his bosses—rater or senior rater—to find any weaknesses in his knowledge base or abilities. He fears that the senior will find him inadequate or less worthy than his contemporaries if he admits a lack of knowledge or competence in a particular task or subject area. He experiences great discomfort if his boss begins to instruct him on something that he believes he should already know. Was his boss's decision to instruct him a negative evaluation? This sense of insecurity adds a great amount of tension to an already difficult senior–subordinate relationship.

The interaction of these two personal dynamics of the senior–subordinate relationship probably serves as a hidden rationale for the lack of any real field grade training in many units. The subordinate, rater and senior rater are all reluctant to enter into detailed discussions within a training program for fear of revealing a lack of sophisticated knowledge. Instead, their interrelationship centers on discussions of event or trend monitoring.[14]

Unfortunately, officers seized by these fears miss the very nature of the field grade years—the myriad of tasks and complexity of requirements. In addition to the hard knowledge side of the profession, that is, military science, there is an intuitive side that can only be developed through experience, reflection and repetition—the military art. No officer will completely master his current job. Seniors and subordinates must learn together in a dynamic individualized training program. "Leader developers must acknowledge the personal nature of the developmental process and, with patience and care, do the best they can to help all subordinate leaders grow as fully as possible."[15]

Field Grade Officer Training

Having discussed the essence of field grade officership and the arguments used to justify the lack of a detailed field grade officer training program, it is necessary now to discuss some essential characteristics of a field grade developmental program. A sample training program will also be provided as a point of departure for development of actual programs.

A successful field grade training program must focus on the individual officer. It should be conducted primarily at the individual level but can, on occasion, be performed within a small group. The size is very important. Individual or small-group sessions mandate extensive participation. The participants have an excellent opportunity to share their knowledge and learn in their areas of weakness. A senior needs this level of observation to successfully develop a subordinate field grade officer to the appropriate level. It also provides a setting for true discussion between the officers. This reduces uncertainty between the officers by revealing the critical assumptions and mind-set that determined a decision or outlook. This is essential to an army predicated on initiative and mission orders.

For the most part, these individual or small-group sessions must be restricted to the field grade officers being developed. Unit staffs or as-

sistants should be excluded. A subordinate should not be permitted to hide behind the expertise of his staff. The goal is to develop the individual in this program. If the focus is on the unit—as is all other training—then the collective group can hide the weak areas of the targeted field grade officer. Since this flaw would be undetected by the senior, it could not be repaired through individualized training. Catastrophe on the battlefield would be the result, especially if the staff was unable to make up for that officer's weakness at a critical time.

These individual and small-group sessions are tailor-made for extensive counseling and feedback. In most cases, after-action reviews of an event tend to be more systems-focused, oriented on staff officers' concerns. This is an important part of improving a unit. However, an analysis of command decisions and a determination of the unit's war-fighting concepts have to be conducted. These field grade sessions are good vehicles to work those types of issues. A small group, restricted to a division's commanders, can more freely discuss an issue than a group that has been significantly expanded to include all of the various staff officers.

Senior officers usually move from one high-tension crisis to another during the course of an assignment. It is very difficult to refocus on a past event to provide detailed feedback and counseling to an individual officer. These individual and small-group training sessions must be scheduled events to provide a blocked time opportunity for immediate feedback. Thus periodic counseling can become more potential-oriented, discussing overall trends and patterns.

These individual or small-group sessions will also create a mutual understanding of concepts and language that will facilitate subordinate initiative on a future battlefield. Initiative rests on the ability to act within the framework of a senior's intent and thought process. These training sessions are critical to the senior because they would allow him to anticipate—almost intuitively—how his subordinate would act in exercising his freedom of action in various situations. Over a number of sessions dealing with a myriad of tactical situations in all of the combinations of METT-T (mission, enemy, terrain, troops and time evaluation) factors, the subordinate and senior will develop a jointly held concept of warfighting that will simplify plans, orders and communications on the battlefield.

The results of the numerous field grade boards cannot be equated to the level of competence of a particular officer. . . An average or marginal officer can receive an exceptional rating by his senior rater under several sets of circumstances. A selection produced by a large number of OERs from positions outside of the TOE Army does not mean that the officer possesses the skills required of a brigade or division staff officer or a battalion commander.

Only an individual field grade training program can completely fill this need. The current command post exercise system only dents the surface of this issue.

This training program is clearly a form of train-the-trainer or chain training. The guiding principle is to increase the abilities and proficiency of the field grade officers during the sessions. The senior will ensure that his field grade subordinates have the skills necessary to supervise and lead the planning and execution of the same mission within their organizations. It also pushes that shared concept of warfighting developed between the senior and subordinate down one more level, creating an even more effective organization.

The pieces of a field grade training program should be linked under various themes over the course of a year. The unit's METL (mission essential task list) should clearly provide that guidance for the overall program. For example, the senior would choose one of his METL tasks—such as conducting a forward passage—as the theme for most of his training that quarter.

The field grade training would be built around that theme. Thus, the program's orientation allows the senior to focus on his key

[The senior officer is] afraid of departing the normal world of generalizations to enter into this demanding realm of hard knowledge. He erroneously believes that his subordinates expect him to be totally proficient at all times. . . Fearful of jeopardizing his leadership position, he will avoid any area that could demonstrate his ignorance in that subject.

METL tasks. The individualized nature of the program would allow for training of the new officer in other areas that he might have missed.

Using these considerations as a general framework, a sample training program for field grade officers follows.

Brigade Training Program

At the brigade level, the field grade audience consists of the lieutenant colonels (battalion commanders and brigade executive officer) and the majors (battalion executive officers and S3s [operations and training officers] and the brigade staff). There will be several occasions in the program that can be effectively used to train the brigade's company commanders. Both individual and small-group sessions will be used. A quarterly theme for the overall training program would be selected from the brigade METL. Scheduling conflicts with major events or unprogrammed additions or changes are clearly a way of life. A desired frequency of each session is mentioned below. However, adjustments may have to be based on a unit's schedule.

Concept Session. The quarterly program could begin with a small-group session to include the company commanders of the brigade combat team. At this session, the brigade commander would discuss the concept to be examined in the upcoming series of training events. This session would present the basics of the METL task, achieving a common understanding of terms and concepts to be used. Outside experts can be used to present facts and considerations in their areas. For example, in a river crossing task theme, the engineer could explain the capabilities and limitations of his portion of the operation. The group should leave this session with the basic technical knowledge required to further develop the brigade concept of warfighting in that particular area.

Individual Sessions. Next should follow a series of individual training meetings between the battalion commanders, brigade executive officer and the brigade commander. These sessions would create the skill base required in these individuals and begin the development of a common understanding of how to execute the task.

Each battalion commander should be brought in for an individual session with the brigade commander to develop an enemy template and his battalion's concept of operation. The brigade commander would provide the brigade mission, concept of operation and his version of the enemy's template. He would then leave the battalion commander alone for an hour or so to develop his version. When completed, the two commanders could then go over the battalion plan in great detail. Enlarged sketches and sand tables of key areas would be used to more easily visualize the terrain and concepts.

From these detailed discussions, a common understanding of how to conduct this operation would be produced. The brigade commander would be helping the battalion commander master the skills required to plan this operation and train his staff. These sessions would produce a shared tactical concept and a growth in everyone's proficiency.

A similar session could be held between the brigade executive officer and the commander. The goal would be to identify the issues involved in each of the brigade staff areas. The brigade executive officer should leave this session with an understanding of how the brigade combat team would conduct the operation and what was re-

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quired of the brigade staff. He could then ensure that his own training program for the brigade staff was on the right track.

Map Exercise (MAPEX). The next component of the brigade training program could be a two-day MAPEX in the second month of the quarter, with the commanders and the brigade executive officer, battalion staffs and all of the majors in the brigade involved. This OPD session would build upon the learning gained from the previous month's sessions. On the first day, the brigade commander and his staff could develop an operations plan concerning the theme's tactical operation. Next, the battalion commanders and their majors would develop their own battalion plans. The remainder of that day could be spent on discussing the brigade plan and each subordinate plan in great, highly critical detail. The group has been kept small and restricted to field grade officers to encourage debate and reduce anxieties over criticism. If possible, all field grade members of the brigade combat team should attend this two-day exercise.

On the second day, the final product should be exercised either in a MAPEX (sometimes called a sticker drill) or in some form of simulation. The brigade commander would run the exercise and serve as the chief critic and teacher. Key situations could be exercised several times under different METT-T conditions to help the overall analysis of this type of operation. The operation should be stopped after each important action to facilitate discussion and learning. The local simulation center's staff or the division G2 (intelligence) can provide trained personnel to serve as the opposing force. Enlarged maps, detailed sketch maps and large terrain models should be used to discuss important situations and improve the participants' ability to visualize the actual battlefield.

Tactical Exercise Without Troops (TEWT). In the third month of the quarter, the brigade could conduct a TEWT. To the participants of the MAPEX would be added the battalion staffs and company commanders of the brigade combat team. They would plan and then analyze the theme's tactical operation order on an actual piece of terrain. This two-day exercise

should begin with operation order development by both brigade and battalion groups. The terrain should be available for reconnaissance and use, consistent with the parameters of the operation. Briefbacks and terrain model rehearsals could be conducted to facilitate common understanding of the entire operation.

On the second day, the operation may be analyzed on the terrain. For example, in a defense, the brigade and battalion commanders could look at the defense of every battalion and the counterattack routes. By looking at each company within the brigade, the field grade commanders would gain new insights into the tactics, techniques and procedures used by their sister units. In offensive operations, the brigade commander could focus on an analysis of the terrain in a passage of lines and actions on the objective. The company commanders in defensive actions should stake in their planned defense. At the end of the day, a final session, led by the brigade commander, would discuss the major issues identified and the lessons learned in the exercise.

Professional Readings. Each month the field grade officers should read a historical or fictional book relevant to the quarter's theme. These books could either be designated by the brigade commander or selected by the officer and approved by the brigade commander. A session should be held each month for every officer to present the key issues identified in his reading relevant to either his position or the theme operation. A short written report would be provided to the brigade commander to assist in the development of the officer's written skills as needed. But more important, these reports could be added to the after-action report of all the other sessions to create a brigade reference book on the particular operation of that quarter.

Battle Study. A battle study of a historical operation relevant to that quarter's theme could be conducted quarterly. Each field grade officer should be assigned a key individual or unit as the focus for his or her readings and research. Each would have to conduct sufficient research to understand the key components in the events, unit actions or key leaders' decisions. For example, an officer researching a particular unit would need to know that unit's activities and locations throughout the battle. The individual officer would become the expert in that topic, providing factual context to the overall examination.

Each month the field grade officers should read a historical or fictional book . . . designated by the brigade commander or selected by the officer and approved by the brigade commander. A session should be held each month for every officer to present the key issues identified in his reading relevant to either his position or the theme operation.

The actual battle study session could be either a one- or two-day exercise. Large maps may be used to track the units and key leaders throughout the battle. Each individual could brief on the actions and location of units or mind-set and decisions of key leaders leading up to certain key events. The brigade commander should then lead a discussion among the participants to determine the important issues in that portion of the battle. Each stage of the battle should be discussed in a similar fashion. At the conclusion of the presentation and discussion, the field grade officers could then determine any lessons or issues that would be relevant to conducting that operation today.

A staff ride can be substituted for this battle study if the unit is in proximity to a battlefield that could provide similar insights to the quarter's theme concept. Procedures similar to those for the battle study could be followed. The value of being able to actually conduct the staff ride on the actual terrain would be of great benefit to the study.

Counseling. Feedback and counseling should be provided throughout the entire program. Obviously, the methods used by the brigade commander will vary with each component of the program. But one consideration is abso-

lutely essential—all feedback and counseling must be oriented on each individual officer. Broad sweeping generalizations or fixation on unit behavior will fail to adequately address the developmental requirement of each officer.

Quarterly, the brigade commander must conduct formal counseling sessions. These should include observations of the individual's activities throughout the quarter and not be restricted just to the training program. They can include both performance and potential components. The intent is to provide a cohesive picture of the officer's strengths and weaknesses. Unit problems should be discussed only as they pertain to a flaw or problem in that particular officer. The officer should depart the session with a training plan to correct those items that were discussed by the brigade commander. This plan would consist of both self-development and brigade training program components. The brigade commander should agree to conduct individual sessions, above and beyond the next quarter's planned program, to provide the assistance and training required to overcome these weak areas.

Critics of this proposal will claim that this program is too time-intensive for realistic execution. Brigade commanders, many will say, have demanding schedules with no time to spare. So the issue becomes one of priorities. The training of field grade officers will produce a better officer who will produce a more proficient unit. Time spent on the development of these officers is a better investment of resources than many of the events that routinely dominate the brigade commander's calendar. This is too important an area to remain absent from the training programs of most units.

In a superb study of the Army's officer corps from 1881 to 1925, a World War I general claimed that "the greatest barrier to creating an army ready for war . . . was not public apathy, congressional niggardliness, or the lack of a trained reserve. It was the officer corps of the regular army."[16] The lack of a comprehensive field grade officer training program in many units has kept many officers from expanding to their full potential. In an era of sweeping manpower reductions and the high probability of less time spent in units, commanders must accept the responsibility for ensuring that their field grade officers have the skills required for victory on future battlefields. This article has not provided the ultimate solution. Hopefully, it has provided a starting point in the development of unit training programs. The costs of our failure to train field grade officers beyond the requirements of the staff and senior service colleges may well be more than w fford to bear. ***MR***

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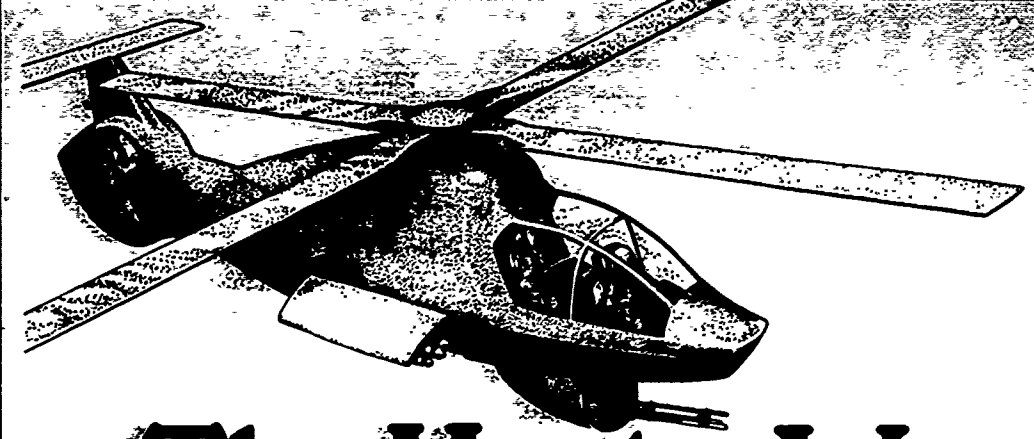
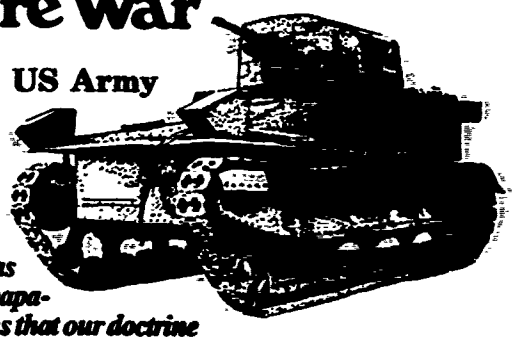


The Master Weapon

The Tactical Thought of J.F.C. Fuller Applied to Future War

Major Anthony M. Coroalles, US Army



The author recalls the thinking of J.F.C. Fuller to support his views that the helicopter has replaced the tank as the "master weapon" on current and future battlefields. He suggests that technology has rendered our heavy forces as presently organized incapable of sustaining the mobility and tempo in operations that our doctrine requires for success. He sees the helicopter in a division organization fighting the close battle with armor and infantry forces in support.

IN 1932, a rare and strangely prophetic book appeared on the world's military literary scene. It was written by a brilliant and highly controversial British major general by the name of John Frederick Charles Fuller. He called his book *Lectures on FSR III*.[1] In the pages of his book, Fuller presented an extremely accurate vision of the form that the world's next major armed conflict was to take.

