Infantry

Fall 2003

FRONT COVER: Photos: (clockwise from left) A Soldier with the 325th Infantry Regiment gets ready to fire his weapon during a squad tactics drill in Iraq (photo by Staff Sgt. Stacy L. Pearsall). U.S. troops surround an Iraqi man during Operation Iraqi Freedom (U.S. Army photo). An 82nd Airborne Division paratrooper stands watch on a berm outside an Iraqi town (photo by Specialist Jason B. Baker). Iraq map provided courtesy of Private Joshua J. Abston, U.S. Army Infantry Center Directorate of Intelligence and Security.
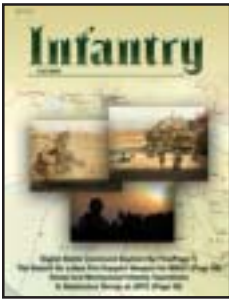
This medium is approved for official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

Infantry

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Commandant's Note

BRIGADIER GENERAL BENJAMIN C. FREAKLEY

THE STATE OF THE INFANTRY

It was a true pleasure to be part of the Infantry Conference held last month. The United States Infantry has never been stronger than it is today. The infantry Soldier is and will remain the bedrock of our nation's fighting force. Since October 1918, Fort Benning has been the foundation of the Infantry, producing trained, adaptive Soldiers and their leaders imbued with the warrior ethos. Fort Benning will support the war on terror with one foot in current operations by providing Soldier enhancements for the current force now, and with one foot in the future by leveraging technology and defining requirements to meet the needs of the future force. We will continue to provide adaptive Soldiers and leaders to the force who will dominate the combined arms, joint, and coalition battlefield. Finally, we will blend evolving doctrine with technological advantages to build a future force that can dominate full spectrum operations.

In the past two years, we have seen the diverse and vital mission of the Infantry School pay huge dividends in the quality, tenacity, and valor of our graduates who have dismantled two dictatorial regimes and put their leaders to flight. It is our Army that must often bear the brunt of the danger and pay the highest price in the defense of freedom, and in every conflict of this century and in past centuries the Infantry has been the point of the spear. The trained, competent, confident infantrymen we produce and the adaptive, innovative leaders inculcated with warrior ethos whom they follow are the culmination of Soldier and leader development programs that started here and continue as they join their units around the world. Our vision and future focus for the Infantry describe today's adversary, his environment and tactics, and explain the value of today's deployments to the Army and the nation.

Our nation owes our successes in the global war on terror to the visionary trainers, doctrine writers, and logisticians of decades past and present, whose planning and foresight have contributed so much to how we train, deploy, and sustain the infantry force. The information management potential now at our fingertips enables us to draw upon satellite imagery, electronic and human intelligence, and other all-source information and immediately disseminate relevant, real-time information to those who need it: the staffs and commanders of our infantry units. But even as we are meeting present-day threats we are preparing for foes unseen and challenges yet to come. While aggressively prosecuting the war on terror, we are constantly assessing future requirements and demanding that our enormous industrial and technological base examine ways to meet the needs of Soldiers who will follow us. We recognize the universal, asymmetrical threat posed by terrorists, and embrace the concept of multinational interdependence in future conflicts. We also recognize the pivotal role of the combined arms team in joint operations, something that has been amply demonstrated over the past two years. Finally, we continue to infuse lessons learned from past and present operations into our training and doctrine products. By accomplishing this, we will field — and sustain — a force that dominates the full spectrum of the environment in which it is required to operate.

This future focus on systems to support the infantryman includes Soldier as a System concept, the Future Combat system (FCS), the Rapid Fielding Initiative (RFI), development and fielding of weapons of greater lethality, and increased emphasis on preparing for forced entry and urban operations. We continue to train and equip the Soldier in the future force with the latest need-based weapons and sustainment and survivability enhancements, doctrinal guidance, and training that replicates as closely as possible the conditions under which he fights. Our initiatives in the FCS program include those that support the infantry combat vehicle and its supporting variants. These varients include mobility, force protection, fire power, target acquisition, communications and information management and weapon systems that sustain our decisive edge on the battlefield. Our experience as proponent for the Stryker combat team is valuable in these efforts.

The Stryker is being deployed to combat in the next several weeks, capping a rapid development, testing, fielding and training program that has been unparalleled in the history of equipping our force. The Stryker Brigade Combat Team is an Infantry centric organization capable of rapid deployment, tactically mobile once on the ground, and possessing significant firepower. The platform is protected to withstand rounds up to 14.5mm, has a remote weapon station, can move on improved roads at 60 miles an hour

and is C-130 deployable. The vehicle is quiet, reliable and proven in tests and operational evaluations. But the Stryker Brigade Combat Team is more than just a unit with a great vehicle; it is all about the synergistic effect of tough Soldiers trained to standard, the best equipment available and a support system that is the envy of the world. The Stryker is ready to join the fight and win.

Lethality is a key component of this equation, because our success — and our credibility as an Army — will always rest upon our demonstrated ability to kill or capture the enemy through the use of close combat, fire, and maneuver. It gives a potential adversary pause if he knows the consequences of his actions is swift and certain destruction. The fanaticism and tenacity of an opponent will avail him little, for we have already engaged tougher and more determined opponents throughout our nation's history. Nor have we lost sight of the collective effectiveness of the combined arms team. Artillery has long been hailed for its lethality, a reputation that has been justly earned in two world wars and lesser conflicts, and today we are examining ways of teaching leaders to employ artillery to a greater extent and more effectively, but in the close fight — the last 400 meters relies on disciplined small arms fire delivered by aggressive infantrymen that carry the day. It is with this in mind that we are continuing to emphasize basic rifle marksmanship as the cornerstone of an infantryman's training, even as we examine potential improvements to those individual and crew-served weapons that decide the close fight.

Any discussion of the Infantry's vision must consider both today's adversary and his likely successors. The term asymmetrical warfare is recent, but the concept is not; its elements of unpredictability, surprise, and multidimensional action at points of supposed vulnerability have been employed by both America and her adversaries in every conflict since the American Revolution. The sophistication of the adversaries we now face is largely a function of technological advances of the past three decades. The use of motorcycles to dart unobtrusively through congested areas and traffic to attack convoys, the proliferation of improvised explosive devices, instant communication using state-of-the-art data links, and attempts to shape public opinion here and abroad are refinements of old techniques, and our abilities to neutralize them are already reducing their effectiveness. The roles and risks of noncombatants have changed as well. Today we see mosques, schools, hostages, and unarmed civilians used as instruments of enemy operations, something that further increases the friction of war and increases risk to our Soldiers. The battlefield has to some extent now become one of complex terrain and built-up areas, demanding that we continue to address the tactics, techniques, and procedures of forced entry and urban operations. We cannot afford to regard refinements to the rules of engagement as something of limited use, and only applicable to today's adversaries; the skills we forge and hone today are good ones, and

will pay dividends in future operations. The ability to confidently transition from combat to non-combat operations is essential in today's contemporary operating environment, and remains another critical element of our training.

Today's threat finds Active Army, Reserve, and National Guard components engaged in more deployments than at any time since the Korean War, and to areas where combat actions and real threats are the rule rather than the exception. Today, over 180,000 Soldiers are deployed in 65 countries. These circumstances demand a great deal of our Soldiers, and they are more than up to the tasks set before them. And they are adaptive. The biggest combat multiplier we had in the 1970's was our recent combat experience against a tough, competent adversary in Southeast Asia. Ours was an Army whose officers, noncommissioned officers, and Soldiers had been tested and tempered in the fire of Vietnam, and the Warsaw Pact arrayed against us in Europe could claim no such competence. The combat experience gained by the components of our one Army can only be hinted at in training: that combat edge, those leadership techniques, instincts and reactions learned by being there have given the Infantry a fighting edge that we have not seen since Vietnam, a fact that potential adversaries should consider.

All branches have benefited from this, combat, combat support, and combat service support alike. The war on terror may be a long one, but we have broken the back of two hostile regimes since September 11, 2001 and the remnants of those regimes are in disarray. When one considers the caliber of today's Army Infantrymen, and the doctrinal and tactical leaps that we have made in the past 10 years, one cannot help feeling both proud and confident: proud that we are part of the world's premier fighting force, and confident that the security and future of this great nation and her people are in good hands.

The Infantry School has come a long way in the past 85 years, and we continue to train and field the finest Infantrymen this great nation has ever sent forth to defend America and her institutions. Join us in this effort. Feedback from the field is the bedrock of our efforts to improve the mobility, lethality, and survivability of the infantry force. We need your input, in the form of articles for *Infantry* Magazine and from your comments addressed to the Infantry Forum and Infantry Online.

We solicit your assistance in our efforts to create a more currently relevant sequel to "Infantry in Battle", that timeless analysis of World War I infantry tactics first published under the direction of Colonel George C. Marshall in 1934. Our recounting of battles and engagements from Somalia to the present must be captured for our future leaders. We are always alert to ways we can better do our job of training the force. Give us your assessments of the proficiency and readiness of the Soldiers and leaders we send to our units around the world and your recommendations for improvements to equipment, doctrine, and training. <u>Follow me!</u>

One Infantry — Our Infantry
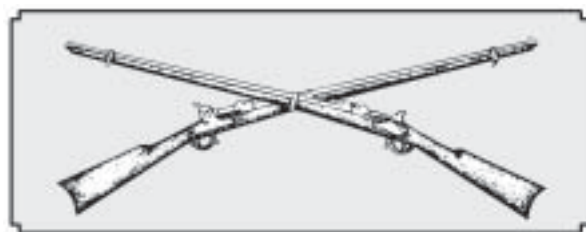
INFANTRY LETTERS

JANUS SIMULATION IS A COMBAT MULTIPLIER

"Fighter 6, this is Charlie 6, we are REDCON 1."

These are the famous last words before the wily OPFOR begins to teach the BLUEFOR a lesson in tactics during the Janus simulation. This mission was no different, but what I did learn was the value of the simulation system in preparing future leaders at the company and task force level to do battle in today's operationally constrained environment. Janus has been implemented in the Infantry Captain's Career Course to allow future company commanders the ability to implement operations orders that they continuously plan for and brief throughout the course onto a simulated battlefield.

I had the opportunity to fight an armor company team defense in battle positions in the Janus simulator for ICCC. After a rigorous orders process that included a humbling backbrief to my SGI, I now had to put my money where my mouth was and fight my plan. My company team consisted of one mechanized infantry platoon (M2A2 BFV X 4, Javelin X 3), two armor platoons (M1A1 Abrams MBT X 4), one FIST vehicle, and the company trains found in an armor company table of organization and equipment (TO&E). The mission was to defend in battle position to destroy approaching enemy forces in an engagement area to prevent the enemy from enveloping the division main effort.

Janus provided each acting platoon leader and me with our own cubicle that consisted of one computer, one Janus operator, and two CB radios. The Janus operator's main mission was moving vehicles, soldiers, and equipment depicted on the computer screen based on the decisions we made. I briefed my graphics to the Janus operator, who put them into the system. This took approximately one hour. This allowed the acting platoon leaders to see the graphics on their computer screen. They were able to immediately begin developing their platoon engagement areas. I was surprised at the ease in preparing the system to execute the mission.

The actual fight lasted approximately one hour. Receiving spot reports from the acting platoon leaders, calling and adjusting indirect fire, attempting to mass direct fires on the enemy's point of penetration, providing SPOTREPS to the TF commander, maneuvering platoons based on OPFOR actions, and maneuvering the TF reserve to fill gaps were some actions that occurred during the battle. We were able to conduct a detailed after-action review (AAR) that included a replay of the battle that was six minutes long. The operators were also able to depict each action of the OPFOR and BLUEFOR in detail to include: location and amount of artillery fired, catastrophic, mobility kills location and how vehicles were destroyed (i.e. direct or indirect fire.)

I found Janus very realistic in three areas of vital importance:

⚙ Command and control during the fog of battle,

⚙ Reporting and passing information to subordinates and superiors, and

⚙ Conducting adjacent unit coordination with another company team tied into the fight. The three tasks listed above were to be simultaneously completed while attempting to successfully maneuver mechanized units on the battlefield.

Lessons learned include better adjacent unit coordination to prevent the OPFOR from exploiting the seam between company teams, and an ammunition resupply plan. The battle didn't stop when my tanks went black on ammo, and accurate reporting to the TF commander let him decisively commit his reserve. My decisions to maneuver forces were based solely on the SPOTREP's that I received from my acting platoon leaders. This depicts a same environment that future company commanders will face while fighting our future battles inside of their tank, Bradley fighting vehicle or M577.

This system also assists every leader in developing the confidence and improving plans necessary to win on today's nonlinear battlefield. This process can be done at battalion, company, and platoon level OPD's very easily. All one would need is an example OPORD and the Janus (civilian) operators. The Janus operators at Fort Benning are so willing to assist a unit in training that they will write the OPORD for the unit if time is not available or the unit needs to focus on battlefield command and control for an upcoming field problem.

I recommend the Janus system to commanders who are looking for an efficient way to establish/develop SOP's, and TTP's, or who would like to refine tactics before executing a field problem. The Janus simulation system can be effectively used in a constrained time environment and provides a valuable training tool for any unit whose, "train never seems to stop."

-- CAPTAIN JAMES J. SMITH
Student, Infantry Captain's Career Course
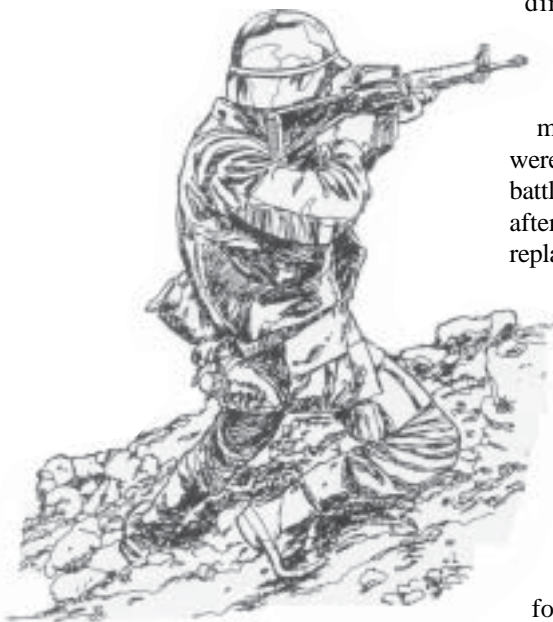
INFANTRY NEWS

Infantry Museum photos

A rifle believed to have belonged to Saddam Hussein is now on display at the Infantry Museum on Fort Benning, Ga.

Infantry Museum Announces New Exhibit

A Heym 9.3x74R rifle was recently presented to the National Infantry Museum by First Sergeant Michael Hibbs of Company A, 1st Battalion, 30th Infantry, 3d Brigade, 3d Infantry Division (Mechanized), on behalf of the Soldiers of Company A. The rifle was discovered during a search of one of Saddam Hussein's presidential palaces during Operation Iraqi Freedom and is believed to have belonged to Saddam Hussein himself. The 9.3x74R is one of the oldest European big-game cartridges, and has long been used for hunting large and dangerous game around the world. The round is .366 caliber and generates muzzle energy approximating that of the .300 Winchester Magnum.

The Model 55B Heym rifle was manufactured in Suhl, Germany, and the action is engraved on all sides with scenes of African big game. The book market value of such a rifle, omitting its connection to the former President of Iraq, is listed at $8,995; this is but one example of the difference between the lavish lifestyle of Saddam Hussein and that of his subjects.

At left, Saddam Hussein's initials are engraved on the pistol grip cap. Above, Saddam Hussein's signature is also engraved into the rifle's barrel.

Custom Firearms Shop keeps Soldiers on TARGET

PAULA J. RANDALL PAGAN

When the Army Shooting Team wins in competitions around the world, its success is not only due to the amazing talent of the Soldiers who are the world's greatest shooters, but the victories are also attributed in a large part to the talent and hard work of some very dedicated Army gunsmiths.

The U.S. Army Marksmanship Unit Custom Firearms Shop at Fort Benning, Ga., produces top-quality, match-grade rifles, pistols and shotguns, as well as much of the ammunition for the Army Marksmanship Unit. The shop has a long history of research and development, including developing and testing the M-21 and M-24 Sniper Systems, Special Reaction Teams Rifles, testing and maintaining the Barrett 50-caliber Sniper Rifle and development or modification to special operations forces weapons.

"The AMU truly has the best small arms gunsmith team in the Department of Defense,"said USAMU Deputy Commander Mr. Robert W. Aylward. "Possibly their most unique skill is the ability to take what they have learned in creating the most accurate competition firearms and transferring this knowledge into better combat weapon systems. They take great pride in their ability to take a problem that is presented, usually with extremely short suspense, and produce a real solution. On a monthly basis, a problem is received from the field, and the gunsmiths respond by producing answers that give the command a more reliable, sometimes specialized, but always lethal, combat weapon system. Giving the force what they need when they need it is the shop's mission."

The most recent achievements by the shop is the accurization of the M-16A2 rifle and the M-9 pistol, in which the gunsmiths, machinists and ammunition technicians transformed the reliable combat weapons into match-winning equipment.

Modifications made to the M-16A2 rifle by U.S. Army Marksmanship Unit gunsmiths transformed the reliable combat weapon into a rifle with pinpoint accuracy, even at 1,000 yards. This accuracy contributes to the USAMU Service Rifle Team's success in interservice and national marksmanship championships, according to USAMU Service Rifle Coach Donald L. Heuman. "Despite the prevalent belief that the M-16A2 could never be used

USAMU photos

Sergeant First Class Steven C. Young, NCOIC of the USAMU Ammunition Loading Facility, primes brass for long-range bolt rifles.

successfully in competition, the Marksmanship Unit devoted itself to proving how successful it could be."

Modifications made to the M-16A2 by USAMU gunsmiths include adding interchangeable sight apertures, two stage triggers, a barrel sleeve and redesigning the barrel to prevent warping. Until these modifications were made, the M-16A2 was not a competitive weapon, according to USAMU Service Rifle shooters.

The gunsmiths and shooters determined that the barrel of the M-16A2 warped slightly as a result of heat generated by repeated firing and also by sling tension. The warped barrel, along with the large aperture on the rear sight hindered the accuracy of the weapon. A size choice of the rear-sight aperture and the introduction of a redesigned barrel that withstands warping along with a barrel sleeve improved the performance of the service rifle.

USAMU gunsmiths and ammunition technicians say they are still working on further improvements to the M-16A2 rifle, not only for competition but also as a more accurate and effective combat weapon. The unit believes the M-16A2 is the premier weapon on the competitive firing line and on the battlefield. That is why USAMU gunsmiths have worked closely with the U.S. Army Special Operations community on improving the combat effectiveness of the M-16A2.

Special Operations asked the USAMU to apply its M-16A2 competition accuracy and reliability technology in support of the requirement for a 5.56 mm Special Purpose Rifle. AMU helped to develop the Special Purpose Rifle to include barrel configuration, freefloat handguard and optical and accessory mount technologies, mechanical parts improvement and match quality ammunition.

The collaboration between the AMU shop and the Special Forces community has resulted in match-grade accuracy being applied to the Special Operations Peculiar Modification and Special Purpose Rifle Variant initiatives. Because of the shop's ability to design, manufacture and make modifications to weapons and ammunition, the Special Purpose Rifle Variant has been designated as the U.S. Special Operations community Mk-12 rifle and fielded to all Special Operations Forces Armywide.

Besides the Mk-12 rifle being fielded to all U.S. Army Special Forces and Ranger units, it is also being reviewed for adoption by the Naval Special Warfare Command; the match combat ammunition is fielded to all Special Operations units and is being reviewed for possible fielding to Army combat units, according to Sergeant First Class Steven J. Holland of the 5th Special Forces Group.

"USAMU technology and marksmanship training to operational units within the Army Special Operations community have proven timely and beneficial," Holland continued. "The rifle and ammo were used extensively in support of Operation Enduring Freedom and were determined to be instrumental in the positive outcome of several firefights where Special Operations forces were fighting a numerically superior enemy. Through the accuracy and reliability of the Mk-12, the operators won the day and remained safe by using the ballistic advantage provided by the Mk-12. The Mk-12 is also deployed and being used to great advantage in the current operation in Iraq."

Since the early 1990s, Army Marksmanship Unit gunsmiths have been experimenting with ways to enhance the ballistic performance and reliability of the M-9, the Army's semiautomatic 9 mm pistol. The objective has been to increase the accuracy and durability.

"The M-9 is a good pistol," gunsmith Staff Sergeant John M. Haidu said. "It's lightweight, reliable, has a high magazine capacity and shoots a universal-size cartridge."

The gunsmiths said the modifications are important not only to the USAMU's mission to compete and win in competitions, but they are also important to the rest of the Army. They said the modified M-9 might someday be integrated into specialized Army organizations such as military police or Special Forces units and eventually perhaps the entire Army. In fact, the USAMU makes a special effort to share its research and development lessons

A USAMU ammunition technician measures grains of powder for M-16A2 rounds.

learned with all the Army's proponents for small arms.

"The M-9 has been highly accurized in the modification process to provide our shooters with a weapon of pinpoint accuracy," gunsmith Staff Sergeant Joe D. Harless said. The gunsmiths, who were responsible for the weapon's transformation from the developmental stage to production, said the process involved fine-tuning all the pistol's main components — the barrel, slide, frame and trigger. One initiative to improve the M-9, according to gunsmith Specialist Samuel A. Hatfield, was to reduce the wear caused by repeated pounding of the steel slide against the aluminum frame. To do this, gunsmiths place oval steel inserts in the pistol's frame to act as a buffer against the slide and minimize its movement while in battery. The gunsmiths also replaced the weapon's barrel with an accurate match-grade barrel and placed set screws in the frame to stabilize the bottom rear of the barrel.

"All the components are fitted," Harless said. "The result is that you have a slide that's fitted to the frame and a barrel that's fitted to the slide, which reduces tolerances within the weapon and allows greater accuracy. Also, steel-on-steel contact is better than steel on aluminum; it's much more durable." Another improvement was the adjustment of the triggering system, which allows the shooter to fire the accurized M-9 by exerting a mere 4 pounds of pressure on the trigger — the minimum allowed by rules governing the service pistol match — as compared to the 7 1/2 or greater pounds of pressure required to fire the standard-issue pistol. "Shooters want a particular feel of their trigger when they are competing," gunsmith Specialist

A USAMU service pistol gunsmith inspects the slide on an M-9 pistol.

Craig S. Nelson said. "With the proper mating of all related components, we give them what they want."

Nelson added that by polishing the surfaces and changing the angles of the components, it makes the trigger pull seem like it's a lot less than 4 pounds.

Along with this, the gunsmiths also replaced both front and rear sights to allow for a better sight picture; the new sights were fabricated in the shop. They also developed a new harmonic tuner, which dampens the vibrations of the barrel.

"Our goal is to give our shooters the technical edge to win," gunsmith Specialist James T. Wilson III said. "The great wins of our pistol team positively prove that we have achieved that goal. I'm proud to be in the Army Marksmanship Unit and to see all the hard work that we do turn into major victories for the Army."

The USAMU Custom Firearms Shop gunsmiths are continuing their work on further improving the modified M-9 pistol.

"We're always looking for an easier, better and more cost-effective process," Harless said. "The gun is great, but we still have a long way to go."

Since tomorrow's modified M-9 will be even more accurate and reliable, USAMU Service Pistol Team Coach Ray Arredondo said

the pistol has unlimited potential.

"I foresee that at some point in the future, the modified M-9 will phase out the .45-caliber service pistol in competition today," Arredondo said. According to William O. Harden, chief of the USAMU Custom Firearms Shop, USAMU gunsmiths have world-class talent for what they do. "Our gunsmiths have a special talent and skill developed through years of technical education and experience. A truly great gunsmith

USAMU service rifle gunsmith Specialist Thomas A. Grieve inspects the rear sits on an M-16A2 rifle.

only comes along once in a great while. We are fortunate to have the best assigned to this fine unit," Harden said. "They have to be exceptionally gifted at building guns and ammunition in order to enable our Soldiers to be all they can be in competition. It is truly a team effort. The gunsmiths will continue to work toward improving the combat capabilities of America's fighting forces through research and development of current and future weapons systems."

Another factor in the success of the M-16 are the adjustments made to the ammunition. USAMU ammunition technicians assembled match-grade 600- and 1,000-yard loads. Keeping abreast of the constant demand for world-class match ammunition for the shooters of the Army Marksmanship Unit is far from easy. Yet the Soldiers of the USAMU Shop's Ammunitions Loading Section, say it's a challenge they eagerly face.

Only three Soldiers, Sergeant First Class Steven C. Young and Staff Sergeants John R. Gertz and Douglas E. Mitten are responsible for the thousands of rounds produced each year. Some days when preparing for upcoming matches, the Soldiers load as many as 3,000 rounds, each measured and adjusted to within 500ths of a grain.

The men produce ammunition for rifles and pistols and perform many tests on each cartridge case, propellant, primer and bullet, but say quality is the section's priority.

Quality control for the ammunition section is much more in-depth than at comparable facilities, said Sergeant First Class Steven C. Young, NCOIC of the USAMU Ammunition Loading Facility. USAMU's ammunition technicians continually check to ensure that the quality of the components fits USAMU standards. Cartridge cases are checked for weight, hardness, dimensions and thickness, while bullets are air gauged for consistency.

The role of these Soldiers and the quality of their product are paramount to the success of the USAMU shooters in competition, Young said. "We have to produce ammunition that outperforms the gun, which in turn has to outperform the shooter," Gertz said.

"That way shooters have all the advantages to improve themselves and the equipment doesn't impede their performance. If the ammunition produced here isn't up to the highest standards, the shooters are at a disadvantage."

Maintaining the number of rounds and the high quality demanded sometimes is a tangible pressure the Soldiers can feel. One-tenth of a grain of gunpowder in a mismeasured round changes the impact of the bullet enough to cause a top shooter to lose a competition.

"All it takes is one round with the wrong powder charge to lose a national title," Mitten said. "That's how important it is for us to be here doing our job."

Despite the constant demand for quality ammunition, the ammunition technicians rarely fall behind. Constant communication between the ammunition technicians and the shooters, as well as periodic checks of the ammunition bunker, help keep the Soldiers on top of the demand.

In their off-duty time, the ammunition technicians search for even higher quality by striving to create new combinations of gunpowder, primers, casings and bullets that will outperform the unit's current standard.

"We're always looking for better ways to streamline our production process to improve production flow and product quality," Young said. The ammunition technicians constantly test the various ammunition components and equipment for quality and reliability. Each product they use is evaluated for internal purposes so as to supplement commercially published results. Manufacturers are not the only ones interested in the USAMU testing results. Frequently the Marksmanship Unit is inundated with telephone calls for information and advice. According to Young, many others are concerned with accurate ammunition have called wanting load data.

Despite the continued interest from the competitive shooting community, the Marksmanship Unit will only give minor technical advice and not specific information about the manufacturing process since the ammunition they produce is designed specifically for use in USAMU custom-built firearms.

"Our mission remains the same," Harden said. "We're trying to find that combination that makes or breaks the game."

USAMU shooters share techniques with Special Forces Soldiers

PAULA J. RANDALL PAGAN

In addition to dominating national and international marksmanship competitions, the champion shooters of the U.S. Army Marksmanship Unit Service Rifle Team have also been busy passing along their shooting techniques to other U.S. Army Soldiers, including some of the most highly decorated in the history of our nation.

The Service Rifle Team, headed by Staff Sergeant Jared N. van Aalst, conducted an advanced rifle marksmanship clinic for seven members of the 5th Special Forces Group (Airborne) of Fort Campbell, Ky., at Easley and Pool ranges on Fort Benning in December 2002.

"We do advanced rifle marksmanship train the trainer for all units, but now we're doing tactical training for special operations units or any type of sniper section," van Aalst said. "It went very well. The idea we're trying to push is that our type of competitive shooting training ties in with tactical training. The biggest thing for Soldiers is understanding the limitations of their weapons and alternate shooting positions."

"We did this training so our detachment could improve long-range marksmanship capability," said Captain Heath Harrower of the 5th SFG. "We're getting different training ideas that we can use and we're sharing ideas on training and equipment. We're also getting techniques that we can employ for our sniper teams."

According to Harrower, the USAMU Service Rifle shooters emphasize basic rifle marksmanship skills. "But it's more than a refresher course," he said. "It builds on the fundamentals."

Both on the ranges and in the classroom, the Special Forces Soldiers learned from the Service Rifle Team how to read and correct for the wind, range estimation and reading the mirage.

"The two most important things to work on are trigger squeeze and sight alignment; it's what we've been emphasizing," Harrower said. "We learned variations and different techniques for trigger squeeze employed by a sniper team when engaging targets. We also used the Noptel (a computerized marksmanship training system), which was a very effective tool to track sight alignment before, during and after the shot."

Besides shooting on the USAMU ranges, the elite Soldiers also toured the USAMU Custom Firearms Shop where they spoke with USAMU gunsmiths, machinists, reloaders and ammunition technicians who build and modify USAMU weapons and ammunition.

"I was very impressed with the gun shop. There is a lot of knowledge here that a unit could use and a lot of answers to be found here on weapons, ballistics and bullets," Harrower said. "This training has enhanced our long-range shooting capability and it was very worthwhile. We would do it again and recommend it for other members of our unit."

U.S. Army Service Rifle shooter Specialist Aaron F. Rebout (left) gives a few marksmanship tips to Captain Heath Harrower of the 5th Special Forces Group at Easley Range.
USAMU photo

An Interview with General James T. Hill
Commander, U.S. Southern Command

Infantry Magazine Editor Russell A. Eno sat down with General James T. Hill, commander of the U.S. Southern Command at the Marshall House , Fort Benning, Ga. Here is a transcript of that interview:

Q **What do you see as major priorities for SOUTHCOM during your tenure?**

A When I came in, I developed three major priorities where I put my personal investment: the war on terrorism; Colombia, what happens in Colombia and the concomitant support for democracy throughout the region; and thirdly expanding the knowledge of my area of responsibility within the community.