The importance of the book, however, does not lie in the fact that it foretold the tactical developments that were to take place during World War II, but rather in the method that enabled Fuller to predict them. In 1932, Fuller was able to correctly grasp the effects that new conditions, brought about by new technology, would have on warfare. He accurately foresaw that these changed conditions had made the tank the new "master weapon" of the battlefield and translated this appreciation into a concept of employment of mechanized forces that proved to be remarkably accurate.

Today, the tank remains the centerpiece of ground tactical combat in open terrain. However, is the tank's central position in this terrain, and subsequently in our tactics, organizations and doctrine, justified by current battlefield conditions? In this article, I will analyze the military thought of J. F. C. Fuller and the method he used to see the future so clearly. Then, using this methodology as a predictive tool, I will attempt to analyze present conditions, with the goal of determining what should be the master weapon of the future.

From his earliest writings, Fuller maintained that war was both a science and an art.[2] He felt that war, as a science, was governed by fixed laws or principles. How weapons, units and the prin-

ciples were applied to fluctuating, new and different conditions encompassed the art of war.[3] However, he believed that the science of war must be mastered before its forces could be correctly employed as an art.[4]

He maintained that to master the science of war required a systematic approach. To this end, he developed two sorting and simplifying mechanisms. The first, the *elements of war*, identified the fundamental functions that take place in battle: moving, hitting and guarding.[5] The second, the *conditions of war*, were factors to be taken into account because of their impact on the elements of war during operations.[6] He identified these conditions as: the enemy and his weapons, time, space, terrain, morale, intelligence, training, supply and numbers.[7]

Historically, the power of the physical elements of war has changed as weapons, mobility and means of protection have evolved. Yet, the functions that these elements express have always remained constant.[8] In every age, armies have moved, used weapons and attempted to protect themselves.

Conversely, the conditions of war are ever changing. Forces may be large or small, terrain may be hilly or flat, intelligence may be accurate or false, and supplies may be abundant or scarce. Nevertheless, Fuller believed that when faced with any battlefield condition, a commander had three options. He could avoid the condition, overcome the condition by action or turn it to his own advantage. Fuller recommended the third course, turning it to advantage, as manifestly the best and the one most often employed by great commanders and successful organizations.[9]

To turn a current or a projected battlefield condition into an advantage, a commander or an organization must properly appreciate the impact of the condition on the power of the physical elements of war. That is, the perceived condition must be considered in relation to its effect on an organization's mobility, weapons and protection. Historically, armies have attempted to do this by organizing weapons and men in a fashion that they believed would be effective under future battlefield conditions. This development process is critically important; for if it is incorrect, it will be extremely difficult to rectify quickly in time of war.

The Master Weapon and Its Effect on Tactics

Fuller argued that with every change in weapons, our organizations and tactics must also change. With this change, we must also decide which is the most dominant weapon and around this weapon, we must arrange for the cooperation of all other weapons.[10]

"In the days of Alexander the Great, when shock weapons were dominant it was the sarissa, a pike from eighteen to twenty-one feet in length, which on account of its reach, was the master weapon which shaped Alexander's tactics. Equipped with it his heavy infantry held back or fixed the enemy, and by so doing enabled his heavy cavalry to charge at an advantage. In the Middle Ages the English long bow played a similar part, for by killing and wounding the horses of the French knights it enabled the English knights to charge home. Be it noted, and carefully so, that it is not necessary for the master weapon to be the decisive weapon. In the above examples it was not. Its qualifications to mastership are to be sought in its ability to immobilize or upset the enemy's tactics and so enable other weapons to be decisively used. In short, it sets the tactical pace."[11]

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Tactically, forces are organized primarily to perform either the "striking" or "fixing" func-

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tions.[12] The main requirement is that striking forces must be as mobile as possible, while the holding forces should be as stable as possible.[13] Similarly, the master weapon can functionally be a fixing weapon or a striking weapon. In the above examples, the master weapon was used to fix the enemy force to allow the striking force to hit the flanks and rear. During World War I, artillery was the master weapon. It, too, was a fixing weapon, and it also set the pace of ground combat. In 1914, Fuller wrote:

"That the grand tactics of an army will chiefly depend on the value its commander sets on any particular weapon (as well as the close cooperation of all available weapons and means toward the desired end); and that the commander who [illegible] proved, weapon, will be in a position to surprise an adversary who has not."[14]

During the interwar years, the Germans recognized that the tank was the new master weapon of ground combat. Its mastery lay not in being superior to every other weapon, but rather it became the master because its speed on land set the tactical pace.[15] They also recognized that its true function was that of striking and not of fixing. With this tactical idea in mind, they then developed organizations and tactics that reflected this understanding. The results of this appreciation fully confirmed Fuller's prediction.

Methodology. Applying all of the above to our initial goal of predicting future tactical developments leads us to the following methodology:

- First, we must accurately grasp the conditions that are likely to be present in future conflicts and their effect [illegible].
- Second, we must analyze the impact of these conditions on the elements of war and,

based on this analysis, accurately determine the master weapon under the new conditions.

- Third we must develop doctrine and organizations based on the perceived master weapon.

The Face of Future War

The Importance of Proper Doctrine. The form of future war will be initially determined by the operational and tactical doctrines that the belligerents bring to the battlefield. These doctrines will either be appropriate to the conditions of the time or, as has often been the case, useless and dangerous baggage that must be discarded in the heat of battle.

Prior to World War I, the French, German and Russian armies developed doctrines based on the offensive. The doctrines came about primarily because of each army's institutional biases for offensive action, which therefore resulted in selective interpretations of the Wars of 1866 and 1870.[16] The two most dominant manifestations of this trend were the French doctrine of "offensive a l'outrance" and the German fixation on a Cannae-like battle of annihilation. Examples that did not fit this predilection for the offense, such as the American Civil War and the Russo-Japanese War, were dismissed as aberrations or contests between amateurs.[17]

During World War I, the tragic results of these flawed doctrines—based on faulty assessments of the conditions of war at the time—became evident. The conditions of war had changed with technology, while the offensive doctrines of each army had not. The machinegun, rapid-fire artillery and barbed wire had greatly increased the power of the elements of weapons and protection. Such increases in firepower generally favor the defense, while increases in mobility favor offensive action.[18] In World War I, the increases in firepower were such that offensive movement in its classical form was brought to a halt. As a result, in order to counter the effects of this fire, men sought the protection of the ground, and trench warfare developed.

It was not until 1918 that each army developed appropriate responses to the prevailing conditions. The Germans countered with infiltration tactics, a doctrinal innovation, and the Anglo-French with the tank, a technological innovation. Both countermeasures were appropriate and, as World War II would later show, devastating when combined. It was tragic, however, that military professionals prior to the war failed to see properly the implications that current technology would have on future war. Had they done so, it is unlikely that the butcher's bill would have been so high.

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Prior to World War I, the French, German and Russian armies developed doctrines based on the offensive. The doctrines came about primarily because of each army's institutional biases for offensive action, which therefore resulted in selective interpretations of the Wars of 1866 and 1870. . . Examples that did not fit this predilection for the offense, such as the American Civil War and the Russo–Japanese War, were dismissed as aberrations or contests between amateurs.

On the eve of World War II, France staked its national survival on the power of the vast defensive fortifications of the Maginot Line and on the impregnability of the Ardennes Forest to large mechanized formations. To the French, the dominant tactical lesson of World War I was linked to the preeminence of firepower, which became a fetish to which every innovation was subordinated.[19]

Out of this fixation with firepower developed the concept of the "methodical battle." This step–by–step process called for the controlled movement of men and materiel according to strict timetables. The process was designed to generate the maximum amount of firepower from every man and weapon, under complete centralized control.[20] Not surprisingly, the tempo of operations was based on that of the prime merchant of firepower, artillery. As a result, operations were conducted as slow and deliberate affairs. Indeed, rapidity of thought and execution were not highly prized qualities in the execution of the methodical battle.

Although the methodical battle incorporated tanks, they were employed and organized to support the infantry.[21] Thus, their organizations and tactics failed to fully exploit the capabilities of the tank. The overriding concern with the generation of firepower blinded French leaders to the potential that the tank presented for the offensive action.[22] Visionaries such as General Charles de Gaulle and General Jean–Baptiste Estienne saw this fatal mistake. Yet, they went unheeded when they recommended the formation of armored units designed to capitalize on the mobility and armored protection of the tank.[23]

Conversely, in Germany, the bitter pill of defeat had served as the impetus for military thought and innovation. As a result, the *Wehrmacht* entered the war with coherent doctrine, effective organizations and revolutionary tactics.[24] The Germans recognized that armored mobility, wireless radio and the airplane had changed the conditions surrounding the elements of war. They translated this recognition into doctrine, organizations and tactics that took advantage of the changed conditions. This combination was nearly unstoppable and for four years, blitzkrieg ran unchecked.

France's flawed appreciation of these changing conditions and their effects on the elements of war and the eventual consequences of this faulty appreciation stand as powerful examples of the importance of developing proper doctrine, organizations and tactics during peacetime.

The Current Challenge

In May 1930, General Archibald P. Wavell wrote an article which appeared in the *Journal of the Royal United Service Institute* (*RUSI*) titled "The Army and the Prophets." In this article, he outlined the dilemma that the practical reformer faces:

"The problem which faces the reformer of armies in peace might be likened to that of an architect called on to alter and modernize an old fashioned house without increasing its size, with the whole family still living in it (often grumbling at the architect's improvements, since an extra bathroom can only be added at the expense of someone's dressing room) and under the strictest financial limitations."[25]

Today, we face the same challenges that pre–World War I and II planners faced. How well we meet these challenges now will determine our

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performance in a future war. Our doctrines, organizations and tactics must accurately reflect the realities of present conditions and not wishful thinking, parochial concerns or political expedience. The consequences of failure are too great to permit this. In the remainder of this article, I will analyze the effect of current conditions on the elements of war and subsequently on the tank. Based on this analysis, I will form some conclusions as to the probable master weapon of the future and its effect on organizations and tactics.

Conditions Affecting Weapons. It is a historical fact that every improvement in weapons has been met by a countermeasure that negates the advantage.[26] These countermeasures have taken the form of different tactics, more protection, increased firepower or greater mobility. As mentioned earlier, the increased firepower of the machinegun and artillery was countered by the invention of the tank on the Allied side, and by a change in tactics on the German side. The former overcame the effects of fire by increasing mobility and protection, and the latter by dispersing and thereby gaining greater protection.

Throughout World War II, the tank remained the dominant weapon on the battlefield. Every increase in antitank killing power was met by an increase in armor protection and speed, so that by the end of the war, there was little in common between the *Panzer Kampfwagen I* of 1938 and the Panther of 1944, except that they both moved on tracks.

Today, the tank remains the centerpiece of ground combat in open terrain. However, do present conditions justify this position of eminence?

Since the middle of World War II, new weapons development has focused almost exclusively on killing the tank. The tank, for its part, has countered each threat by increasing its armor and mobility. Logic, however, tells us that there is some finite limit to how much armor and, consequently, how heavy a tank can get while remaining effective.[27] I believe that we have reached that point. Some observations follow:

- Top attack of armor has made the tank vulnerable to antitank weapons once again. Precision-guided munitions (PGMs) and aircraft attacking the tank from the third dimension present significant problems for the survivability of tanks and armored vehicles.[28]

Colonel Charles deGaulle presenting his tank unit to French president Albert Lebrun, circa 1940

SIRPA/ECPA

The overriding concern with the generation of firepower blinded French leaders to the potential that the tank presented for the offensive action. Visionaries such as General Charles de Gaulle and General Jean–Baptiste Estienne saw this fatal mistake. Yet, they went unheeded when they recommended the formation of armored units designed to capitalize on the mobility and armored protection of the tank.

- The proliferation of relatively inexpensive PGMs, with high probability-of-kill ratios, puts the cost effectiveness of the tank into question. Can we afford expensive tanks in sufficient numbers to overcome the effect of attrition brought about by PGMs?[29]
- Battlefield computers and sensors are revolutionizing acquisition and targeting of armor. Additionally, they are increasing the accuracy and the speed of delivery of a host of weapons. This increased ability to acquire, target and hit quickly and accurately translates into an increase in firepower and a proportional decrease in the survivability of armor.[30]
- Scatterable mines, which put tanks in the middle of minefields that cannot be bypassed, will greatly affect tank mobility and survivability.
- Deep attack of armored formations by aircraft, guided missiles and artillery will further reduce the effectiveness of armor against the defense by putting these vehicles at risk long before they reach the front lines.

Conditions Affecting Mobility. Any condition that restricts or decreases mobility favors the defense. Conversely, increases in mobility favor offensive action. The tank, being an offensive weapon, is therefore significantly affected by changes in conditions affecting mobility. The following are some of the changes in conditions that are likely to affect mobility in a future war:

- The increase in the main battle tank's tactical speed is partially offset by its increased fuel consumption. This increase in fuel consumption has the additional impact of increasing the logistic tail of the division and thereby decreasing its overall mobility.
- The increased need for fuel presents a significant obstacle in the way of our ability to operate at the operational level of war. Increased cruising range, rather than tactical dash speed, is the requirement at this level.
- The ever increasing urbanization of Western Europe and other parts of the world will serve to further slow and canalize armor formations.

- Increases in the effectiveness of electronic warfare will make control of large formations more difficult and, thereby, slow down the tempo of operations.
- The increased ability to acquire, target and hit armored vehicles will also considerably slow down armored formations.
- The above listed antimobility trends can be expected to synergistically interact to further slow down the tempo and survivability of armored attacks.

Conditions Affecting Protection. Unlike increases in mobility, which favor the offensive, and increases in firepower, which favor the defensive, protection can be considered neutral. That is, increases or decreases in direct or indirect protection do not automatically benefit the offense or defense per se. However, in any particular period of time the general trend in conditions affecting protection can be weighed significantly toward one side or the other. Additional observations follow:

- The large increase in the number and types of intelligence-gathering platforms (remotely piloted vehicles, aircraft, satellites) and sensors provide an increased level of security for the defender. Conversely, they lower the element of protection on the side of the attacker. It can be argued that the attacker also receives distinct benefits from these systems, but on the whole, it appears that the defense profits to a greater extent. This is because the defense, by its nature, operates in a dispersed, initially stationary fashion, while the offense must concentrate to achieve success. Thus, a force on the defense can protect itself from these systems better than can one on the offense.
- The same increase in urbanization that hinders the attacker's mobility also serves to increase the protection of the defender. In the same vein, all improvements in countermobility technology add to the level of protection of the defender.
- On the positive side for armor, reactive armor is a significant development in armor-vehicle protection. However, its drawbacks are that it adds weight, decreases mobility and increases fuel consumption in vehicles to which it is applied. Additionally, countermeasures to defeat reactive armor are already in the fielding process.
- Also positive for armor is the increase in the dash speed of modern fighting vehicles, providing great increases in indirect protection for these vehicles. The increased firepower of infantry fighting vehicles (IFVs), such as the Bradley, also offers the tank increased indirect protection.

Since the middle of World War II, new weapons development has focused almost exclusively on killing the tank. The tank. . . has countered each threat by increasing its armor and mobility. Logic, however, tells us that there is some finite limit to how. . . heavy a tank can get while remaining effective.

Assessment of Current Conditions. On balance, I believe that the deck is stacked against ground armored mobility as the principal or master system of future war. If this assessment is correct, some serious implications come to the surface. The most important question is: How do we react to these conditions in order to use them to our advantage?

Our current heavy doctrine, organization and tactics are designed to fight a war of ground movement and maneuver. This orientation is very similar to the tactical thinking of the major powers prior to World War I. Yet, it is probable that in a future war, ground armored movement will be stopped as cold as infantry movement was during World War I. If indeed this is the case, and no changes are made in how we plan to fight, the results of a war against a first-rate opponent will be a quick stalemate and subsequent static warfare.[31] These conditions will continue until mobility is once again restored to the battlefield.

The challenges facing us today are like those that faced armies prior to World War II. We can be like the French army, which Robert A. Doughty observes:

A UH-60 Blackhawk of the 197th Infantry Brigade prepares to lift a 105mm howitzer to a firing position.

If pace is a prime determinant of success in battle, it follows that we should recognize the helicopter as the master weapon of the future battlefield and build our doctrine, organizations and tactics around it.

"Viewed technological developments from the perspective of already accepted concepts and did not perceive new ideas or weapons overturning or forcing a fundamental transformation or revision of accepted doctrine."[32]

Or, we can recognize, as the Germans did, the proper master weapon of the next war and develop our doctrine, organizations and tactics around this weapon. If we take this second course, history shows us that we will be on a sure road to future victory.

The Master Weapon of the Future

Historically, armies that have operated at a faster pace than their opponents have been singularly successful. The armies of Belisarius, Genghis Khan, Napoleon and Hitler were all designed with the intent of achieving superior organizational mobility over their foes. It was the mobility differential that these armies enjoyed over their opponents, as much as the excellent leadership that they possessed, that allowed them to achieve such outstanding results.

If we posit that ground armored mobility will be severely restricted in a future war, then an army such as ours that is designed around the tank will be operating at a much reduced pace. If our opponent is similarly configured, he will also be operating at this reduced pace and therefore a mobility differential should not exist. Thus, as stated earlier, static warfare will likely ensue. However, if we were able to take advantage of these conditions and develop a way to operate at a substantially faster pace than our opponent, then we would enjoy the advantage of those armies mentioned above. We could overwhelm an opponent not similarly configured because he would not be mentally or organizationally prepared for the faster pace of operations.

The system most appropriate to take advantage of these changed conditions—that will allow us to operate at a faster pace—is the helicopter. The helicopter offers the means to combine superior mobility with superior firepower. It possesses 10 times the speed of any given land weapons system and has an unmatched capability to disperse and converge on the battlefield. Additionally, since refueling and maintenance facilities can be well to the rear, the helicopter is logistically less vulnerable to attack than ground armored forces, whose fuel and ammunition must be brought forward.[33] The helicopter has the capability of setting the pace of future combat—a pace much quicker than that of today's ground-based organizations. If pace is a prime determinant of success in battle, it follows that we should recognize the helicopter as the master weapon of the future battlefield and build our doctrine, organizations and tactics around it.

An army operating at the pace of the helicopter will overwhelm any army operating at the pace of the tank, just as the Germans operating at tank-pace overwhelmed the artillery-paced French. However, as with other previous master

weapons such as the sarissa, long bow and artillery, the helicopter will not be the decisive weapon, since currently it can neither close with the enemy nor hold terrain. For this task, armor, infantry and artillery will be required and thus will remain the prime weapons of decision on the future battlefield.[34]

As with any weapons system, the helicopter possesses certain capabilities and limitations that must be considered when planning its employment. Considering its limitations first, we find that a lack of direct protection and the inability to hold ground or to operate in close terrain are its major limitations. Its major capabilities, on the other hand, are firepower and mobility, particularly its freedom from the constraints imposed by terrain. The latter, to a marked degree, makes up in indirect protection what the helicopter lacks in direct protection.[35]

This brings us to the question of the tactical relationship between the helicopter and ground forces. The proper relationship must be that of shield to sword. The ground armored forces as a whole are now becoming the fixing force for the aerial striking force. These two forces are as complementary to each other as castles once were to sally parties, bowmen to men–at–arms, infantry to cavalry, and later, artillery to infantry.[36] Thus, the helicopter should not be viewed as a replacement for armored ground forces. Decision will still be reached on the ground. Yet, unlike today where the mission of aerial forces is to complement ground forces; in the future, we should look to the ground forces to complement aerial forces.

A discussion of how best to organize forces to support the master weapon is outside of the scope of this article. Organizational design is a complex process. However, the concept requires a combined arms organization of division size designed around the helicopter. The ground forces would be designed and organized to perform the functions of fixing and close assault, while the aerial forces would perform the function of striking. Additionally, aerial forces would play a considerable role in performing other functions, such as seeing, moving and controlling. It is important to note that this type of organization would be a replacement for the current heavy division and would be tailored to maximize the employment of the helicopter in the close battle. Thus, I am not proposing another deep battle organization, but rather, a fundamental rethinking and reorganization of our close combat division around a new tactical idea—the AirLand division.[37]

The proper relationship must be that of shield to sword. The ground armored forces as a whole are now becoming the fixing force for the aerial striking force. . . unlike today where the mission of aerial forces is to complement ground forces; in the future, we should look to the ground forces to complement aerial forces.

Peace has historically been only a brief interlude between wars, and unless human nature has changed since our last war, we will certainly be involved in some future war. In the United States, we have been fortunate to have been spectators at the beginning of the last two world wars. This status has allowed us to observe developments and, in accordance with the results, modify our doctrine, organizations and tactics prior to getting involved. This fortunate condition has saved thousands of American lives.

In the future, we will probably not have such an opportunity to stand back and see what happens. From the first shot, we will be committed. It is critical that today we not misinterpret the effects that technology and new weapons systems will have on the elements of war, and thereby not be prepared to take full advantage of the resulting conditions. There are some very clear indications that we need to reorient our thinking radically to prevent this from happening.

Improvements in firepower, targeting, fire control, fire direction, reconnaissance and countermobility technology seriously call into question the viability of armored movement on future battlefields. Since our heavy organiza-

tions are designed around armored vehicles, such a development would have a devastating impact on our operations. Clearly, we need to recognize these changed conditions and turn them to our advantage by developing doctrine, organizations and tactics to fight under these new conditions.

In this discussion, I have advanced the idea that the helicopter offers us the means to take advantage of these changed conditions. In the proper organization, it will allow us to significantly quicken the pace of combat and thereby overwhelm an opponent not similarly organized. This ability to operate at a quicker pace than an opponent has historically been a hallmark of great commanders and armies.

As with the horse, some concepts and ideas die slowly. In this day and age of rapid change, the price of clinging to such outmoded ideas is extremely high. As Fuller said, "There is only one means of preventing decay—never to stop growing, never to become slaves to the present or the past, never to hesitate attempting something new for fear of making a mistake."[38] Thus, we must put aside branch parochialism, political considerations and the fear of revolutionary change in order that we may develop doctrine, organizations and tactics to take advantage of current conditions. At such a time as this, it is wise to keep Fuller's words in mind:

"Armies are more often ruined by dogmas springing from their former successes than by the skill of their opponents."[39] ***MR***

NOTES

1. Lectures on Field Service Regulations, vol. III.
2. J. F. C. Fuller, "The Application of Recent Developments in Mechanics and Other Scientific Knowledge to Preparation and Training for Future War on Land," *The Journal of the Royal United Service Institution (RUSI)* (May 1920):240.
3. Ibid.
4. J. F. C. Fuller, *The Foundations of the Science of War*, (London: Hutchinson & Co. Ltd., 1926), 324.
5. Ibid., 91–92.
6. Ibid., 110.
7. Ibid., 175–92.
8. J. C. F. Fuller, "Tactics and Mechanization," *Infantry Journal* (May 1927):457.
9. Ibid., 193.
10. J. F. C. Fuller, "A Study of Mobility in the American Civil War," *The Army Quarterly* (January 1935):271.
11. J. F. C. Fuller, "The Master Weapon and Its Influence on Tactics," *The Army Quarterly* (August 1942):230.
12. For example, the J-series infantry battalion of today is organized to serve as a holding force. It has organic to it an antiarmor company not found in the armor battalion. Thus, the infantry heavy task force is designed to functionally fix, while the armor heavy task force strikes.
13. Fuller, "The Master Weapon," 235.
14. J. F. C. Fuller, "The Tactics of Penetration," *RUSI* (November 1914):379.
15. Fuller, "The Master Weapon," 235.
16. Jack Snyder, *The Ideology of the Offensive Military Decision Making and the Disasters of 1914* (Ithaca, NY: Cornell University Press, 1984), 15–40.
17. John A. English, *A Perspective on Infantry* (New York: Praeger Publishers, 1981), 7; Jay Luvaas, *Military Legacy of the Civil War, The European Inheritance* (Chicago: University of Chicago Press, 1959), 226–33; William McElwee, *The Art of War Waterloo to Mons* (Bloomington, IN: Indiana University Press, 1974), 310–24.
18. F. O. Miksche, *Atomic Weapons and Armies* (London: Faber & Faber Ltd., 1955), 17 and 47.
19. Irving M. Gibson, "Magnot and Liddell Hart: The Doctrine of Defense," *Makers of Modern Strategy (Princeton: Princeton University Press, 1943), 371–75.*
20. Robert A. Doughty, *The Seeds of Disaster: The Development of French Army Doctrine 1919–1939* (Hamden, CT: Archon Books, 1985), 10 and 91–110.
21. Ibid., 137.
22. Ibid., 159.
23. Ibid., 161–77; GEN Charles de Gaulle, *The Army of the Future* (Philadelphia, PA: J. B. Lippincott Co., 1941), 134–47.
24. Brian Perret, *A History of Blitzkrieg* (New York: Stein and Day, 1983), 64–76.
25. Charles Messenger, *The Blitzkrieg Story* (New York: Charles Scribner's Sons, 1976), 74.
26. J. F. C. Fuller, "Machine Warfare," *The Infantry Journal* (1943):78–79.
27. LTC John G. Heslin, "Mobility: Key to Success on the Extended Battlefield," *Military Review* (August 1981):60.
28. Richard Simpkin, *Antitank, An Airmechanized Response to Armored Threats in the 90's* (Oxford: Brassey's Publishers Ltd., 1982), 56–58.
29. F. O. Miksche, "PGMs are Changing the Combat Picture," *Military Review* (July 1978):12.
30. Hung P. Nguyen, "Soviet Thinking on the Next Land War," *Parameters*, vol. 15, no. 4, (1985):42–43.
31. Ibid., 44–46.
32. Doughty, 182.
33. General Dr. F. M. von Senger und Etterlin, "New Operational Dimensions," *RUSI*, (June 1983):13; Richard Simpkin, *Race to the Swift* (Oxford: Brassey's Publishers Ltd., 1985), 117–32.
34. I have made the case that ground armored mobility will be restricted in a future battlefield in much the same fashion as infantry movement was during World War I. This in no way is meant to imply that armor is obsolete. Rather, the idea that I wish to convey is that in the same manner that the tank restored mobility to the World War I battlefield—to include infantry mobility—the helicopter will permit mobility in a future battlefield—to include ground armored mobility.
35. Richard Simpkin, "Flying Tanks?—A Tactical-Technical Analysis of the Main Battle Air Vehicle Concept," *Military Technology* (August 1984):82.
36. Fuller, *Machine Warfare*, 84–85.
37. Although, as previously noted, force design is outside of the scope of this article, this organization would be designed to maximize the employment of the helicopter and increase the tactical pace. At the brigade level, it would consist of a mix of *organic* attack helicopter, armor and infantry battalions. At the division level, it would incorporate a combat aviation brigade of three attack battalions and a heavy-lift battalion designed to transport indirect fire means (artillery, air-mobile multiple launch rocket system, ground-launched hellfire). The division structure would also include a remotely piloted vehicle battalion under the division artillery to acquire targets for the air-transported indirect fire means.
38. J. F. C. Fuller, "The Influence of Armour from Alexander to Joan of Arc," *The Army Quarterly* (April 1927):66.
39. Fuller, "Tactics of Penetration," 389.

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MR REVIEW ESSAY

The Fog of Military Education

By Lieutenant Colonel Harold R. Winton, US Army, Retired, and Colonel Richard M. Swain, US Army

SOLDIERS AND SCHOLARS: The U.S. Army and the Uses of Military History, 1865–1920 by Carol Reardon. 270 pages. University Press of Kansas, Lawrence, KS. 1990. $35.00.

LTC Winton, Retired, is professor of military history at the School of Advanced Airpower Studies, Maxwell Air Force Base, Alabama. COL Swain is the director of the Combat Studies Institute, Fort Leavenworth, Kansas. In this review, they provide entirely different focuses, and in some cases, differing opinions of *Soldiers and Scholars*, a book that looks at the diverging methods of study between military and civilian historians of military history, how the study of military history has developed and its current role in the military.—*Editor*

WINTON:

This is an important book. It deserves careful study and reflection by military historians and educators who wish to examine the issues of whether and how the study of the past can be used to help military professionals think through the tough issues of war in the present and the anticipated future. Dr. Carol Reardon's work is an extremely insightful, sophisticated, thoroughly researched and clearly written historical analysis. Its value transcends the limits of re-creating the past. Like any good history, by asking important questions and by not being content with easy answers, *Soldiers and Scholars* illuminates issues of signal importance to our own time.

Reardon argues a three-fold thesis: that during the period between the American Civil War and World War I, the US Army used military history as an important tool in military education, particularly at the intermediate and senior levels; that this use of history, while generally quite beneficial, was characterized by a lack of consensus within the Army concerning central issues of purpose and method; and that this division within the Army was also reflected in tensions between military historians in the Army and military historians in the civilian academic community.

The first section of the book deals with its central issue, the use of military history as a pedagogic device. Reardon documents with convincing detail the spirit that swept the Army in the post-American Civil War era. It was a spirit of ideas, a spirit of letters and a spirit of searching for an American concept of war that would be particularly appropriate to America's unique civil-military institutions, to its geography and to the ethos of its people. Most educators took it as almost axiomatic that the study of the past would somehow have to inform the study of the present. They were driven to this conclusion by the episodic nature of war, particularly in the American experience.

This was also a spirit that strove to identify the military service as a profession, that is, a serious group with its distinct set of values, standards and its *own body of knowledge* that required and was susceptible to systematic, disciplined study and observation. The last part of this group identity was the most significant, for its logic produced the requirement for a progressive education system whose purpose was to steep soldiers in the art and science of war.

The important question is "why and how should history be used as an adjunct to contemporary studies." After surveying a wide variety of answers to these questions, Reardon focuses her analysis on two very significant instructors at the Cavalry and Infantry School, Fort Leavenworth, Kansas (which later became the US Army Command and General Staff College)—Captain Eben Swift and Captain Arthur Conger.

Swift developed a detailed technique of instruction known as the "applicatory method." Swift's method was, first, to distill from his own historical analyses certain principles or guidelines that one might find of general worth. As he asserted later in his career, "the secrets of the art of war are to be found in the pages of history."[1] He then constructed a series of case studies that required the student to analyze reasons for success or failure based on application or misapplication of the principles under consideration. Swift also developed two very practical tools from his historical analyses: formats for a written estimate of the situation that

would allow a commander and his staff to decide what to do in a given situation and a standardized field order that would allow them to translate the decision into a clear, complete order.

Swift then combined the historical studies and the formats by giving the students situations that required detailed analysis of a wide variety of information, the making of a decision appropriate to that circumstance and the production of orders which implemented the decision. The tie to history was that the analysis, decision and orders were evaluated by the faculty for conformance with the principles that had been previously studied.

In the hands of an open-minded and sophisticated practitioner who is willing to accept and even to encourage the students to challenge the fundamental principles and who insists on inserting frequently contradictory information into the problem-solving process, Swift's method could be a very productive technique for dealing with the realities and ambiguities of high command. However, in the hands of an overzealous intellectual or one who has not reflected deeply on the true nature of war, Swift's method could degenerate into a formal rehash of common places and a plodding through trivia.

One of Reardon's signal contributions in this work is in illuminating Conger, the developer of a much different technique of using history to flex military minds. Conger brought to Fort Leavenworth the method of German historical analysis pioneered by Leopold Ranke. This method stressed the use of contemporaneous documents as the fundamental basis of historical study and the rigorous examination of the circumstances under which the documents were produced in order to determine their relative validity.

Conger's adaptation of Ranke's technique, which Reardon refers to as the "source method," was to assemble for his students as wide and deep a store of primary documents relating to historical battles and campaigns as possible and then require his students to reconstruct the action under investigation and determine what the critical cause-and-effect relations were. Based upon this analysis, the student could then determine which factors had been central to victory or defeat. Then, when sufficient examples had been studied over time, the officer could discover which generalizations about war were valid and which were not. Conger's method produced a small group of officers who were noted throughout the Army for their sophisticated and informed understanding of military questions and their ability to convey the same to others.