Q **Two of SOUTHCOM's major tasks are the defense of U.S. interests within your geographical area of responsibility and assisting the development of foreign militaries within that region. How have the attacks of September 11, 2001 and subsequent events affected those missions?**

A Well, I think they certainly have galvanized it, and they have allowed me to discuss with other militaries and governments in the region that, just like the United States, all of those countries must transform their militaries to meet the real threats in the world — the threats of the 21st century, not the threats of the 20th century. And I think that (with) the experiences of 9-11, (there's) the realization that what used to be a drug war is really a counter-terrorism war, and that it affects everybody in the region.

Q **One of the priorities for the Army Transformation is the fielding of the Stryker Brigade Combat Teams (SBCT). What potential do you see for their employment in the execution of SOUTHCOM missions?**

A Well, short of some major confrontation in Cuba, I don't see U.S. armed forces at war or in battle in Latin America. If they were, if there was a major confrontation, either in Cuba or in some other place, the Stryker brigade as designed is a perfect fit because of its focus on smaller scale contingencies and its ability to operate in complex and urban terrain.

Q **Over the last two decades, at JRTC, NTC and in accounts of ground actions in Afghanistan, we have seen what appears to be a decreasing reliance on the use of indirect artillery fires, with something like a 20-percent utilization with a corresponding reduction of reliance on mortars, in favor of close air support. How can we better train and condition our infantry leaders to understand and effectively employ artillery?**

A I've been concerned about that whole issue for a long time. When I was the FORSCOM G-3, that 20-percent utilization rate during the first five days' search and attack phase certainly was the norm, in fact that was a pretty good unit. There were lots of units that were well below that. In my view, what has to happen — and what is increasingly happening, I believe — is a better understanding that

indirect fire is the artilleryman's problem. What do I mean by that? I mean I am Company Commander Hill or Platoon Leader Hill, and I am out and engage in a firefight. The artilleryman sitting around waiting for me to direct him to shoot is making a mistake. His whole role in life is indirect fire, and he needs to be screaming that in the infantryman's ear. And I see less and less of that, unless the infantry unit commander really puts his finger on it and forces that artilleryman to begin to do that. It was a lesson we learned in Vietnam, and somehow we forgot over time. It has a lot, I think, to do with fear of rules of engagement, and not using ROE aggressively enough, and it also has a lot to do — in my opinion — with how we measure success at JRTC.

What we have done is teach a lot of young infantrymen that it's OK to play laser tag, that it's OK to conduct fire and maneuver or fire and movement before establishing a solid base of fire. And a solid base of fire includes everything you've got, direct and indirect. Once you've achieved fire superiority, then you can in fact maneuver on the battlefield. But we too often begin maneuvers at JRTC without using that indirect fire, and it costs casualties at JRTC, and I think we're teaching a bad lesson. A lot of it has to do with MILES and how you count it, and I've heard all of that. In my mind that's an excuse; we ought to do better with that.

Q **As we prepare to engage the enemy in urban settings, how can we better incorporate the employment of artillery fires to support the MOUT fight?**

A I think we have to practice it more, and we're not doing that in some areas, and you have to have better precision

weapons systems which you're coming to in the Stryker brigades. If you look at a Stryker brigade, I think you'll see them making better use of it. It's got the systems to use them, it practices a little more, trains with them more, and makes greater use of them.

Q WHINSEC recognizes the criticality of remaining relevant to your theater engagement plan, and designs their curriculum accordingly. In order to ensure this relevance, is there a systemic recurring way for your subordinate commands to transmit their needs to WHINSEC?

A Yes, and in fact, I just left a WHINSEC Board of Visitors meeting where we talked about that. We do have almost continuous interface with SOUTHCOM headquarters and WHINSEC. Yearly, we bring together the Security Assistance Officers (SAO) out of the region, gather them in my headquarters where we discuss their goals for their countries and how that fits into both the Secretary of Defense's theater engagement activities and mine. Then we will bring those SAO's together with the WHINSEC people and together we do a thorough curriculum review to ensure that what we see as plans for country X are in fact being married up with what is being done at WHINSEC.

Q What advice would you offer to U.S. Army infantry captains considering applying for an assignment in SOUTHCOM?

A SOUTHCOM is a terrific place. The whole region, Central and South America and the Caribbean, are wonderful places to be. I think the officer needs to decide if he's going to be an infantryman or a foreign area officer (FAO). The SOUTHCOM in theater assignments, except for a few PEP assignments, are almost all FAO-related. Therefore, an individual structuring his career ambitions and his goals as he's coming out of the Infantry Captains Career Course needs to make his mind up as to what he wants to do as he continues his career.

Q How can Fort Benning and the other branch schools better prepare officers, NCO's, and enlisted soldiers for assignments within SOUTHCOM? Do you feel, for example, that the soldiers coming into SOUTHCOM are adequately trained in languages?

A I think that essentially all FAO's that come to us and go downrange are pretty skilled in languages. You have to make a commitment to that, and you have to say to a soldier that he has to go off to language school and do all those things that are necessary for this, but I see this as being beyond the capabilities of Fort Benning. That would fall to the service schools such as the Defense Language Institute.

Q Reading General Hagenbeck's interview in Field Artillery magazine, and based upon the experience of 10th Mountain Division, we note that the most responsive close air support was from the Apache, followed by A-10's, and at night by AC-130 gunships. In dealing with the nations within your area of responsibility, do they regularly plan and/or train for the employment of such assets in contingencies?

A Not well enough. The Colombian Army Chief and I have an ongoing discussion about greater use of indirect fire systems and close air support. They don't have enough of it to go around. I encourage all the countries in the region to think more combined arms and think more joint. And I always tell them that the United States military became joint at the point of a congressional gun in 1986 — we were dragged into it. If we're honest with ourselves, we're still not as joint as we ought to be. I have seen the Colombian military in particular making some pretty good headway in that regard.

Q As we continue to refine our continental U.S.-based contingency forces as a response to crises around the world, what capabilities do you think we should stress more than we are doing presently?

A I think that philosophically we've all got the right approach. The

Army, in my view, has led the way with the development of the Stryker brigades. If we did anything wrong, it was in not stressing earlier and stronger that we were going to move the Stryker brigades by air and sea. As the I Corps commander, I developed plans and sold them to both of the last two Pacific Command commanders, including the current one, that using a combination of air and sea, C-17's and fast sea lift, I could in fact move a Stryker brigade with all its combat capability and a corps controlling headquarters anywhere in the Pacific faster than you could get a Marine Expeditionary Unit (MEU) there, assuming the MEU was not already afloat.

Now, that's not to say that we want to take over the MEU's mission. We don't. The MEU, the 82d Airborne, the Rangers, all of those people are wonderful for forced entry, but as soon as that airfield or that port — or a combination of the two — can be available, you can move a Stryker brigade in a hurry anywhere in the Pacific. That in my view is strategic mobility, and if we — and by this I don't mean just the Army — do anything, we get too caught up in the discussion of moving stuff by air, and we're not going to move it all by air. There isn't enough air to go around. We need to do a better job at this. And we're beginning to do that. At the end of Millennium Challenge, we used the Joint Venture — a 313-foot ocean-going, high-speed Australian-built catamaran — to move 14 Stryker infantry carriers, about 20 soldiers, and other equipment from California back up to Fort Lewis, and it's a superb transportation system.

Q In some of our readings, I'm getting a sense that we're having some problems changing our mindset on purely combined arms operations in favor of joint coalition-type operations. What is your assessment of the progress we've made in shifting the paradigm that we're now following as we prepare for joint operations?

A I think that we are, that we've made great strides with that as well. You can make too much out of the Afghanistan experience in terms of coalition forces, and take too much away from those lessons learned. That was a very unique experience. But no matter where

you go you're going to have to fight in a joint and a combined atmosphere. So you must train for it. As we develop technology, though, there is a problem here, and that is that our technology so far outstrips the forces that we'll be fighting alongside. This may create problems for us, I believe, in terms of synchronization, command and control, and other areas. We even have it today in the digital world. If you are in the digital Army at Fort Hood, you would assume that as soon as the digital Stryker brigades roll in there that they could communicate. And the answer is they cannot. They can, but there are some major adjustments that have to be made to the digits and some tuning that must be done. And that's us now, in a highly technical world.

When I was at Fort Lewis, I went on an exercise with the Marines, and we couldn't even talk FA tasks to each other. We worked it out after about a day and a half, but they were in a different software package than we were. And so if we take an Advanced Field Artillery Tactical System to Pakistan and you want to talk to their artillery, how do you link the two together — with great difficulty... So it does create problems for you, but it's just another challenge to overcome, and you've got to continue moving forward. Again, every time we were working the Stryker brigades out at Fort Lewis the nay sayer would say, " Well, you won't be able to talk to this unit, or that unit … what happens if your computers crash…" Well, you know, those are challenges to overcome, not to be afraid of. Your option at that point is to stand still, unless you're not afraid to take some of those risks. You've got to push the technology envelope out there in reasonable ways, and I think that the Army, in particular again, has done a wonderful job of that. We don't get enough credit for it, but we've sure done it.

Q We've touched on the issue of lessons learned, and in reading some of our professional publications I'm sensing that too many things based upon isolated events are getting labeled as lessons learned rather than being treated as observations. How do you see that?

A I think that's a true statement. We as a military jumped to conclusions, for example, after Kosovo. And we can leap to some of the same conclusions over Afghanistan. What took place in Afghanistan may or may not take place in Iraq. So what that says to me is that you had better still have a pretty good conventional thought process in your mind if events do not take place in the way you want them to. I get very uncomfortable about making leap-ahead conclusions over one small battle.

Q What message would you send to combined arms soldiers worldwide?

A I would tell combined arms infantrymen worldwide that it is truly combined arms, and that when you go to war take your artillery. When you go to war, be able to talk to the Air Force. When you go to war, be able to talk to the Marine Corps and the Navy and be sure that you've practiced with them. Long, long gone are the days when we could all do this by ourselves. I just finished reading a great new book, Rick Atkinson's *An Army at Dawn*. It's great reading in terms of combined and joint activities — and the lack thereof — in the North African campaign,

and the resultant loss of life. While it's true that we have come a long way since then, some of the teaching points we see over and over again are:
- Never underestimate your enemy,
- Don't assume things away, and
- Be able to communicate with your forces and with other forces.

It really is great reading. It's gotten great reviews. He's the same author who wrote *Crusade*, which I believe is the best book to come out of the Gulf War. He does his homework, and it's a good read. It's good history and pretty quick reading.

General James T. Hill assumed command of the United States Southern Command on August 18, 2002. General Hill previously served as the Commanding General, I Corps and Fort Lewis. He is from El Paso, Texas, and was commissioned into the Infantry following graduation from Trinity University in San Antonio, Texas, in 1968. A graduate of the Command and General Staff College and the National War College, he also holds a Master's degree in Personnel Management from Central Michigan University.

After completion of the Infantry Officer Basic, Ranger, and Airborne Courses, and an initial assignment at Fort Hood, Texas, General Hill served with the 2-502d Infantry (at that time, part of the "Always First" Brigade, 101st Airborne Division (Airmobile) in the Republic of Vietnam as a rifle platoon leader, recon platoon leader, company executive officer, and company commander.

General Hill's other key assignments include: Company Commander, 3d Ranger Company, Fort Benning, and Commander, Company A, 2d squadron, 7th Cavalry, Fort Hood; Battalion Operations Officer and Battalion Commander, 1-35th Infantry, Schofield Barracks; Staff Officer, Strategy, Plans, and Policy Directorate, Office of the Deputy Chief of Staff, HQDA; Aide-de-Camp to the Chief of Staff of the Army; and special Project Officer for the Chief of Staff of the Army. General Hill commanded the "Always First" Brigade, 101st Airborne Division (Air Assault) from August 1989 until July 1991, including service in Southwest Asia during Operations DESERT SHIELD and DESERT STORM. General Hill served as Chief of Staff of the 101st Airborne Division (Air Assault) from August 1991 through October 1992.

He then served as the Assistant Deputy Director for Politico-Military Affairs on the Joint Staff from October 1992 to July 1994, when he assumed duties as Assistant Division Commander (Support), 24th Infantry Division (Light), including service in Haiti as Deputy Commanding General, Multinational Force, and Deputy Commander, United States Force, Haiti, United Nations Mission, Haiti. He later served as Deputy Chief of Staff, Operations, Forces Command, from June 1995 until June 1997. In June 1997, he became Commanding General of the 25th Infantry Division (Light) and served in that position until he was named Commanding General, I Corps and Fort Lewis, in September 1999.

Reducing Losses in Combat

A Look at Avoidable Casualties

DR. JOHN E. JOHNSTON, JR.

American troops have not sustained casualties on the magnitude of those sustained in World War II, the Korean War, and Vietnam. As a result, our officer and noncommissioned officer leaders have not been exposed to handling troops in a major conflict in which rifle companies have been known to routinely sustain debilitating casualties. This happened to the 90th Infantry Division, in which I served during World War II. The division entered combat on D+1 on Utah beachhead with 14,000 men, fought continuously over 330 sequential days (of the 100 divisions in the European Theater of Operations, the 90th had the most days in combat) and sustained more than 22,000 casualties — the fourth largest number of casualties of the 100 divisions. Three division commanders and many regimental and battalion commanders were relieved in less than a month. Yet all of the units from battalion to division operating in Third Army, the 90th Infantry Division was the only unit recommended for a citation by General George Patton at the end of the war. The 90th therefore makes an excellent test sample for discussion.

Definition of Avoidable Casualties

"Avoidable" casualties in combat are those that — given proper precautions — could have been avoided. An implication of this definition is that there must be another subset of casualties that are inevitable. This, of course, is not the meaning here. In any combat, casualties are likely to occur, but this discussion considers only the subset of casualties that could have been prevented. "Avoidable casualties" are defined as those generated by obvious and foreseeable errors. If casualties do not result from such errors, then they cannot be classified as avoidable. Frequently, there is a fine line between avoidable casualties and other casualties that arise in the course of tactical operations.

Foreseeable Errors Partially Created by the Combat Environment

We tend to think of the enemy as the unique creator of potential foreseeable errors. But this is only partially true. The combat environment itself contributes heavily to the potentially foreseeable errors. There are many parameters that affect the combat environment. A few of the most important factors include the terrain, weather conditions, long term battle stress, and situational combat events that create errors of omission and commission.

Terrain. Much of our basic training involved learning how to make the best use of terrain in combat. Several elemental foreseeable errors come to mind—failure to build overhead cover on one's foxhole when the opportunity and time permit; a foreseeable error of omission; taking cover among trees when it is unnecessary; taking up positions on prominent points such as road junctions, stand-out buildings and prominent terrain features, again when it is not necessary to do so.

On the other hand, if a building such as a tower is occupied to serve as an artillery observation post, then we have a combat priority that overrides any consideration of personal security. If casualties occur among the artillery observers, these may simply be a function of their tough, dangerous mission, and not avoidable.

The distinction should be made that if there is no immediate ongoing combat priority, casualties that occur may fall into the *avoidable* category. It is evident that the foreseeable combat errors discussed repetitively in basic training are so simple that they could easily be avoided. But they have been violated, from the individual level up through every echelon, all the way into the staff strategic planning level.

Weather Conditions. The errors initiated by weather conditions are easily seen but are seldom acted upon in time to keep them from resulting in unnecessary casualties.

As an example, the necessity of changing the individual infantry Soldier's camouflage uniform to white during winter combat months should be obvious, yet the German Army command staff often completely failed to provide proper camouflage for their infantrymen during winter months. The immediate consequence of this foreseeable error caused a tremendous number of German

casualties generated by dark uniforms that made them stand out when they moved. The Russian troops in their white sheets, blending with the snow background, were almost impossible to see when they moved. (The German Army at least partially rectified this mistake during the Battle of the Bulge.)

Unfortunately, our command staff at the strategic level learned little from this. The proper camouflage for winter fighting apparently was seldom considered. A few of our more ingenious infantry recognized their high commands' oversight and provided their own camouflage by stealing white bed sheets from German houses. A few of these individuals participating in this so-called "criminal activity" against enemy civilians were threatened with courts martial. Their immediate commanding officers had to step in to prevent these actions and save their men from becoming casualties of our own legal system.

The second — and even more important — condition affecting front-line troops living day in and day out in the open is severe winter conditions. For Soldiers who are not properly clothed, combat morale and efficiency are markedly reduced and result in a tremendous increase in preventable casualties. The misery of such conditions for the individual Soldier results in an acceleration of battle exhaustion, a severe reduction in morale, and a marked increase in susceptibility to disease, including pneumonia, influenza, trench foot, and frostbite.

One might have thought that the German high command would have learned the most obvious lesson from Napoleon's winter campaign disaster in Russia, where a great many of his casualties were preventable—caused not by the Russian Army but by the Russian winter itself. Since the German leadership failed to recognize this error, many Wehrmacht troops found themselves fighting in the Russian winter in summer uniforms.

Although not entirely lacking in winter clothing the way the Germans were on the Russian front, the U.S. Army was still not properly equipped for the European winter that occurred in 1944 — the worst in half a century.

It is interesting to note that General George Patton, who always considered the welfare of his men his first priority, somewhat corrected the overt error of high command by sending out raiding parties to steal heavy winter clothing and blankets from the rear areas of adjacent American units. This resulted in an overall gain in morale, efficiency, and the desire of the individuals in his units to carry out with enthusiasm General Patton's every command, but at a great cost to the men of those adjacent units.

Battle Stress, Long Term. Long-term battle stress is generated by the intensity of the combat, its duration, and the conditions associated with it. The chief initial impact of such stress is exhaustion and especially mental lethargy. Carried to the extreme, it results in a complete psychological breakdown in which a Soldier cannot function effectively at all.

The mental lethargy of individuals and the combat unit should be the main concern of unit leadership. Mental lethargy causes oversight in predicting errors that would not otherwise be overlooked. While combat leadership cannot correct the psychological problem, it may certainly be able to prevent predictable errors.

Errors of Omission and Commission. We can think of quite a few situational events that create predictable errors. One such event is that of green troops under fire for the first time. Panic, if it occurs, generates predictable troop errors with disastrous results. Another situational event is the effect of friendly fire on your own troops, fratricide in today's terms.

A Combat Unit's Measures of Performance. In general, we can recognize four parameters to measure the combat performance of a unit, whether it is an army, a division, or an infantry platoon: strength, efficiency, morale, and effectiveness.

Every combat unit has a maximum strength before battle, which generally changes little. Continuous combat degrades unit strength, and such losses must be countered by a continual influx of trained replacements. The mathematical measure of this degradation at any point in time is expressed in terms of a percentage of the unit's strength prior to the action. Obviously, if the replacement rate does not equal or exceed the casualty rate, the unit strength will continue to drop until the unit becomes completely ineffective. There is a lower limit to this ratio, which if penetrated on the downside results in the unit being considered combat ineffective. Generally, a unit that has sustained casualties of 30 percent or more is considered combat ineffective. If this ineffectiveness persists, usually the only course of action open to the commander is to assimilate the unit's members into other units.

This almost happened to the 90th Infantry Division, since it had sustained such heavy losses during the first month of the Normandy Campaign. The staff command of Operation *Overlord* requested that General Omar Bradley break up the division for replacements. He refused, replacing three ineffective division commanders in less than a month along with many poor leaders at the regimental and battalion level.

Efficiency is the measure of effective and aggressive leadership, high performance of tactical teamwork under fire, battle experience, and each member's knowledge of the others' capabilities and the support of each member for each other and the unit as a whole. Of these four parameters, the efficiency of a combat unit is by far the most important. A high order of efficiency reduces casualties, increases morale, and — unless the enemy has overwhelming strength — increases the unit's effectiveness. The efficiency of a unit will also rise or fall according to which side has the most and best weapons. The measure of combat effectiveness is the ratio of the

casualties of a given force to the total casualties over a certain period.

Let's now assume a high efficiency level initially but also a high combat intensity level, creating continuously a large number of casualties. Let's also assume that these casualties are immediately replaced so that the strength of the unit remains high without continuing to degrade. The question to be asked is what happens to the effectiveness under this scenario. The answer is that the unit's morale and effectiveness can drop to zero. That is because the expert leaders — those members of the combat team with battle experience, a high order of training, and the interactive support of each other and the unit as a whole — are gone. With continually high casualty rates, the unit over time is severely degraded. Even though the replacements are assumed to be able to keep the unit's strength level constant, we now have a unit whose leaders and men are strangers and must learn to work together. Tactical teamwork is absent because the replacements do not know each other and their leaders. In the end, the unit loses effectiveness.

Many nations have tried to alleviate this problem by withdrawing the unit from combat, reconstituting it, and giving it a limited amount of retraining before sending it back to the front. This was time consuming, of course; the unit would no longer be operationally available during this time. The United States chose to do the opposite, replacing casualties by sending replacements directly to the unit in combat without withdrawing the unit. This generally worked well only because of our superior number of well-trained troops and our superiority in weapon systems, particularly aircraft and artillery. This increased the effectiveness for our units and placed German troops at a disadvantage. For most of our units, we had low casualty rates, and the replacements could be readily absorbed into a unit and also integrated into the teamwork of the unit. This method will not work if the casualty attrition rate is high, however. General Patton recognized the importance of degrading the enemy units' efficiency by the shock of overwhelming "surprise" attacks. This raised the enemy attrition rate and dramatically damaged the enemy units' leadership and cohesion.

It should be obvious now that reducing the total casualties over time can help both the efficiency and the effectiveness of the unit. Aside from superior tactical skills, the only other method of reducing the casualty attrition rate is to reduce the number of avoidable casualties. And the only way to reduce this type of casualties is to avoid foreseeable errors. The following are real samples from the combat log of the 90th Division — as well as units at higher echelons — in generating both potential and actual avoidable casualties by failing to recognize and take measures to prevent them.

By studying some of these avoidable casualties, we can classify them into three categories:

- Unnecessary casualties that affect only the Soldiers committing the foreseeable errors — not the internal technical and tactical operations of the unit.
- Unnecessary casualties within the unit that affect and degrade both the technical and the tactical operations of the unit or adjacent combat units.

Panic causes soldiers to block their thinking processes so that easily recognizable errors are completely overlooked, resulting frequently in large numbers of casualties.

- Foreseeable errors of high command (division, corps, army, and overall command) that affect and degrade all subunits.

Many men of the 90th Division correctly dug foxholes on the reverse side of the hedge rows, but failed to cover them with at least two feet of earth. This error was committed during the static combat in Normandy, resulting in a large number of casualties from German 88mm and 150mm air bursts and additional tree bursts from quick fuses.

In another example, prior to a company assault on a village, a 105mm artillery battalion was provided in support. The first battalion volley landed between the infantry jump-off line and the village, but closer to the jump-off line. Because the green troops had not been trained to distinguish incoming artillery fire from outgoing, and had not been told of the coming barrage, they immediately ran to the rear, throwing down their arms. The artillery concentrations advanced into the village, from which no enemy small arms fire was returned. The enemy had vacated the village. It took more than an hour to round up the panic-stricken troops. With many similar episodes during the Normandy campaign, it is hard to believe that at the end of the war, the 90th Infantry Division was the only combat unit in Third Army that was recommended for a unit citation by General Patton.

The foreseeable errors with respect to this action — which would have led to casualties if the enemy had been in the village — were the following:

- Failure of the artillery liaison officer to inform the infantry commander that he was going to receive artillery support.
- Failure of leadership to instill and enforce discipline.
- Failure to teach infantry not only the difference between the sounds of incoming and outgoing artillery fire, but also the difference between sounds of high-velocity shells and low-velocity howitzer fire. This training is important, because during World War II artillery fire generated three times as many casualties as small arms fire.

We have seen here the most insidious condition that affects troops — panic. Panic causes Soldiers to block their thinking processes so that easily recognizable errors are completely overlooked, resulting frequently in large numbers of casualties. The following is a tragic example of casualties caused by panic, in this partial quote from Martin Blumenson, formerly a staff member of the Army's Office of the Chief of Military History:

Innumerable examples in the official unit records make evident the inefficiency of the 90th Division. The St. Germain action is perhaps the best example and certainly the most convenient illustration of how bad the division was. It shows the division at its worst. The small part of the division involved was typical of the whole.

The Island of St. Germain, the objective of the action, is a low mound of earth surrounded by swamps and was athwart the division zone of advance.

U.S. Army photo

During World War II, a medic carries a wounded German prisoner of war.

From the beginning of the attack, troops of both battalions had displayed a disinclination to engage the enemy. Strong and accurate fire nourished this reluctance, and the terrain facilitated those who wished to avoid crossing the open space of marsh and river into the bridgehead. Stragglers individually and in groups drifted unobtrusively out of the battle area. At least four hundred men made the difficult passage through the swamp to establish a bridgehead.

German artillery fire continued throughout the night. The extreme darkness and the inability of small unit commanders to recognize recently arrived replacements facilitated unauthorized trips to the rear by demoralized men.

Shortly after daybreak, three enemy tanks appeared on one flank, an armored car appeared on the other. As they commenced to fire, German infantry, about forty men, attacked.

American troops in the bridgehead became panic stricken.

Many did not fire their weapons. Groups of Soldiers fell back and waded the river toward safety.

The bridgehead force was reduced from 400 to less than 300 men. They congregated in two large fields at the edge of the island. Hedgerows surrounded each of these fields on three sides. The side to the rear was open and invited escape. The

enemy provided the only restraint to wholesale retreat by automatic weapons and mortar fire.

About the time that regimental headquarters began to suspect the deteriorating situation, a shell landed in a corner of one field on the island inflicting numerous casualties on a large number of men huddling next to each other in fear. At this psychologically sensitive moment, though there was actually little firing and few Germans were in view, cries of "cease fire" swept across the two fields where men in the bridgehead had gathered. A group of American Soldiers started forward toward the enemy with their hands up. Some displayed white handkerchiefs; others joined them or fled across the river. The force in the bridgehead disintegrated, the Germans remaining in possession of St. Germain.

Casualties were high, 100 men dead, 500 wounded, 200 captured, and 300 missing in action.

It is difficult to count all of the errors and particularly to determine which ones contributed most to this catastrophe. The first error, and maybe the most important, was the complete failure of leadership, resulting in the panic, which in turn resulted in other overlooked errors. The one prominent foreseeable error that really stands out is the clustering of a large group of terror-stricken troops, which resulted in heavy casualties when a shell found its mark in the congested group.

At the other extreme we have the hardened, experienced combat Soldiers — nearing complete battle exhaustion from months of fighting — enduring the awful winter environment of snow in subzero temperatures. This created foreseeable errors that normally would be recognized, but these conditions were completely disregarded.

One evening during a temporary halt, an undamaged, heated building became available for temporary relief of weeks of environmental torture. Unfortunately, because of crowded conditions, the ground floor and the cellar were not available to all, and the remainder had to bed down in the attic. This would have been fine except for the German 150mm howitzer fire interdicting the area, a few shells creasing the roof and falling in the back yard.

Although those in the attic easily saw their errors and the consequences, their attitude in an exhausted state was: "If my number is not on one of those shells, it won't hit me, and if it is, it doesn't matter where I am." Again this false logic was generated by the physical and psychological condition of the individuals.

Soldiers (mainly infantry) who are not involved in the technical operations of a lower echelon unit will usually be able to accomplish their mission unless errors are committed at any one time by an overwhelming number within the unit.

In general, though we have presented an exception, the unnecessary casualties of the lower echelon units are few and do not affect the strength and efficiency of the unit. If this is true, why should we place any importance upon these isolated

casualties? In some cases, highly specialized technical individuals can create foreseeable errors resulting in unnecessary casualties that completely degrade the unit's effectiveness. Let me cite an example.

During the Battle of the Bulge in the severe winter of 1944, the 90th Division's Headquarters Battery, 345th Field Artillery Battalion, was able to set up a command post in a house in a small village. In bedding down for the evening, both fire direction teams selected a large first-floor room — the only room with a fireplace — and soon put it to good use. Unfortunately, the room faced the direction of the enemy, and the village was receiving 150mm howitzer fire throughout the night.

About midnight when the two fire direction teams were asleep, the enemy scored a direct hit and blew the brick wall of the room in on top of both teams. The hole in the wall was big enough to drive a large truck through.

We went into what was left of the room, expecting to find both teams wiped out. The fact is that we were able to drag all of them out alive from under furniture and brick, a small miracle. The fact that there were only minor lacerations and only a few Soldiers temporarily unconscious, speaks volumes as to how lucky the battalion was: First, the enemy had used a quick fuse instead of a delayed fuse. Second, the shell had missed the windows by only a few feet.

It is illogical to simply refuse to accept any risk, just for the sake of avoiding casualties. But even if there is small risk that the enemy will obtain a direct hit by unobserved fire, a leader must take into account the consequences of taking such a risk. One fire direction team, taking the risk and being wiped out, results in tragic consequences that the commander might be forced to accept. Since one fire direction team remains, the efficiency and effectiveness of the artillery battalion partially remain. But if both teams became casualties in the same incident, this is an entirely different matter. Both the efficiency and the effectiveness of the artillery battalion would be significantly degraded. Here the consequence was large though the risk was small. In short, a commander must weigh the risk and its likely gains against possible consequences.

With respect to the errors of high command, as we ascend the chain of command involving larger and larger units, the consequences on subordinate units of such errors increase exponentially. We have already seen the devastating consequences of both German and U.S. commands' failure to supply both winter clothing and winter camouflage.