While the benefits of this method were considerable, so were its costs. It required an inspired and knowledgeable cadre of instructors, a significant commitment of faculty time to assemble the documents and make them available to students, a healthy amount of student time and energy and a willingness to impose very high standards of scholarship. Unfortunately, these conditions were hard to sustain. Conger's work was continued in his absence by the very able Captain Stuart Heintzelman, who was specifically trained for the work at the University of Nebraska, Lincoln. Conger returned for a second tour on the faculty; however, when he departed Fort Leavenworth for the last time, there was no one to take his place and historical instruction reverted to formalism.

Reardon's second section surveys the writing of military history by active Army officers for the purpose of supporting military education. The third section chronicles the sometimes acrimonious debates between the Army and civilian historians concerning the sources and interpretation of American military history. It raises many important issues concerning the problems that those in uniform have in writing and publishing serious works of military history and the causes and consequences of tension between military and civilian practitioners of military history.

As interesting as these issues are, the following observations focus on the contemporary value of Reardon's work as it applies to military historians engaged in professional military education. These issues include the importance of methodology and the role of military theory in the process; military history and the need to study the adaptability of military institutions; and the general concept of friction in military education:

It is clear from comparing Swift's applicatory method with Conger's source method that *how* military history is studied can produce decisive results. Laying aside the uses of military history to instill values or to foster group cohesion, the question is, " how can history be used to enhance the powers of critical reasoning that will foster the development of an informed military judgment?"

Swift's method proceeded from the *a priori* assumption that the principles he deduced were valid. Conger's method was primarily concerned with enhancing the student's ability to assess, amid a welter of frequently conflicting evidence, what actually happened and why it happened that way. Conger believed that there was transfer between this type of intellectual activity and the efforts of a commander or a staff officer in war to penetrate the Clausewitzian fog and to determine as accurately as possible the true situation as the basis for making an appropriate decision. This notion was based on

the proposition that war exists in the province of uncertainty and that one of the essential tasks of military education is to give the soldier the intellectual tools and, if possible, the moral fortitude to act effectively in the face of ambiguity.

Conger was not as concerned with the development of generalizations as was Swift. One detects in Reardon's study the notion that Conger would not rule out the development of valid generalizations to the extent that these propositions would aid effective decision making. To Conger, it was absolutely vital that the student either discover the proposition (the ideal case) or be encouraged to argue convincingly for or against any previously derived proposition based on analysis of the facts.

A variation on the Conger method, which explicitly incorporates the study of military theory, lies at the heart of the curricula developed at the School of Advanced Military Studies, Fort Leavenworth, Kansas, and prospectively in use at the School of Advanced Airpower Studies, Maxwell Air Force Base, Alabama. The student completes a year of education at the service's intermediate-level staff college, to include a survey of modern military history and a detailed study of contemporary operations in the context of applicable service doctrine. The advanced education begins the second year with a detailed study of modern military theory, providing the student an inventory of propositions regarding the conduct of war, with an emphasis on the operational level. These propositions are normally expressed as "if . . . then . . . " hypotheses. The student then uses the remainder of the course, which consists primarily of historical campaign analyses, contemporary exercises and independent research, to develop a broad and relatively deep data base from which to assess the validity of the propositional inventory.

The student is required to demonstrate the capacity to use evidence in an intelligent and sophisticated way to make one of three judgments about the generalization under consideration: It is valid. It is invalid. Or, it is valid under certain circumstances but not in others. Originality is encouraged by expecting the student to develop propositions and test them with the same rigor that the theoretical statements of others are tested. The ultimate aim of this process is to have the student leave the school with a comprehensive framework for thinking about the operational level of war, sufficient evidence to give confidence that the framework is relatively valid and a cast of mind that constantly questions and updates the framework based on the discovery of new evidence, be it historical or contemporary.

Another implication of this work is the clear need to study the adaptation of military institutions to changing conditions. Reardon gives a generally favorable assessment of the performance of the American Expeditionary Force (AEF) in World War I. She attributes a fair amount of this success to the Army's education system and specifically quotes Major James van Fleet's post-war testimonial, "Thank God for Leavenworth!"[2]

However, she also points out that military history did not deliver all that its adherents had promised since the AEF staff was slow to analyze the demands of warfare on the Western Front and to develop tactical and operational solutions to the problems caused by the increased lethality of the battlefield and insufficient tactical mobility. Although Reardon does not make the point, this deficiency is probably a function of the fact that the US military history of the era 1865 to 1914 focused almost exclusively on the issues of command decisions in war and the staff functions required to support these decisions. It did not deal with the wider questions that commanders and staffs must wrestle with in both peace and war that relate to the changing nature of war itself and the institutional responses that are required to keep abreast of the changes.

The clear implication for contemporary military education is that our study of military history cannot afford to omit the study of dealing with change. Our study of contemporary military affairs must ask what relevance failure or success in dealing with the changes of yesterday has for our successfully dealing with the changes of today and tomorrow.

Finally, Reardon's description of the perils of military education reveals the existence of a general friction in military education analogous to Clausewitz' concept of friction in war. Good programs are started. They are launched with great enthusiasm and even initial success. However, over time friction creeps in. Resources required to obtain documents or develop textbooks are withdrawn in favor of more pressing priorities; key instructors are transferred without qualified replacements being provided; administrative requirements mitigate against the selection of high-quality students and the programs become watered-down through lack of conviction or confusion of purpose. Each of these sources of friction is at work or potentially at work in the professional military education programs of today's Armed Services.

Overcoming these sources of friction or keeping them at bay where individual skirmishes have already been won will be no easy task. If Reardon is right, we must regard high-quality military education as the exception, not as the norm. The final

implication of Carol Reardon's *Soldiers and Scholars* is that, like liberty, the price of sound military education is constant vigilance and dedication.

SWAIN:

Published dissertations constitute a type, a genre, of historical monograph. The dissertation process in history is an academic exercise in original research, not a literary undertaking. Consequently, good dissertations are not always the best reading. Often written a chapter at a time in graduate seminars, these volumes tend to be well researched but narrow, sometimes lacking in smooth transition and to reflect a somewhat sophomoric self-assurance untrammeled by experience. Most graduate students have not yet learned that they do not know what they do not know.

Dr. Carol Reardon's book, *Soldiers and Scholars*, reflects many of these shortcomings. The seminar origin is evident in the redundant use of the same discussion. Indeed, the same quotation criticizing the creation of a historical section of the general staff is used, twice in direct quotation and once in paraphrase, in chapters addressing different issues. The main subject of the book—the clash of professional interests that arose (and still exists) between the academic historians of the American Historical Association and leaders and educators of the professional US Army—does not immediately commend itself to a wide audience.

As for the self-confidence, perhaps no example is so clear as her regret, twice stated, that the 1971 Department of the Army Ad Hoc Committee On the Army Need for the Study of Military History "did not look back, or even know to look back, to the tribulations of their predecessors . . ." Had Reardon looked carefully at the committee report, especially volume II, annex H, she might have been less condescending, for, of course, it had.

For all its limitations of style, Reardon's book raises a number of questions that the Army, at least those involved in officer education, would do well to consider. Her overarching arguments are that both the Army and the academic historical community developed into self-defined professions at about the same period, from around 1880 to World War I; that the study of history was perceived to be central to the professional identity of both, and that in spite of honest attempts by sincere persons on both sides, the interests of these two organizations clashed in ways that precluded the cooperation that one might otherwise assume they would achieve. Peter Novick's magisterial book, *That Noble Dream* (Cambridge, 1988), to which Reardon apparently did not have access, thoroughly documents the professionalization of the academic historical community. Reardon is interested primarily in the often ambivalent and contradictory attempts by the Army to use military history as a means of establishing its own professional identity.

Even with apparent similar interests, the American Historical Association and the historians within the Army could not find a common approach to the use or writing of history. Reardon sees the primary problem as one of method with the academic historians' growing interest in "scientific" rather than narrative, moralistic or didactic history. Indeed, she puts her finger on the principal difficulty, then and now, when she writes, "the Old Army embraced the study of military history on its own terms and for its own ends. That it did not always meet the scholarly standards of scientific history was by and large irrelevant to the Army's educators and to the officers who studied under them." Addressing the propriety or utility of this view should be central to a book like this. Unfortunately, the author comes no closer to addressing systematically the merits of this question than did the participants in the original struggle.

The book is organized in three major sections: one on the use of history in officer education, by far the best of the three; a second, addresses attempts by US Army officers to write didactic history; and the third examines attempts by uniformed and civilian historians to combine their efforts to encourage the creation of lasting institutions to further the writing of military history (specifically a national professional association dedicated to the study of military history, a historical section of the general staff and a national archive).

While the two concluding parts of this book are interesting, neither matches the transcendent value of chapters 3 and 4 that deal with the first systematic attempts at employing military history in the education of officers. Chapter 3 addresses actions in the schoolhouse and Chapter 4 recounts the pre-World War I employment of the historical staff ride to American Civil War battlefields, generally in conjunction with related and "contemporary" staff terrain exercises.

It is not surprising that Reardon, an academic by trade, should sympathize with those officers who attempted to bring academic history into the Army school system. She does not question the extent to which they may have been marginal figures in the larger Army, and she seems to miss the significance of her own findings that after World War I the very generation of officers who had been exposed to the "golden age" of history in Army schools abandoned it when the schools reopened. Indeed, she first ob-

serves that "the evolution of American army doctrine during the Great War showed little evidence of the measured influence of the experiences of past wars," and that, "Post war curricular reforms that reduced the time allotted to instruction in military history suggested that it had not redeemed many of the promises that its prewar advocates had made for it."

Then or now, for all its utility in developing institutional identity, academic history existed more by sufferance and dint of personality than conviction, and its affect on Army thought on practical issues seems to have been marginal, at best. Reardon tends to ignore this aspect of the problem because she focuses on the proponents and some opponents, while generally ignoring what one must assume was an unconvinced or ambivalent middle group whose lack of conviction was ultimately decisive. In their ability to define their contribution to professional education, Army uniformed and civilian historians today seem no more comfortable or in agreement than were their prewar predecessors.

Once out of her own era, in her concluding chapter, Reardon displays less certainty in her material. She attributes the destabilizing effect of increased military specialization to the post–World War I era when it clearly belongs more to the post–World War II Army than the small interwar force. Her sources on the decline of military professionalism in the Vietnam era are Richard Gabriel and "Cincinnatus," the latter who not only wrote under a pseudonym but also proved to be much less than his dust jacket claimed when his identity became known. Regrettably, Reardon does not attempt a final evaluation of the need for the professional study of history by Army officers, a matter on which one would expect some personal views in a book such as this.

Nonetheless, this is an important book for those interested in the place of history in Army education. Staff college commandants, Army historians and the Department of the Army Historical Advisory Council should read and reflect on the pre–World War I experience as laid out by Reardon. This book clearly marks the start of what is bound to be a very successful historical career. ***MR***

NOTES

1. Carol Reardon, *Soldiers and Scholars: The U.S. Army and the Uses of Military History, 1865–1920, "Swift's Report of the Assistant Commandant,"* (Lawrence, KS: The University Press of Kansas, 1990), 22–34
2. Ibid., 201.
3. Clausewitz, Carl von, *On War*, ed. and trans. by Michael Howard and Peter Paret, (Princeton, New Jersey: Princeton University Press, 1976), 119

MR INSIGHTS

The Need to Relook and Revise Military Education for the 1990s

By Lieutenant Colonel Joseph D. Molinari, US Army

Technology and 20th century sophistication have significantly changed every aspect of the military except one—our higher level education system. The M16 rifle and the multiple launch rocket system are many times more effective than their counterparts used in the American Civil War. Tactics and logistics support have kept up with the added lethality and increased pace of the modern battlefield. The variety and detailed knowledge we require of commanders and staffs at all levels is awesome. Our education system, however, has improved only a little in the past 100 years.

In the post–American Civil War days, the primary system of education was to assemble as few officers as possible around one instructor. The instructor, with manuals, chalk board and paper, was responsible for conveying doctrine to the students, as well as possible. The degree of learning of the students was directly proportional to their own desire and ability to learn and the ability of the instructor to artic ' te and supplement the manuals. That is exactly w... , we are doing today.

Today, we give students advance sheets with Terminal Learning Objectives, Essential Learning Objectives, flow charts and reading assignments. Instructors use slide projectors, view graphs, a few television tapes, and recently, computers. Although better written and clearer, our too numerous field manuals, training circulars, special text and training manuals are the foundation of our education system, read by soldiers from individual to US Army level. But, our military schools, particularly our higher–level schools, still depend almost exclusively

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on the ability of instructors to convey, interpret, urge and guide their students to learn what is between the pages. Even with the demonstrated benefits of a low student to instructor ratio, the focal point is still on the one instructor or staff leader.

Once, and even now in some schools, instructors were subject matter experts (SMEs). This requirement becomes increasingly harder if we carry the same 12 or 15 to 1 ratio for courses that last nine weeks to nine months. It is rarely possible for one instructor to be an SME on every topic the program of instruction covers. There is simply too much material. Slowly SMEs will give way to generalists who convey information to students that they themselves understand only slightly better than their charges, and in some cases, not as well. There is nothing wrong with the generalist instructor. Hopefully, the instructor will be an SME in at least part of what he or she teaches. Although assisted by a staff and faculty of maybe hundreds, the onus of instruction is still on the instructor. Hopefully, this person has a background for this important responsibility, a personality to match and the desire to instruct. Assuming all these hopes become facts, the instructor could still use help.

Higher-level education is a system based on facts, doctrine and organizations that requires the students to prove their understanding by a process of writing or the briefing of a solution. Multiple-choice and highly objective tests are also needed to prove an understanding of the format, facts, doctrine and hardware—the basics of military problem solving.

Once this basis is achieved, the student must analyze each component and place it within the context of the problem. This analysis weighs and factors in and out each of the numerous inputs. Any one input can change the solution. A scheme of attack that is viable with unlimited visibility might be foolish in heavy morning fog. A scheme of defense for a mechanized task force equipped with M2 infantry fighting vehicles might not be viable for another equipped with M113 personnel carriers. One solution might sacrifice surprise for mass, another mass for surprise, but both might achieve the same degree of mission accomplishment, if executed.

This is a superb system and hopefully will never change. It forces students to master the basics but also to then apply them to dynamic and complicated situations with thought, imagination and logic. School solutions are out. School examples are in. Since the solution is more subjective than objective, more process oriented but still based on fact and doctrine, the instructor has a harder time determining what is a "Go" and what is a "No Go." The onus is on the instructor to understand the basics and facts and determine if the process was followed, articulated and the solution viable.

In most cases, teaching doctrine and the *format* of a process is not too difficult. The component parts of decision making and estimates or orders are relatively simple. How they are written and what they encompass are the tests. Some processes are more difficult to test than others. Let me take one that is a culmination of many component processes and the real test for commanders at battalion level and higher. The components and the processes are the same at all levels, but due to the additional number of soldiers, vehicles, quantity of logistics and distances considered, become increasingly more complex as we go up the command ladder and consider synchronization on the battlefield.

Synchronization is as much an art as a science. It is a process and a product. It has many diverse components. The better the understanding of each component, the better the end product. To understand the components, one should probably begin with an understanding of subordinate organizations, their weapons systems, capabilities and limitations. A thorough understanding of the tenets of AirLand Battle and battlefield operating systems (BOS) are most certainly important. Subjects like these are very efficiently taught by video tapes and supplemented by the instructor.

Synchronization is synonymous with timing. Timing means an understanding of spacial relationships and the capabilities of component parts. These components fit together like instruments in an orchestra. Each instrument must play each note according to the music sheet in a rhythm that is pleasant to hear. The conductor must bring all the instruments together at the same time. If the conductor does, the synergistic product is extremely pleasant to hear. If not, the conductor has noise. The degree to which the commander needs to know all of this depends on the quality of his or her subordinate commanders and staff, and the commander's willingness and time to listen to and accept their opinions. Because it is partially an art, every commander will come up with a slightly different solution. This solution will be based on the commander's personality, past experiences, amount of time in command and how he or she has trained the staff. This process-to-result exercise can be taught, demonstrated and practiced with computer-assisted exercises.

By using doctrinal video tapes and computers, the instructor need not be a master of the art, but must understand the components and the science. Through video tapes, guest SMEs and discussions,

the foundation can be established. The commander must facilitate the exchange of experiences, ideas and information, initially concentrating on the components, not the end product. All the components should be understood before the students are put into the final computer-assisted culmination process.

Once the foundation is established, continuous repetition of the process and immediate feedback are needed. To be able to freeze and go back to a component, analyze it and change it, it is important to learn how the component contributed to or detracted from the desired result. Multilevel training, where several staffs and commanders operate separately but in coordination, would be most beneficial. Again, computers can do all this and keep records for future study.

In 1988, I bought a land warfare computer game that was almost identical to one my son bought in 1978. The software let me alter speed of movement, determine casualties, increase or decrease the speed of reconstitution and assess the different types of equipment each unit had to determine their combat power. The game reinforced an understanding of each component of the BOS and how proper synchronization of the systems affected the result. The cost was $39.95.

Computers are the sophisticated learning modes of today and the future. They are capable of diverse and multiple input, output, stop action and changes. They will never replace the instructor, but they can help the instructor facilitate learning. If their use is preceded by watching and discussing the branch/school proponent video tapes, they can be potent learning tools. Unfortunately, we do not have the quantity, quality or continuity of these basic doctrinal tapes, nor do we have the software which enables us to use our already existing unit and school computers.

Could we not computerize complicated processes to a point where they can be viable learning tools on the computer systems we currently have in military schools, units in the field and even at home, and maybe make learning fun and inexpensive at the same time? A computerized system could be a schoolhouse learning tool that could be used by staffs in their own conference rooms before going to the field. It could supplement map exercises and the software might be versatile enough to allow users to program their status of training, type of weapon systems, organization and other constraints. Must the school instructor alone bear the brunt of instruction on doctrine and processes and then solely have to evaluate the process also? Many of our current computer-assisted learning tools are so uniquely designed that they cost a million dollars a copy, are usable only in schools or from semitrailers and require a staff of technicians to operate.

There are existing personal computers that need only new software to become valuable learning tools. Go to the battalions that have assigned computers and look at the games our soldiers are buying and playing on them after duty hours. They are very close to teaching what we need to teach.

We need to look closer at what we are demanding of our instructors. We cannot demand more than they are capable of delivering. We cannot expect every instructor who stands before a group of students to be an SME. We can, however, give instructors better tools, like doctrinal video tapes and computers, to accomplish their job. With them, we simplify instruction, provide for continuity, reduce confusion and carry a portion of the schoolhouse to the units and maybe the home. ***MR***

Defense Strategy Correspondence Course

Beginning 19 June 1991, the US Army War College offers a six-month correspondence course, "The Defense Strategy Course." It offers US Army Active and Reserve Component officers an innovative course of study concentrating on fundamental and contemporary issues affecting US national security strategy. Three subcourses include: "Understanding Strate :" "Defining US National Strategy" and "Assessing US National Strategy." Fifty Active and 50 Reserve Component field grade officers can be accepted for each course. Officers enrolling must have credit for US Army Command and General Staff College/equivalent schooling and not be enrolled in a Military Education Level-1 program. Interested officers may contact: **Active Duty,** write your assignments officer at: US Total Army Personnel Command, ATTN:TAPC-OPB-D, 200 Stovall St., Alexandria, VA 22332-0411; **Army National Guard** (through command channels):ANG Operating Activity Center, Military Education Branch,Bldg. E6814, Edgewood Area, Aberdeen Prooving Grounds, MD 21010-5420; **Army Reserve** (through command channels): Commander, US Army Reserve Personnel Center, ATTN: DARP-OPM-P, 9700 Page Blvd., St. Louis, MO. 63132-5200; or, if not covered above: US Army War College, ATTN: AWCAE(DSC), Carlisle Barracks, PA 17013-5050, AUTOVON 242-3510 or (717) 245-3510.

MR SUMMARIES

The Shape of Things to Come

By Edward N. Luttwak

Commentary, June 1990

"For more than forty years, the affairs of the world have been greatly troubled but also structured by the Soviet–Western antagonism," writes Edward N. Luttwak in the June 1990 *Commentary*. "With the Soviet–Western antagonism now rapidly waning . . . we must strive to discern the shape of things to come." He says we "have to ask ourselves what are likely to be the new antagonisms that could shape world politics through the end of the millennium and beyond."

Luttwak offers four possibilities:

- "Soviet–Western antagonism . . . replaced by North–South confrontations."
- "Soviet–Western antagonism . . . replaced by the worse alternative of an 'internalization' of conflict, with newly released animosities fragmenting the grand coalition of Americans, East Asians, and Europeans, even as ethnic strife is already dividing the Soviet Union."
- "A revival, perhaps in a new form, of the Soviet–Western antagonism."
- "A new source of conflict emerging . . . from the triumph of democratic capitalism over Maxist–Lenninsim."

He says the front lines of hostility could simply rotate 90 degrees from Soviet–Western antagonism and become a North–South conflict because of "demographic tensions, cultural collisions, and economic resentments . . . " The North–South conflict being "between Latin America and the United States, between North Africa (together with the Middle East) and Western Europe, and now between Russians and Central Asians . . . " He points out that "because for all Europeans—Russians very much included—the adjacent South is largely Islamic, the 90-degree solution is that much more plausible, given the exasperated rejection of Western cultural penetrations by many Muslims, and the violent extremism of some."

Next he says, "The internalization of conflict [could] replace the one [Soviet–Western] confrontation with many by fragmenting the coalitions, blocs, formal alliances, and solidarities created by the cold war." He says, "The fractures in the Western coalition [United States, China, Japan, Europe] are becoming wider. With China already almost out, the coalition's weakest link is now between the United States and Japan."

Luttwak says, "U.S. attitudes . . . all go the same way: the Japanese are increasingly seen as ruthless and unfair economic competitors who export not to import in turn but rather to accumulate the funds with which they buy banks, companies, factories, and property in the United States . . . " His prognosis is that "U.S.–Japanese relations will probably continue to deteriorate." He says it is hardly likely that it will lead to military confrontation. "Instead, the instruments as well as the causes of conflict would be economic, with trade disputes fought out by trade sanctions and investment restrictions."

As for his third possibility listed above, Luttwak says, "Even if the Soviet Union's democratization is interrupted and then reversed by a palace coup or by a newly tyrannical Gorbachev or by military rule, that would not suffice by itself to allow a return of the Soviet–Western antagonism." He says that while the Soviet's have actually dismantled very little of their great strength in ground forces, "the liberation of Eastern Europe, including the critical invasion corridors of Poland and East Germany, is a historic transformation that a change of regime in Moscow could not possibly reverse without unimaginable consequences." Luttwak predicts that the withdrawal of virtually all Soviet forces from Europe will soon happen. "Hence a return to a Soviet–Western antagonism in the old style would require the recreation of Soviet military power in a radically new style."

And in conclusion, Luttwak discusses the possibility that a new ideology will challenge democratic capitalism. He contends that, "One may identify a competing ideology in the localist and environmentalist amalgam that might best be called 'communitarianism' . . . " He defines this ideology as one that "does not deny the superior efficiency of capitalist market dynamics, but . . . rejects that efficiency on the grounds that it damages human relations and harms nature through the very growth it so successfully promotes."

Luttwak states that the ideology's strength "is already powerfully felt in the anti–growth policies of

a great and growing number of local governments throughout the industrialized world." As an example he says, "If energy supply is the issue . . . first nuclear power is rejected on the grounds that a reactor accident would leave a wasteland of destroyed nature (and also harm humans); then . . . hydroelectric generation is opposed because it would disrupt the ecology of a river; then . . . burning fossil fuels is refused because of the pollution it would cause; and finally the burning of non-polluting natural gas is resisted because it would cause 'heat pollution.' " Basically, it appears communitarianism prohibits growth.

"Because of its very nature, however, communitarianism is hardly likely to be instrumentalized by a great power . . . But if it continues to spread as it has, and intensify as it also has, communitarianism may not need the support of a great power . . . " Luttwak concludes this in-depth essay saying, "Indeed, more than the South, more than the 'internalized' hostilities . . . and more than the revival of Russian imperialism, communitarianism bids fair to replace the failed prophecy of Marx, the failed politics of Lenin, and the failed economic dogma of Stalin as the newest major threat to the free institutions of the West."—DGR

MR LETTERS

Air Force Developing Operational Doctrine

Colonel L. D. Holder's article, "Educating and Training for Theater Warfare," (*Military Review*, September 1990) contained a statement on the Armed Services' doctrinal treatment of the operational level of war that needs some amplification. Holder states that only the US Army has doctrinally committed itself to the operational level of war. Not true. The US Air Force's basic doctrine is currently undergoing revision to include (among other things) the operational level of war in our discussion of the nature of war. The Air Force is also developing an entire series of doctrinal manuals dealing with the operational level of war.

It is an interesting coincidence that Air Force Colonel John A. Warden's book, *The Air Campaign: Planning for Combat*, is reviewed in this issue, for its focus is on air warfare at the operational/theater level. Even though the term "operational level of war" is relatively new—for all the services—the Air Force has always maintained that great combat contributions accrue when air power is used at the theater/operational level instead of tactically. Because of its unique blend of speed, range, firepower and flexibility, air power is by its very nature a theater-level asset.

A good example of this can be found in the operations of General George Kenney's Fifth Air Force in the Southwest Pacific during World War II. Kenney, functioning as General Douglas MacArthur's air component commander (an early version of a joint force air component commander) conducted a theater/operational-level air campaign that included counterair, interdiction, airlift, maritime control, reconnaissance and of course, close air support operations that facilitated the accomplishment of theater/operational-level objectives. The Air Force has always been doctrinally committed to the operational level of war—it just has not called it that, until now.

LTC Daniel T. Kuehl, *USAF, Doctrine Development Division, Headquarters, US Air Force, Washington, DC*

No Obligation to Surrender

This letter is in response to the article, "The Ethical Dilemma of Surrender," by Major Matthew S. Klimow in *Military Review*, October 1990.

The article is an excellent approach to a difficult subject and is extremely well written and thought-provoking. However, Klimow's logic in approaching the question of whether the order to surrender was or was not lawful appears flawed.

Klimow correctly asserts that several factors can make an order unlawful, including the order to commit a crime, an order clearly beyond the authority of the person giving it and an order that violates the Constitution, such as an order to cast a vote for a certain candidate. Klimow, however, discusses the legality of the order to surrender only in the narrow terms of whether it is or is not a crime to surrender.

Major General William F. Sharp had knowledge of the following facts at the time that he made his decision: that he had officially been detached from Lieutenant General Jonathan M. Wainwright's command in view of the deteriorating situation on

Corregidor. General Douglas MacArthur had given Sharp broad decision-making powers in his radiogram of 9 May 1942. We can presume that Sharp knew that Lieutenant General Masaharu Homma had threatened to execute some or all of Wainwright's troops if all US forces failed to surrender.

In a legal and in a moral sense, Sharp was under no obligation to obey Wainwright's order to surrender. An order that appears to be against the interests of your force and the national aims of your country should be presumed to be unlawful if the enemy's pistol is pressed to the back of your superior's skull.

By the same token, an enemy who holds hostages to coerce the surrender of other forces in the field cannot condemn as immoral those commanders who decline to submit to capitulation and may make no claims upon their military honor, having behaved dishonorably himself.

I cannot say for certain what my personal reaction would be, that I would have the moral courage to defy such an order, and I do not know if I could defy an order from an old friend, believing that my defiance would result in his execution. I can only pray that 19 years of service to my country have instilled those values into me so deeply that the worst storm of adversity cannot uproot them and that I would make the right decision for my country and for the soldiers who trust me with their lives.

This letter should not be construed to in any way criticize the decision to obey the surrender order. Hindsight is always 20–20. The forces in the Philippines had already held out longer than any other forces standing against the Japanese juggernaut, and their prolonged resistance made possible the ultimate victory in 1945. We do, however, have a duty to study and learn from past battles.

The use of the Philippines in Klimow's study is interesting in that the choices facing the commanders were either surrender or conduct a low-intensity guerrilla campaign that, at best, could merely harass the enemy and tie up his forces. During the same tragic time period, a US Marine detachment on Wake Island was under siege. The Marines had defeated one invasion, and a second Japanese landing had nearly swept the island.

On the verge of defeat, a Marine lieutenant rallied the defenders and ordered a counterattack with dwindling ammunition and bayonets. His counterattack had very nearly pushed the Japanese back into the sea when his commander ordered him to surrender. The major commanding the defense had been captured in his command post, and that area had not yet been cleared of Japanese. The Japanese had not kept the US commander fully informed of the tactical situation on the rest of the island.

When the Marine and Japanese commanders approached US forces together, under a flag of truce, the Marines cheered thinking that the Japanese were surrendering to them. The lieutenant dutifully surrendered, and victory was turned into defeat.

CPT John R. Kachemeister, *USAR,*
300th Military Police Command, Inksker, Michigan

Who Gives, Who Gets Air Power

The September 1990 *Military Review* contains some excellent expositions on operational art. I was particularly interested in the enlightening remarks by General (retired) Charles L. Donnelly, US Air Force, in his article, "An Air Commander's View of Operational Art," and General Crosbie E. Saint, US Army, in his article, "A CINC's View of Operational Art. Their comments reflect the respective points of view of Donnelly as past commander of US Air Forces in Europe (USAFE) and concurrently, the NATO commander, Allied Air Forces Central Europe (AAFCE), and Saint as commander, US Army, Europe (USAREUR) and concurrently, the NATO commander, Central Army Group (CENTAG). Unfortunately, the articles indicate a divergence of opinion regarding the integration of air resources in support of ground operations.

Donnelly accurately describes the basic structure of AAFCE, noting that it is the air component subordinate to the commander, Allied Forces Central Europe (CINCENT), with CENTAG and Northern Army Group (NORTHAG) as CINCENT's ground force resources. Several of Donnelly's remarks support the doctrinal procedures of a joint/combined commander's "apportionment decision" through which a percentage of the air resources are earmarked to support ground operations. He further notes that that "COMAAFCE must be ever mindful that air power is a support element and that air units must be in the right place at the right time."

Accordingly, I was disturbed with Saint's remarks on the same issues. Initially, he suggests a situation where the "NATO regional commander, who makes joint decisions, decides to go to a maximum defensive air posture." Saint then asks, "Does he understand what he just did to the army group?" I would certainly hope that we in NATO are hiring senior commanders who realistically consider the relative risks as they allocate resources in the accomplishment of their respective missions.

Saint then decries the removal of air resources from national control in the NATO environment,

stating that with AAFCE "perhaps we have them at such a high level that they have lost their integrated role as a flexible element of combat power." He then notes that air resources are provided on a daily basis when army group commanders work on a 72- to 96-hour planning cycle. Because of this, he states that "ground commanders have fallen into planning schemes of maneuver without these (air) assets."

Saint's statement that "the regional air commander should determine which army group needs air support three days out, and thereby fit into the ground planning cycle," strongly implies that air resources are provided to ground commanders on the whim of the air commander rather than by direction of the joint/combined commander. It is an implication which, unfortunately, supports a belief that has long been popular among many army professionals.

With these comments, Saint reflects the attitude cherished by many of my contemporaries of the 1960s and 1970s: "Don't bother planning for air resources since we'll never get them anyhow." It was a self-fulfilling prophecy that certainly simplified planning but was hardly professional. One reason my contemporaries eschewed the use of air resources was because the allocation of air resources on a daily basis was inadequately responsive—an interesting contrast to Saint's comments.

Both Donnelly and Saint describe their own views of "the operational art." Those views contain many important lessons for the military professional, but I find their divergence regarding air power supporting ground operations disturbing. Based on articles in recent professional literature, I have perceived indications that army professionals have become comfortable with integrating air resources into ground operations. Is this an incorrect perception? Perhaps *Military Review* might solicit comments in this area from the viewpoint of a joint commander, such as General H. Norman Schwarzkopf.

COL Griffin N. Dodge, *USA, Retired,*
Santa Fe, New Mexico

General Saint Responds

If Colonel Griffin N. Dodge, US Army, Retired, noted some disconnects concerning my article in the September 1990 issue of *Military Review* between how the ground and air component commanders in Europe view the integration of airpower, then he understood the intent of my comments. A few clarifications and one correction are in order.