In the enormous complexities of strategic planning for the invasion of Normandy, the high command was absolutely blinded to an obvious, highly foreseeable, and extremely simple error of omission: They forgot to analyze combat tactics in the Normandy bocage country and to put into place training doctrine on how to fight in this country. The Germans did not commit this error

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We should not just stop training every echelon to recognize and avoid potential errors. But we should take advantage of finding the enemy's weaknesses and things he has overlooked, and take action to inflict the greatest possible casualties on him.

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of omission and were expert in the tactical use of the area. The result of this simple error cost the Americans thousands of unnecessary casualties as they sought to fight their way through the hedgerows.

Using the Enemy's Overlooked Foreseeable Errors

We should not just stop training every echelon to recognize and avoid potential errors. But we should take advantage of finding the enemy's weaknesses and things he has overlooked, and take action to inflict the greatest possible casualties on him. The weapon systems best able to do this are first the artillery, which not only has the long-range reach but always the element of surprise, and secondarily, the Air Force.

There are times when it is easy to identify the enemy's errors of omission or commission, resulting in an easy analysis of how best to inflict casualties on him. Frequently, the analysis of how to generate enemy casualties is quite difficult. Here are two examples from the combat log of the 90th Infantry Division:

In the first case, an enemy infantry platoon occupied a large semi-wrecked building on a prominent road junction behind their front line, on which we had registered one of our batteries only hours before.

Our observer noted that the enemy was having some sort of party, which included the consumption of alcoholic beverages. In order to maximize the number of unnecessary enemy casualties, a decision was made to delay the fire mission to allow the enemy Soldiers to become inebriated. The mission was fired about one hour after their occupation of our registration point, with devastating results.

In the second case, the analysis of how to generate numerous casualties from the foreseeable error of commission was not quite so simple. This occasion was the combat stalemate at Metz, where the U.S. Third Army was opposed by strong German forces occupying three strong forts (Lorient, Driant, and Koenigsmacher) with many concrete bunkers in front of these forts. These strong points and forts for the most part appeared to be impervious to artillery fire. The stalemate had been created by the diversion of large amounts of fuel and artillery ammunition originally assigned to the U.S. Third Army and subsequently transferred to the British army of General Montgomery. The resulting stalemate at Metz was similar to that of the trench warfare of World War I, with heavy American casualties and little or no progress against the entrenched German forces.

During the very early morning hours every day, a very limited number of Germans were observed by our forward observers venturing forth from their strong points to relieve themselves and obtain a little fresh air and exercise. These strong points, of course, were out of range of small arms fire.

These small enemy groups were not only limited in number but also extremely scattered, hardly presenting a worthwhile artillery target. Further, after one group had enough exercise and fresh air, they would retreat to their bunkers and the next small group would scatter forth.

The enemy was obviously well aware of their error in exposing themselves to artillery fire, but reduced the risk by not presenting a concentrated target. The

problem for our division was how to encourage the enemy to become careless and generate a concentrated target of personnel.

To take advantage of the enemy's error of commission was a most difficult problem, but one officer genius in divisional artillery came up with a solution. The division requested and obtained a large quantity of propaganda leaflet shells, designed to detonate high in the air, scattering leaflets over the wide area of ground. While the leaflets had no effect in causing the German Soldiers to desert, they nevertheless were picked up and read, along with the stories and pictures that the leaflets contained, after which they were used for toilet paper. It also came to the attention of the divisional staff that our propaganda leaflets were of a softer tissue than the German military issue of toilet paper.

During the daily barrage of leaflets, strict orders went out to our artillery battalions that no high-explosive was to be fired except in an attack of our infantry.

At first, there was considerable suspicion and little change in the number and concentration of personnel. But as the daily dose of leaflets with no high explosive continued, the number and concentration of the German Soldiers increased dramatically. Further, since the number of leaflets per day was limited, those that did not get out of their bunkers right away found that they had to wait for the following day to obtain their issue of softer toilet paper.

When it was determined that there was no significant increase in the number of concentration of enemy personnel, our divisional, and corps artillery threw in volley after volley of high explosive following the initial concentration of leaflets. The Germans never again trusted our propaganda efforts.

As with every operational aspect of combat, it is teamwork that pays off; so it is that the most effective way to reduce unnecessary casualties is the effective use of good leadership and teamwork in recognizing and avoiding foreseeable errors.

At the same time, it is up to individuals to make their own security against committing foreseeable errors. It is one thing to commit to an extremely high order of risk because the tactical operation requires it for success. It is quite another thing to take dangerous risks when the tactical operation is temporarily dormant or static and does not warrant taking such risks. As an example, one of our men, leisurely observing 40mm antiaircraft fire on enemy planes, was struck in the chest by a falling round and killed instantly. This was a wasted casualty, a man no longer available to his team because of his dubious pleasure in observing antiaircraft fire.

Thus the primary responsibility of keeping unnecessary casualties to a minimum resides with every member of the combat unit, from rifle squad up to army, and we must instill and reinforce in basic training the general principles of

recognizing and avoiding foreseeable errors. And we can later reinforce it in training and in discussion classes, with both officers and noncommissioned officers leading the discussions.

In combat it is up to the leaders to ensure, insofar as is possible, that their men do not become trapped into making obvious mistakes that can result in their death or injury. Within a unit containing many military occupational specialties, the foreseeable errors committed result not only in exponential damage to the performance of the unit, but also in the performance of the overall command.

At the same time, officer and noncommissioned officer leaders must constantly be alert to errors on the part of the enemy, and analyze how best to cause such errors to be turned to our advantage. This gives us double leverage in reducing our own unnecessary casualties and increasing his.

Finally, at the top level of command, it is imperative that foreseeable errors not be overlooked. Failure to recognize and to take preventive action can cost thousands of lives, as it most certainly did in the Normandy Campaign.

Dr. John E. Johnston, Jr., entered military service in July 1943, at the age of 19, and was assigned to the 345th Field Artillery Battalion, 90th Infantry Division, U.S. Third Army. He landed on D+1 with the 345th, the first medium artillery battalion landing on Utah Beach, and was with the battalion for more than 330 days of continuous combat. He now runs his own market forecasting company.

The Battle of Chosin Reservoir at Yudam-ni

CAPTAIN DOUGLAS G. SCHAFFER, USMC

Chosin Reservoir

Map 1

KOREA

High Ground Above 200 Meters

50 MILES

The 1st Battalion, 7th Marines, 1st Marine Division, successfully used the characteristics of the offense during the breakout operation from Yudam-ni to relieve Fox Company, 2d Battalion, 7th Marines, at Toktong Pass, Chosin Reservoir (also known as Changjin Reservoir), Korea, December 1–3, 1950.

A whirlwind of events occurred during the opening months of the Korean War. Among these events was the invasion of South Korea on June 25, 1950 by the North Korean People's Army (NKPA), which crossed the 38th Parallel and pushed the Republic of Korea (ROK) forces into a small perimeter surrounding the southern port town of Pusan. The Marines were ordered to Pusan to help defend the perimeter. After four weeks of combat, when the situation was under control, the Marines were embarked on naval ships for the brilliant turning movement, the amphibious landing at Inchon.

With the successes gained from Pusan and Inchon, General Douglas MacArthur ordered the U.S. 8th Army and ROK forces to pursue the fleeing NKPA. The U.S. 8th Army would operate in western Korea, and X Corps in eastern Korea — both with orders to cut off the NKPA's effort to flee to the north. The 1st Marine Division, attached to the X Corps, landed at the northeastern port of Wonsan on October 25, 1950 for operations that would take UN forces north toward the Yalu River, which was the border of Manchuria and Communist China (see Map 1).

The plan was to move the X Corps north of the Chosin Reservoir to cut off the retreating NPKA and any Chinese Communists Forces (CCF) already in the country or moving south from Manchuria. The 1st Marine Division, attached to X Corps, was composed of the 1st, 5th, and 7th Marine Regiments.

The 1st RCT (Regimental Combat Team) had engaged the NKPA south and west of Wonsan and had alerted all the elements of the X Corps that hostile forces were in the area. The Chinese forces used guerrilla warfare tactics. With little artillery and no air support, the Chinese used heavy mortars and machine guns but relied mostly on the infantryman. With the respect for U.S. air power and the devastating effects of artillery, the Chinese generally fought at night and sought tactical penetrations into command, logistical and supporting arms systems of UN forces. The Chinese actions and tactics against the Marines were initially successful because the Marines were using scattered company defensive positions instead of tight battalion perimeters.

As the X Corps moved north, the scheme of maneuver was to have the 1st Marine Division move west of the Chosin Reservoir and U.S. Army units move east of the reservoir. The division also had the responsibility of securing the main supply route (MSR)

along the route north. Unknown to the X Corps, the CCF had encircled UN forces and were waiting for orders to begin an attack that was to destroy X Corps.

The 1st Marine Division's 5th and 7th RCTs were in Yudam-ni, defending a large perimeter of approximately four miles in circumference and cautiously moving closer to the Yalu when the CCF attacked. Although the Marines knew that CCFs were in the area and had made previous contact with them, intelligence reports did not report or estimate accurately the size of the force, or relate that overwhelming CCFs had attacked the 8th Army in western Korea.

When CCFs launched the first attack on November 27, 1950, the Marines fought as individual companies and battalions against human-wave assault tactics. The Marine situation was tenuous at best. Two CCF divisions attacked from the northwest of the Marines' perimeter, and a third division had encircled the southeast, blocking the MSR and trapping two rifle companies and associated attachments in non-mutual supportive positions (see Map 2).

Company C of 1st Battalion, 7th Marines, short one platoon, was approximately four miles south of Yudam-ni. Four miles farther south on the MSR, Company F (2d Battalion) in Toktong Pass was at full strength in a more isolated position, reinforced by heavy machine guns and an 81mm mortar section from the

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Map 2

5TH AND 7TH MARINES
AT YUDAM-NI
27 November 1950

Marine Attacks, Day, 27 Nov
Marine Positions, Evening, 27 Nov
Chinese Positions, Evening, 27 Nov

ELEVATIONS IN METERS

3 MILES
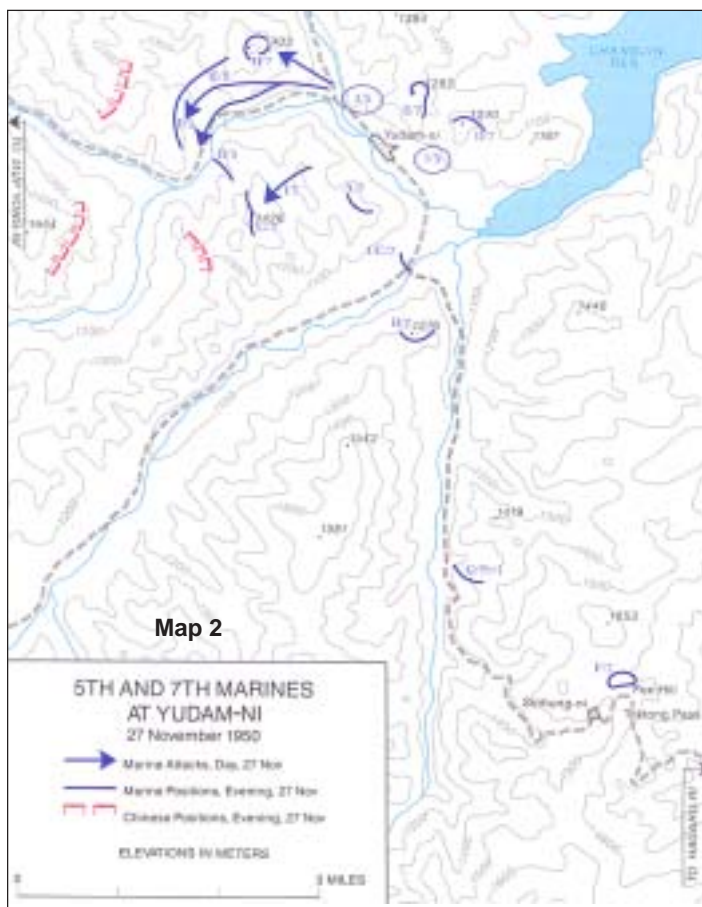
Battalion was still about one mile from Company C. In a rapid envelopment to the west, the battalion's Company B moved with the aid of close air support and 81mm mortars fires and succeeded in pushing to the perimeter and enabling the withdrawal of Company C. Company F was supposed to fight north along the MSR and link up with 1st Battalion. This was not possible, however, with the number of casualties that Company F had suffered and the number of Chinese forces in the area. The RCT commander — not wanting to have an entire battalion surrounded by enemy forces — ordered that 1st Battalion return to the main perimeter. The relief force returned at 2110.

The RCT commanders believed that all forces were required for the defense of the perimeter, but they were also required to mount another relief effort for Company F. In a second attempt to accomplish this relief, the commanders formed a composite battalion of the units in reserve within the perimeter at Yudam-ni. At 0800 on November 29, the composite battalion moved south on the MSR but was hit with heavy machine-gun fire 300 yards outside the perimeter. The Marines could plainly see the CCF on the ridgelines but continued to fight south. After attacking 4,500 yards south along the MSR, Marine planes dropped messages to the composite battalion and the regimental headquarters, informing them that the enemy was entrenched in a formidable force on both sides of the MSR. After consideration at the regimental headquarters, the relief force was ordered to return to the main perimeter before it could be surrounded.

Company F survived a third night on Toktong Pass. One Marine was wounded; three CCF companies perished.

weapons company. Prior to the attacks the night of November 27–28, Company F's commander — knowing that he was on his own without hope of making it to the regimental perimeter until the following day —formed a tight perimeter. At 0230, the CCF attacked on a 270-degree arc (three fourths of the company perimeter). With one platoon initially overrun, the reserve elements fought and tenuously held the perimeter. By 0630, November 28, the Chinese had received so many casualties that the attack could no longer be considered organized.

As the RCT commanders at Yudam-ni consolidated their lines and realigned forces into one main perimeter, 1st Marine Division Commander General Oliver Smith ordered them to attack south toward Hagaru-ri to reopen the MSR as well as rescue Company C, 1st Battalion, and Company F, 2d Battalion, 7th Marines.

At 1015 on November 28, the rescue attempt for the two companies stranded on the MSR to Hagaru-ri commenced. Lieutenant Colonel Raymond G. Davis's 1st Battalion attempted first to reach Company C from Yudam-ni. After five hours of fighting, marching, and climbing, 1st

When the composite battalion did not function as expected, General Smith ordered that 5th Regiment take charge of protecting the Yudam-ni perimeter and that 7th Regiment conduct operations to clear the MSR to Hagaru-ri. The "March to the Sea" had begun. The manner in which the withdrawal was conducted is an important element of the Marine Corps' legacy.

As the two RCT commanders planned the reorganization and redeployment of forces, the regiments formed a second composite battalion to cover the weak portions of the perimeter. Additionally, as the battalions maneuvered — reforming the perimeter and breakout force — there was little contact from the CCF. It is likely that this was a tactical failure of the CCF on a grand scale, especially since the Marines were vulnerable and made all the movements during daylight hours.

The decision was made that 1st Battalion, 7th Marines, would attack over land instead of down the MSR and relieve Company F from the east. The remainder of the 7th RCT would pave a way for all other forces, including the wounded, vehicles, and equipment to move south from the Yudam-ni perimeter.

Early on December 1, the 2d Battalion, 5th Marines relieved 1st Battalion, 7th Marines in place, to allow it to carry out the assigned mission of relieving Company F. The initial breakout took an enormous amount of effort to create the gap in the CCF lines, which was not secured until 1930 on December 1, 1950. Lieutenant Colonel Davis evacuated his dead and wounded to the main perimeter. One additional company was attached to his battalion at the last moment because of the day's combat losses. This battalion cut the last physical ties with Marine units at Yudam-ni and attacked east and south.

The planning process for 1st Battalion's march to Toktong Pass was swift. The concept of operations and scheme of maneuver was developed and approved in approximately 20 minutes. The plan was to take two 81mm mortars and six heavy machine guns, each manned with double crews so they could carry enough ammunition. It was also decided that all Marines would carry their sleeping bags, an extra bandolier of small arms ammunition, and extra stretchers — initially to carry ammunition and then casualties. The Marines in the battalion

reserve and headquarters company carried an extra 81mm mortar round. Extra radios were carried with the unit, ensuring duplication of assets and positive communications with the Yudam-ni perimeter. Other mission considerations were that all wounded and sick would remain with the main breakout force. These Marines would drive the vehicles and provide convoy security.

At 2100 on December 1, catching the enemy off guard, 1st Battalion broke out of the perimeter and headed east and south in the effort to relieve Company F at Toktong Pass (see Map 3). After a day of fighting, reorganizing, absorbing replacements, issuing orders, evacuating wounded, and neither sleeping nor eating a hot meal, the mission continued. The effects of the combat were pushing the Marines to the end of their mental and physical endurance.

The night of December 1, 1950 was dark, and the temperature was 16 degrees below zero. Land navigation was difficult, particularly in the deep draws and valleys that 1st Battalion, 7th Marines crossed. The lead elements were losing sight of the guiding star when they descended from the ridges. Also, during this phase of the movement, the column was drifting toward the enemy lines, which 1st Battalion was trying to avoid. The leaders noticed the problem, and passed the word to the front to change course, but it was not effective. Many, if not all the Marines, had the hoods of their parkas over their heads and were fighting the internal battles of fear and exhaustion as well as the dangerous environment around them. Lieutenant Colonel Davis attempted to use artillery fire and white phosphorus rounds on designated hills to help guide the movement. This technique did not produce the desired results. Davis then personally ran to the head of the column to orient movement on the correct azimuth of attack.

All the Marines were exhausted, including the leaders. When issuing orders or directions, Davis insisted that the company commanders repeat all orders to make sure they were what he desired and that he had, in fact, issued the orders accurately.
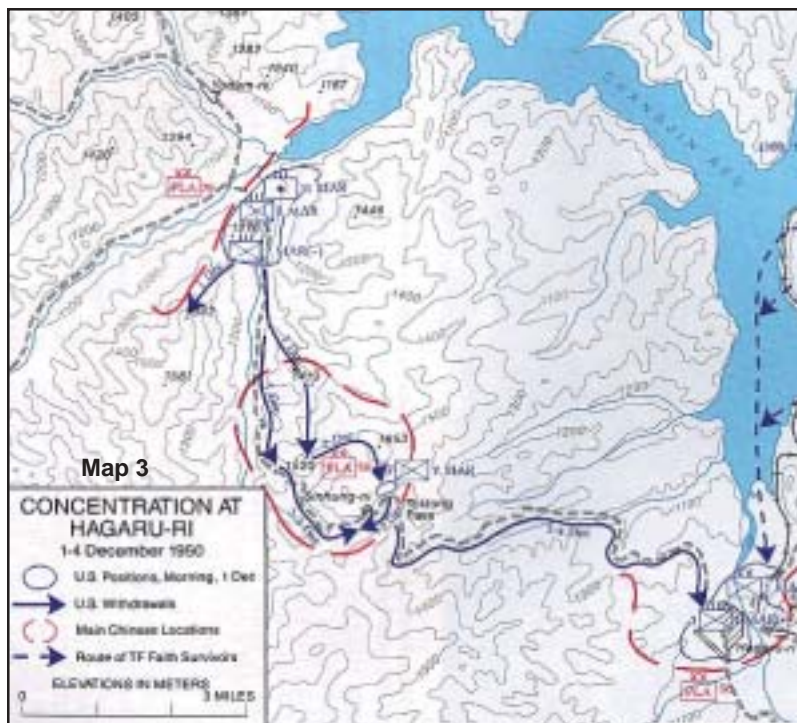
Small arms fire increased as the battalion drifted toward the enemy. The order to prepare for an attack of the enemy position was issued and promptly executed. The 1st Battalion, 7th Marines, had caught the enemy off guard again and destroyed a platoon-sized outpost with only a few Marines wounded. As the battalion was reorganizing for continued movement toward Company F, men began collapsing from fatigue. The effort to get them moving again required the direct action and leadership of the officers and NCOs. The battalion continued to move unchecked until Colonel Davis rested his battalion after 20 hours of combat and movement.

During the time 1st Battalion, 7th Marines was moving overland, 3d Battalion, 5th Marines, was attacking south on the MSR (see Map 4). The pressure that 3d Battalion maintained on the CCF, and the fact that it probably appeared to be a much more lucrative objective to the CCF, enabled 1st Battalion, 7th Marines, to move as effectively as it did. Also, since the perimeter at Yudam-ni was shrinking, the CCF probably thought they could take decisive action and destroy the Marines in the perimeter as well as the units moving on the MSR.

After the brief respite, 1st Battalion continued the attack toward Company F. Correcting for the drift toward enemy lines, the relief force had closed to one and one half miles from the beleaguered company's position. The radios that 1st Battalion, 7th Marines carried and used were not functioning properly or were out of range of Company F and the main force at Yudam-ni. The 1st Battalion, was unable to contact Company F to ensure that the 81mm mortars or heavy machine guns did not fire on the relief force. The 1st Battalion, continued to march toward Company F's perimeter, and radio contact was finally established.

A final attack was mounted — again with the aid of close air support and 81mm mortar fires — and Company B reached the Company F perimeter at 1125 on December 2, 1950. Company B ate an air-dropped meal and immediately continued the attack west to the high ground that would lead to securing Toktong Pass. Company A pushed out and secured a perimeter to the east of Company F's perimeter (see Map 3).

In an attempt to entice the enemy to move and reveal their positions in and around Toktong Pass, 1st Battalion, 7th Marines, started warming fires. The Chinese were not expecting an attack from troops who were warming themselves; 1st Battalion changed tactics again and launched three simultaneous attacks on three different CCF strong points. The surprise attained by this action caught the CCF off guard. They fell back, running in the direction of 3d Battalion, 5th Marines, which was within a mile of Toktong Pass along the MSR. The 3d Battalion, 5th Marines, then called an air strike, which was the leading factor in a CCF regiment's complete elimination.

The 1st Battalion, 7th Marines, reached Hagaru-ri at 1900 on December 3, 1950. Behind the battalion leading the way were vehicles loaded with wounded and dead, artillery howitzers, a tank and the remainder of two Marine regimental combat teams. The last elements of the rear guard from Yudam-ni entered the Hagaru-ri perimeter at 1400 on December 4, 1950. Thus, the 1st Marine Division was united, with the exception of the two infantry battalions that were to the south at Koto-ri and Chinhung-ni.

Map 3

CONCENTRATION AT
HAGARU-RI
1-4 December 1950

◯ U.S. Positions, Morning, 1 Dec

➜ U.S. Withdrawals

◡ Main Chinese Locations

➜ Route of TF Faith Survivors

ELEVATIONS IN METERS

0   3 MILES

Overcoming numerous obstacles — including continuous attacks, the relentless cold, a blown bridge in a narrow mountain pass and a 78-mile march to the sea — the 1st Marine Division and all included forces, the majority of the equipment, wounded and dead were evacuated on naval shipping at the port of Hungham. The campaign ended when UN forces destroyed the entire port facility in a great explosion.

As commander of 1st Battalion, 7th Marines, Lieutenant Colonel Davis used the characteristics of the offense during the breakout operation from Yudam-ni to relieve Company F, 2d Battalion, 7th Marines, 1st Marine Division, at Toktong Pass. Field Manual 100-5, Operations, describes the characteristics of the offense as the combination of surprise, concentration, tempo, and audacity.

Davis achieved surprise on numerous occasions during December 1-3, 1950 by "striking the enemy at a time or place or in a manner for which it is not physically or mentally ready." (FM 100-5, p. 7-1). A prime example is when 1st Battalion, 7th Marines, continued the breakout attack force from Yudam-ni in a direction other than south on the MSR. The battalion gained freedom of action when it encountered CCFs and attacked from a direction the CCF was not anticipating. The most decisive surprise during the entire action was when the battalion conducted three simultaneous attacks from Company F's position on Toktong Pass. This was most decisive because it enabled 1st Battalion to secure the entire pass and drive the preponderance of the enemy force into the direction of 3d Battalion, 5th Marines.

Three significant reasons that helped achieve surprise for 1st Battalion: First, if detected during the breakout, CCF may have assumed that the battalion was actually other CCF forces, because the Marines were in the CCF rear areas. Second, CCF commanders may have thought that one battalion would contribute little against their CCF actions. Third, when the battalion did attack, it was in a direction opposite of the CCF defenses—that is, in the rear or flank of the enemy. The CCF focus was the destruction of the main Marine force at Yudam-ni and the denial of the use of the MSR to the UN forces.

Colonel Davis achieved concentration of his forces during the breakout by massing

Marines begin withdrawing from Yudam-Ni after the Battle of Chosin Reservoir.

the effects of his battalion formation and weapon systems as well as exploiting the success from his actions (FM 100-5, p. 7-2). Concentrating his force, he attacked CCF units during the overland march by using combined arms, close air support, mortars, and machineguns. The effective combination of these weapon systems reduced the number of individual infantrymen required and saved the force countless casualties. "Speed, security, and deception are essential to successful concentration …" which Colonel Davis constantly ensured by keeping the battalion moving after the breakout and after attacking the enemy outposts (FM 100-5, p. 7-2). Ensuring that the battalion moved on the correct azimuth of advance also attained speed. The best example of deception is the warming fires in the perimeter that were started before the simultaneous attack of the enemy outposts. Additionally, Davis made a conscious decision to leave the sick and wounded men at Yudam-ni, doubled up on the crew-served weapons crews, and instructed his battalion that the movement was to be conducted in silence. All of these issues added to the security of the force.

Tempo is "the rate of speed of military action; controlling or altering that rate is essential for maintaining the initiative" (FM 100-5, p. 7-2). Davis maintained the tempo during the breakout of the Yudam-ni perimeter by keeping his lead company up front, even though the Marines were exhausted from the fight to pass through the CCF lines. Stopping to move another company forward would have permitted the

CCF to maneuver, delay, or block the operation. After the attack on the CCF outpost, Lieutenant Colonel Davis kept the battalion moving. In addition to being a force protection issue, the Marines probably would have frozen from the sweat that formed during the attack, but Davis kept moving and maintained the initiative and tempo over CCF forces. This action also aided in the security of the force by not remaining in a position that the CCF knew of. Resting the Marines and permitting the battalion to sleep maintained the tempo because the rested Marines were able to regain their momentum in a few hours. Colonel Davis rested and fed his Marines before launching another attack on the CCF defensive outposts in Toktong Pass. Davis constantly adjusted the tempo and succeeded in keeping the CCF off balance.

"Audacity is a key component of any successful offensive action." (FM 100-5, p. 7–3) The entire plan of allowing an infantry battalion to move overland in the mountains of North Korea, operating independently of its parent unit, is bold – particularly if the maneuver unit becomes decisively engaged. Company F's building of warming fires in its positions, along with the unexpected launching of three simultaneous attacks, demonstrates the effective application of the characteristics of the offense.

Captain Douglas G. Schaffer is a company commander in 1st Battalion, 7th Marines, at 29 Palms, Calif. When he wrote this article, he was attending the Infantry Captains Career Course at Fort Benning.

VIRTUAL SIMULATIONS & INFANTRY TRAINING

MAJOR WILFRED RODRIGUEZ, JR

WHUMP! The breaching charge did its job and put a man-sized hole in the side of the farm house, but Bravo Team, 2nd squad had sustained casualties in completing the breach. Only one man got back from laying the breaching charge. SGT Makuch was first out from the railroad ties as he led his fire team through the dark the last 20 meters to the farmhouse. SSG Hicks trailed Alpha team, ready to bring in Bravo Team as soon as they seized the foothold in the house. 1LT Miramontes had already called for smoke and shifted 2nd and 3rd squads' fire and was bringing up the Strykers led by SFC Dunn. 1LT Miramontes NVG's were comparatively limited, and the Strykers would be better able to identify and suppress enemy positions with their enhanced optics and firepower. He monitored his squad leaders' chatter as they adjusted their Soldiers' suppressive fires and got ready to follow first squad.

SGT Makuch brought his fire team straight into the breached room and shot an enemy Soldier as he turned to fire. SSG Hicks ordered Makuch to take the next room as Bravo Team made the leap across the open area. Bravo Team just made it into the initial room as an enemy grenade went off outside and Alpha started clearing the next room. PVT Kim from second squad saw the window the grenade came out of and promptly put an M203 round in the window. His team leader popped smoke in the open area to cover the team's bound as Kim told him what he saw and why he was shooting. Alpha Team's 1st squad stacked and tossed in a flash bang to the room on the left per platoon SOP and rushed into the room to find two dazed civilians. Bravo team followed the same procedure in the room to the right. SSG Hicks reported the farmhouse clear as SFC Dunn reported that the Strykers had caught the enemy fire team running out the back.

As 1LT Miramontes entered the farmhouse, an enemy automatic grenade launcher started pounding the building from down the street. It was masked by the surrounding buildings, and he had already learned that bringing in Strykers too early risked an RPG ambush. He requested help from his CO, who directed him to illuminate the building with a PAC4 and change radio frequencies to direct Spectre gunship fires. Three 105mm rounds later, the enemy 40mm fire ceased.

The lights came on and 1LT Miramontes came out of his simulator. "Much better Miramontes, and good shooting Kim, you probably saved your squad with that shot. Miramontes, let's get your platoon into the AAR room and talk distribution of fires."

"Sir, we cleared the building this time and..."

"And you lost a fire team, Miramontes., They say three is a charm, but let's see if there was something Bravo team or the support by fire squad could have done better. Remember, tomorrow we're going out to McKenna MOUT Site!"