The problem of air apportionment stems not from a notion that the air commander is doling out resources on his own whim, but rather that the joint commander's apportionment decision is made without the benefit of a ground commander's timely input to balance the recommendation of the air commander who is collocated at the joint commander's headquarters. Thus, when the air component commander recommends a posture of maximum defensive air—probably for a perfectly sound US Air Force-related reason—there is not a ground commander at the meeting to point out that acceptance of that apportionment recommendation will result in no air interdiction aircraft to delay or disrupt follow-on forces that threaten a major breakthrough at the forward line of our own troops. The joint commander should have the benefit of both points of view before he makes the final call on matters that will affect the battle in the near and almost-near time period.

As to the timeliness of the air apportionment decision cycle, we have moved ahead a bit in our understanding of the operational art since the myopic comments that Dodge attributes to his contemporaries of the 1960s and 1970s. We know today that at the operational level we must plan far enough ahead that we can sequence battles and major operations in the joint campaign and move resources to support the sequence of what comes next and then after that.

Dodge properly points out some fuzzy wording when I spoke of the regional air commander determining which US Army group needs air support. Of course, he does not do that on his own. Two sentences later than the one cited by Dodge, I noted, "To do that, the joint and combined leaders have to decide which army group will get what air three to four days out." My point was that the ground force staffs, thinking operationally, begin thinking and planning early for what must happen to succeed—in not just tomorrow's battle but the next two days as well. We need early air involvement in that process.

In that regard, it is not very useful for the ground commander to learn very late in the evening that the airpower he was counting on for the next day is not contained in the air tasking order, published some four hours before the flying day begins. We know that the joint commander makes the apportionment decision, but the regional air commander who allocates should be able to forecast his assets for various future missions, just as ground commanders do. If ground commanders had a timely and reasonable estimate of what they could expect, the effort put into serious planning for the use of air would no doubt improve. As it is now, ground commanders all too often plan first for those fire support assets they can count upon; air sorties that are made available at the last minute often are

sprinkled on as a bonus effect, not properly synchronized with ground fires.

Since General Charles L. Donnelly Jr. and I did not coordinate the contents of our respective articles, the differences of viewpoint are not surprising. Dodge has provided a valuable service to your readers by highlighting that we still have some disconnects in air–ground planning. With both the Army and the Air Force getting smaller, we simply have to work better together to produce decisive results with limited resources. It is not a question of doing bad through the current mutual cooperation arrangement. It is a question of how to do better so we may give more enemy more variety as to how he dies and that the right enemy gives his life for his country at the right time.

GEN Crosbie E. Saint, *USA, Commander in Chief, United States Army, Europe, and Seventh Army, Heidelberg, Federal Republic of Germany*

ROTC's Purpose— Create Leaders, Not Skills

I have no doubt there is going to be a storm of response to Captain Stephen C. Danckert's comments in the November 1990 *Insights*, "Reinventing US Army ROTC: A Proposal for Reform," in *Military Review*. Please allow me to toss in my two bits' worth.

I do not know if Danckert has any recent *personal* knowledge or experience with Reserve Officers' Training Corps (ROTC) as it presently exists, but what he describes bears absolutely no correspondence whatsoever to what I experienced as an assistant professor of military science (APMS). There were a number of factual inaccuracies and what appeared to be a total misunderstanding of the purpose of ROTC.

Contrary to what Danckert stated, it *is* possible to minor in military science (MS), at least where I taught. It was not possible to major in military science.

There *are* university level textbooks in use, contrary to what Danckert stated. Cadet command requires the use of many more textbooks than just field manuals. Among those that leap immediately to memory are Stephen Crane's *The Red Badge of Courage*, Michael Shaara's *The Killer Angels* and Allan R. Millett and Peter Maslowski's *For the Common Defense*. The latter two are required texts at a number of military educational institutions, including the US Marine Corps Command and Staff College and the US Marine Corps School of Advanced Warfighting, Quantico, Virginia, and I presume they are also in use at Fort Leavenworth, Kansas. The list of required and recommended reading for an ROTC student is not short. Is it a quality list? The history department where I was often borrowed our textbooks for its own courses.

The grades earned in MS classes *are* figured into the students' grade point averages. As far as academic standards not being rigorous, the end of the semester critiques I received in no way indicated anyone thought the classes lacked rigor. Most considered the courses more demanding than many of those within their major disciplines. It might be instructive to contact recent former ROTC students now on active duty and get their responses to this charge.

I fail to understand the complaint that ROTC instructors "must fund their own education." The US Army has a number of educational programs whereby one may pursue degrees. That, however, is not the purpose of an ROTC instructor.

The purpose of an ROTC instructor is to *teach*, not to pursue one's own educational goals. One is there solely and strictly to perform a duty—the preparation of qualified cadets for commissioning and, if they are selected, entry upon active duty. Any education pursued on one's own is personal business, subject to the guidance of the battalion commander. The battalion commander where I taught placed only two restrictions on instructors taking classes: No courses could be taken during the first semester of assignment (to ensure one could learn and handle all the required duties), and of course, any courses taken should not interfere with one's assigned duties.

While it is true that most detachments do not maintain their own equipment, it is *not* true that there is a lack of equipment. There is probably no university or college in the United States that is not near a National Guard or Reserve unit. Part of an APMS' job is to establish and maintain relations with all nearby Active, Guard and Reserve units. As the US Army Reserve/Active Guard Reserve (USAR/AGR) member of the faculty responsible for the battalion's Reserve Simultaneous Membership Program records, I was in close contact with the local units. The Army National Guard/AGR faculty member did the same. We never lacked for any equipment, from 15-man rubber boats to M60 machine guns, to M16s (with or without .22 caliber adapters, as we chose), to PRC77s, to ceremonial swords (borrowed from a Marine reserve unit).

I disagree that "Cadets rarely master more than a few specific military skills before entering active duty." The purpose of ROTC is *not* to teach cadets

military skills. The purpose of ROTC is to assess military leadership potential. This cannot be stressed enough. ROTC introduces cadets to the military, places them in group situations and attempts to assess military leadership potential. Small unit infantry skills are the medium chosen to make that assessment. If one fails to understand this, one fails to understand ROTC.

When a cadet graduated from our school, however, he or she could break down and assemble M16s, M60s, .45s and 9mm weapons, could write five-paragraph field orders, could lead squads and platoons in tactical field exercises, could assemble and place in working order TA 312s, PRC77s and other communications equipment and use proper procedure while on them, could perform simple first aid and could navigate well using map and compass, as well as perform a host of other tasks.

Advanced camp is not a case study of "superficial learning." It is not supposed to be a place where the cadets learn. It is a place where they continue to be assessed. They are supposed to know most of what they need when they get there. The cadets are under considerable pressure to do well; they know their hope of getting active duty or the branch of their choice depends in very large measure on how well they perform at advanced camp.

The cadets do indeed get branch orientation before they return to campus, and it *could* be considered "public relations." Is it not fair to let the students know something about what their options are?

School integrity is not maintained at advanced camp, nor should it be. The cadet has spent the last several years working with the folks in his or her little group. The cadet knows the group and the group knows the cadet. At advanced camp, the cadet is purposely tossed into a group of strangers to see how well he or she adapts, what the leadership potential is with strangers and where he or she will end in the hierarchy.

This has the advantage of averaging the talents of the cadets throughout the camp. If one school's cadets are not as strong as they ought to be, it quickly becomes apparent. Poor leaders are not able to hide "in the pack" of a poor school and a good leader is not held back but has a chance to show his or her stuff. An assessment will reflect where the cadet is in relation to the average of the camp, not the cadet's school. It is also not true that instructors are denied the opportunity to train their cadets—that is what they have been doing for the previous nine months.

Danckert complains that "ROTC cadets are not required to complete any form of community service." I thought military service *was* community service.

In the "real world," cadets are *not* majoring in ROTC, much as some might prefer. They are majoring in engineering, English, architecture, nursing or any one of many disciplines. Even if they are on ROTC scholarships, their first priority is and must be to their own majors.

Were the plethora of additional courses Danckert suggests required, students would be forced to remain an extra year. That will not happen. The reality is that universities or colleges and departments already have their own core requirements that must be met, and most include some sort of humanities requirement regardless of the major.

I have spent a fair amount of space defending ROTC. This does not mean that I think all is perfect in "ROTC land." I have serious problems with aspects of the cadet-evaluation system. I think there is too much micromanagement, dictating what and how the battalions must teach, by, it seems, everybody in the world. The list of what must be taught is extensive. There are too many required subjects that need not be taught until after the cadet is commissioned (Soviet forces, which Danckert mentioned, comes to mind).

The organization and use of the cadre at advanced and basic camps seems inefficient and is very wearing. Cadre come back from camp exhausted, have only a couple of weeks before the beginning of the next school year and dive back in. Very few cadre use accrued leave and this contributes to the high burnout rate (yet another reason why PMSs or APMSs should not be assigned for more than three or four years). There is far too much emphasis on the recruiting and meeting of mere number goals. It is far better to have quality people, even if only a few, than masses that must be winnowed later.

ROTC has a lot that can and should be done to improve. From everything I see, ROTC is in far better shape than it was a few years ago.

MAJ Charles F. Coffin, *USAR/AGR, Triangle, Virginia*

Cadet Command Improving ROTC

I am appalled that *Military Review* would allow an unresearched article to appear in its otherwise scholarly magazine. "Reinventing US Army ROTC: A Proposal for Reform," by Captain Stephen C. Danckert ("Insights," November 1990) was flawed both in fact and perception. I take exception to several major premises of Danckert's article. Danckert failed to consider areas of improvement and academic excellence since the inception of Cadet Command.

For example, US Army Reserve Officers' Training Corps (ROTC) units receive funding through

each region for the purchase of texts. Many units also have a university or college budget which allows the purchase of books through the campus bookstores or outside sources. Currently, our program uses three books: *Killer Angels* by Michael Shaara, *Pork Chop Hill* by S. L. Marshall and *Fields of Fire* by James Webb Jr. Yes, we use US Army Field Manual 22—100, *Military Leadership* as a reference text, but it is used with course outlines and the program of instruction established by Cadet Command. Currently, there are 20 books of the same genre that can be selected by the professor of military science (PMS) at each unit.

Danckert's comment about "freebie" educational benefits is nice; however, until last month over 500 Active Guard Reserve (AGR) officers could not use those benefits. (AGR assistant PMS positions will be cut at the end of this fiscal year, making it a moot point.) ROTC instructors (Active component) can apply for the Army Continuing Education System (ACES) program or other federally funded educational programs for their graduate degree. Many cadre use the Veterans Education Assistance Program or the older Vietnam era GI Bill benefits for their education. Some schools even allow ROTC cadre to take undergraduate and graduate courses free.

Another flaw in Danckert's article is the use or role of centralized military testing. Both the basic and advanced camps use military skills testing as part of their curricula. Failure to pass some basic military skills (land navigation, for example) can cause a cadet to be dropped from ROTC. All lab and classroom "hands on" training is based on common task training. There are more than 90 tasks in which a cadet has to show proficiency prior to commissioning. If a battalion has a poor training program, it will be reflected in its overall advanced camp score. A "training management indicator" (red, amber or green) will be given if a percentage of cadets fail military skills training at advanced camp.

I suggest that Danckert review the composition of the cadet corps. Based on March 1989 Second ROTC Region data, over 55 percent of advanced camp cadets are in the Simultaneous Membership Program at local National Guard and Reserve units. Over 20 percent of Second ROTC Region cadets have completed basic training and advanced individual training before contracting in their junior year.

If this is insufficient training in military skills, there is the US Army Ranger Challenge competition within each region. Each ROTC battalion fields a team of nine cadets to participate in Ranger Challenge. Over the course of one weekend, these teams compete in a series of events ranging from an Army Physical Fitness Test to marksmanship, a 10-kilometer road march, land navigation and several hands on tests, including assembly and disassembly of weapons.

There is also the requirement to conduct a minimum of two field training exercises per school year. Cadets routinely schedule, plan and coordinate these exercises. If the advanced camp program is eliminated, as recommended by Danckert, the Leadership Assessment Program (LAP) (which is key to a cadet's future performance and selection for a commission) is eliminated. If advanced camp scores are eliminated, which include the LAP, peer evaluations and military skills, you eliminate one of the "whole person" values from the accessions' board. In this time of down-sizing, an effective order-of-merit list is crucial to ensure only the best are commissioned.

CPT Andrew D. Runde, *Assistant Professor of Military Science, University of Wisconsin, Milwaukee*

The "Insights" feature of Military Review is a forum for the free discussion and presentation of an opinion on a particular military issue and does not have the same criteria as a scholarly article. Since its inception, "Insights" has stimulated many letters of debate, such as the two above, which we welcome and are happy to present.—Editor.

Points on Moltke Refined

I must comment on Colonel Michael D. Krause's article, "Moltke and the Origins of Operational Art" (*Military Review*, September 1990). It is true that Field Marshal Helmuth von Moltke's theory and practice played a role in the development of what the Soviet and US armies call "operational art." Unfortunately, the article contains numerous factual errors.

Krause's discussion of the 1866 operations concludes that the Prussians "went on to occupy Vienna to ensure the peace terms that ended the war." Actually, no Prussian soldier set foot in Vienna, Austria. Indeed, it was one of Otto von Bismarck's main objectives to terminate the war before that could happen. Neither the armistice nor the peace treaty called for an occupation of Vienna.

In discussing Moltke's years of preparation for his later position, Krause says that in 1855 Moltke became first adjutant to Prince Frederick William. This is true, but there were two Frederick Williams. Moltke was adjutant not to the one who became regent in 1856 but to the one who became king in

1888. Thus, Moltke was adjutant not to William I (who was regent) but to his son. Moltke was appointed chief of the General Staff by the Frederick William who became William I.

Krause writes of Moltke's "positive relationship with the king, chancellor and war minister [Albrecht von Roon]." This is absolutely false as far as the latter two are concerned. Entire books have been written about the lengthy hostilities between Bismarck and Moltke. Their impassioned disagreements became public knowledge and poisoned relations between the General Staff and the Foreign Ministry for the entire life of the Second Empire. As for Roon, Moltke tried to have the king force him to return to Berlin, to supervise paperwork so that he would not interfere with operations. The article thus presents a picture of political and military relationships that is diametrically opposite of the truth and distorts an understanding of the Prussian army's role in the development of operational art. Scholars have carefully documented the lengthy and extremely damaging disagreement between Moltke and Bismarck.

Krause says that in Moltke's days the German General Staff officers were not regarded as the "demigods" as "they were depicted in later periods of German history." The fact is, the term demigod originated in precisely these years as a term to describe the insufferable arrogance of those junior General Staff officers who tried to prevent civilian authorities from influencing military decisions and who treated everyone else with contempt.

When linking Moltke with Carl von Clausewitz, Krause implies that the reader should be surprised by the fact that Clausewitz was not one of Moltke's three most influential professors. As numerous discussions of Clausewitz have pointed out, he never taught and had virtually no contact with students at the General War School (which Krause incorrectly names *Kriegsakademie*). His argument that Moltke's final evaluation reflected Clausewitz's judgment of his abilities is without foundation. Eberhard Kessel, whose definitive biography Krause cites, concluded that the two probably never met and had no contact of any kind.

In Krause's interpretation of Moltke's writings, the reader encounters the opinion that Moltke's views on the relationships between war and politics were approximately those of Clausewitz. In actuality, Moltke completely rejected Clausewitz's idea that policy must take precedence over strategy. That, indeed, was at the root of his bitter feud with Bismarck.

The theory of "operational direction," as presented, is unfounded. Moltke had to use general instructions (directives) because of the poor communications between his widely separated forces. He made a virtue of this necessity by allowing army commanders freedom to make their own decisions. Sometimes this worked and sometimes it did not. Moltke was equally prepared to use very specific orders when necessary. He never raised this process to some kind of theory of command. It does not figure largly in his *Instructions for Large Unit Commanders*.

Moltke did not develop a concept of the three levels of war. Prussian–German theory did not recognize levels of war. It viewed war quite without reference to any horizontal layering and never interposed operations between strategy and tactics. Moltke's use of the term "operativ" does not mean that he had a concept of an operational level of war.