The best training is live, realistic, challenging METL-supported training, executed to standard on terrain similar to where you will fight. Nothing replaces live training with live ammunition with the whole unit in the field. That is an honest and time proven truth. Unfortunately, in actuality resources — space, ammo, time — are scarce, and we are very challenged to do all our training in the field for a myriad of reasons. Training areas are busier (and also super eco-managed) and not as plentiful as in the past. Ball and tracer ammunition and grenades are scarce. Missiles are expensive, and small arms rounds' usual priority of issue is to support marksmanship. What about time, the second most important resource next to the troops themselves? How many iterations of that platoon attack can I get in before I have to clear the range? Would preliminary training before the live fire make more of a limited opportunity? How often do we get those opportunities with all those conflicting requirements and mandated training?

For those of you who visited a video arcade lately, don't you wonder why someone hasn't figured out how to link those realistic shoot or be shot games out there together and let the individual choose a route versus going down the same old hallway every time? The holodeck simulation from the Starship *Enterprise* is still decades away, but today we can train a whole platoon along the lines of the above vignette. The purpose of this article is to introduce you to the utility of a virtual simulation and energize you and the infantry community to pursue a dismounted Infantry focused virtual simulation.

Applying Virtual Simulations

The Modeling and Simulations (M&S) Handbook defines virtual simulations as...

digital representations of environments, organizations, systems, other entities, and processes with players operating virtual prototypes in a synthetic environment (i.e., real people operating simulated systems). Virtual M&S put the human in the loop (HITL) in a central role by exercising motor control skills (e.g., flying an airplane), decision skills (e.g., committing fire control resources to action), or communicating skills (e.g., as members of a command,

control, communication, computers, intelligence, surveillance, reconnaissance [C4ISR] team). Current state-of-the-art virtual M&S bring the system (or subsystem) and its operator together in a synthetic or simulated environment.

The aviation community has used virtual simulations for more than half a century. The armor community has had a virtual simulation tool since the late 80's (SIMNET and now Close Combat Tactical Trainer [CCTT] is a networked simulation consisting of numerous vehicle simulators). That is longer than some of today's Soldiers have walked the planet. What types of tasks lend themselves to virtual simulation?

According to the Modeling and Simulations (M&S) Handbook,

Virtual M&S provide understanding of human reactions and decision processes and human-machine interfaces. Output supports initial and early user evaluation. Virtual M&S provide a platform for crew training prior to live exercises and tests, or realistic mission rehearsal in preparation for actual combat operations. Linked to other simulators, the interaction of multiple weapon systems can be examined, leading to changes in tactics or engagement rules.

Our tankers and Bradley crews have used virtual simulations for years to great effect. Couldn't traditional infantry benefit from a virtual simulation, a simulation that starts at the individual level but — equally importantly — gets the whole unit interacting together in a virtual battlefield, operating in those environments and against those threats we are likely to face? A simulation is needed that gives the infantryman training value in offensive and defensive scenarios in the types of terrain we will fight in like MOUT, dense forest and jungle, and incorporates the combined arms team and its effects? Now there are some great simulations out there, each designed for a very specific skill or task set. Specifically, the Weaponeer, Engagement Skills Trainer (EST) and call for fire simulators do great jobs for their training niches. None of them make Soldiers (emphasis on the plural and implying units) take cover, return fire, report, communicate with other real Soldiers/units (above the

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Couldn't traditional infantry benefit from a virtual simulation, a simulation that starts at the individual level but — equally importantly — gets the whole unit interacting together in a virtual battlefield, operating in those environments and against those threats we are likely to face?

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squad level), integrate artillery fires and other combined arms simultaneously (as in combat). I'm talking about a full spectrum infantry centric networked multi-simulator simulation focused at training Infantry from squad to company with the effects and participation of the combined arms team. Let's call this simulation concept Full Spectrum Infantry & Leadership Enhanced Reality or FUSILIER. Two centuries ago, soldiers called fusiliers, who were armed with light flintlock muskets, fought on battlefields using tactics and formations trained on the parade field. I propose that today's Infantry use a simulated and much more challenging training ground than those of the past. In the past, there have been four primary obstacles that have hindered development of a full spectrum Infantry simulation. Today, we have learned how to overcome those obstacles.

Previous Obstacles to the Development of FUSILIER and Today's Solution

For one thing, virtual Infantry centric simulation was just technically too hard. Infantry is typically not employed on virtual flat and/or open terrain. When it is, realism and utility suffer. The Infantry fight is terrain intensive and while a tank can hide behind a hill, infantrymen seek cover behind a fallen tree, in a small culvert or even next to the curb of a road. Buildings are another can of technological worms called multi-elevated structures (MES). Portraying buildings — ones you can get inside and that have multiple floors, stairs, doorways, windows etc. — requires a lot of memory. Now challenge a simulator with the tasks of tracking 30-120 infantrymen — and however many OPFOR — moving across complicated terrain with

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their changing lines of sight (versus 14 tanks in a less terrain intensive environment for tankers) and the processor speed/memory demon becomes obvious. Although I've simplified this problem considerably for this article, a book could easily be written to more fully address the challenges in portraying a realistic Infantry fight.

Recent computer advances in hardware and software have largely overcome the argument that simulations are technically too hard to accomplish. The problem of not having enough power to push a simulation is generally a thing of the past, with processors today operating at 2.8 gigabytes or faster. Advances in memory and video card technology make it possible to run complex simulations on desktop PCs. Software enhancements have made leaps and bounds by better using hardware capabilities to improve Graphic Interface Units (GUI or picture). Given a detailed terrain database at the one-meter posting, today's software can routinely construct terrain with features that infantrymen will encounter, such as tunnels, curbs, doorways, stairs, or the inside of a fully depicted building located on one common terrain. For instance, the Shugart-Gordon MOUT site at JRTC is available now in virtual form, and is exact in detail to the Shugart-Gordon MOUT site on the ground. Simulations that involve virtual-immersed simulators are available today for the individual soldier. Much like the CCTT tanks and Bradley simulators — where each vehicle is immersed in a common synthetic terrain base — there are simulators available today that place players from a Soldier up to a platoon in common synthetic terrain capable of interacting with each other, as well as with vehicle simulators and OPFOR. The most significant technical hurdle left is to put all the pieces in place and actually demonstrate a complete company fight with the requisite number of entities. Later, I will explain a proposed solution that is largely in place today at Fort Benning.

While the development of an Infantry virtual simulation has been less urgent in the past, today's base closures, training area restrictions, maneuver damage, host country regulations and ecological concerns have all impacted on training area availability. Real world deployment costs

have reduced the dollars available for live fire training. The need is obvious. Yesterday's Infantry deployed, trained, and fought. Tomorrow's force will train, deploy, and fight, requiring that Infantry be ready to execute as soon as they hit the ground. A simulation tool leveraging our limited live training resources, providing a training gate and including assets not readily available (MOUT, AC130, Apaches) would pay big dividends. Remember the vignette? We also need a mission rehearsal tool where we can train today where we will execute tomorrow. Finally, Land Warrior and FBCB2 are just around the corner. Those skills are highly perishable. Couple that with the training limitations listed previously and the need to develop basic proficiency before we go do live training becomes even more important. Virtual simulations are a potential answer.

Another obstacle has been a perception that Infantry tasks and skills were too simple to warrant the cost and effort of a multi-million dollar simulation. "What does it take to give a soldier a rifle, send him in the woods and go kill the enemy?" went the argument. In reality, anyone who has had to plan and execute a mission requiring an Infantry unit to conduct a movement, execute a mission, and then return to refit and rearm only to start the second iteration can fully understand the effort required to make this happen. The advent of Land Warrior, complete FBCB2 fielding and ongoing transformation will only make the task more complicated, further supporting the case for the development of an Infantry simulation to support these superb additions to our inventory. Now let me tell you what FUSILIER can do to improve our training, starting with what we expect it to do.

FUSILIER Required Capabilities

FUSILIER must provide us a tool to make more efficient use of the limited resources of training areas, ammo, troops, and time. It must be as realistic as possible and model the up close dismounted Infantry fight. Realism enhances training effectiveness. Realism is not limited to not limited to merely stimulating senses; it includes METL tasks in real world environments under challenging conditions, using your personal equipment.

Here is a conceptual list of capabilities.

- Models the up-close, dismounted Infantry fight, and specifically:
  * Compartmentalized terrain (MOUT, dense forest, jungle, mountain);
  * Direct fire engagements with supporting fires to suppress or kill the enemy;
  * Supports small unit maneuver at realistic speed to model fire and maneuver tasks at squad through company;
  * Models the close fight;
  * The enemy is presented as a thinking, tactically sound opponent using all his capabilities.
- Realism
  * Battlefield (sights, sounds, smells);
  * Stress (see above, threat of death vs. don't let your buddy down, don't embarrass yourself, desire to win, obedience);
  * Challenge (level of difficulty, fatigue, wounds);

* Maximizes use of our unit's equipment that is accurately modeled;
* Use unit's organic equipment especially technology (M4, M203, SAW, flash-bangs, frags, smoke grenades, star clusters, illumination, binoculars, thermals, NVG's, laser pointers, GPS, LRF and link into FBCB2).

- Trains the whole unit (you don't develop a championship football team by focusing on the quarterback alone; you scrimmage with the whole TEAM).
- LEADERSHIP
- Integrates the combined arms team. At a minimum incorporates:
  * Aviation (lift & attack),
  * Mechanized vehicles (Infantry carrying)
  * Armor
  * Artillery
  * CAS
- Land Warrior and FBCB2 capable.
- Includes the fog of war (civilians, intelligence, mistakes).

Technology available today in the Squad Synthetic Environment at Fort Benning

Two key concepts that are integral to the success of FUSILIER are integrating all of the unit's Soldiers and leadership. The bottom line is that building a simulation that only models key individuals and leaders develops a very high speed Training Exercise Without Troops (TEWT) machine and in the end reinforces a manager approach versus a leadership model. Infantry leaders are warriors who should be trained to **lead** Soldiers on the battlefield and not **manage** machine/robotics or information systems. You don't train teams (units) by just training leaders (TEWT). Omitting Soldiers from training with their leaders denies opportunities for Soldiers to learn from their leaders and leaders to learn from their subordinates. Scaling back the simulation to not include subordinates eliminates an opportunity to build team cohesion and reduces the training benefit for C2 tasks and SOP reinforcement. Including Soldiers into training conducted by their leaders inspires Soldier confidence in their leaders and esprit de corps at squad/platoon/company. Additionally, not including subordinates robs them of an opportunity to learn how to become leaders themselves and more practically, to take charge of the unit should the leader become incapacitated.

There are several arguments against taking the simulation down to the lowest level. They mainly revolve around individual tasks can be trained better in the field, the contention that technology can model subordinates well enough, and that the cost of expanding simulation to include lower echelons would be prohibitive. Obviously, individual tasks can be trained better in a live training environment, and indeed **all** training can be done better in a live training environment. Sure, the individual soldier gets some individual training benefit in virtual simulations but his major contribution to training is his presence. Leaders get trained by leading Soldiers, and this is particularly true of the Infantry. You can not train a unit without having the majority of its Soldiers

The Squad Synthetic Environment is comprised a fully immersed environment, which is also called stand up (at left) and desktop computer mode (right).

present and the majority of tasks in MTPs are not just leader tasks. Second, today's technology does not model individual Soldiers' behavior well enough, especially in compartmentalized terrain. Electronic soldiers bump into walls, each other and doors in MOUT environments or require significant guidance that leaders cannot give in the heat of battle. Even if technology could model Soldier behavior to the fidelity required, we shouldn't do it for the reasons already identified. That type of technology would make very significant contributions in robotics and is another essay. Finally about cost, fully immersed virtual simulators are not cheap and when you multiply that number by a 100 a FUSILIER site becomes prohibitively expensive. The solution is modeling subordinates in a less fully immersed environment, a desktop computer-joystick versus a special room and equipment to immerse each Soldier in the virtual environment.

Today's Potential Solution

Today at Fort Benning there is a virtual Infantry simulation called Squad Synthetic Environment (SSE). It is used to research and develop new concepts and technology to support tomorrow's Infantry and ongoing transformation. It has fielded up to a platoon of infantry with a couple of vehicles in a virtual battlefield. It also models effects of the combined arms team (artillery, aircraft, etc) and has even been tied to the AC130 virtual simulator at Hurlbert Field. A successful experiment was recently conducted where the AC130 simulator flew

into the virtual battlefield in SSE at Fort Benning where FSO's from the 3rd Ranger BN and ETACs at Fort Benning directed AC130 fire into the virtual battlefield and destroyed an enemy company.

The SSE is configured to support research and development. One squad of the platoon operates in a fully immersed environment (the focus of experiments) and two squads operate in the virtual battlefield through desktop computers (modeling flank units or OPFOR). The immersed environment (or stand up, SU as we call it) consists of a 10x10-foot blacked out room with the front wall being a screen where the soldier views and interacts with his virtual environment. A projector 20-foot behind the screen projects the virtual view onto the screen. A Soldier wears a sensor so the SU's sensors can determine his posture and render an appropriate view (i.e. a soldier in the prone can see much less of the are in front of him versus when he is standing up). The Soldier's M4 mockup has a thumb joystick on the left side of the weapon where he inputs major movement (running, walking, crawling) into the simulator. The SU's sensors pick up the Soldier's real movement (leaning, taking a step to the left/right) inside the SU giving the Soldier the ability to look around corners by moving in the SU. Just a few of the capabilities of the SU are reloading, grenades, flash bangs, smoke, flares, emplacing C-4, and NVG's. The SU's are networked to desktop Soldiers who have all of the capabilities of the fully immersed stand up environment but input their actions via a joystick. All of this is controlled and recorded at the station of the

Battlemaster, who also controls semi-autonomous forces (SAF) to model flank units, the OPFOR — the OPFOR could even be some additional desktop simulators to provide for the most realistic OPFOR actions — and additional battlefield effects (i.e. artillery if there is not an artillery cell). The exercise is observed here by the leader in charge of the study who selects key points, views and communications for discussion during the AAR. You can read more about SSE capabilities, methods and weapons at the Army Modeling and Simulation Office Web site at www.amso.mil and click on major simulation systems.

For training, SSE would be reorganized as portrayed below to become FUSILIER. Leaders, the focus of training, are placed in fully immersed environments with the members of fire teams manning low cost desktop stations so they can participate and observe the training exercise, respond to commands and take over for their leaders should their leaders become incapacitated. Fiber optic links could be used to bring in other simulators such as the AC 130 described earlier. Fielding to units should include an organic terrain database generating cell so units could generate their own terrain based on local training areas but also real world contingency areas so units can arrive on station with multiple mission rehearsals under their belt. Today, no Stryker simulator exists but as that is developed and fielded with FBCB2 it could also be linked to FUSILIER along with other systems and combat multipliers (artillery effects station). SSE served as the testbed for Land Warrior .6 and is

presently being tested as the trainer for Land Warrior (VICTER program). There is an ongoing effort to integrate it with Land Warrior 1.0. As that effort comes to fruition in the next year, the Army would have a virtual trainer very capable of carrying it into the Objective Force time frame.

Figure 1 portrays a simulation suite to support training of an Infantry company. The platoon suite of FUSILIER would be one-third of the company suite. The company suite also give the option of integrating battalion assets and combat multipliers to expand the collective training affect of the system. Mortar platoons can set up in nearby locations. Using digital fire commands sent from the forward observer in FUSILIER, the mortar platoon executes fire missions in direct support cleared by the BN FSO in the TOC monitoring the battle. FUSILIER operating Land Warrior software and Stryker simulators also would incorporate FBCB2 and exercise those skills at the company and battalion level. Armor, close air, civil affairs, live training with sister companies using local training areas (or deployed to far away training areas) all are potential training exercises to be developed by the aggressive S-3 or commander.
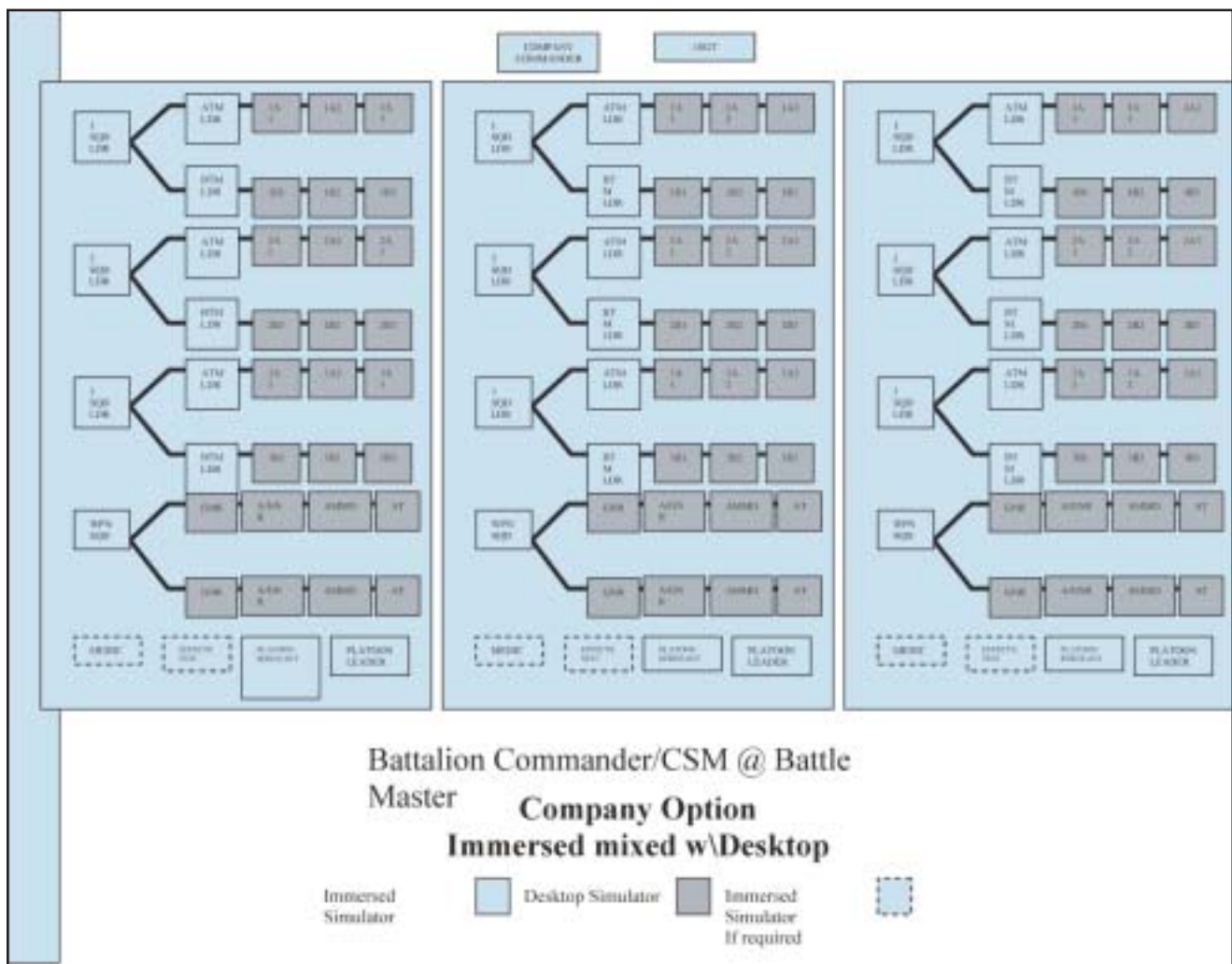
FUSILIER, Infantry's Future Simulator

Scarce training resources, a changing and increasing threat, increased OPTEMPO and new explosive technology are driving the Infantry community to find innovative techniques to train. With the SBCT fielded, Land Warrior on the horizon, and Future Combat Systems heralding the Objective Force, traditional techniques of training will be hard pressed to keep infantrymen at the technical edge while maintaining their time tested and true Infantry skills. Virtual simulations are a potential solution to training resource scarcity, integrating highly lethal and costly combat multipliers and developing the skills to use them. These virtual simulations could serve as an excellent training gate to gain a certain level of proficiency before units execute costly, rare and dangerous live training These same virtual simulations make mission rehearsal for far flung or quickly developing contingency operations possible. Our aviators and tankers have already trained on virtual simulations for decades, and now it is time for Infantry to reap the benefits of 21st century technology as it trains to meet tomorrow's challenges.

Major Wilfred Rodriguez, Jr., is the virtual simulations branch chief for the Dismounted Battlespace Battle Lab at Fort Benning. His previous assignments include commanding a mechanized rifle company in the 3d AD during Desert Storm and as a platoon leader and assistant S-3 in the 2nd Brigade, 101st Airborne Division (Air Assault). Major Rodriguez is a graduate of the United States Military Academy.

Figure 1

Battalion Commander/CSM @ Battle Master
**Company Option
Immersed mixed w\Desktop**

Immersed Simulator | Desktop Simulator | Immersed Simulator If required

LOGISTICS • SLANT •

HEAVY TEAM LOGISTICS REPORTING AT JRTC

CAPTAIN DEAN J. DOMINIQUE

What's the slant? A call comes over the radio stating that the slant is 8/7/3 — eight tanks, seven Bradley fighting vehicles and three dismount squads. Everyone understands what this means. It is standing operating procedure, a way to abbreviate critical information. But what about the logistics slant? A logistics slant is fundamentally the same, except that it refers to the logistics *basic load* instead of the combat slant.

At the Joint Readiness Training Center, an armor/mechanized company team is attached to the light infantry brigade for the rotation. The heavy team support component is usually a slice element that has no normal combat service support players, such as the battalion S-4 and a fully functioning field trains command post. The logistics slant is a fast and simple technique of identifying critical ammunition and fuel requirements and simplifying the logistics status report (LOGSTAT) to the company and field trains command post.

The command post will generally request to know what supplies the platoons have on hand and what they need in order to generate a LOGSTAT. By using a logistics slant, the command post can gather the on-hand supplies and quickly determine the amounts required.

The example used in the table is based on a 2 x 2 company team attached to a light brigade for a JRTC rotation. The tank company task organized with two Bradley platoons is equal to 10 tanks and eight Bradleys. This is a quick and easy way to determine requirements, and it can be easily tailored to mission loads that may differ from the basic loads listed in Field Manuals (FMs) 17-15, *Tank Platoon*, and 7-7J, *Mechanized Infantry Platoon and Squad (Bradley)*. This format also can be used for platoon, section, squad, or even fire team level.

A logistics slant that is understood by all combat service support players will enable the company team to go into battle with everything they need and concentrate on the mission at hand.

At the time the article was written, **Captain Dean J. Dominique** was the Senior Armor/Mech CSS Observer Controller at the Joint Readiness Training Center, Fort Polk, La.

SUPPLY	BASIC LOAD	SLANT (SUPPLY X BASIC LOAD)	COMPANY TEAM BASIC LOAD	LOGISTICS SLANT
M1A2 (Reference FM 17-15)				
M1 120 mm	42 rounds	10	420 rounds	/420
.50 cal MG	900 rounds	10	9,000 rounds	/9,000
7.62 mm	11,400 rounds	10	114,000 rounds	/114,000
JP8	504 gallons	10	5,040 gallons	/5,040
M2A2 (Reference FM 7-7J)				
M2 25 mm	900 rounds	8	7,200 rounds	/7,200
.50 cal MG	7 rounds	8	56 rounds	/56
7.62 mm	2,200 rounds	8	17,600 rounds	/17,600
JP8	175 gallons	8	1,400 gallons	/1,400
Dismount Infantry and Crew (Reference FM 7-7J)				
5.56 Link	600 rounds	6	3,600 rounds	/3,600
5.56	210 rounds or 7 magazines	28	5,880 rounds or 196 magazines	/5,880 /196

MOUT Weapons

The search for a new fire support weapon

GORDON L. ROTTMAN

With the emphasis today on military operations in urban terrain (MOUT), it is surprising that there are no fire support weapon systems now in the inventory or under development that are truly optimized for that environment. There are a number of compact, single-shot, shoulder-fired rocket launchers are available that can blast holes through heavy building construction materials. These are ideal weapons for Soldiers who must have a way to defeat hardened enemy fighting positions and blow breach holes in buildings to permit entry.

Current Weapons

Today's infantry has a variety of excellent weapons that are useful in MOUT. The 40mm Mk 19 Mod 3 grenade machine gun has more than sufficient range in built-up areas, a high rate of fire, and excellence in providing suppressive fire. But even with high explosive dual-purpose (HEDP) projectiles, it lacks sufficient penetration of concrete and masonry. It will penetrate 12 inches of pine logs, 16 inches of sand-filled cinder blocks (two layers), and 20 inches of sandbags (two layers). Their behind-the-target effects, however, are somewhat limited.

Other weapons capable of breaching and defeating enemy positions within defended buildings include the M136 (AT4) light antiarmor weapon (LAW) and the XM141 bunker defeat munition (BDM). The M136 has a high-explosive antitank (HEAT) warhead that makes it less than effective against fortified buildings. The BDM has an HEDP warhead, but it is a one-shot, disposable weapon like the M136. The BDM will penetrate 8 inches of reinforced concrete, 12 inches of brick (three layers), or 3 feet of tamped earth or sandbags (three layers) backed by 6-by-6-inch timbers. Besides destroying enemy positions, it can be used to breach walls for egress. The BDM has an effective range of 15-250 meters. The M98A1 Javelin surface attack guided missile system will defeat virtually any tank in the world, but it is extremely expensive to use for knocking out field fortifications.

There appears to be a sentiment among many that using high-velocity, rocket-propelled, guided or unguided weapons against MOUT targets is less than desirable. Whether the rocket's warhead is intended for antiarmor or anti-material (buildings, fortifications), such weapons are expensive, do not always provide the optimum terminal effect on the target, sometimes prevent firing from confined areas, and create a substantial backblast signature. The backblast also poses a hazard to the crew when fired at a high angle such as the upper floors of buildings.

A frequently suggested option it to resurrect the 106mm M40A1 recoilless rifle, which was the mainstay battalion-level antiarmor weapon until the introduction of the TOW system in the early 1970s. The Israelis and others still employ the 106mm and have used it effectively in MOUT. Provided with HEAT, high explosive plastic-tracer (HEP-T), and antipersonnel-tracer (AP-T) (flechette) rounds, it has been used effectively in MOUT operations by U.S. forces in Vietnam, the Dominican Republic, and other areas, but it also has limitations. It produces a major backblast signature and hazard, and this, coupled with its long barrel, restricts its use in built-up areas. Too, its design limits the way it can be mounted on a vehicle. It would be almost impossible to mount it on a HMMWV to allow 360-degree traverse, much less provide enough elevation to engage elevated targets. It would make little sense to field a weapon with inherently limited traverse. Its ammunition is heavy and difficult to manhandle.

What might be the most desirable characteristics for a highly mobile, vehicle-mounted, crew-served weapon capable of providing effective fire support in a MOUT environment? Preferably, this weapon would be effective for fire support in other environments such as deserts, plains, forests, jungles, hills, and mountains. Certainly no weapon can be ideal for all terrain and conditions, but one weapon can be effective for most.

The 40mm Mk 19 grenade machine gun is one weapon that can be useful in MOUT. The weapon has more than sufficient range in built-up areas, a high rate of fire and excellent at providing suppresive fire.

Terminal effects

The terminal effects are, of course, the most important consideration. The most common construction materials in urban environments are hollow cinder block, brick (backed or not backed by wood frame construction), comparatively thin and lightly reinforced concrete, stone, timber, and wood frame. Stone, concrete, and masonry walls separating property (such as courtyards and compounds), rubble barricades, multiple-layered sandbags, and wrecked civilian vehicles may be used as protective cover by the enemy. High-velocity HEAT rockets are not necessarily the most effective warhead to use against such targets. HEAT round behind-the-target (barrier) effects are less than desirable with only limited fragmentation, both from the warhead and secondary fragmentation for the barrier materials. The penetrating plasma jet is narrow and will injure only those in its immediate path while generating only limited blast over-pressure. Most HEAT warheads are relatively thin-walled, being essentially carriers for shaped charges. What we need is a more robustly constructed high explosive (HE) warhead on which a delay fuse may be fitted to allow it to punch through moderate building materials by kinetic energy and detonate behind the target barrier to inflict the maximum amount of damage by blast, fragmentation, and over-pressure. The availability of different types of projectiles is desirable as it provides additional target attack options and capabilities. Most rocket weapons and recoilless rifles are limited to HEAT or HEDP warheads.

A short-barrel, low-recoil weapon can easily be mounted on a vehicle and traversed without restriction in confined areas. The lack of a backblast reduces the firing signature and over-pressure in confined areas, prevents the possibility of crew injury, eliminates restrictions in its mounting and the directions in which it may be fired from a vehicle, and allows it to be fired at a high angle to engage targets well above ground level.

Range is not a major issue for weapons in MOUT, but a multi-purpose weapon with a sufficiently long range offers utility in other environments. Accuracy and a high rate of fire are certainly desirable characteristics for any weapon. Such a weapon, at one time, was in the U.S. armed forces inventory and was of comparatively low cost.

81mm Mk2 mortar

The 81mm Mk 2 Mod 1 direct-fire mortar was developed by the Navy's Bureau of Ordnance (at Naval Weapons Station, Crane, Indiana,) in the early 1960s. Its purpose was to provide offshore patrol boats with a comparatively lightweight direct and high-angle fire weapon capable of engaging both watercraft and targets ashore. This extremely useful weapon was adopted by the Coast Guard in 1962 and first mounted on large cutters serving as weather ships in the Atlantic and Pacific. One of their missions was to fire illumination flares to aid commercial and military aircraft that were forced to ditch at sea. The 81mm was tested in the Caribbean and found to be much more effective in this role than the 3-inch gun firing star shells and could be fired at a higher rate.

The Coast Guard was experiencing difficulties with its worn-out 20mm automatic cannons mounted on cutters. In 1964 the Coast Guard recommended that a .50-caliber machine gun be piggyback-mounted on the mortar. The prototype was built at the Coast Guard Yard, Curtis Bay, Maryland. This two-in-one gun provided a more flexible over-and-under mounting with two dissimilar weapons that required only one weapon station and one crew. This was a major benefit because of the space and manning limitations on small craft. It was discovered that the heavy mortar and its robust mount provided a very stable mounting, which allowed a high degree of control for the machine gun. A .50-caliber on a standard flexible mount is difficult to control because of the weapon's heavy recoil. The piggyback system was mounted on a flatbed truck and test fired at Dahlgren Proving Grounds, Virginia, in late 1964. Two were then mounted aboard a Coast Guard cutter at Norfolk, Va., for successful test firing at sea. The machinegun had to be reconfigured for right-hand feed, a simple field modification as the mortar's sight was on the left side. A 200-round machine gun ammunition container was fitted on the right side.

These mortars saw wide use on small Navy and Coast Guard craft in Vietnam. One mortar/machine gun combination was mounted on various coastal patrol and riverine craft, including fast patrol craft or "Swift boats," Point-class Coast Guard cutters, river monitors (modified LCM-6 landing craft, mechanized), assault support patrol boats, Osprey-class fast patrol torpedo boats, and Asheville-class patrol gunboats. There was at least one instance when an 81mm direct-fire mortar was mounted in the cargo bed of a ¾-ton cargo truck at a Special Forces camp in Vietnam.

The design of the direct-fire mortar was entirely different from any mortar previously in U.S. service. It consisted of a smoothbore 81mm barrel fitted on a carriage and a recoil slide. Locking levers were provided on the carriage to lock the mortar at a specified elevation and deflection, but it was mainly used as a free swinging (traverse and elevation) weapon. The barrel was fitted with a trigger firing mechanism on the base. An artillery-like recoil cylinder was fitted on top of the barrel. A basket arrangement was fitted on the barrel's base end to protect the gunner from the recoiling barrel, which was only 10 inches. This entire assembly was mounted on a fixed tripod fitted to a reinforced ring base fixed to the boat's deck.

The muzzle-loaded mortar was fired either by drop-fire or the trigger system. Adjustable elevation and traversing stops were provided on the tripod and carriage to prevent the weapons from firing into the boat or its structures. The mortar and machine gun could not be fired simultaneously, but an HE round might be direct-fired into a target, followed immediately by .50-caliber bursts.

Coast Guard-induced modifications provided an extended handle to traverse the mortar more effectively, and the bottom was cut out of the recoil protection basket so that expended .50-caliber cases, previously trapped in the basket, would not interfere with the mortar's recoil.

The barrel of the mortar was elevated to between 30 and 35 degrees, and the round was muzzle-loaded and then trigger-fired. It was not to be loaded for trigger-firing when elevated higher than 35 degrees, but it could be drop-fired from 35 to 71.5 degrees elevation. The drop-firing of mechanical time (MT) fused rounds was not authorized.

HE rounds were used for direct and high-angle fire against enemy watercraft and shore targets. White phosphorus (WP) could be used for the same purpose or to

lay smoke screens, either to blind the enemy or to screen friendly movements. WP rounds impacting on the surface of the water created a smoke screen between the boat and the enemy craft or the shore. Illumination rounds were ideal for providing illumination to identify suspect watercraft at night. In theory at least, the direct-fire mortar could engage helicopters at close ranges (approximately 1,000 meters) by firing HE rounds with variable time (VT) fuses to achieve an air burst. It is doubtful that this was ever tested, much less actually attempted, but it may still be viable.

The mortar was 65 inches long from the muzzle to the rear end of the recoil basket, and it had a height of 47 inches from the base of the tripod to the top of the machinegun (33 inches from base of tripod to centerline of 81mm barrel). The weapon stood higher, though, as it was normally mounted atop a raised base ring. The mortar and tripod weighed 593 pounds without the 84-pound machinegun. It had an effective direct-fire range of approximately 1,000 meters and, in the high-angle indirect fire mode, some 3,900 meters. Its direct-fire minimum safe range was 50 meters. Its rate of fire was 10 rounds per minute (rpm) trigger-fired and 18 rpm drop-fired. It could be elevated from 0 to 71.5 degrees and depressed from 0 to 30 degrees without depression stops. Its line-of-sight, open yoke-type sight, allowed accurate direct-fire and reasonably accurate indirect fire.

The 81mm Mk 2 Mod 1 mortar could be mounted in the cargo bed of an M998A1 or M1038A1 cargo/troop carrier HMMWV, with an add-on armor kit to allow 360-degree traverse. This might necessitate a steel reinforcing plate in the cargo bed to support the mount, but this would provide additional mine protection. A ready ammunition locker, protected from small arms fire and fragmentation, would be fitted in the forward end of the cargo bed, and .50-caliber ammunition racks could be fitted over the wheel wells. Although the Navy version did not have a shield, some were retrofitted and a shield might be advisable for close combat. One small crew operates two weapons with a broad range of capabilities from a single mobile weapons station, greatly increasing the system's capabilities. A crew of four would be required—squad leader/gunner, loader/fuse-setter, ammunition handler, and driver.

The effects of the different 81mm rounds — and the ability to employ them in the direct-fire role — make it an extremely versatile weapon for MOUT. Direct or indirect HE fire with super quick (SQ) fuses would be excellent against personnel and soft targets. Direct-fire hits on lightly armored and thin-skinned vehicles would also be effective. Multiple direct hits with SQ fusing could also be used to open breach holes in buildings and walls. HE set for 0.5-second delay would be extremely effective against buildings and field fortifications. The HE round is sufficiently robust (thick-walled) to penetrate masonry and other typical construction materials and detonate inside causing a tremendous amount of damage. When fired at a low-angle, delay-fused rounds can be skipped off the ground just short of a target to airburst above it. WP rounds may be used for close-in smoke screening, while delay-fused WP rounds can be used to penetrate building walls and create incendiary effects. Another means of creating an incendiary effect would be to set the MT fuse on illumination rounds to 10 seconds, fire it through a building window or other opening, and then eject the magnesium flare after the round impacted inside the building. Illumination rounds may be fired from the Mk 2 mortar in the normal manner as well.

A possible technique is to mount a small laser range finder on the mortar and a range scale with corresponding delay times for MT fuses fitted on a bracket beside the sight for the loader to set the fuse. The target is lased, the MT fuse set for the range, and the round trigger-fired to air burst over the target.

The Navy effectively employed HE rounds with variable time (VT) fuses from the direct-fire mortar with both direct and indirect fires. These were used to achieve air bursts over troops in the open and those concealed in open-topped firing positions and dense vegetation. WP air bursts in this manner were also effective to drive the enemy out of open positions and other cover. The Navy fielded the 81mm Mk 120 Mod 0 antipersonnel round in 1969. This unique round was used only in the direct-fire mortar. The blunt-nosed cartridge contained 1,300 1¼-inch long flechettes (small fin-stabilized darts) intended for direct fire on close-range targets, mainly personnel. It was loaded, then trigger-fired with a maximum effective range of 183 meters to defend against near ambushes on rivers and canals. It was also effective in stripping camouflage from concealed bunkers. When fired, the cartridge activated within 3 meters of the muzzle to spray flechettes in a shotgun-like blast. Such a round might fulfill the requirements for an antipersonnel round now being developed for the 105mm Stryker mobile gun.

The .50-caliber machine gun using armor-piercing incendiary ammunition would make this weapon system even more versatile, as it provides a direct fire capability that is effective against personnel, buildings, light field fortifications, thin-skinned vehicles, and helicopters. The fact that both mortar and machine gun can be elevated to 71.5 degrees makes the system especially useful in MOUT. A Mk 19 grenade machine gun could be mounted instead of a .50-caliber. Other options include the 25mm Objective Crew Served Weapon (36.6 lbs) or the 30mm ASP-30 combat support weapon (114.6 lbs). These weapons are highly effective in MOUT.

Whether or not the direct-fire mortar mounted on a HMMWV is employed as a replacement for the Stryker mortar carrier or to augment it is a moot point. The most effective means and at what echelon it would be assigned would have to be determined through field exercises and computer war-gaming. Three HMMWVs can be carried in a C-130 transport, six in a C-141B, eight in a C17A, and 15 in a C-5A. Two can be sling-loaded under a CH-47D and one under a UH-60A. The vehicle-mounted, direct-fire 81mm mortar and .50-caliber combination would be an ideal fire support system for light, airborne, and air assault infantry battalions in MOUT and virtually any other environment with perhaps four assigned to a battalion. Such a mobile system would greatly improve the firepower and target engagement capabilities of any light infantry unit.

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BAPTISM BY FIRE

One Lieutenant Colonel's Conversion to Digital Battle Command

LIEUTENANT COLONEL JOHN W. CHARLTON

I had 13 separate map sheets in the bustle rack of my Bradley when I crossed the Line of Departure (LD) into Iraq. Each was specially cut and numbered so that my Task Force operational graphics lined up correctly on the map. I had the current map sheet on my 18-by-24 inch map board while the extra map sheets were stored away in a map case. When I reached the end of a particular map case, I had to take the map board apart, pull the adjacent map sheet out of the map case (hence the numbering system), and attach the new map to the map board. Invariably, these map changes usually happened on the move and at night. My driver and I spent nearly two days cutting, aligning, and marking these map sheets prior to the start of the war. Leaders everywhere were doing the same drill. We were using 1:100,000 scale map sheets for the operation. When you have to travel over 700 kilometers, you make some sacrifices in detail to limit the number of map sheets you have to carry. We compensated for the lack of detailed maps by using imagery and engineer terrain team products.

Sometimes I had to juggle both my map board and the imagery at the same time such as when we began our attack into Talil Airfield on the first day of the war. We had crossed about 200 kilometers of open desert enroute to our objective and then attacked right into a dense urban environment. I was using the 1:100,000 scale maps for the long approach march and imagery for the actual attack. Since it was a night attack, I was also trying to maintain control of a small flashlight so I could see all these battle command aids.

What I should have spent the entire time focusing on was the small screen attached to my COAX door. It had been accurately tracking my location as well as the location of my key leaders and adjacent units the whole time. It had a database of maps of various

> **So why wasn't I using the system that much on the first attack of the war? The answer is simple: confidence.**

scales and satellite imagery for all of Iraq. Of course, I'm describing the Force XXI Battle Command Brigade and Battalion (FBCB2) system. 3rd Infantry Division (Mechanized) received a less sophisticated version called the BLUEFOR tracking system. It didn't have all the refinements of the full FBCB2 suite, but it did offer basic messaging and situational awareness capabilities. Contractors installed the systems in key leader vehicles throughout the division. They also gave us crash courses on how to use the system.

So why wasn't I using the system that much on the first attack of the war? The answer is simple: confidence. I had only received a short burst of training on the system and had never really put it to the test. I knew how to use it but did not have enough experience with this new battle command system to give me the confidence to rely on it in combat. As a result, I fell back on my "Old School" battle command techniques of juggling maps in the turret of a Bradley. I didn't completely ignore the new system … I just didn't fight with it. I managed to make it through the first couple days of combat using my trusty map sheets but little did I know that my days of relying on paper map products were about to come to an end. My own personal transformation to digital battle command would come during our operations in a little Iraqi hotspot called As Samawa.

Task Force 1-15 Infantry initially wasn't supposed to fight in As Samawa. We were headed northwest to linkup with 2nd Brigade Combat Team south of Karbala. However, shortly after we began our movement west, I received a fragmentary order to move to As Samawa and relieve 3/7 Cavalry. Our mission was to isolate As Samawa from the V Corps main supply route to the south. Saddam Fedayeen forces had infested As Samawa and were a tremendous threat to logistics units moving along the supply route. The problem was that I didn't have any imagery of the town since we hadn't planned on fighting there. This meant we had to use our 1:100,000 scale maps to produce operational

graphics. The graphics were almost useless since the maps showed virtually no detail of the As Samawa urban area. Fortunately, one of my company commanders was getting pretty skilled at using the FBCB2 graphics feature, and he transferred my acetate graphics to digits. What an amazing difference it made. We could switch map scales and even use digital imagery allowing us to see every street in the town in relation to our graphic control measures. We used the Mission Data Loader (MDL) to transfer the graphics to every system in the Task Force, and we were ready to go.

Even though I was impressed with the abilities of the FBCB2 system, I still wasn't confident enough to go fully digital - I was still fighting off my map board. My complete conversion to digital battle command would not come until the infamous sandstorm of March 23, 2003. We were conducting a reconnaissance in force to find and destroy Saddam Fedayeen forces. I was planning on using the sandstorm as cover for our movement, and we planned to use railroad tracks as a handrail to guide us into our positions. I had two scout sections along to provide surveillance on the objective. Both company commanders and the scouts had FBCB2 as did my track. We were all using FBCB2 1:50,000 scale maps to track our movement since the sandstorm created "zero visibility" conditions. We were literally moving by dead reckoning through the sandstorm, using the FBCB2 system.

We ran into problems about halfway through the movement when we tried to navigate around the As Samawa train station. Even the 1:50,000 maps did not show all the details of the train station. Vehicles were getting stuck on the converging tracks and had to maneuver around several buildings that weren't identified on the maps. The sandstorm made it impossible to see our surroundings and we had several breaks in contact. One of the company commanders suggested we all switch from maps to imagery and would then be able to see the details of the train station and help us get around it. We were literally maneuvering by instruments like pilots do in bad weather but the imagery and GPS functions of the FBCB2 system allowed us to bypass the train station in the middle of a sandstorm. The experience of being forced to use and rely on FBCB2 during a combat mission under impossible weather conditions completed my conversion to digital battle command. I never used another paper map product for the rest of the war and fought every fight thereafter using FBCB2.

Digital Battle Command: What Works Well

FBCB2 has revolutionized tactical battle command in many ways. I've already mentioned the digital maps and imagery as being a tremendous capability. I literally had the entire countries of Kuwait and Iraq at my fingertips. I could pan across the maps, zoom in,

change to imagery (and zoom in on the imagery too), change scale, and even change the color of the grid lines on the map (actually a very handy feature). I didn't have to worry about changing map sheets — the screen updated as I moved. I didn't need a flashlight to read the maps and imagery since the screen had an adjustable backlight. The FBCB2 imagery wasn't quite as clear as a hard copy product but it was definitely suitable for every mission we executed. It enabled us to navigate through the narrow streets and alleys of Baghdad or determine if a canal road was suitable for tracked vehicle movement. I relied solely on FBCB2 imagery for all urban operations. If I had to pick the single best thing about FBCB2, it would be the maps and imagery capabilities.

Even though I had a limited number of systems in my Task Force, FBCB2 greatly improved my ability to battle track friendly units and improve my overall situational awareness. I not only knew where my scouts and company commanders were; I also knew the location of all adjacent units and command posts. This greatly facilitated linkups. I didn't have to call and get a location of a company commander. I could see his icon on the screen and FBCB2 would guide me to his location. I am certain that FBCB2 battle tracking capabilities were instrumental in preventing fratricide. This was particularly important in urban areas where friendly units frequently converged and were often masked by buildings and other structures. Finally, FBCB2 allowed me to track the progress of the battle and know if things were going according to plan. When my Task Force seized a key highway intersection south of Baghdad, I could see the company commander icons at each blocking position and I knew we had control of the objective. That cut down on a lot of radio traffic and allowed leaders to concentrate on the fight instead of giving frequent situation reports.

Shortly after arriving at As Samawa, my Task Force received the mission to send a company-sized force to seize a piece of terrain to the west and establish blocking positions. The mission was similar to the one the Task Force was given in As Samawa: isolate the built-up area and protect the V Corps supply route to the south. I had four companies (two armor and two mechanized infantry) so the loss of combat power would not degrade my operations in As Samawa. The problem was that the company's objective was seventy kilometers west of As Samawa. There would be no way to communicate with my separated company using our organic FM radios. Even using a RETRANS station, the distance was too far (FM radios were typically good for about 10–20 kilometers during the war). The company Enlisted Tactical Air Controller had satellite communications but that could only be used for controlling close

air support and for emergency medical evacuations. The only way I could maintain daily communications with the company was through FBCB2. Because the FBCB2 system we were using was all satellite based, ground distance was not an issue and I was able to send and receive text messages with my separated company. The Task Force was eventually pulled off As Samawa, and we moved about 200 kilometers to link up with 2nd BCT south of Karbala. I still had a company securing the separate objective but we were able to maintain continuous communication and FBCB2 allowed them to later linkup with us south of Karbala. The entire separate company mission simply would not have been possible without the satellite communication capabilities of FBCB2.

The Road to Digital Battle Command

This article has discussed the FBCB2 system and its employment in combat. In the course of our operations, we identified some potentially useful improvements that could be made to the system, but these are better addressed in another forum, lest we reveal potential vulnerabilities in an unclassified medium. FBCB2's capabilities were decisive during combat operations in Iraq. Never before have ground commanders been able to navigate, maintain situational awareness, and communicate to the degree they could using FBCB2 during Operation Iraqi Freedom. This was the first time the system was used on a large scale in combat and it was a huge success. FBCB2 helped prevent fratricide and enabled U.S. commanders to conduct operations at a much more rapid pace than the enemy. I simply never want to go into combat without FBCB2 — it's that good.

The real purpose of this article is to provide feedback on the advantages of using a digital battle command system in combat. This issue goes beyond the context of a particular machine or system. The compelling issue is that the Army and Department of Defense

Courtesy photos

LTC John W. Charlton briefs reporters south of Baghdad using satellite imagery. "Hard copy" imagery allowed leaders to identify the details of urban areas but was large and bulky. FBCB2 contained digital imagery for the entire country of Iraq and was more practical and easier to fight with.

need to increase the funding and fielding priorities for digital battle command systems. I would include Intelligence, Surveillance, and Reconnaissance (ISR) systems in the top priority category as well but we'll stick to digital battle command systems for now. Simply put, we need to convert our entire military to interconnected digital battle command systems. Every tank, helicopter, ship, supply truck, and command post should be equipped with some type of digital battle command system. Many of our mechanized tactical operations centers are still based on archaic M577s and modular tents. Every command post in the military must be mobile, survivable, interconnected, and digital. The real challenge will be providing digital battle command systems to dismounted infantry and special operations forces, but today's technology has solutions for them as well.

Digital battle command must be fully integrated into our doctrine and our institutional training. Officers and enlisted Soldiers should be trained at every level on these systems and how to use them to enhance planning and execution of military

operations. Our Army and Joint doctrine should be updated to exploit the capabilities of these new systems just like we update doctrine to exploit the capabilities of new weapon systems. Our training and doctrine should allow our Soldiers to master digital battle command systems so they aren't forced to convert to using it during combat like I did.

Maybe I didn't have enough training or didn't fully understand the full capabilities of the FBCB2 system and perhaps the "FBCB2 Lite" version that we were using pales in comparison with the real thing. All that is probably true, but misses the point. I fought in combat with a very good digital battle command system that had some minor problems and — based on my experience — I am convinced that digital battle command is the key to success in current and future conflicts. As we look at lessons learned from Operation Iraqi Freedom, we need to embrace digital battle command and recognize its importance in twenty-first century warfighting.

Command and control vehicles line up outside the Task Force 1-15 Infantry Tactical Operations Center in western Baghdad. One M577 contained FBCB2.

Lieutenant Colonel John W. Charlton is the commander of 1-15 Infantry, 3rd Infantry Division (Mechanized). His battalion recently returned from 13 months of training and combat operations in Kuwait and Iraq. Task Force 1-15 Infantry fought eight major engagements during 21 days of intense combat during Operation Iraqi Freedom and was the first U.S. unit to attack across the Euphrates River toward Baghdad. He has a master's degree in computer information systems and is a graduate of the Army's School of Advanced Military Studies.

The Hardest Key to Leadership:
Moral Authority at the Small Unit Level

BURTON WRIGHT III

The military services often consign the whole of moral leadership to the realm of rectitude — that is, the individual leader as an upright, honest individual. There is nothing at all wrong with expecting leaders to behave in an ethical manner, but leadership is more complex than that. One could not describe Napoleon as a particularly moral or ethical man — in fact, quite the opposite. Yet, he had great moral authority over his Soldiers. Why?

There is good reason for demanding that today's leaders be moral in their behavior. It is rather hard to demand high morals from Soldiers if their leaders are not moral themselves. It is just this lack of morality that results in situations such as My Lai.

How do leaders obtain authority? First, they get it through law. There are statutes that govern leadership in the military called Army Regulations, which prescribe penalties if orders are not obeyed. This legal basis for orders has been a vital part of successful military forces, almost since the first Soldiers. Roman infantry leaders, by law, were given enormous control of their Soldiers.

Roman commanders could punish their Soldiers for the simplest offenses. For entire units that did not do their duty in battle, there was the judgment of decimation — the execution of every tenth man until all were gone or the punishment was suspended.

During World War II, commanders also had considerable legal authority, but because of the excesses at Litchfield Disciplinary Barracks in England and the aftermath of the scandal — the Doolittle Board — much of the power of the officer corps to discipline Soldiers at lower levels was taken away. Today, officers have much less legal authority at lower levels.

An officer, or NCO for that matter, achieves authority by being a professional — that is, being a better Soldier than all those under his command. Obviously, Soldiers are not going to follow a complete idiot into battle — at least, not for long.

The Army develops its professional core of officers by using a system of mentoring, increasing responsibilities, and training. Officers start at low levels, and then by both experience and training are entrusted with greater and greater responsibilities. Most armies today use a similar system. It works and has worked for hundreds of years.

But the most important aspect of successful leadership is the level of moral authority used by leaders to win in battle. History shows that this is a matter of situations often outside the control of the leader concerned. The leader may inherit a situation for which moral authority cannot produce obedience or may be too far removed to exercise it.

Take the Duo, as they were called in World War I — Field Marshal Paul von Hindenburg and General Eric Ludendorff. They, in effect, ruled Germany for about the last 14-15 months of the war. At the end, they lacked moral authority because it eroded over time, and they, particularly

> **... the most important aspect of successful leadership is the level of moral authority used by leaders to win in battle.**

Ludendorff, did not understand the concept, or did not care that it had eroded. Their only answer was to enforce discipline rigidly, but this did not make the situation any better. The rot had progressed beyond the power of discipline to restore the balance.

Another case involves a battalion commander in Vietnam as recorded by Keith Nolan in *Ripcord: Screaming Eagles Under Siege*, Vietnam, 1970. The commander — Lieutenant Colonel Andre Lucas — is a subject of differing opinions in his own battalion. There are those who like him — largely in the officer or senior NCO ranks — and those who do not — normally private Soldiers. The former believed that Lucas was a competent commander, and the latter thought he

risked their lives without careful consideration.

The principal reason for this has nothing to do with Lucas himself but the way he exercises command. The system of using a command and control helicopter in battle had begun long before he arrived in Vietnam. It was used by all the major commanders as a way to "see" the battlefield, but how much of the battle they actually saw was open to question. In certain types of terrain, this worked, but not in the area around II Corps. There the terrain restricted visibility so that while the battle was going on, and the commander was trying to exercise control, he could not really see anything. He depended solely on what he was being told through radio conversation.

This is what griped the "grunts." They could not believe that Lucas could see what was going on, or get a feeling for the action simply by listening to his company commanders through his radiotelephone. There is some truth to this, and the grunts wanted him to come down to ground level and be with them all the time.

They concluded this on the basis of the orders he gave, and his frequent disagreements with the company commanders of his own units who were right there. One captain ruined his career by directly challenging his commander's tactical view of the situation. Nolan points out, though, that this had some effect on Lucas, and on the attack — to which the captain had objected — was later called off.

In one of the final chapters of the book, Captain Hawkins and his company have been having a very successful operation until Lucas orders them to move along a particular line to a new location. The captain does not want to go this way because he believes — rightly, as it turns out — that he is heading into a potential ambush. Lucas had a skewed opinion of what was going on. He could see parts of the terrain better than his troops on the ground, but that was all. They had a feeling about the situation that he could not be a

part of. He could not understand because he wasn't on the ground.

Unlike the grunts, Lucas had a better view of the larger picture, but he may not have articulated that to those on the ground. His knowledge in space and time was better from his perch high above, and he was in contact with other units, other sources of information, and he had to put them together while directing a battle he could not physically see.

Today, the Army is transforming itself by using technology. No longer will officers be able to view the entire number of their Soldiers over a long battlefield. Their vision, however, may be a bit better because the drones above the battle will be able to see through fog, trees, etc., to show the enemy's true layout. This must be made clear to the troops so that they know the commander can see the whole picture, including their smaller part of it.

But if moral authority depends to a degree on physical presence, this could be a problem in the future. Leaders will now be voices on a radio system, and the problems of the Vietnam command and control ships will be compounded even more. What if a commander of a major unit is removed, and a new voice comes on line that the subordinates may or may not recognize. Are you likely to obey someone you don't know simply because that person's rank is superior?

In other words, the more remote technology makes commanders, the harder it will be for them to exercise the force of moral authority. This could be a bigger problem in the technological age. Technology, to some degree, separates Soldiers from their leaders and from other Soldiers as well. They can do more by themselves. This tends to reinforce the idea of independence when someone knows technology and uses technology instead of another individual with less knowledge.

For instance, what if you know how to make a program work on the computer, and your boss doesn't really know how to do it? Who is superior now? The boss still is, by the threat of moral authority, but how long will that last under stress?

The biggest problem will be at the small unit level where individuals command by force of presence and ability, not necessarily by law. At the end of World War I, Hindenburg and Ludendorff may have controlled their immediate levels of command, but they did not control the larger units of their own army. The Soldiers would defend but would no longer attack.

By April 1918, the German army was on its last legs. Officers had trouble getting their Soldiers to do much more than defend against attacks. Morale had reached rock bottom. Ludendorff in particular blamed everyone but himself for the situation.

He viewed the problems as a lack of discipline. To some degree, he was right, but there can be no useful discipline in the long run if there is no moral authority. When an officer orders an NCO to punish a Soldier for a transgression, what happens if the NCO does not act on the order? The German Army was tired, it no longer had any fight left in it, and the Soldiers wanted to go home.

Hindenburg and Ludendorff failed to realize that they had lost their moral authority. After the end of the war, they blamed the "spineless" civilians who "stabbed them in the back" when it was the Army's own fault for their lack of victory. This would lead to

an unfortunate repetition with Hitler and the German Army. In the end, the loss of World War II was their fault and not his.

Moral authority in combat is based on two pillars—that the subordinates believe the commander issuing the orders has a good tactical understanding of the situation and trust him, and that the individual giving the orders has been on the ground and not orbiting over the battlefield in a command and control ship.

You will never get the Soldiers to believe a commander has the knowledge unless they see him on the ground with them. That's where moral authority comes from and history supports this.

Napoleon's morality wasn't of the best, but thousands of Frenchmen died for him all over the world, with many shouting "Vive le' Emperor!" Why? Because he had demonstrated his courage many times before, and he could often be found up front where his Soldiers could see him.

Frederick the Great cared little about his Soldiers as human beings, and that's a matter of fact. Whether they were fed or clothed interested him little — only what they could do in combat mattered. Frederick's generalship was often suspected as he won as many battles as he lost. He was often careless with tactical dispositions and as a result, his army lost thousands of men.

Yet these very same Soldiers would gladly have died for him. Was it the iron discipline of the Prussian Army or something else? Frederick, whatever else his tactical faults were — and he had many — was seen up front with the men. They believed that up front, he knew what he was doing and so followed his orders.

That hasn't really changed in war through the centuries. Commanders must be on the spot. When General Berry was in Vietnam with the 101st would often spend a night with troops on the firebase when he could have been back at division main having a drink and a steak dinner.

His choosing to spend time with his troops magnified his moral authority over them. They followed because he showed he cared by sharing their dangers. Remember that Joshua Chamberlain of the 20th Maine in the American Civil War had great moral authority over his men because he stood up in the middle of his position on Little Round Top right with them. He didn't direct his regiment from a safer place to the rear.

Robert E. Lee removed two brigade commanders from command after Gettysburg for commanding from the rear. Lee, too, understood that the force of moral authority is based on being there, up front. Technology must take that into consideration and find a way to compensate for it, or the system will fail.
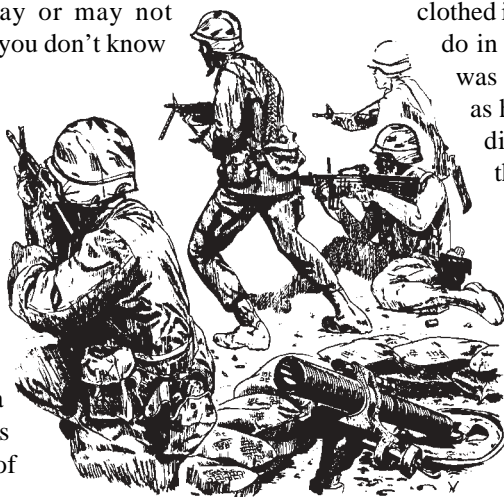
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MEDICAL AND CASUALTY EVACUATION FROM POINT OF INJURY TO LEVEL II CARE:

WHAT EVERY INFANTRY LEADER SHOULD KNOW

CAPTAIN CRAIG W. BUKOWSKI

"Casualty evacuation requires extensive plans, preparations, battlefield initiative, and coordination. The effectiveness of casualty evacuation influences the unit's morale and combat effectiveness."

— **FM 7-20**, *The Infantry Battalion*

Medics from Task Force 1-64 from the 3d Infantry Division (Mechanized), Fort Stewart, Ga. evacuate a simulated causality during a combined live fire exercise.