Contrary to the article's account of the 1866 campaign in Bohemia, Moltke consistently suffered from very poor intelligence during the campaign. He was unable to locate General Ludwig von Benedek's main force until the last moment, 2 July. Krause's brief account of the battle of Königgrätz is equally without foundation. Modern scholarship has revealed that the plan was developed by a subordinate General Staff officer (not even in the main headquarters), was coordinated with the king while Moltke slept and was presented to the chief of the General Staff as *fait accompli*.

Krause devotes considerable space to Moltke's "Essay on Strategy" of 1871. Scholars have questioned the accuracy of that essay and of the General Staff's versions of Moltke's writings, in general. The General Staff may well have altered these texts when it published them after Moltke's death. At least one version of Moltke's statements on policy and strategy contains alterations made later by the General Staff for political reasons.

There are many solid pieces of information in this well-conceived essay. Unfortunately, its errors overwhelm its strong points. Those who wish to understand Moltke or the role of German theory in the development of modern operational art will have to look elsewhere for reliable information.

Daniel J. Hughes, *US Army Combined Arms Center History Office, Fort Leavenworth, Kansas*

. . . And Further Refined

The thoughtful review by Daniel J. Hughes of my article on "Moltke and the Origins of Operational Art" published in the *Military Review*, September 1990, is appreciated. Naturally, it must be understood that I reduced a rather lengthy article to a much smaller version and inherently some

points of fact were inadvertently left out.

Hughes is wise to remind our professional readers that no Prussian soldiers set foot in Vienna, Austria, as a result of the 1866 conflict. Field Marshal Helmuth von Moltke planned for the continuance of the campaign, but war termination occurred.

I usually make the flippant remark that when you speak of Prussian kings you can usually call them Frederick or William or both and reverse them and you would still be in the "ball park." I confused the reader with Moltke's aide status. He was, of course, adjutant to the son of William I, later the brief ruler of the German Empire in 1888. The fact that the crown prince was a field commander in both the 1866 and 1870 campaigns naturally helped in the relationships.

From an operational perspective, I judged Moltke's dealings with his superior to be a positive one. I did not go into the knockdown battle Moltke had with Bismarck over the start time of the bombardment of Paris, France, during the siege because of space. Even though Moltke lost this fight when the king decided on the primacy of policy over the conduct of operations, I believe Moltke learned valuable lessons from this encounter. During the remaining 18 years of his long tenure, he did not cross this policy line. I further did not go into the detailed relationship between Moltke and his nominal superior, War Minister Albrecht von Roon, because in the long haul of their respective tenures they worked well together. Having the national command authority handy in a field headquarters may also have its drawbacks!

On demigods, Hughes is wise to point out the Prussian General Staff officers' arrogance. I would offer the thought here of making some distinctions from before, during and after the wars of German unification. Moltke held developmental responsibility during his prewar years for these staff officers' training and education. From their talented application during the campaigns, I would have to give them high marks, later arrogance notwithstanding. Moltke continued peacetime mentoring of General Staff officers. They were taught to think—not what to think. They were also taught a method of thinking through a problem. In my analysis, it is the later expansion of the *Kriegsakademie* (it is correct to initially call it the General War School) that begins the decline of General Staff officer quality. Hughes is also undoubtedly correct about General Staff interference in civilian matters, but that is another paper on German militarism!

Senior service school deans can only lament Hughes' statement about Carl von Clausewitz having no influence on students, since, like Clausewitz, they do not teach. Moltke was rated by the dean of students—Clausewitz. The student body was very small—about 40. I agree that it is most difficult to trace influences from Clausewitz to others. Having sifted through all of Moltke's published writings, my analysis indicates Moltke's appreciation for, and separation of, policy decisions. In a word, Moltke differentiated between components of strategy (including political and military objectives) and used the military objective in the conduct of campaigns. Call this "intuitive Clausewitz!"

The main point of my article is Moltke's concept of operational direction. Making a virtue of necessity in warfare is an essential art. Simple, declarative orders, communicated through the new technology of the telegraph, supplemented by mounted staff officers who understood what we now call commander's intent is the essence of Moltke's style. His ability to know in time and space when to use "loose rein" or "tight rein" was expert. Although not a theory of command, it was a simple effective process.

I would refine it and call it insight. The fact that it does not figure as the featured part of Moltke's *Instructions for Large Unit Commanders* should be seen in the light of this document being more of a "lessons learned" manual. Training and practice along with written doctrine make for an effective process. Herein lies Moltke's contribution.

In searching for roots and origins there will be a rare source indeed that delineates our modern acceptance of three levels of war. Moltke held perspectives that, through the concept of operational direction and simultaneous application of armies on a military objective, contributed to the attainment of the strategic aim. These perspectives, I think, may point us toward the answer of the origins of operational art.

Hughes asserts that Moltke did not develop a concept of three levels of war. I agree. He did, however, hold to the evolvement of different perspectives that he applied to strategy, the conduct of operations in campaigns and tactics. His works and application reflect that.

The battle of Königgrätz was the culmination of a campaign. In my brief account of that battle, I did not go into the detail of Moltke's confident approval of a concept of operations that, if it had failed, would have been on his blame delegation line.

Moltke wrote little on strategy. His writings reflect this. I have used his collected writings and they show the different segments of later editions. In doing my analysis and interpretation I would rather go to the sources. I am fortunate enough to own all of Moltke's published military and personal

writings, and thereby, am aware of the pitfalls of changed editions.

Hughes' conclusion of my review is a bit puzzling. Where may military professionals find the origins of our newly rediscovered concept of operational art if not through this type of interpretive and analytical history? As a soldier, military historian and teacher, I believe we learn more from history through not only its truthful telling but also professional analysis and interpretation. Hopefully, this process will allow our fellow readers and officers to appreciate the value of our past to gain insight into the future.

COL Michael D. Krause, *USA, US Army Center of Military History, Washington, DC*

MR BOOK REVIEWS

DIVORCING THE DICTATOR: America's Bungled Affair with Noriega by Frederick Kempe. 469 pages. G. P. Putnam's Sons, New York. 1990. $24.95.

In *Divorcing the Dictator, The Wall Street Journal* reporter Frederick Kempe provides a fast-paced, insightful and well-written account of the life of Manuel Noriega and his ill-fated relationship with the United States. With a deft hand, Kempe traces Noriega's lonely childhood, his hatred for the privileged classes and the resentments and insecurities that twisted his personality from an early age. The author explains how Noriega found his niche in the military, how US intelligence recruited him while he was attending a military academy in Peru and how his rise to power during and after the Omar Torrijos era served US interests, even while the emerging dictator revealed his penchant for violence, intrigue and walking more than one side of the street as he provided intelligence to a variety of competing foreign countries.

If the Ronald Reagan administration did not eagerly embrace Noriega, it was willing to tolerate him, even after revelations of his involvement with drug kingpins, in electoral fraud and in the murder of a vocal opponent increasingly made him an embarrassment to the United States. On the grounds of national interest, US intelligence and military agencies argued against any open break with Noriega, but two federal attorneys in Florida forced the government's hand by issuing indictments against the dictator. There followed a bloody bureaucratic war between the State Department and the Pentagon in the spring of 1988 over how to handle the problem. By late summer, however, Vice President George Bush's political strategists were determined to play down the crisis for the duration of the presidential campaign. In May 1989, election fraud and violence in Panama, accompanied by a growing threat to US personnel and facilities in the country, revived the issue and placed Bush and Noriega on a collision course that culminated in Operation *Just Cause* and the dictator's apprehension.

Kempe rightly relies for much of his information on highly placed sources in the United States and abroad. As in any journalistic account based on such sources and available documents, *Divorcing the Dictator* is episodic, offering in-depth treatment of some events, scant or inaccurate coverage of others. Kempe, for example, discusses at length the details of the well-publicized Hugo Spadafora murder, the climate of intrigue surrounding Noriega's dealings with Panamanian, US and foreign personages, the politics behind the federal indictments, the attempted coups in March 1988 and October 1989, the Panamanian election violence in 1989 and the negotiations for Noriega's surrender at the Papal Nunciature.

The author's chapter on "U.S. Policy Follies," in which he argues that "individual and bureaucratic rivalries overshadowed national security interests" in the Reagan administration's unsuccessful attempts to devise a coherent policy toward Noriega, vividly recounts chairman of the Joint Chiefs of Staff Admiral William J. Crowe Jr.'s resistance to Elliott Abrams' schemes (the fabled "loony tunes") for military intervention in the crisis. Kempe also reveals the way in which at least two high-ranking officers made it clear to General Frederick F. Woerner Jr., Commander in Chief, US Southern Command (USSOUTHCOM), that he was "to turn the other cheek" to Panamanian provocations during Bush's election campaign—instructions that many at USSOUTHCOM perceived as violating the military's apolitical role. (In this sense, Kempe's book will help correct the false and uninformed image of Woerner as "Wimpcom." It will also establish Major General Marc A. Cisneros' role as one the true heroes of Operation *Just Cause*.)

Other issues, unfortunately, receive superficial treatment. Even though two chapters on Operation *Just Cause* were hastily added to the book prior

to publication, little is said about the US military buildup and confrontations with the Panamanian Defense Forces (PDF) in the months before the invasion. Contrary to what Kempe writes, US exercises in Panama to rehearse contingency plans and put pressure on the PDF continued up to the eve of Operation *Just Cause*. His claims regarding the status of contingency plans at the time of the October coup attempt are not accurate. On a higher plain, the author raises the valid, moral question of whether the United States should be doing business with people like Noriega but answers it without giving sufficient treatment to either side of the issue and without offering a viable alternative, given perceived US intelligence requirements, US interests in Panama and the fact, like it or not, that Noriega wielded power in a sovereign country. Someday Americans may wean themselves from viewing international affairs as a morality play with simple solutions to simplified issues.

Despite these limitations, Kempe has written the best book to date on the Panamanian crisis. As additional information from both sides becomes available, more thorough accounts will appear. Until then, persons interested or involved in the crisis will learn much from Kempe's work. They will find it enjoyable reading as well.

Lawrence A. Yates, ***Combat Studies Institute, USACGSC***

KEY TO THE SINAI: The Battles for Abu Ageila in the 1956 and 1967 Arab–Israeli Wars by George W. Gawrych. USACGSC, Fort Leavenworth, KS. (Available from Superintendent of Documents, US Government Printing Office, Washington, DC.) 1990. $8.00.

By virtue of dominating some of the most important roads in the Sinai Peninsula, the fortified position of Abu Ageila saw heavy fighting both in 1956 and 1967. The 1956 battle is best described as a draw since the Israelis were able to evict the Egyptians only after the latter started withdrawing, owing to the Anglo–French threat to their rear. Learning from their errors, the Israelis tried again in 1967. This time they made a much better job of it, capturing the area in a complicated night operation commanded by Ariel Sharon and thereby virtually deciding the campaign.

Dr. George W. Gawrych is a faculty member of US Army Command and General Staff College, Fort Leavenworth, Kansas. His volume on the battle in question is a model of what an operational study should be: well researched (in spite of the Egyptian refusal to let him talk to the officers involved or visit the site), detailed, clearly written and exhaustive. The accompanying maps are excellent; the illustrations illuminating. The study provides a clear survey of the strengths and weaknesses of each side, follows their moves in some detail and really enables us to learn the cause of both victory and defeat. In so far as the events described took place in desert terrain, some might regard the study as particularly relevant to recent events in the Persian Gulf. In this respect it has not only scholarship but luck on its side: to repeat, it is everything that an operational study should be.

In the face of such excellence, it seems almost churlish to add that the study rests on a model of warfare that is almost certainly out of date. Over the last decades, conventional warfare has been steadily undermined by nuclear weapons on the one hand and terrorism on the other. Barring major hostilities in the Persian Gulf, it has become almost impossible to see any place where tanks, aircraft and heavy artillery can still be employed on a large scale. This means that if the aim of history is to try and look into the future, more can probably be learned from the operations of the Italian condottieri than from the Battle of Abu Ageila or, indeed, most wars between regular 20th century armies. Still, to try and look into the future is only one of the reasons for which military history is written. As an operational study, *The Key to the Sinai* is excellent, and one can only hope to see more such coming from the pen of this author.

Martin van Creveld, ***The Hebrew University of Jerusalem, Israel***

RIDGEWAY DUELS FOR KOREA by Roy E. Appleman. 665 pages. Texas A&M University Press, College Station, TX. 1990. $39.50.

For nearly four decades, the Korean conflict has been the United States' forgotten war. That appellation no longer applies, due in large part to the monumental efforts of retired Lieutenant Colonel Roy E. Appleman. *Ridgeway Duels For Korea* is the fourth volume in Appleman's own operational history of the Korean War and companion to the much earlier *South to Nakong, North to the Yalu*, the official war chronicle that Appleman wrote for the US Army's Office of the Chief of Military History. Published after *Disaster In Korea*, *Escaping The Trap* and *East of Chosin*, this book covers the period from General Matthew B. Ridgeway's assumption of command of Eighth Army on December 26, 1950, to the commencement of truce talks on July 10, 1951.

Relying on a plethora of operational reports, federal documents and unit after-action reports, the author presents a combat history of the war and makes no pretense to address the political or public relations aspects of such events as President Harry S. Truman's relief of General Douglas MacArthur. In addition, Appleman examines a number of captured Chinese reports that provide an interesting perspective of the enemy's intentions and tactics. Moreover, he brings his own firsthand account of the men who served in Korea and the terrain over which they struggled.

Although readers may find the cost prohibitive, *Ridgeway Duels For Korea* is combat history at its best. As the title indicates, Ridgeway is the central figure of the drama. Within two days of his arrival in Korea, Ridgeway visited almost every major command post on the front. Within a month, he transformed Eighth Army from a dispirited, beaten army into a battle-hardened combat force that successfully defended the vital crossroads at Chipyong-ni and hurled the Chinese communist forces back across the 38th parallel.

The author sees Ridgeway as the ideal combat commander and credits Ridgeway as being the man solely responsible for maintaining the multinational field force in Korea. This analysis often borders on hero worship, but all the evidence suggests that it was Ridgeway and Ridgeway alone who infused a spirit of confidence and professional competence into an army that had suffered a catastrophic defeat. In short, Ridgeway turned defeat into victory.

Appleman provides interesting insights into the men who waged the war. US units suffered an inordinate number of nonbattle casualties, mostly frostbite, due to their aversion to digging deep foxholes; French forces, skilled in preparing proper fighting positions, suffered a far less proportionate number of injuries; and many US units also experienced shortages of personal equipment, mainly helmets, since the average soldier discarded his helmet at first opportunity in favor of the fur-lined pile cap (even Ridgeway had a difficult time correcting this practice).

Appleman again proves himself an able military historian and has made another valuable contribution to the historiography of the war. *Ridgeway Duels For Korea* completes his narrative of the first year of the Korean War. Like Ridgeway, Appleman possesses a democratic sympathy for the individual soldier who deployed to the Korean peninsula to fight a war that neither he nor his nation truly understood.

LTC Col. C. Kingseed, *USA, Office of the Deputy Chief of Staff for Operations, Washington, DC*

THE PRICE OF ADMIRALTY: The Evolution of Naval Warfare by John Keegan. 368 pages. Viking Penguin, Inc., New York. 1989. $21.95.

John Keegan, author of *The Face of Battle* and *The Mask of Command*, has written a masterful synthesis of military history. This time, he is at sea and aboard ships—tall wooden ships of sail at Cape Trafalgar, Spain, in the Napoleonic era; iron battle cruisers at Jutland peninsula in World War I; aircraft carriers at Midway Island in the Pacific war; and U-boats fighting the Battle of the Atlantic in 1943. He captures both the spirit of naval warfare and how changing technology influences battles at sea.

The British navy of the Napoleonic era sought to master the elements of wind, tide and current by developing linear formations enabling their ships to engage the enemy using great firepower. Admiral Horatio Nelson used this British mastery of seamanship, his strategic vision and inspired leadership in combination with the "astonishingly efficient" wooden man-of-war to bring victory at Trafalgar. Keegan concludes that man killing and not ship killing won the battle. Still, Keegan argues, "the real heros of Trafalgar were as much the ships as the men who manned them," since the ships sustained great damage and were able to keep sailing.

The fall of the wooden ships led to ships of iron powered by steam with accompanying technological changes. However, British admirals still signaled by flag and sought to mass firepower on the enemy and "chose to plan for war as if still commanding wooden walls." The result was Jutland, a costly naval battle in ships and men. The British fleet had serious losses but remained effective as a fighting force. While the German high seas fleet had lost fewer vessels, it returned to port and stayed there.

The chapter on the Battle of Midway explains how the marriage of the bomb and torpedo to a naval aircraft and the development of a ship from which the aircraft could safely operate brought the age of the aircraft carrier. The British created an aircraft carrier in 1918, followed shortly by the US and Japanese navies, but doctrine for the use of carriers remained to be written.

Keegan's account of the Battle of the Atlantic focuses on the emergence of the submarine and the experiences of two convoys sailing from New York to the United Kingdom in 1943. Protected by 20 naval vessels and aircraft, these convoys were opposed by 42 U-boats in the Atlantic using refined "wolf-pack" tactics. U-boats sank 22 merchant ships, but by the end of the war, U-boat casualties equaled 70 percent!

Well written and intellectually engaging, this book is not without flaws. Keegan relies almost exclusively on secondary sources for his information. There are numerous typographical errors and some identification and historical flaws. *The Price of Admiralty* is not a "wet" *Face of Battle*, in which Keegan looked at warfare in a way which gave new meaning to the study of military history. No revolutionary interpretations are here, yet this stimulating survey of four conflicts at sea brings together ships, men and changing technology in a fascinating way. **Robert H. Berlin, *Combat Studies Institute, USACGSC***

ULTRA AND MEDITERRANEAN STRATEGY by Ralph F. Bennett. 496 pages. William Morrow & Co., Inc. New York. 1989. $25.00.

This is Ralph F. Bennett's second book about ULTRA, the Allies' secret project to decrypt German secure messages during World War II. Bennett was an intelligence officer on ULTRA project in Hut 3, Bletchley Park, England. His purpose is to show ULTRA's involvement in the decisions in the Mediterranean theater of war. He effectively describes ULTRA's value at the strategic, operational and tactical levels of war.

ULTRA revealed information about operational readiness rates for panzers, field pieces, airplanes and trucks. It also revealed the status of fuel and supplies, command climate, ship schedules, troop movements, oth r orders and even morale. Bennett shows how this information was effectively used by commanders, or in some inexcusable cases, how it was not used. His analysis is right on target for those who want to know more than just what happened.

Addressing all the major campaigns and battles, Bennett considers how ULTRA did or did not shape the decisions for actions in Syria, Iraq, Greece, Yugoslavia, Crete, Sicily, Italy, North Africa and the

PASS IN REVIEW

WAR IN KOREA: 1950–1953 by D. M. Giangreco. 330 pages. Presidio Press, Novato, CA. 1990. $40.00.

The 521 photographs in this volume cover all aspects of the Korean War. Few are familiar; most are published here for the first time. While US soldiers and Marines predominate, D. M. Giangreco's subjects include South Koreans and the other United Nations allies, as well as fascinating glimpses of the communist side. Although tanks, artillery pieces and aircraft receive detailed attention, people always hold center stage. Giangreco offers few judgments on the plans and decisions of combat leaders. His purpose is not to supplant official histories or other books on the Korean war; it is to supplement them. In offering us these vivid images of men and women at war, he succeeds quite well.—**Daniel F. Harrington, *Air Force Space Technology Center, Kirtland Air Force Base, New Mexico***

THE COMPLETE SECURITY GUIDE FOR EXECUTIVES by Neil C. Livingstone. 216 pages. Lexington Books, Lexington, MA. 1989. $34.95.

This book offers little that is not already covered on the open market or available through official sources. Many facts are outdated. It does, however, offer a sufficient (and sometimes comprehensive) overview of prudent security measures previously recommended by other authors. Geared predominantly to the business traveler, some information is useful to military personnel who may be stationed overseas or travel on a frequent basis. I strongly discourage Department of Defense personnel from reading this publication in lieu of the numerous official documents offered by their respective services.—**MAJ Dennis A. Hunsinger, *USAF, Assistant for Combating Terrorism, Office of the Assistant Secretary of Defense, Washington, DC***

TO FLY AND FIGHT: The Memoirs of a Triple Ace by Clarence E. "Bud" Anderson and Joseph P. Hamelin. St. Martin's Press, Inc., New York. 1990. $19.95.

In this nostalgic journey through his 50 years in aviation, triple ace Colonel Clarence E. "Bud" Anderson, US Air Force, Retired, traces his lifelong love affair with aircraft, from his childhood through World War II and the Korean and Vietnam war eras. While a pleasant book to read, its blandness is challenged by seemingly endless references to

war at sea. He describes ULTRA's impact on political decisions, as well as on the front lines. He shows both sides of campaigns, draws the causes and effects and relates the significance of the action, including ULTRA's part in it.

This book illustrates the challenge of information collection, decrypting, analysis, processing and transmission to field commanders for their use. In some cases, the information was appropriate and processed quickly enough to have an impact even at the tactical level of war. In other cases, it was timely or apropos only for use by theater or higher commanders. Bennett cautions the reader that signal intelligence (SIGINT) is only one source a commander should consider when preparing for battle. As a sole source, it can be as much of a bane as a boon.

There is no wholly satisfactory way of presenting this material. Bennett writes for the truly devout reader, only briefly introducing a battle before delving into ULTRA's involvement and impact. The reader should already know the details of the battles or campaigns and have intimate knowledge of the geography of the Mediterranean as ULTRA's contributions are presented geographically. One must continually go back to 1940 or 1941 to learn about ULTRA's part in some new war zone.

More maps and references are needed and the footnotes are awkward to use, except for ULTRA citations. Bennett's citations are endnotes in a separate appendix and are not numbered on the pages of the text. This will challenge any reader attempting to validate Bennett's contentions.

Despite these drawbacks, *ULTRA and Mediterranean Strategy* is a valuable addition to the body of knowledge on World War II, war in the Mediterranean, SIGINT and related disciplines.

LTC Robert E. Gillespie, *USA*,
Combat Studies Institute, USACGSC

Anderson's close friendship and experiences with the colorful, media-magnetic retired Air Force Brigadier General Chuck Yeager, of sound barrier and television commercial fame.—**CPT Marvin W. Wierenga Jr., *USAF, 410th Organizational Maintenance Squadron, K. I. Sawyer Air Force Base, Michigan***

THE ANTI-TERRORISM HANDBOOK: A Practical Guide to Counteraction Planning and Operations for Individuals, Businesses, and Government by Karl A. Seger. 230 pages. Presidio Press, Novato, CA. 1990. $22.50.

Karl A. Seger, terrorist expert and consultant for the US Army on the subject of terrorism counteraction, has designed this practical and easy-to-digest handbook for those who must deal with the threat of terrorists, take steps to enhance personal or installation security or travel for business, government or individual reasons. An excellent, invaluable primer for those concerned with the threat of terrorism in their lives, its real strength lies in the chapters on security and terrorism counteraction. Chapters on individual protection, threat assessment and responses to threat situations, plus numerous checklists are also included.—**CPT John Powell, *USA, Concepts and Doctrine Directorate, USACGSC***

SADDAM HUSSEIN AND THE GULF CRISIS, by Judith Miller and Laurie Mylroie. 269 pages. New York Times, New York. 1990. $5.95.

This book is easy reading; serves as a good introduction to the current Persian Gulf crisis for those with little or no background in the Middle East. A reader will gain a detailed treatment of modern Iraqi history; of Saddam Hussein's rise to power and the nature of his regime; of the US failure to formulate an effective and coherent policy for dealing with Saddam Hussein; and of the issues and events leading up to the Iraqi invasion of Kuwait and the US response to it. One must not ascribe more to the book than is warranted, however. In the final analysis, the authors essentially summarize the current wisdom in the West on the gulf crisis.—**George W. Gawrych, *Combat Studies Institute, USACGSC***

SLAM: The Influence of S. L. A. Marshall on the United States Army by F. D. G. Williams. 130 pages. Office of the Command Historian, United States Army Training and Doctrine Command, Fort Monroe, VA. 1990.

Major F. D. G. Williams has written a very readable and well-documented biography of S. L. A. Marshall's life and service to the US Army. Marshall left a profound mark upon the Army. Impressed by his subject's accomplishments but not so blinded that he cannot see his blemishes, Williams, admirably, does not try to duck or gloss over the recent controversy surrounding Marshall's research methodology.

To provide perspective for Marshall's future writing, Williams begins the biography with Marshall's early years in west Texas during World War I and as a young journalist and later details Marshall's beginnings as a combat historian developing the after-action unit interview. Though Marshall was a combatant only during World War I, during later conflicts he was an involved observer of men and units during and after battle which enabled him to draw empirical conclusions about men in combat. Those conclusions presented in *Men Against Fire* and *The Soldier's Load*, arguably Marshall's two finest works, formed the basis for Marshall's future influence on the Army.

Marshall understood and loved soldiers. Frustrated with the dehumanizing of war that occurred at the beginning of the atomic era and concerned that the atomic bomb had conditioned and clouded all military thinking, Marshall was one of the few who preached caution in the headlong race to embrace new technology and opposed the movement to eliminate man as the central figure on the modern battlefield.

Marshall made the Army leadership see that they had a problem with US soldiers on the battlefield. Classical theory, updated and confirmed by personal observations, helped Marshall define the Army's problem. Current training reflects many of his ideas about motivating soldiers and preparing them for the realities of war.

Questions surrounding Marshall's research methods and the conclusions he drew from his observations concern the ratio of fire quoted in chapter five of *Men Against Fire*. Combat veterans tell me that their experience affirms Marshall's observations, but they cannot prove his figures. Therein lies the rub. Marshall may have been right, but his research was sloppy and he surely was not performing the scientific analysis he claimed. By passing his qualitative observations off as a quantitative study, he set himself up for dispute.

Still, this does not mean Marshall did not know what inspired and motivated men in combat. Marshall was wrong to claim credit for others' ideas, but he induced change. As *SLAM* states, "many of his innovations have been incorporated into basic doctrine . . . as these and similar innovations take root in the future, Marshall's efforts will not have been in vain." Perhaps Marshall's greatest contribution to the Army was that he updated and distilled the work of classical theorists into a form modern officers could and would read. Enticing soldiers to think about such issues was no small feat.

This biography admits Marshall's "feet of clay" and makes no excuses for him, doing little to restore Marshall's reputation as a historian. Williams does not deny that Marshall was stubborn, arrogant, self-serving and tended to stretch the truth, but Marshall told a good story and people enjoyed listening to him and reading his books.

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School for Advanced Military Studies, USACGSC

BLANK CHECK: The Pentagon's Black Budget by Tim Weiner. 273 pages. Warner Books, Inc., New York. 1990. $21.95.

Blank Check is a book on the classified segments of the Department of Defense budget. The author, Tim Weiner, is a reporter from *The Philadelphia Inquirer* and his articles on the subject won a Pulitzer Prize for national reporting in 1988.

The basic thrust of the book is that certain parts of the national defense budget appear to increase each year (particularly in the fields of procurement, intelligence and covert action). These segments are "hidden" by the "Pentagon" and/or by the "Generals" in order that accountability, as well as public discussion of the issues involving these segments, may intentionally be avoided. Weiner maintains that this flaunts the Constitution, particularly Article I, Section 9, Clause 7, that states, "No money shall be drawn from the Treasury, but in consequence of appropriations made by law, and a regular statement of the account of the receipts and expenditures of all public money shall be published from time to time."

Divided into two principal parts, the first part provides a history of the growth of black budgets starting with the Manhattan Project, and later, nuclear weapons and extending through the procurement of the Stealth bomber. There is little that is new in this part of the book. Most of the material has been published and is available in various other books, papers and articles. If the material sounds somewhat familiar, a quick look at the page of ac-

knowledgments will provide a roster of familiar voices concerning these problems.

The second part, "Secret Wars," focuses on intelligence matters and covert actions. The transgressions that are presented here are, in fact, sorry examples; the transgressors have already been brought to justice. The intimation seems to be that if this much is wrong, then there has got to be more of the same out there that has not been uncovered. It is an interesting thesis but one of dubious validity.

One of the irritating things about this book, like others of its genre, is that it repeatedly criticizes the "bureaucracy." Yet, it is this very bureaucracy that prevents these escapades that are so objectionable to the author. "Yellow Fruit" and the "Ollie" Norths of the world did their thing outside of the bureaucracy. Stovepipe organizations, however allegedly efficient, tend to breed trouble.

There are other irritants. The first page (which is only a half page of text) contains eight "I's" and two "me's." Humility is not apparent while reading this book. Then there is the hyperbole and metaphor. For example, we find, "The Stealth lived on because it had stayed secret. The Pentagon was now so pregnant that it could not be aborted." Or, "As a whole the CIA looks like the campus of a midwestern state college, but the Director's office on the seventh floor of the main building is a sumptuous Ivy League affair, complete with an elegant dining room." One can always tell when "investigative" journalists run out of steam and start piling on, because they always go for the "elegant" dining rooms or the idling automobile engines that provide air conditioning. Those outrages are wearing pretty thin.

All in all, for one who reads the papers or has read other books of similar muckraking, there is not much new to find, but if the reader tends to be a dyspeptic cynic, there is no doubt that the juices will get a welcomed "jumpstart."

LTG Richard G. Trefry, *USA, Retired, Clifton, Virginia*

Royal Error

In our November issue, we incorrectly identified author Peter J. Kramers as a member of the Royal Canadian Army. The official designation is *Canadian Armed Forces*, as Major Thomas D. Graham, Canadian Armed Forces, Retired, pointed out to us.

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To serve you better, *Military Review* subscriptions are now processed using our new computer system. We have run our old and new systems in tandem for several months and are now completely on the new system. We feel that the new system is "bug" free, however, should you not receive you magazine in a timely manner, please let us know.

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COMBINED ARMY COMMAND—TRAINING

"Training is the Battle Link" . . . With these words, the deputy commanding general for training, Combined Arms Command, ensures the Army trains as it intends to fight. Combined Arms Command—Training (CAC—TNG), formerly Combined Arms Training Activity, was formed 1 October 1990 under the US Army Training and Doctrine Command (TRADOC) reorganization of the Combined Arms Command at Fort Leavenworth, Kansas. CAC—TNG retained the mission to serve as TRADOC's external agent to support the enhancement of combined arms and services training for the Total Army, focusing at battalion task force and higher levels. CAC—TNG received increased tasks and functional responsibility to lead, develop and manage the full integration of combined arms training across branch and functional lines.

CAC—TNG is the TRADOC executive agent for the Army's combat training centers (CTCs). The CTCs are real-world learning experiences that allow leaders and soldiers to develop boldness and audacity by learning from mistakes, correcting weaknesses and building on strengths while conducting combat actions in realistic battlefield environments.

CAC—TNG is also responsible for developmental, sustainment and fielding of combined arms command and control battle training simulation. CAC—TNG serves as the Army executive agent for lessons learned. The Center for Army Lessons Learned (CALL) gathers observations derived from participation in joint, combined and other corps- and division-level exercises, CTC rotations and actual combat experiences.

CAC—TNG also executes the Battle Command Training Program (BCTP), which trains division and corps commanders and their staffs on their primary war-fighting skills by way of sophisticated computerized simulations against a modern, uncooperative opposing force.

CAC—TNG is the Army proponent for battle focused training doctrine (US Army Field Manual [FM] 25—100, *Training the Force,* and FM 25—101, *Battle Focused Training*) and has been tasked to develop, integrate and manage an Armywide combined arms training strategy. With the transfer of functions within TRADOC, CAC—TNG assumed responsibility to develop, maintain and upgrade the Army's CTC instrumentation systems and became the Army's proponent for tactical engagement simulation. It also supervises the TRADOC Systems Manager for Simulation Networking (SIMNET) in support of command and staff combined arms training.

Finally, CAC—TNG accomplishes the Army portion of the US Air Force (USAF) Air/Ground Operations School mission and provides the Army advisory element to the USAF Tactical Air Warfare Center.

The Army is in the midst of an era of unprecedented modernization, organizational change, doctrine development and application of emerging technology. The smart and efficient integration of these profound changes into the strategy and execution of Army training is of paramount importance. CAC—TNG is the Army's proactive agent for this change, ensuring that *Training is the Battle Link.*

TRAINING IS THE BATTLE LINK