Successful medical and casualty evacuation at the National Training Center (NTC), other Combat Training Centers (CTC), and in combat scenarios largely depends on quality medical treatment and rapid evacuation to some type of definitive care. It sounds simple, but getting to that level of success depends upon comprehensive planning, systems, and training to standard. There have been three major negative trends affecting medical and casualty evacuation at the NTC in the past year.

Those three trends are:

✔ Lack of home station medical evacuation (MEDEVAC) and casualty evacuation (CASEVAC) training,

✔ Lack of established standing operating procedures (SOPs), and

✔ Inadequate medical planning.

Identifying and addressing these prior to any deployment will greatly enhance success on any battlefield. This article reviews those trends and offers a way to be successful concerning medical and casualty evacuation from the point of injury (POI) to a Level II medical treatment facility (MTF). The NTC, like the other Combat Training Centers, is not the place to learn how to conduct combat and support operations — it's the place to learn how to do them better.

A task must first be understood and practiced to a baseline level of competency before it can be improved upon.

The first trend observed is a lack of home station medical training. Failure to adequately train prior to deployment is an issue faced by most battalion task forces (BN TF).

The TF usually conducts ranges, company lanes, and a BN field training exercise (FTX) prior to any deployment. Normally, medical platoon personnel provide range and lane coverage for real-world injuries only. During the BN FTX, the medical platoon establishes the battalion aid station (BAS) and practices sending ambulances or treatment teams forward if they are lucky. Rarely do they ever see any simulated casualties and almost never evacuate them to a Level II MTF. Enhanced first aid (provided by combat lifesavers), emergency medical treatment (provided by company/ platoon medics/trauma specialists, MOS 91W) and evacuation from the POI seldom occurs. When a BN TF conducts its first few force-on-force battles at the NTC, the killed in action (KIA) rates are usually well above 70 percent .

The contributing factors to this excessive KIA rate are time and distance, poor land navigation, and communication. Most casualties are evacuated, but not in the appropriate time to save them based on their injuries.

Time and distance factors are especially real at the NTC and in combat theaters of operations like Afghanistan and Iraq. The hilltop just over the valley that appears a few kilometers away to the inexperienced is actually 10 or 12 kilometers away. The desert that appears flat is in fact riddled with hidden wadis/depressions and unseen washboards that slow vehicular travel to a crawl. Units are not accustomed to training for CASEVAC and MEDEVAC operations over such long distances. If land navigation skills are poor and driving with night vision goggles (NVGs) is not familiar, the ambulances and non-standard CASEVAC vehicles will get lost. Communications are also easily cut off by these long distances and mountains that loom up from the desert floor, adding to a loss of situational understanding.

Units able to identify the trend of ignoring medical and casualty evacuation training during home station training events, and that aggressively plan for the such operations tend to have higher success rates at the NTC. One way is to deliberately plan medical events.

During training, Sergeant Crystal Hoon (left) tests Infantryman Private John Shuman (right) on clearing an obstructed airway.

Plan for exercises that require the use of combat lifesavers, company/platoon medics, and require casualty and/or medical evacuation from POI to the BAS using both standard and non-standard evacuation assets.

Incorporate the use of simulated casualties in realistic settings. Enforce proper treatment protocols and evacuation procedures creating realistic constraints and stress.

Incorporate night driving and mounted navigation into all training exercises. Test the communications systems over rough terrain and extended distances. Require the use of OE-254 antennas, proper radio procedures, and reporting.

These tactics, techniques, and procedures (TTPs) — when incorporated into CO/BN FTXs — will allow the medical platoon, companies, and combat trains to establish communications procedures.

The second major trend observed is the lack of SOPs. SOPs and/or Combat Service Support (CSS) and medical drills enable the modular medical concept to work effectively.

Procedures and/or drills might be simply defined as a standard way for completing common tasks occurring on the battlefield repetitively in the same basic manner that has been proven effective. As an observer controller at the NTC, it has occurred to me that there are three major groups of procedures/drills that must be established for evacuating the casualty from the POI to a Level II MTF or an ambulance exchange point (AXP) that affect the medical platoon/BAS operations. Those procedures/drills are required from the POI to the casualty collection point (CCP), from the CCP to the BAS, and from the BAS to the Level II MTF or an AXP.

Establishing a procedure or drill for POI to CCP rests mostly with the company/platoon medics and the first sergeant. Battle drills and tactical standing operating procedures (TSOPs) should be established on how they will get the casualty from the fighting position or vehicle to the CCP. This requires coordination for signals involving casualty marking, identification, repositioning of forces, and certain triggers requiring specific actions involving medical personnel and non-standard CASEVAC vehicles. The system concludes with a proven method for triage at the CCP incorporating the use of delayed, immediate, minimal, and expectant (DIME) areas. Success is achieved if the system allows for quick evacuation from POI to CCP and rapid initial treatment is administered to the most severely injured first. If the marking system or triage method isn't synchronized, less critical casualties will inadvertently get treated before the most critical. Once an effective system is established, it must be understood by every Soldier and leader. Always incorporate combat lifesavers (CLS) and consider the use and placement of non-standard evacuation assets. Some units now have MGators, (modified all terrain vehicles) which the first sergeants usually controls (one per company). These MGators are especially useful to evacuate casualties from platoon CCPs to the company CCP and in some instances, to the BAS.

In figure 4.1, the company CCP is located in a covered and concealed position with the company trains. The platoon CCPs are located at the platoon's rear. All CCPs are identified with both day and night marking systems and contain a triage area. Non-standard CASEVAC vehicles are positioned forward with a M996 or M997 ground ambulance designated for litter casualties at the company CCP. The first sergeant coordinates patient flow between the platoon CCPs and the company CCP while the senior company medic conducts

figure 4.1
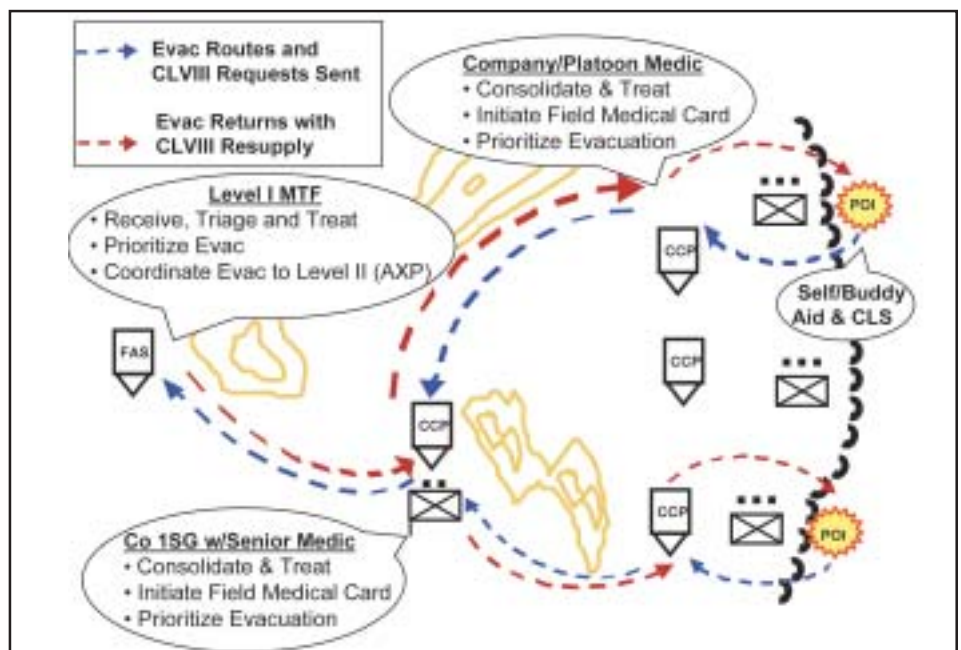
triage. Communication of 9 line MEDEVAC requests are conducted via the company trains assets or ambulances back to the BAS and S1 and S4.

"Arranging and superintending the march of trains of baggage, munitions, provisions, and ambulances, both with the columns and in their rear, in such manner that they will not interfere with the movements of troops and will still be near at hand."
— **Baron Antoine Henri de Jomini**

The procedure/drill from CCP to BAS focuses largely on distance, routes and security, and operational procedures at the BAS. "Operational procedures" refers to the set up and functionality of the BAS with regards to patient flow, triage, treatment, and various other functions required for successful operation. In some cases, the BAS will split into two treatment teams: the main aid station (MAS) and a forward aid station (FAS). Often, the MAS and FAS will conduct echelonment (bounding) during an offensive operation to maintain doctrinal distance during the fight. Whether evacuation is from CCP to the MAS, FAS or BAS, the system essentially remains the same.

Doctrinal distance is considered to be 1 to 4 kilometers and/or 1 or 2 terrain features behind the unit supported, emphasizing mission, enemy, terrain, troops, time available and civilian considerations (METT-TC). Failure to maintain this is a common error. Usually, the distance becomes extended due to poor planning, failure to commit medical assets forward, lack of clearly defined triggers, or communications failures.

Movement of medical assets must be carefully planned during the military decision making process (MDMP), especially during the wargaming phase, and incorporated into task force synch matrices, decision support templates (DST), and execution checklists in order to ensure that the medical plan is well integrated and synchronized with the tactical plan. This is crucial in order to strike a balance between minimizing evacuation times and distances, and protecting medical assets.

Routes and security must be clearly defined, reconnoitered, and rehearsed. Short concealed routes are optimal, but are not always an option. If concealment isn't an option, then additional security is needed. Commanders are not usually willing to sacrifice combat power to secure medical assets. It's definitely a calculated risk often overlooked during home station training due to the lack of OPFOR and minimal training time. The best solution seen in recent rotations at the NTC is to strategically place non-standard 5-ton cargo vehicles with mounted .50 caliber machine guns. This not only offers non-standard CASEVAC, but enhanced security as well.

Finally, the BAS, MAS, or FAS must have a viable system of patient flow. This is where the operational procedures for the Level I MTF (BAS, MAS, FAS) are realized. There must be clearly marked entrance and exit routes for traffic, clearly marked patient download areas, and an established DIME casualty triage area. The patients should flow through treatment according to precedence and be organized into a holding/staging area for evacuation to an AXP or Level II MTF. One method for this is provided in Figure 5.1.

Not depicted are the landing zone for MEDEVAC and CASEVAC aircraft and a temporary morgue for KIAs and DOWs. The landing zone should be marked and placed according to METT-TC and specific aircraft requirements. The mortuary affairs collection point (MACP) should be placed nearby and out of view from the patients. If the BAS is colocated with the combat trains, the S4 should be consulted for placement. KIAs are not considered to be a medical responsibility and are not to be transported with casualties or in a medical evacuation vehicle. FLAs depicted in figure 5.1 is a non-doctrinal reference to an M997 or M996 ground ambulance.

The third system involves evacuation from the BAS, MAS, or FAS to an AXP or Level II MTF. A Level II MTF is established by the forward support medical company (FSMC) in the brigade support area (BSA) or a treatment team from the FSMC may locate with a forward logistics element (FLE) and establish a Level I MTF. The difference between Level I and Level II care is the addition of dental, lab, X-ray, and patient hold capabilities. Coordination must be done between the TF medical platoon leader, FSMC CDR and BDE medical planners for locations of AXPs, FSMC, treatment teams with Level l FLEs, and availability of air evacuation assets, both medical and non-standard. Distances should be as short as possible and triggers must be established. The FSMC is responsible for transporting casualties from the BAS to level II. Graphics, rehearsals, and land navigation are crucial to success. Communications are also critical for command and control (C2) of evacuation assets rearward. One way is shown in figure 6.1

The third trend observed is the lack of or inadequate medical planning. The best intentions and highest motivation still cannot solidify a poorly planned operation.

**Figure 5.1 Operational Procedures at a Level I MTF (BAS,MAS, FAS)**
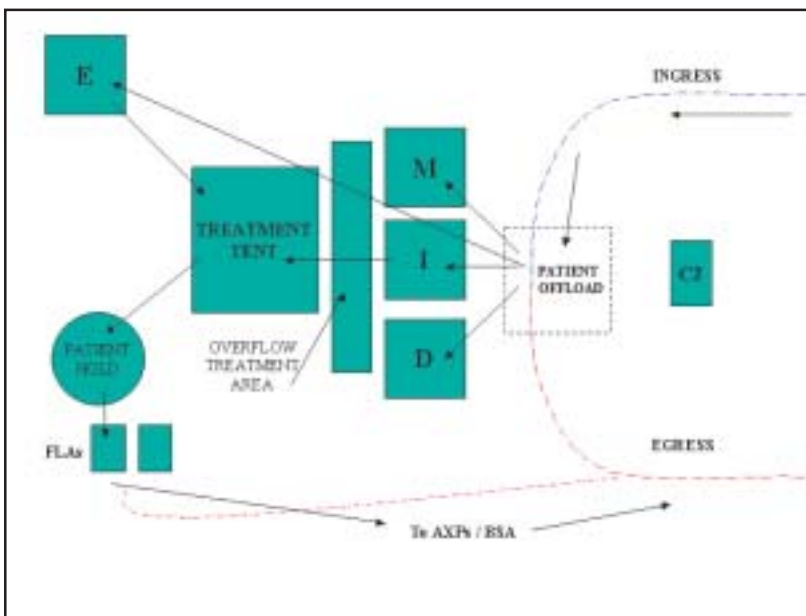
Field manual 4-02.4, *Medical Platoon Leader's Handbook*, provides definitive guidance on health service support (HSS) planning for medical platoon operations. The Medical Service Corps (MS) lieutenant, who is the acting platoon leader 90 percent of the time, oversees platoon operations for the surgeon and conducts most of the medical planning. The Professional Officer Filler System (PROFIS) physician and PA may assist the MS lieutenant with the HSS planning. The MS lieutenant needs to spearhead the medical planning for the TF, with the PA and BN surgeon as the medical technical experts.

When MDMP, mission analysis, and course of action (COA) development occur, the MS LT needs to be there. Too often, the MS LT is not involved and the BN S4 develops the medical plan. If they are lucky, the S4 and the MS LT have a good working relationship and information gets properly disseminated. Primary focus during the planning phase should be medical asset visibility, location during the phases of the operation, triggers, and security. Too often, planning is done on unfounded assumptions.

Rehearsals are critical to any operation and often affect its success or failure. The BDE combat service support (CSS) rehearsal is crucial for coordinating AXPs and evacuation to the Level II MTF. Air evacuation is also briefed along with priority of support. At a minimum, the MS LT should attend. Many successful BN TFs use the BN CSM as a key element for CSS operations specifically focusing on CASEVAC. Often, the BN CSM will attend along with the PA and BN surgeon.

The TF CSS rehearsal is where medical support and CASEVAC really come together. The rehearsal should be well organized and attendance is the key to success. Usually run by the TF XO, every company 1SG, senior company medic, S1, S4 and TF CSM must run through their actions throughout the operation by phase. The MS LT should be allowed to brief the HSS overview, not the S4. If the BAS splits and conducts echelonment, (bounding) or moves independently, the medical platoon sergeant will assume responsibility of one aid station and should brief his actions accordingly during each phase of the operation. Triggers must be solidified with actions for each. Casualty collection points,

Figure 6.1
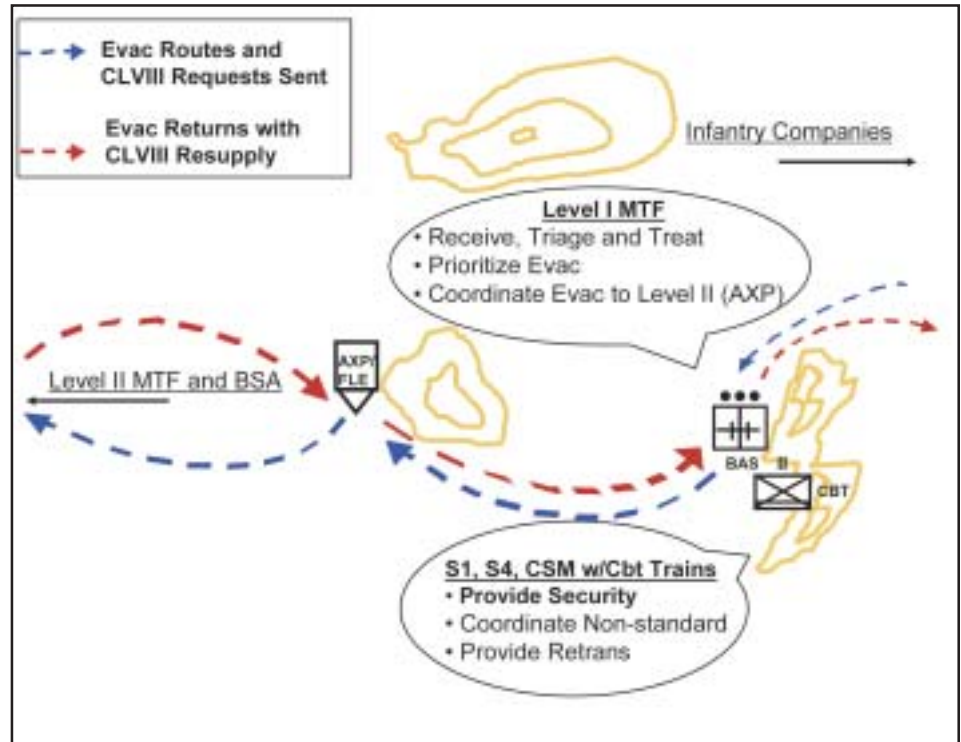
non-standard CASEVAC platforms, and security should be locked in. If conflicts arise, solutions should be devised immediately rather than later. Finally, graphics should be updated and, most importantly, disseminated down to the lowest level.

Medical and casualty evacuation training at home station with realistic constraints involving real world and simulated casualties is essential. Ensuring time and distance factors, AXPs, and most importantly, evacuation from POI to Level I MTF and Level I MTF to Level II MTF must be visited. Without stressing the entire system prior to deployment, the unit cannot expect it to materialize during the heat of battle.

Establishing solid evacuation and treatment procedures or drills and involving the entire BN TF is the first step towards success. Improvements will be made along with adjustments based on the mission and METT-TC.

Finally, ensuring the right medical focus and involvement in the entire military planning process and rehearsals solidifies the execution.

Successful procedures or drills that are well planned and trained prior to execution save lives and bolster mission success.
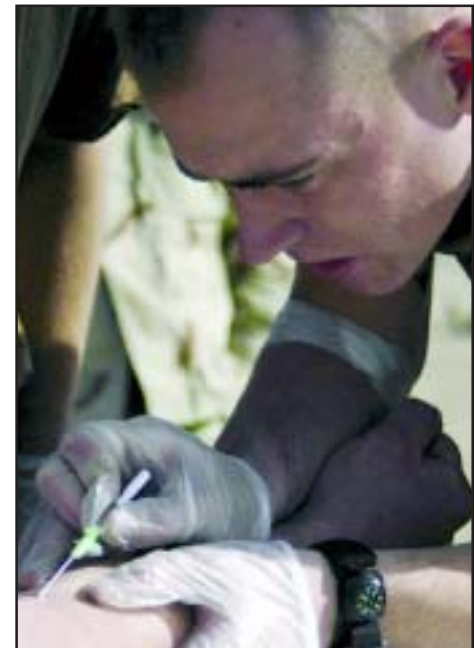
Specialist Adam Nuelken

Private Shawn Stremmel, a Linebacker driver for Battery B, 1st Battalion, 3d Air Defense Artillery, performs an intravenous injection.

When this article was written, **Captain Craig W. Bukowski** was the Light Infantry Task Force Medical Trainer for the National Training Center at Fort Irwin, Calif.

Indirect Fires First :
The American Way of War
An interview with Major General Paul D. Eaton

Interview by Patrecia Slayden Hollis,
Field Artillery magazine editor

This interview was conducted May 30 at Fort Benning, Ga., when Major General Eaton was Chief of Infantry. He handed over command of the U.S. Army Infantry Center and School June 9. He is currently serving as Commanding General of the Coalition Military Assistance Training Team, which is responsible for manning, equipping and training the new Iraqi army. This article was also published in Field Artillery magazine.

Q **As the Chief of the Infantry, you and the Chief of Field Artillery have joined to send the message throughout the Army "Indirect fires first is the American way of War." What does that mean?**

A Another way to say it is, "Never send a Soldier, when a bullet (of some caliber) will do." The intent is for the infantry to engage the enemy with somebody else's ordnance — indirect fire or close air support (CAS) or some other means — and we need to apply those effects to avoid having to commit Soldiers in the close fight.

Now, that's not to say we are "walking away from the close fight" — we're not. The close fight is what the infantry is about.

The close fight has been called the "Red Zone." I like the "Last 100 Yards." It's that direct fire rifle range of Soldiers' eyes on target, day or night. The infantryman is our "final answer" after we've done all we can with indirect fire effects.

So, what prompted the need for that message? We've had some training problems that surfaced at our Combat Training Center (CTCs) for any number of reasons. By reflex, infantrymen and tankers understand their direct fire systems. We train at the individual level all the way up to the collective level on our direct fire systems. We spend a lot of time on tank gunnery, Bradley gunnery, rifle marksmanship and antitank missile systems. That's great — that's what we do and we must do it well.

But when things get busy leading into the Last 100 Yards, the first thing we need to do is call for indirect fire ... and that also needs to be by reflex. We've got to apply indirect fire and CAS planning to kill the target with anything from the M203 40-mm high explosive (HE) through 60-mm, 81-mm and 120-mm mortars into the artillery of 105-mm, 155-mm to MLRS (multiple-launch rocket system) to ATACMS (Army tactical missile system) — the entire panoply of indirect fires.

Part of the problem is that we don't reward the use of indirect fires at our training centers well enough, particularly mortars. There's work to be done to replicate the real effects of fires in training. We have fire markers, but there is a delay.

In comparison, the Soldier has immediate satisfaction when he lays a gun tube of some sort on a target and executes direct fire. He gets the kill indicator, the blinking lights, immediately.

Feedback on indirect fires for the attacking Soldier in training is not quite as sophisticated. We're moving in the right direction, but we're not there yet.

In the Last 100 Yards, the 11B NCO looks to his lieutenant to arrange for killing fires from somebody else's asset, not just apply direct fires, and rightly so. This is particularly true of light infantrymen who can't carry all of the killing power available on their backs.

As it is, every light infantryman carries two, three, four 60-mm mortar rounds to bring them into the area of operations. But he can't carry enough "stowed kills" to deliver all the effects he needs. We have to train our infantry lieutenants to call for and adjust indirect fires and captains to plan and execute indirect fires by reflex.

Q **What aspects of integrating and synchronizing fires and maneuver in the close fight make it so difficult?**

A In training when Soldiers are pressing toward an objective, we shift from 155mm to the 120mm to 81mm, 60mm and 40mm to ensure the last thing the enemy sees is an indirect round before our infantryman is on him. The desired end state, of course, is to kill the enemy or render him unable to respond to our infantry assault. That takes practice.

We don't practice integrating and synchronizing fires in home station training often enough to execute them by reflex.

When Major General Dave Petraeus, CG of the 101st Airborne Division (Air Assault), was a brigade commander, he

started "walk and shoot" home station training to practice those skills. He walked around the impact area and presented dilemmas to his leaders, for example how to take an objective in certain circumstances. Then he had indirect fire systems live fire to help the leaders take the objectives. This made the lieutenant or captain react immediately to a combat dilemma and execute a fires and maneuver mission. (For more information on this training, see the article "Walk and Shoot Training" by Colonel David H. Petraeus and Major Robert A. Breman, *Infantry*, January-February 1997.)

Q **What are the initiatives in the Infantry School to ensure the Soldier uses indirect fires first?**

A The first thing we did was recognize we had a problem. Then we took a long look at three leader development courses: officer's basic course (OBC), captain's career course (CCC) and the precommand course (PCC). What we found is that we focused a lot of training at the individual knowledge level as opposed to the application of fires — how to integrate fires with a maneuvering force that is constantly changing. For example, we were teaching the lieutenants how to call for and adjust fires and the captains indirect fire capabilities and the basics of static indirect fire planning. If you want to synchronize fires and maneuver in an overall fight, you've got to get beyond these "Skill-Level Two" tasks.

What did we change? In the basic course, we pared down the knowledge-based instruction and gave them disks with that information to study on their own. Now we focus on not only the call-for-fire and adjust fire tasks –because those are a big part of what they need to know — but also on risk estimate distances (REDS) and the concept of the spatial relationship between maneuver and fires so they can continue to echelon fires as they maneuver. The idea is to ensure the lieutenant understands indirect fire is not an afterthought when his initial reaction fails — indirect fire is first.

Also, we just opened our GUARDFIST (guard unit armory device, full-crew interactive simulation trainer) facility and are exploiting its capabilities to train lieutenants to execute indirect fire missions. Before GUARDFIST, our only virtual

simulation with indirect fire was the CCTT (close combat tactical trainer), which is great for collective training, but not ideal for what we are trying to teach the lieutenants.

We would like to institute walk and shoot training, but resources are an issue, in terms of ammo, time and indirect fire assets to implement the training. That's a long-term goal.

In the CCC, we raised the standards of our indirect fire instruction. We hold the students responsible for the information taught in OBC and encourage them to refresh their knowledge via the Internet. We've also reduced the classroom ratio from one instructor for every 200 students to one over 40 for the knowledge-based portion of indirect fire instruction. We focus the classroom instruction on concepts — echeloning fires, determining tactical triggers, working with REDS, determining what rounds will give them the effects they want, etc.— before they go into the execution phase in small group instruction. Certainly, these captains will have FSOs (fire support officers) to help them in their companies, but they're on their own during the course.

During small group instruction, the SGIs (small group instructors) train the captains to be rabid disciples of indirect fires. The captains have to plan operations for a variety of organizations, such as light infantry, mechanized infantry and SBCT (Stryker brigade combat team) infantry, in a number of different environments so they understand the factors that affect the fight, including direct and indirect fires. If they can't demonstrate the ability to integrate fires into their plans, they don't graduate.
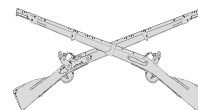
The students also execute their plans using constructive simulations, such as Janus, BBS (brigade/battalion battle simulation), MPARS (the mission, planning and rehearsal system) and the developmental full-spectrum command (FSC). Right now, we are the only school with MPARS, a great new system championed by Lieutenant General (Richard A.) Cody when he was the CG of the 101st. Unlike Janus and BBS, MPARS provides students a virtual look or "fly through" capability during the fight as opposed to the old top-down God's eye view. It allows student company commanders to see their simulated infantrymen, tanks and Bradleys along with the effects of indirect fires as they fight — see the results of their planning, their execution of fires and maneuver, their decision making.

The key is to prepare them to employ not only mortars and artillery, but also Army aviation and CAS — all forms of fires available to them — before committing their infantrymen. We are drawing on the recent experiences of our 75th Ranger Regiment's use of CAS in Afghanistan.

We also are using and continuing to develop FSC to provide an urban operations simulations program that's interactive virtual combat training against a thinking enemy, thanks to FSC's artificial intelligence capability. FSC allows students to employ company-level mortars, but we need more funding to fully integrate indirect fires, CAS and Army attack aviation — our major complaint about an otherwise excellent program.
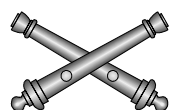
In partnership with **Major General Eaton**, **Major General Michael D. Maples**, Chief of Field Artillery, is working to improve the integration of fires in the close fight. He is instituting a number of initiatives to improve the confidence and competence of leaders and fire supporters. These include "walking" shoots vice static call-for-fire training; increasing the rigor on instruction, such as in the two-day Light Fire Support Officer (FSO) Lane Training exercise for FA Officer Basic Course (FAOBC) lieutenants and 13F Fire Support Specialists; integrating close air support (CAS) into the mounted lane training for FAOBC lieutenants; increasing the tactical focus of the FA portions of the Precommand Course; increasing the outreach to/interface with the Combined Arms Center (CAC), Combat Training Centers and Infantry School; and pushing for Infantry, Army, Aviation and Engineer officers and NCOs to be assigned to the FA School to work on combined arms exercises and instruction.

We depend on simulations to train the synchronization of fires with maneuver in the schoolhouse and build the skills needed for combat. You can do all the planning and visualizing of time-distance factors "on paper" you want, but you must see and direct the dynamic synchronization of fires and maneuver repetitively to be able to do it in combat — recognize when things start to break down and practice resynchronizing them.

Q How are you preparing brigade and task force commanders to better integrate all their available assets in combined arms operations — including indirect fires and CAS assets?

A Not well. We only have them for two weeks before they go to Fort Leavenworth (Kansas) for the final part of PCC.

We've added a two-hour block of instruction on how to give commander's guidance for fire support. We also introduce them to essential fire support tasks (EFSTS) to allow them to communicate with their technical advisors, their FSCOORDs (fire support coordinators) and FSOS. These new commanders went to CGSC (Command and General Staff College, Fort Leavenworth) back in the mid-1990s, and the concept of the EFST wasn't even in "white paper" yet. I admit that two hours is not adequate if they are not already prepared.

We are developing instruction for PCC students to teach them how to plan and conduct walk and shoot training at their home stations. Ideally, I'd like to resource a walk and shoot with lieutenants and captains playing all the fire support roles and align it with the PCC instruction as an observed execution event. But, again, this is a long-range goal.

Top priorities that will help commanders in home station training are increasing mortar STRAC (standards in training commission) allocations to resource walk and shoots and increasing STRAC for our family of full-range mortar training rounds. Walk and shoot training is becoming standard in our light divisions. The Field Artillery has been resourcing this training very well, but we are behind on mortar rounds. Right now, units have to "harvest" mortar rounds from individual and squad training to have only a few to fire during walk and shoots — not enough rounds to be effective.

We have rewritten our combined arms training strategy to recommend that any time a platoon or higher trains in any FTX (field training exercise) or LFX (live-fire exercise) indirect fires be integrated-mortars and artillery. Our mortar STRAC recommendation will resource this strategy fully.

The family of full-range mortar training rounds will mitigate the limitations of training at our posts where the impact areas are either offset from our direct fire ranges or not adjacent to them at all. Because the rounds don't explode, they don't produce duds. The rounds will allow commanders to turn virtually any live-fire exercise into a CALFEX (combined arms live-fire exercise) using organic mortars. We already have a full-range training round for 120-mm mortars with the 60-mm round being fielded as we speak; the 81-mm round is awaiting material release.

Q Based on what you've seen in the news about Operation Iraqi Freedom and read in initial reports, did units apply indirect fires first?

A Yes. The feedback is that units applied indirect fires far more agilely and at a faster pace than we've been used to seeing. We should note that these Soldiers trained intensely and had the luxury of some pretty sophisticated live-fire training before they embarked on combat operations.

The 75th Rangers' ability to draw upon "over the shoulder" assets was very effective — hence, our interest in CAS and indirect fires.

Q What subject haven't we discussed that we should?

A We need to be able to employ ACAS in infantry and armor formations when we don't have a TACP (a USAF tactical air control party). We need to proliferate the TACP function so that when we don't have enough Air Force ETACs (enlisted tactical air controllers) in our ground force units, we can supplement with fire supporters trained in the ETAC skill sets.

Afghanistan showed that we need the ETAC function at much lower levels than we are resourced for. We already have most of the training tools needed to train fire supporters in that function, or they are inbound. We must train and do the hard work up front — not wait until we deploy our ground forces into combat when they'll need timely CAS.

Q What message would you like to send to Army and Marine Field Artillerymen stationed around the world?

A You're doing the Lord's work, and we appreciate it. To illustrate the infantryman's expectations for lethal indirect fires swiftly delivered, we recently had to deploy a mobile training team to field the 120-mm mortar to one of our divisions in Afghanistan because it did not deploy with artillery.

We absolutely must have a combined arms approach to prosecuting warfare. Indirect fires, in fact, are the American way of delivering killing power while the infantry closes on the objective.

Major General Paul D. Eaton served as Chief of Infantry from October 29,2001 until June 9, 2003. He is currently the Commanding General of the Coalition Military Assistance Training Team (CMATT) under the Coalition Provisional Authority.

Eaton's previous assignments include commanding the lst Brigade in the 3d Infantry Division (Mechanized) in Germany; 3d Battalion, 14th Infantry of the 10th Mountain Division (Light Infantry) at Fort Drum, New York; and C Company, 2d Battalion, 22d Infantry in the 8th Infantry Division (Mechanized), also in Germany. Additional assignments include serving as the Assistant Division Commander (Maneuver) in the 1st Armored Division, Germany, where he deployed to Bosnia in support of the Stabilization Force (SFOR); Deputy Commanding General of Fort Benning and Assistant Commandant of the Infantry School; Deputy Commanding General for Transformation at Fort Lewis, Washington; G3 (Operations) of the 10th Mountain Division during Operation Restore Hope in Somalia; and Executive Officer to the J3 of the Joint Staff at the Pentagon.

He holds a master's degree in French Political Science from Middlebury College in Paris, France, and is a graduate of the class of 1972 at the U.S. Military Academy at West Point.

TACTICAL DECISION GAME:

Seizing and Holding an Enemy Training Center
in Afghanistan with a Tactical Air Assault

LESTER W. GRAU

Situation — You are the commander of an Air Assault rifle company.

Your mission is to conduct an air assault to secure an LZ near a confirmed enemy surface-to-air missile training center (STINGERs) in Afghanistan in order to allow the remainder of your battalion to land and destroy the training center.

You conducted an in-depth preparation for the mission 48 hours in advance, and were provided with detailed information on the enemy occupying the base as well as overhead imagery and detailed maps that identified dead space in the approach to the objective, likely enemy fighting positions and fire sacs, as well as key targets to be destroyed with indirect and Apache fires.

Your company landed on the LZ without any problems and quickly secured it, but the remainder of the battalion was cut off and forced to land 20Km from your position due to effective ADA fires from the training camp and the surrounding hills. After driving off the remainder of the battalion, the enemy began to attack you in platoon size elements from the north and the south.

After fighting all day, your company is down to 4 magazines per man, 400 rounds per SAW and 240B, and 50x 60mm rounds. In addition, although the remainder of the battalion is trying to break through to your location, they have met heavy resistance and will not be able to reach your location until the next morning, and no supplies can be brought in by air.

You have support from 2 OH-58s and 2 Apaches, but their ability to place effective fires on the objective is limited due to the ADA threat. You also have priority of fires from the Brigade's 105mm howitzer battalion.

At 2300 hours, your battalion commander called and ordered you to conduct an attack at night to seize the training camp NLT 0300 to prevent the enemy from continuing ADA training and attacks against U.S. aircraft.

You have 20 minutes to develop a concept and issue it to you subordinates.
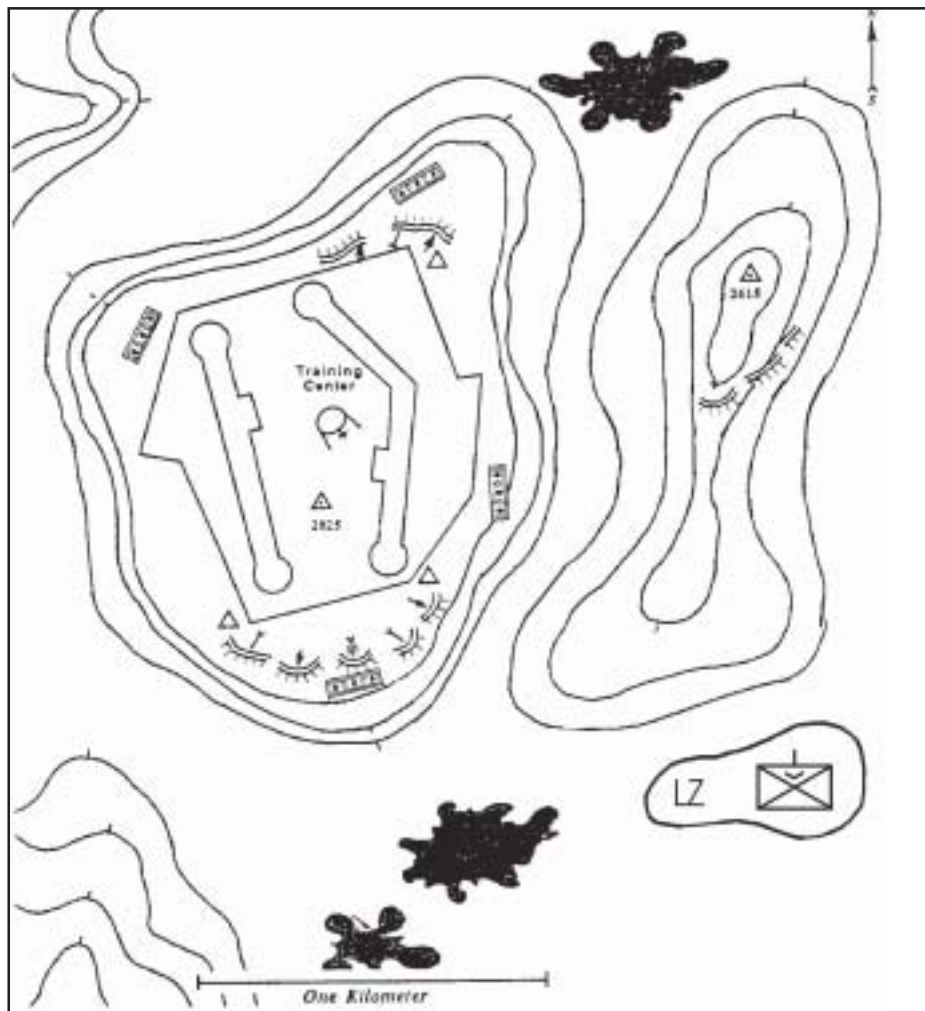
ARMOR and MECHANIZED Infantry Operations in Restrictive Terrain at JRTC
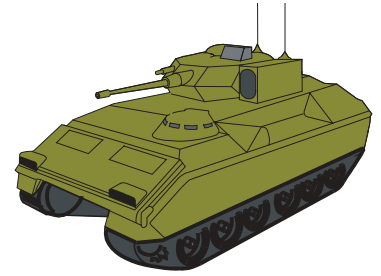
MAJOR RICHARD R. ROULEAU

T he purpose of this article is to outline potential missions, as well as tactics, techniques and procedures (TTPs), for a heavy team when it deploys to the Joint Readiness Training Center (JRTC) and fights in restrictive terrain. These TTPs were validated more than 20 years ago during the Vietnam War and were highlighted in several after-action reviews and studies, including *Armored Combat in Vietnam*, by General Donn A. Starry (Arno Press, New York, 1980.) Quoted material is borrowed from that book.

"The first debate on the use of armored units arose during planning for the deployment of the 1st Infantry Division."

Movement to Contact

The search-and-attack technique is the most frequently used form of fighting at the JRTC and usually does not include the heavy team because a hasty map analysis indicates more restricted terrain than is actually available. When a properly done modified combined obstacle overlay (MCOO) with satellite photos and other terrain-analyzing tools is used during the military decision-making process, it reveals semi-restricted terrain that will support heavy team operations. When the heavy team is used, it is generally as a finishing force. Most recently, though, we have seen examples, purely by accident, in which the heavy team, down to section level, through fire and maneuver has proved to be a very effective force in the "find and fix" part of the "find, fix, and finish" and the light infantry company as the finishing force through its stealth.

"Two significant facts emerge from these engagements. First, contrary to tradition, armored units were used as a fixing force, while airmobile infantry became the encircling maneuver element. Second, the armored force, led by tanks, has sufficient combat power to withstand the mass ambush until supporting artillery, air, and infantry could be brought in to destroy the enemy. Engagements with armored elements forcing or creating the fight and infantry reinforcing or encircling were typical armor action in 1966 and 1967."

When used during tactical operations, these techniques cause high casualties on the opposing force (OPFOR). The first technique requires the light infantry to infiltrate at night and establish an ambush site in the general vicinity of an enemy-emplaced obstacle or potential enemy location. Armor/mech forces are then used primarily during daylight hours (can be executed at night) to gain contact with the enemy. Once contact is made, armor/mech forces use fire and maneuver to turn the enemy in the direction of the ambush. The ambush is sprung, and the enemy is destroyed with virtually no fratricide due to control measures imposed upon the armor/mech forces and the armored capabilities of the vehicles to prevent this.

These forces are able to make contact with the enemy quickly for two reasons. One is their mobility to cover more ground faster, and the other is that when stationary or as part of a convoy they are favorite targets of the enemy "satchel man."

"Rapid reinforcement of a unit in combat was nicknamed 'pile on.'"

The second technique requires light infantry to be as mobile as the armor/mech forces. This is accomplished either in the form of airmobile operations to a landing zone close by, or motorized infantry in sandbagged HMMWVs, 2½-ton, or 5-ton trucks maneuvering to establish a hasty ambush point.

"Contrary to established doctrine, armored units in Vietnam were being used to maintain pressure against the enemy in conjunction with the envelopment by airmobile infantry."

In either case, planning on the part of the maneuver commanders and leaders require clear and concise task and purpose, clearly defined fire control measures (direct and indirect), graphic control measures distributed to all personnel, the ability to identify friend or foe, and a thoroughly rehearsed plan with strong junior leaders executing a decentralized plan.

Route Security and Convoy Security

Armor/mech units routinely function in this role at the JRTC and often have difficulty in the execution. Several techniques have been tried and the most successful of them incorporate combined arms operations.

"The primary route security technique used in the highlands was to establish strong points along a road at critical locations, and each morning have a mounted unit sweep a designated portion of the route. The unit then returned to the strongpoint where it remained on alert, ready to deal with any enemy action in its sector."

A combination of convoy escort, active patrolling, and strongpoint operations has been the most successful techniques used so far.

". . . the division abandoned the strongpoint system in favor of offensive patrolling missions several thousand meters from main routes, a tactic that made a much more effective use of armor."

Combined arms teams have proved to be the most successful when incorporating aviation as advanced reconnaissance, armor/mech as the escort/security force (in accordance with Field Manual (FM) 17-15), and engineers to assist in route clearance, artillery/mortar indirect fire support on preplanned targets, and/or hip-shots and light infantry infiltrating near potential enemy ambush points or critical areas, clearing the area of enemy and linking up with armor/mech teams escorting convoys through sector.

"In an effort to change this situation armored leaders developed several techniques. One, nicknamed thunder run, involved the use of armored vehicles in all-night road marches using machine gun and main tank gun fire along the roadsides to trigger potential ambushes. While this procedure increased vehicle mileage and maintenance problems, it often succeeded in discouraging enemy road mining and ambushes."

Above all, this is indeed a combat operation when the enemy is operating around the clock in all sectors and the restrictions and techniques developed are similar to those encountered and used in Vietnam.

Aviation/Forward Support Battalion (FSB) Assembly Area Security

There may be an occasion when platoons from the armor/mech may be sliced to support the security plan of assembly areas. The tendency for these unit planners is to lock these mobile units into static positions. By doing this, the unit — whether they realize it or not — has now brought the fight to its perimeter, most likely meeting the enemy commander's intent of disrupting operations in those areas.

"The success of the defense hinged on the mobility of the armored units, the heavy firepower-artillery and air support, and the tactics used. The armored vehicles had not been dug in and were not fenced in with wire. Throughout the attacks, ACAV's and tanks continuously moved backward and forward, often for more than twenty meters, to confuse enemy gunners and meet the attack head on. The movement added to the shock effect of the vehicles, for none of the enemy wanted to be run over. In addition, reinforcing platoons carried extra ammunition on their vehicles and provided resupply during battle."

One of the more successful techniques again is using the combined arms team, preparing a defense outside the wire similar to that of defending a battle position developing an engagement area on the most likely avenues of approach to the assembly area for both mounted and dismounted forces. By doing this again, the unit can capitalize on all its capabilities; that is, killing the enemy where we want to, engaging at maximum ranges with aviation, indirect, and direct fires.

In an environment of combat teams, task forces and expeditionary forces, the need for understanding combined arms operations continues to be a challenge during real-world contingency missions and at the Joint Readiness Training Center. The armor/mech team is a viable combat force in any environment and should not be counted out in any mission, once a proper analysis has been completed determining limitations and capabilities required for the mission.

Major Richard R. Rouleau was attending the Command and General Staff Course at the time the article was written. He has served in various assignments, including the 133d Engineer Battalion, 2d Squadron, 6th Cavalry; 2d Battalion, 72d Armor; 2d Squadron, 12th Cavalry; and 3d Squadron, 16th Cavalry. He was commissioned as an armor officer in 1991 from Niagara University.

BATTALION MDMP IN A TIME-CONSTRAINED ENVIRONMENT

LIEUTENANT COLONEL JEFFREY S. BUCHANAN
MAJOR TODD WOOD
MAJOR JIM LARSEN

"You can ask me for anything you like, except time."
— Napoleon Bonaparte

It is 2100 on the second day of a rotation at the Joint Readiness Training Center (JRTC). The commander of Company A receives a radio message from the battalion tactical operations center (TOC) that says, "The scouts have located a suspected Cortinian Liberation Front (CLF) cache point in the vicinity of LZ FALCON. Your mission is to destroy CLF and the cache no later than 2330 tonight to prevent the enemy from resupplying its forces in AO Rakkasan. You will get three UH-60s for three lifts and the take-off time for the first lift is 2300. What are your questions?" The company commander quickly plots the grids and realizes that the pickup zone (PZ) is over two kilometers away, and that the only way to make it to the PZ is to move now. As the company moves to the PZ, the commander quickly formulates his ground tactical plan, landing plan, loading plan, and staging plan. At 2240 hours, Company A arrives at the PZ, the commander finishes disseminating the order as the aircraft approach, and most platoons get on the aircraft without a clear understanding of the mission or of what is expected.

This scenario is played out time after time during most unit rotations to the JRTC. But why? Is our time management that poor? Does our doctrine fail to support quick mission planning? The answer to both questions is yes. As an Army, we are poor time managers during planning, and the current military decision-making process (MDMP) at the battalion level is inefficient. The solution we have developed addresses more efficient time management by modifying the process. This article will address various tactics, techniques, and procedures (TTPs) for overcoming time management and mission planning.

The MDMP as described in Field Manual (FM) 101-5, *Staff Organizations and Operations*, may work well for corps and division-level operations. The complexity of operations at those levels dictates that multiple courses of action (COAs) be developed, analyzed, and compared in exacting detail to attain the best possible solution to each problem. Division and corps headquarters are generously staffed with real experts in their respective fields. Moreover, those who receive the orders generated by division and corps MDMP (brigades and divisions) are staffed with their own experts, capable of dissecting each order and initiating their own MDMPs.

Such is not the case for a typical infantry battalion. At the battalion level, operations are not (or should not be) very complex,

and as a whole, the staff lacks experience and the company commanders and specialty platoon leaders have no staffs.

This ponderous process has taken on a life of its own. Many practitioners forget that the MDMP is a means, not an end. Instructors, evaluators, and observer controllers delight in critiquing a unit's MDMP. "After all," many seem to think, "the MDMP is a recipe book . . . if I add all the ingredients in the right sequence and cook to order, I'll create a masterpiece." The problem is that the best process in the world can still generate a poor plan. What is important is getting a workable plan to the consumers early enough that they can accomplish the mission.

The TTPs we use are a combination of techniques currently in vogue at the combat training centers and many of our branch schools. There is nothing new or revolutionary in our system, but it works for us. This system is not the answer to all of our decision-making problems. In fact, the intent of this article is not to provide "the answer," but rather to offer some TTPs and, more important, to stimulate thought about how a battalion can get a workable plan to the companies early enough to have a positive, instead of negative, effect on the probable outcome.

Time Management

General George S. Patton, Jr., once said that execution, rather than planning, amounts to 95 percent of mission accomplishment. He also directed that army-level orders "should not exceed a page and a half of type-written text with the back of the page reserved for a sketch map." As a result, commanders were able to conduct their own planning, preparations, and rehearsals instead of having to wait for a higher headquarters to crank out an exhaustive operations order (OPORD). A side benefit is that when the consumers do not have to sift through a half-inch thick document to find the few pieces of valuable information. They can be more efficient in their planning, and once again, devote more time to rehearsals.

Rehearsals are critical in achieving two results: First, everyone understands each part of the plan, and second, everyone is fully prepared to act when the plan does not go exactly according to the script. The

perfect plan (if one has ever existed) never won a battle, but Soldiers who understood the plan and then executed it won the fight.

At the battalion level, those rehearsals consist of at least a maneuver or combined arms rehearsal, a fire support rehearsal, a reconnaissance rehearsal, and a combat service support (CSS)/CHS rehearsal. At the squad and platoon levels, the rehearsals are both mission-specific and general —namely the critical battle drills for a given operation. Without the sound management of available time, rehearsals are often the first items to be cut.

When a one-third/two-thirds time management tool is used, most units are greatly stressed. A probable scenario follows: The brigade staff gets the order from the division on Day 1, with an execution time of Day 3. The brigade issues its order on Day 2, and the battalion issues its order on Day 2½. This leaves the company commander less than one day to plan and rehearse. By the time the squad leader receives his order, his squad is moving to the objective.

We have been effective in using a one-fifth/four fifths rule. It is generally applied the same way as the one-third/two-thirds rule, but with a few exceptions. The first exception is to develop a detailed time line that supports the rule and a staff well trained and disciplined to follow that time standard. The second is that the battalion executive officer (XO) dedicates a block of time for company commanders. This amounts to two-fifths of the total time available — "blocked" to the companies in which the battalion staff will not plan any rehearsals, back briefs, or meetings — thus allowing companies time to focus on the mission without interruption. It is our

EVENT	ATTENDEES	ACTION	PRODUCT/OUTCOME
Receive mission from BDE	BN CDR, S-2, S-3, FSO, LMO	- Send copy to BN XO - Staff examines - Determine TF's purpose	
BN staff conducts mission analysis	XO, S-1, AS-2, AS-3, S-3 AIR, S-4, ALL SLICE	STAFF HUDDLE #1 - CDRs' intent - Higher mission - Nesting diagram - Critical times - Essential tasks - CSS considerations - XO guidance	- WARNO 31 - Reverse BOS worksheets - Mission analysis worksheets - Staff estimates
BN CDR returns	ALL Staff	STAFF HUDDLE #2 - Rec CDR guidance	- RFIs to BDE - Finish MA Brief
Mission Analysis Brief to BN CDR	ALL Staff	Mission Analysis Brief	- Staff requests CDR's guidance - Approved planning timeline WARNO #2
COA Development/Hasty Wargame	CDR and Staff	- Receive CDR Guidance on COA - Hasty Wargame of COA	- COA sketches - COA statement - Task organization - Staff estimates
Initial Targeting Meeting	CDR, XO, S-3, S-2, FSO	Initial TGTS, Priority	HPTL
COA Brief to CDR	CDR and Staff	Deliberate wargame	- Final task organization - Operational graphics - Synchronization matrix - Decision support template - BN R&S
R&S Meeting	CDR, XO, S-3, S-2, FSO	Collection Planning	Collection Matrix and Plan
Detailed Wargame	CDR and Staff	Deliberate war game	- Final Task Organization - Operational graphics - Synchronization matrix - Decision support template - BN R&S Plan
BN CDR RECON	CDR	RECON	Confirm plan
OPORD Prep	Planning group	- Staff paragraphs - Annexes submitted	OPORD
OPORD Brief	CDRs and Staff	Brief to Task Force	OPORD disseminated
Confirmation Briefs	BN CDR, CO CDRs, Special PLs	Brief Task and Purpose	
Execute R&S Plan	S-2, S-3, FSO, R&S	Early insertion of R&S	
Company Time	Companies	Develop co orders	
Final Backbriefs	CO CDRs to BN CDR	Backbrief format	Map board and graphics
Air Mission Coordination Meeting	S-3s, S-3 Airs, BAE, LNOs	Complete AMB checklists	AMB products
Air Mission Brief	Orders Group, CDRs, AVN LNO, Flight Leader	Brief to Task Force	AMB package
TF Rehearsals	BDE TF Leaders	COMMEX R&S, FS, Man, CSS/ CHS, PZ rehearsals, FS Rehearsal	Mutual understanding of operation

Figure 1 Commander's Guidance

experience that any one event can expand to fill the available time. When the time available to the battalion is cut from one-third to one-fifth of the total time, there is not much time to waste. The result is often an order that is less than perfect, but we make up for the imperfection with a generous helping of rehearsals at all levels.

Commander Involvement

Probably the most important aspect of our battalion's planning process is the involvement of the commander. We don't waste the time or energy having the staff develop, war game, and then compare various courses of action. We use the directed or "focused" course-of-action technique. The commander, S-2, S-3, and fire support officer (FSO) attend the brigade OPORD. Immediately after this order, the commander sketches out a course of action

Figure 2 MDMP Sequence

and then modifies it on the basis of S-2, S-3, and FSO input. Upon return to the TOC, the staff gives a quick mission analysis brief, and then the commander solicits input on the course of action from the XO and the command sergeant major (CSM). Given those modifications, the commander develops his commander's guidance.

Below is an outline of the Commander's Guidance Checklist we use at the completion of mission analysis. Although it may seem a bit too detailed, it focuses the staff; essentially it is "how I see the terrain; how I see the enemy; how I see us; and here's what I want you to do":

As you can see by our format, the commander's guidance is a fairly detailed description of the way the commander sees the enemy, the terrain, and our unit. He personally drafts the course of action and determines what critical decisions he or the enemy commander must make — along with corresponding draft commander's critical intelligence requirements (CCIRs). Finally he directs the course of action and provides planning guidance for each BOS. We have the format for the commander's guidance printed on carbon paper so that copies are readily available for the staff to use in building the order, without having to depend on a copy machine. That planning guidance is also attached to Warning Order 2 to the companies, so that the company commanders can get on board early in the process.

Battalion MDMP Sequence

A condensed description of our battalion's MDMP is shown in Figure 2.

Following the commander's guidance, the staff does a quick suitability, feasibility, and acceptability check of the COA, and the S-3 refines it. He then briefs the staff on the refined COA to set the stage for the war game. The purpose of our war game is not to analyze and compare courses of action, but to synchronize the one we have selected and identify or refine the decision points and CCIRs. Immediately after the war game, the staff finalizes the OPORD for publication.

The Matrix Order

Another way to improve time management and facilitate the orders process is to use a quick and easily transferable OPORD format (see Figure 3). This format also doubles as the warning order (WARNORD)/fragmentary order (FRAGO) format. The order itself is a pre-printed form that is made of transferable carbon paper. This allows us to write WARNOs, FRAGOs, and OPORDS without being wedded to a computer or a copy machine. The format is a blocked matrix order, with all the parts of the five-paragraph OPORD. There is not a lot of room for unnecessary verbiage in a two-page matrix order, so the staff has to distill the various tasks, purposes, and coordinating instructions into what is truly important for the company commanders. The company commanders don't have to

search for those important details, and the result is a better common understanding of the plan. Note that each staff officer is restricted to a one-page annex only. Below is the base order found in our TACSOP.

Warning orders are written on this format, with whatever information is available, to put out to subordinate units. As the staff continues with planning, a new warning order is written that incorporates new information and information already published. This allows the subordinate units to begin parallel planning. Most of the operations order is written after the COA and before the war game. At the conclusion of the war game, we publish the final operations order.

Units will continue to conduct operations in time-constrained environments — and many with unclear guidance and plans — unless commanders take control of time management and adjust the MDMP process.

Although we never seem to have enough time or information to execute a mission, the key to success is to issue quick and clear orders, parallel plan with higher, adjacent, and subordinate headquarters, and rehearse the plan thoroughly. If they get a perfect plan too late, we will all fail. Our squads and platoon win the fight. If they get a workable plan early enough to aid in mission preparation, we will all succeed.

When this article was written, **Lieutenant Colonel Jeffrey S. Buchanan, Major Todd Wood, and Major Jim Larsen** were assigned to the 187th Infantry, 101st Airborne Division.

Figure 3 Matrix Order

Using the FORWARD OBSERVER in Mechanized Infantry Operations

LIEUTENANT CHRIS LANGLAND-SHULA

How many times have you heard someone say, "We don't need specialized infantrymen, because anyone can pull the trigger on an M16?" Never, right? That is because this statement makes no allowance for the unique skills, teamwork and mindset that form the effectiveness of the infantry Soldier. However, this same argument is used to dismiss another highly skilled and professional Soldier, the forward observer (FO). "We don't need FOs anymore, because anyone can call for fire." This is especially prevalent in the mechanized infantry. I don't think this is because anyone doesn't think FOs are useful, but I do feel it is because there hasn't been sufficient attention given to training the platoon leader (PL) and FO to work together in combat operations.

FUNCTION OF THE FORWARD OBSERVER

The first step to this is establishing what role an FO fills in the platoon. FM 7-7J has a good start in Chap. 2, Section VII: Fire Support. In short, the FO is the platoon's subject matter expert on indirect fires. This includes assisting the PL with fire planning, working to establish indirect fire priorities, and ensuring that the squad leaders understand the role of indirect fires in the operation. It also includes making sure the platoon understands the capabilities of indirect fires, as well as their limitations.

The second part is the execution of fire support during the mission. This is

where FM 7-7J falls sadly short, and where units need the most practice. The FO, through a thorough understanding of the commander's intent and plan of execution of the operation, uses indirect fires to best support that operation. The FO identifies targets, and requests fires to engage those targets that the commander and platoon leader feel warrant the use of indirect fires. The FO then adjusts those fires to ensure they achieve the desired effect on the targets in question.

Your FO is specially equipped and trained to execute this mission. He doesn't just know how to call for fire (CFF); it is ingrained into him. FOs understand the CFF so thoroughly that they make jokes with it. Just as a maneuver Soldier is trained to react to a threat with direct fire and maneuver, the FO is trained to react with indirect fires. The FO also has been trained to identify and accurately locate targets at a significant distance utilizing binoculars, a map, and sometimes specialized lasers like the AN/GVS-5 Laser Range Finder (MELIOS) or Ground/ Vehicular Laser Locator Designator (G/ VLLD pronounced gl-ID). He is also trained to read maneuver and artillery map graphics. Finally, the FO team has a radio with the frequencies to all of the indirect fire assets available.

UTILIZING THE FORWARD OBSERVER

That information is fine, but how does a platoon leader in the mechanized infantry use his FO? The commandment is this:

Get your FO out of the Bradley, even if he is separated from the PL. While the FO should stick with the PL during the planning process and orders, when it comes time to execute, it is a whole new ballgame. A FO needs to stay close to the PL during light operations; the same is not true in mechanized operations. The reason is this: The pace of light infantry is limited to the speed of a Soldier on foot. This means that it easy to get separated, and once separated, it can be extremely difficult to link back up. Thus, the FO needs to stay right next to his PL in order to assist him as the situation unfolds.

In the mechanized world, the speed is limited to the pace a Bradley can set. This opens up many options on both the maneuver and fire support side. The first thing I can tell you is this: Indirect fires are useless without eyes on the target! No matter how good your intelligence is, only 50 meters can make the difference between turning dirt over and destroying enemy personnel and equipment. Thus, if that planned target is off within the margin of error of a six-digit grid, your fires can be almost ineffective. Since indirect fire can give you more firepower than an entire platoon, you need the best set of eyes you can get to watch and control those fires. Those eyes belong to your forward observer. This means you have got to get that FO out of the Bradley! If your FO is in the rear of your vehicle, he might as well be back in the rear detachment for all the good he is doing you.

Make sure you have good radio contact with the FO and somehow get him into a

putting him on a nearby hill, or it can mean infiltrating him in prior to the attack. How to get that FO into position is up to the PL, but it must be done. This takes proper planning and tactical patience, but will pay off handsomely when done.

Once in position, the FO can send in target locations and red-hot intelligence on enemy dispositions. While assigned to the 1-9 IN (M) , I listened once as one of my FOs sent intelligence all the way up to brigade. The FO can also engage those targets with indirect fire. However, keep in mind those fires belong to the maneuver leader, not the FO. Do not allow that FO to fire without your authorization, so that you can be sure your troops can be best served by those fires. By ensuring that the FO completely understands what you want to accomplish with your plan, he will be able to support you brilliantly.

> **If he (forward observer) sits in the back of a Bradley, he is useless. Don't throw away the enormous combat power that your FO controls.**

Conversely, if you ignore the FO, leave him in the back of your Bradley, or otherwise prevent him from getting eyes on target, you have made your job much harder. In Korea, I saw a very simple trend — when FOs were in position to observe fires and maneuver, commanders paid attention to them, and the missions were successful. When the FOs were kept back, left in the Bradleys or ignored, the missions failed. It was that simple. I think the best example was one new company commander who instructed his platoon leaders over the radio that, "We don't have time to wait for the artillery. Attack now." His company was completely destroyed by the dug-in OPFOR.

Once the mission is completed, the platoon is often well past the FO's location. This is not a problem if it is considered in the planning process. One option is having a passing element pick the FO team up. Some good choices are the company Fire Support Team (FIST), the first sergeant, or a trailing platoon. Your FO can link up with you during reconsolidation.

ENSURING CLOSE COOPERATION WITH YOUR FORWARD OBSERVER

Here is some advice on how to better integrate your FIST and FOs into your operations.

💣 First, if your FISTers don't already live and work with your unit, bug your chain of command to get them over to you.

Keep them on your company's training schedule. In addition to the greater integration of training between the FIST and the company, this helps the FIST to build their own skills. The reason for this is simple: Artillery battalions tend to abuse their FISTers, putting them on details, taskings, and other non-mission essential tasks which take away from their training time. These chores take away considerable time from the maneuver and artillery training and often result in FISTers spending all their time in the field or doing details. This can result in poor individual skills and similarly poor platoon and company integration. Keeping them away from the artillery battalion can help alleviate this.

💣 Second, ask your company Fire Support Officer (FSO) to give classes to the platoon leaders and forward observers on combined arms operations. Your FSO has received a good deal of training in this area, and along with your company commander and slice element leaders (such as engineers and air defense) can really help bring the team together. Also, involve your FOs in your infantry training. The better they understand how you do business, the better they will know how to support you while in the field.

While in the field, make sure your company commander enforces this rule: Your FO belongs to you, the platoon leader, not the company FSO. Even if there are not enough FOs for each platoon, while that FO is working with you, he is yours and answers to the platoon leader. The FSO is the company commander's fire support expert, not the FO's boss in the field. With this authority comes responsibility, however. Use your FO like just another infantryman, and don't be surprised when the company commander finds another place for him. FOs are far too effective at their jobs to pull security on halts or to serve as the platoon leader's Radio Telephone Operator (RTO). That can result in the FO not being where he needs to be when he needs to be there, particularly when the unexpected occurs.

Perhaps the best thing to remember when dealing with a FO is this: Not only does he have access over his radio to more firepower than a mech platoon could ever wish for, he is an expert at using it. If he can see a target, he can either kill it or set the platoon up for success in killing that target themselves. If he sits in the back of a Bradley, he is useless. Don't throw away the enormous combat power that your FO controls.

Lieutenant Chris Langland-Shula served as a Company Fire Support Officer with 1-9 IN (M) at Camp Hovey, Korea, from 1998-1999. At the time the article was written, he was serving as a platoon leader with 6-27 FA (MLRS) at Fort Sill, OK.

INFANTRY CAREER NOTES

Army Deploys Digital Photo System

The Department of the Army's Photo Management System (DAPMIS) became operational in early September.

As of September 19, 2,902 official DA photos had been submitted via the new system. Only 42 of those photos have been rejected due to resolution problems.

DAPMIS, a web-enabled, e-business system, provides a digital means for Army photo labs to electronically transmit official military photographs for promotion board consideration, said Ken Washington, DAPMIS coordinator, U.S. Army Total Personnel Command. This month, PERSCOM issued a message to the field outlining procedures.

The normal procedure, which began Oct. 1, is for photo labs to now digitally upload military photographs to a central repository. The DAPMIS goal is to have a full repository of digital photos by December 31, 2003. This applies to staff sergeants and above, chief warrant officers two and above and first lieutenants and above to colonels.

For the present, hard-copy photos will still be forwarded to the servicing personnel services battalion or military personnel office as well, according to the message. This process will be eliminated once the Army Selection Board System is fully implemented and career managers have the capability to display photos from the DAPMIS repository.

"The DAPMIS system is the Army solution for automating the DA Photo process," Washington said. "This system supports all Soldiers, active and reserve components and is a great aid to the Army Selection Board System, career management activities and commanders."

Washington added that photo labs will give first priority for digital photographs to Soldiers in zones of consideration for any upcoming centralized selection board.

The PERSCOM message notes an important change to photo lab procedures. After Oct. 1, photo lab technicians will concentrate solely on taking photos, rather than also inspecting a Soldier's uniform to ensure proper wear.

Soldiers will have the opportunity to review their photo on their Army Knowledge Online (www.us.army.mil) account. They have three workdays to either accept or reject the photo taken. Soldiers can find the DAPMIS site by linking to the "What's New" page on AKO. DAPMIS will automatically accept any photo taken as the official photo of record if the Soldier does not verify it within the three-working day limit.

The message states that it is the Soldiers' responsibility to inform their unit commander if they reject the photo, and to make arrangements with the photo lab to have their photo retaken. Soldiers preparing for deployment and who are in the zone of consideration for promotion will be given priority at photo labs. Soldiers currently deployed will have their digitized hardcopy photo scanned into the DAPMIS system.

"DAPMIS will save Soldiers' time because they will no longer have to visit the Personnel Office to deliver their photo," said Sgt. Maj. Freddie L. Davis, Jr., the top-enlisted Soldier for visual information with the Chief Information Officer, G-6, at the Pentagon. "Soldiers can view their current photo and official file on-line. DAPMIS also eliminates having to sort through five or six different opinions to figure out whether the photo is a good photo or not.

"This will help the Army achieve its goal of becoming network centric," he added. "Soldiers can do their part by visiting their photo lab to get their DA photo taken and put into DAPMIS."

"With DAPMIS, we get a system that is faster, more responsive and Soldier friendly," said Lt. Col. Curtis H. Nutbrown, action officer with the Strategic Partnering Directorate for Army Knowledge Manage-

ment, Chief Information Office and G-6. "DAPMIS supports the Army's migration of business and customer support applications to Army Knowledge Online, the Army Portal (www.us.army.mil). The goal is to use AKO as the one-stop information site for the Army."

OERS Can Be E-mailed From Iraq, Afghan Theaters

Officers deployed to Afghanistan and Iraq can now have their officer evaluation reports e-mailed or transmitted by digital senders to the U. S. Army Personnel Command.

"We have limited OER transmittal to these theaters because their mail and courier systems are not as mature as those in other locations," said George Piccirilli, chief of PERSCOM's Military Systems Division. "The key to the success of the new program is a quality, readable report for an officer's personnel file. If it's poor quality, we'll have to reject it."

Personnel officers in Kuwait, Uzbekistan and other countries in the theater of operation can also e-mail OERs, PERSCOM officials said. they said signed OERS should be sent as either TIF or PDF files.

There will be no requirement to send the original copy of the OER to PERSCOM once a quality report has been received and placed in an officer's official military personnel file.

As with routine mail operations, the OER attachment will be printed and entered into a daily, senior rating profile based on receipt date time group of the e-mail, PERSCOM officials said.

Personnel officers interested in transmitting OERs by digital senders or by e-mail should contact the military support division by calling (703) 325-9660 or DSN (315) 221-9660.

BOOK REVIEWS

Call to Glory: The Life and Times of a Texas Ranger. **By Michael J. Gilhuly, M.D., J. D., and Marilyn Gilhuly. 1st Books Library, 2001. 376 Pages.** Reviewed by Russell A. Eno, *Infantry* Magazine editor.

Few writers of historical fiction have the resources and expertise to draw upon their own genealogy as source materials, but Michael and Marilyn Gilhuly have done so admirably in this account of the three Wiley brothers' lives and adventures in the years shortly before and after the Civil War. The three lived and fought in Texas during those tumultuous decades beginning in 1862 and lasting until the Texas Rangers became the guardians of peace and stability on what was to be a dangerous frontier until the late 1800's.

The book opens in March, 1862, with an account of the battle for possession of the strategically critical Glorieta Pass east of Santa Fe, New Mexico Territory. In this action, the 2nd, 4th, and 7th Texas Mounted Rifles were facing an assault by Federal troops under command of Colonel (later General) Edward R.S. Canby. Michael Gilhuly, West Point '68, is a veteran of the Vietnam War, and his accounts of the unfolding battle are seen through the eyes and laid down in the words of a Soldier who has endured combat.

The characters are credible, unembellished Americans dealing with circumstances they neither sought nor avoided, but instead faced and dealt with in the best traditions of the Republic of Texas and the American character. Readers of this superb book will understand the evolution of the toughness that characterized those on the frontier, at a time when danger was far more imminent and death more violent than at almost any time in our nation's history. The resourceful, self-reliant frontiersman of today's screen was a reality in the middle of the 19th century, when the traits we now point to with such pride spelled the difference between success and failure and —literally — life and death.

With the War behind them, our characters were faced with the transition from tactical decisions and operations to the establishment of a society in which settlers, merchants, and former Soldiers could resume the routine of their lives. During that period, violence and those accustomed to employing it were ever-present, and the Texas Rangers responded as the only force available to provide stability.

The plot's dialog tends to decelerate occasionally, and indeed the interplay between characters, just as in life, has its slow moments, but this is not a major flaw, nor does it impair the readability of this fine book. If you want to learn about the nature of the Civil War in the West, devoid of charts and maps, this is the book to read, for it is history seen over the shoulders of the men and women who lived — and died — in writing it.

An American Soldier: The Wars of General Maxwell Taylor. **By John M. Taylor. Presidio Press, 2001 (1989).** Reviewed by Colonel Cole C. Kingseed, U.S. Army, Retired.

In the 15 years since his death in 1987, General Maxwell D. Taylor has been the subject of several biographies, none more favorable than *An American Soldier*, written by Taylor's eldest son, who is a fine historian and biographer in his own right. In his latest work, the younger Taylor seeks to provide an objective biography that strikes a balance between portraying the "personal" Taylor he knew and the Soldier-statesman whose actions and recommendations merit closer scrutiny. The general who emerges from these pages is a pragmatic officer who combined a penchant for battlefield leadership with a sense of strategic analysis that two presidential administrations found indispensable.

Interestingly enough, the author divides his text into four sections that address the

key aspects of his father's career. The first section takes the reader through Taylor's years as a student of the military profession, intent on developing the leadership skills necessary to command American Soldiers in battle. From West Point, where Taylor graduated in 1922, to Rome, where he conducted a highly-publicized mission behind enemy lines to determine the feasibility of an airborne assault, Taylor earned a reputation as a no-nonsense officer on whom senior headquarters could depend in time of crisis. Not surprisingly, Eisenhower selected Taylor to command the 101st Airborne Division on the eve of the Normandy invasion.

Taylor continued to refine his leadership skills in the book's next section entitled "The Warrior." From Normandy to Berchesgaden and from Berlin to Panmunjom, Maxwell Taylor demonstrated his ability to lead Soldiers in combat. Ironically, Taylor was initially absent during the division's defense of Bastogne, which he called the 101st Airborne Division's "finest hour" of the war. Taylor subsequently said that his absence there was one of his greatest disappointments in World War II.

At the completion of the war, Taylor served as superintendent of the U.S. Military Academy, where with the urging of Army Chief of Staff Eisenhower, he introduced a course in military leadership into the curriculum. The younger Taylor correctly identifies the resignation of an unusually high number of cadets during Taylor's superintendency as one of the most complex and frustrating periods in West Point's history.

By far the most interesting section of this biography is the author's analysis of his father as a strategist during the presidencies of Eisenhower, Kennedy, and Johnson. Regrettably, the younger Taylor offers little that is not present in Taylor's own autobiography, *Swords and Plowshares*.

As Army Chief of Staff from 1955-1959, General Taylor remained frequently at odds with Eisenhower's defense policies, and the

author is less than objective in accepting his father's view that Ike's defense policies were fundamentally unsound. Taking his case to the public by writing a scathing criticism of Eisenhower's military strategy by advocating a switch from massive retaliation to a more flexible response, Taylor attracted the attention of President-elect John Kennedy, who appointed him his special military representative and later Chairman, Joint Chiefs of Staff.

Taylor's term as chairman and later as U.S. ambassador to South Vietnam produced mixed results, not the least of which was an increased American military presence in Southeast Asia. Contrary to the author's claim that his father had no private agenda, or aspirations to greater authority, Taylor consolidated his authority in the Joint Chiefs at the individual chiefs' expense. As ambassador, there remains a great deal of controversy concerning how "tight a ship" Taylor ran as the principal coordinator of the U.S. presence in Vietnam. To the younger Taylor's credit, he does conclude that by 1965, few in the Johnson administration, including Ambassador Taylor, seriously considered withdrawal and the vast majority were certainly unwilling to face any option that acknowledged the possibility of defeat by a third-rate power. As military victory continued to be elusive, the ambassador remained a hawk on bombing, but a dove on the rapid escalation of ground troops that William Westmoreland and the Joint Chiefs advocated.

In the final analysis, Maxwell Taylor bequeathed to his nation a lifetime of selfless service. Though many observers have questioned his personal motives, few can deny that in addition to a distinguished military career culminating in the nation's highest military officer, Taylor was a strategist whose "geopolitical wisdom" made him an indispensable presidential advisor. *An American Soldier* could be more objective in the portrayal of its subject prior to the Johnson era, but this biography provides the reader with a remarkable insight into the life and career of one of this nation's preeminent Soldier-statesmen.

In the final analysis, John Taylor succeeds in portraying his father as a far more complicated Soldier-statesman than the general's contemporaries initially observed. The author is not so successful in painting an objective picture of Maxwell Taylor.

One More Bridge to Cross: Lowering the Cost of War. **By John Poole. Emerald Isle, NC: Posterity Press, 1999. 142 pages. $9.50, Softbound.** Reviewed by Lieutenant Colonel Greg Wilcox, U.S. Army, Retired.

One More Bridge to Cross is a second book by John Poole; the first was: *The Last Hundred Yards: The NCO's Contribution to Warfare*. Some may not make the association between the big red book (*The Last Hundred Yards*) and the little blue book (*One More Bridge to Cross*), but John Poole's passion for Soldiering is more than on display. It is a challenge to each and every Soldier to pick up this book, read it and learn. While "Gunny" Poole's target audience is clearly the NCO corps of both the Army and the Marine Corps, this book is a "must read" for the officer corps and new Soldiers as well.

In *One More Bridge*, Poole puts together the ingredients of how to fight and win in the 21st Century. Shedding the concepts and precepts by which we train today, Poole lays down the need for a new type of Soldier who can merge the concepts of physical, mental and moral warfare from the bottom up. Further, he lays down a doctrine of laissez faire for the over-managing Courtney Massengales (*Once an Eagle*); something the bureaucracy will not be able to abide. At the same time, Poole knows, as we all do, that the American NCO corps can and will train despite the obstacles the chain-of-command has placed in its path. The question is, will they be allowed to train for the next war or the last war? It would serve the Army and Marine Corps well if this book were placed on the respective professional reading lists for all officers.

Can this book be criticized? The answer is yes, but consider the source. Those reviewers who would criticize it on tactical grounds will only demonstrate their own tactical shortcomings, if not deficiencies. Poole is a tactician's tactician. Those who would criticize teaching infantrymen how to think will demonstrate their ignorance of the requirements of close combat. The Israelis, who understand close combat, put their most intelligent Soldiers in the Infantry. The critics of the moral element of this book will only identify the reviewers as not having studied or understood the late Colonel John Boyd, USAF, who may have been the most relevant military theorist of

the past century, for understanding the nature of war and how to fight. American military professionals seldom get beyond the physical level of warfare, and then it is warfare taught to us by Napoleon using mass armies and muskets. The mental and moral aspects of war are lost on most Soldiers — with the possible exception of our Special Operations Forces, who have shown a glimmer of understanding in the campaigns in Afghanistan, the Philippines, and a hundred other unadvertised battlegrounds.

We have to learn how to fight the mental and moral wars. Maneuver warfare is a state of mind, a way of thinking. It is the way we can learn to win mentally against terrorism. Moral war is engaging the enemy on a plane quite different from either the physical or the mental, but it is a war that we have to learn how to win. The cult of worldwide terrorism has attacked us in all three planes, and we must respond in all three planes if we are to eradicate the threat to our way of life.

John Poole wants every Soldier and every Marine to understand the importance of fighting this new kind of war on all three planes. We cannot afford to have our Soldiers calling our own allies "Gooks" and treating them as subhuman. We cannot afford to have our infantry act as mere automatons and follow the overabundant supply of doctrinal manuals that tell everybody how we fight — thus making us predictable. We cannot afford to fight 19th Century linear battles of attrition against nimble, adaptive, Ninja-like enemies.

If there is a criticism to be laid at the foot of John Poole, it is that he is too defensive in regard to the predominant role of the NCO Corps in training. Poole is borne out by the recent Army War College monograph on training in the Army, "Stifled Innovation? Developing Tomorrow's Leaders Today, April 2002," by Colonel Leonard Wong, U.S. Army, Retired. Leonard Wong tells it like it is in the Army. John Poole tells it like it is in the Marine Corps. Training has become centralized to the extent that even company commanders have virtually no influence on how their own companies are trained.

The American NCO corps is the envy of every Army in the world, and we are blessed to have such men who still view service as a virtue and training as a commandment. Since the beginning, the NCO corps has been

as the backbone of the American profession of arms.

It is the officer corps of the Army — and particularly the Infantry — that needs to understand Poole's message and adapt the way we think about war, the way we train for war, and the way we fight.

Follow this excellent thought-provoking book up and read Poole's newest book: *Phantom Warrior*. Learn how the Al Qaeda — like other fourth-generation warfighters before it — fights.

Somalia on Five Dollars a Day: A Soldier's Story. By Martin Stanton. Presidio, 2001. 299 Pages. $24.95, Hardcover. Reviewed by Lieutenant Colonel Harold E. Raugh, Jr., U.S. Army (Retired).

Somalia on Five Dollars a Day is not an African country tour guide for the impoverished international traveler. It is the interesting anecdotal account of then-Major Martin Stanton's service as S-3 (operations officer) of the 2d Battalion, 87th Infantry, 10th Mountain Division (Light Infantry) in Somalia during Operation *Restore Hope* in 1992-1993. Soldiers serving in Somalia during that period received imminent danger pay of $150 per month — or about $5 a day.

Task Force 2-87 was a component of the Unified Task Force (UNITAF), the transitional force between the United Nations Operation in Somalia I (UNOSOM I) and UNOSOM II. Stanton led the battalion's advance party, arriving in Somalia on 13 December 1992. Task Force 2-87 was responsible for humanitarian relief sector Marka, south of Mogadishu.

Stanton is at his best chronicling the "kaleidoscope of different experiences" that he participated in or observed personally, occasionally including "lessons learned" from operations. The first section of the book outlines the organization, role, and responsibilities of an infantry battalion, its staff sections, and subordinate units, plus the battalion's service in Florida in the wake of Hurricane Andrew. Section 2 narrates the arrival of the battalion in Somalia, including early operations and debacle at a food warehouse at Wanwaylen on 31 December 1992. The remainder of the volume generally chronicles the unit's subsequent activities in the Shabele Valley

trying to "ensure that relief supplies were distributed to feeding centers, suppress banditry, disarm the warlords, and separate fighting factions." According to the author, "the whole Somalia mission was a disorganized mess."

On other issues, however, the author seems on less sure ground. He states that the Somalia operation was the first intervention of the "new world order," when in fact UN operations in the former Yugoslavia and Cambodia began earlier. In another passage, the author refers to "Khat," a bush with leaves that contain a type of amphetamine, which are chewed by the natives, stating that it "grows only in parts of Kenya"; it actually grows in numerous eastern African and Arabian Peninsula locations. A helpful six-page "Glossary" is included, but a number of abbreviations and definitions are inaccurate. This book is well illustrated with a number of photographs and three maps, and the appendices include operations plans and the rules of engagement for the unit while employed.

This book was written as "both a history and a remembrance," as well as a "tribute to the officers and men of Task Force 2-87 Infantry" in Somalia. This personal story of an infantry battalion operating in Somalia, and the unit itself, accomplished its mission. Clearly, the Soldiers in the battalion earned their imminent danger pay of $5 per day.

How Wars are Won. The 13 Rules of War From Ancient Greece to the War on Terror. **By Bevin Alexander. Crown Books, 2002. $26.95, Hardcover.** Reviewed by Colonel Christopher Timmers, U.S. Army, Retired.

Every cadet at West Point and, I assume, pretty much any other college or university with pretensions to producing the officer class of our Armed Services learned the Nine Principles of War. My classmates and I learned these principles by means of a simple abbreviation: MOSS MOUSE. Thus we have: Mass, Objective, Surprise, Simplicity Maneuver, Offensive, Unity of Command, Security, Economy of Force.

Mr. Alexander, without saying so directly, somewhat incorporates these principles into his 13 reasons wars are won. From "Land an Overwhelming Blow," to "Defend, Then Attack," he cites historical

examples of how commanders won the day.

His rules, though, are largely confined to individual battles, battles that were won but did not lead to decisive victories and the subjugation of an opposing state. Gustavus Adolphus's victories in the Thirty Years War did not lead to vanquishing the Holy Roman Empire; the destruction of a Roman army at Cannae in 216 BC did not result in Carthaginian supremacy in the Mediterranean Sea and the destruction of Rome. Indeed, Carthage lost all three of the Punic Wars. The book's main focus seems to be how battles, not wars, are won.

The observation aside, this book provides an illuminating look at a number of key battles and leaders in the history of western warfare. The author does not overlook the impact of technological advances in weaponry from the Welsh longbow of the middle ages to the destructive effectiveness of the minie-ball in the American Civil War. But one aspect of how wars are won is not dealt with sufficiently, and that is leadership. Leadership as distinct from generalship can be defined as the ability to motivate men to endure hardship, danger, certain loss of life or limb, all for a commander. Commanders like Napoleon possessed generalship; they (he) embraced new tactics or technology and could see results of an intended action before it was executed. But what makes generals most successful and ultimately wins wars is leadership.

Leadership is what keeps armies moving on long campaigns, over great distances, against impossible odds. No weapons systems or tactical brilliance can substitute for it.

Interestingly enough, though, before we even launch into a discussion of any principles of rules, he tells us that these principles are largely a thing of the past. They are not as relevant because of the increasing lethality of high-tech weaponry, which renders large armies on open battlefields extremely vulnerable. An engaging hypothesis, although only one country has such technology (guess who?). Events currently unfolding in the Middle East may vindicate Alexander's hypothesis, but I don't know how many unmanned Predator aircraft, satellites, and sensors we will have to oppose massed armor formations and fast-moving mechanized infantry. Only time will tell.

SOLUTION ...TACTICAL DECISION GAME

Seizing and Holding an Enemy Training Center in Afghanistan with a Tactical Air Assault

LESTER W. GRAU

Editor's Note: *This exercise is based upon an actual Soviet operation conducted against Afghan Mujahideen forces in 1985, by the 12th Air Assault Company, and includes comments by the staff of Russia's Frunze Military Academy.*

12th Air Assault Company's seizure of a *mujahideen* training center:

After a full day of combat, The 12th AASLT Company realized that their situation was becoming critical. Ammunition was beginning to run out, men had to fire single shots rather than bursts. The battalion main force was unable to break through and reinforce the company. The company commander reviewed the situation and determined that they must attack at nightfall. The commander ordered his 3rd platoon to seize the southeast slope of hill 2825 to distract the enemy. The 1st and 2nd platoons would envelop the enemy from the west and the east at 14 0230 OCT 85, simultaneously attacking from two directions to seize the base, capture ammunition, and then hold the base until the battalion arrived. His plan worked, and by 14 0400 OCT 85 his company had taken the base without casualties. They had captured three DShK heavy machine guns, two recoilless rifles, 17 individual small arms and ammunition. The enemy tried to retake the base at 14 0600 OCT 85, but was driven off. When the main body of the battalion arrived, they punished the enemy badly and forced him to withdraw, denying the enemy the opportunity to retake the base.

Frunze Commentary/ Lessons Learned:

This vignette demonstrates that a soldier's combat load is essential: proper equipping of air assault personnel, including sufficient ammunition, rations, water, and radio batteries. Additionally, one must ensure that there is uninterrupted resupply and safe LZs to conduct emergency resupply missions. Resupply can determine the course of the battle and—as important as it and casevac are to mission accomplishment—the length of time needed to complete the mission will depend on how well the direct coordination with aviation was done. One must consider the weather conditions and the effectiveness of the enemy's air defense. The closer the LZs are to the objective or the fewer there are, the harder it will be to resupply forces and conduct casevac. From this and previous battles, it was determined that in order to fight independently for three or four days, each air assault trooper would need to carry an approximate load of 35-40 kilograms, so when regular resupply is guaranteed, the soldier's load could be lightened or tailored.

Editor's Commentary:

The air assault company ran out of ammunition after a day's combat, based partially on Soviet doctrine: small arms are used to suppress the enemy and eventually it may kill the enemy. The standard AK-47 fire selector switch goes from safe to full automatic to semiautomatic, which demonstrates the Soviets norm of automatic weapons fire, unlike U.S. doctrine, that uses crew-served weapons to suppress the enemy while small arms are used to destroy the enemy. The standard U.S. assault rifle selector switch goes from safe to semiautomatic to three round burst demonstrating the norm of semiautomatic/ controlled weapons fire. An army facing for a guerilla war needs to devote more time to rifle marksmanship. It saves on ammunition consumption. Frequently in the mountains, bolt-action rifles with better range and accuracy proved to be of better use. However, the rapid firing assault rifle proved most useful in ambushes.

Edited from: *The Bear Went Over the Mountain: Soviet Combat Tactics in Afghanistan,* Edited by Lester W. Grau, second printing August 1996, pp. 94-97.
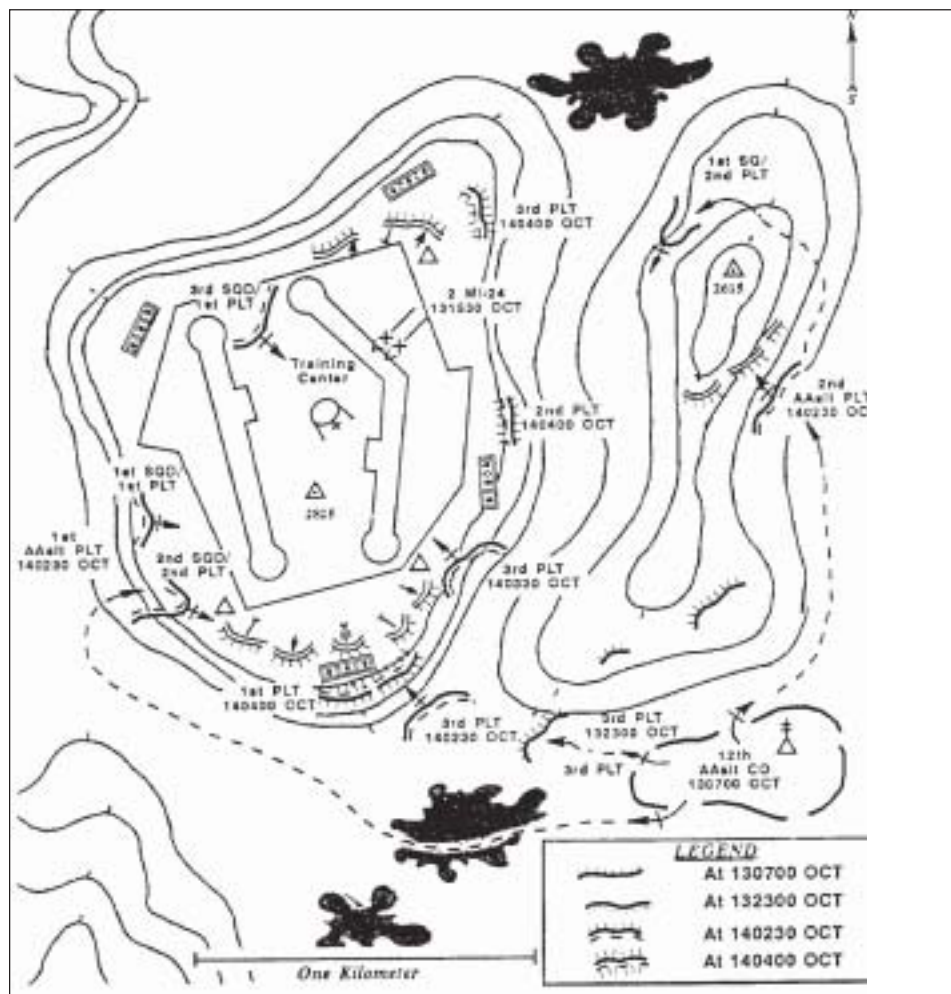
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