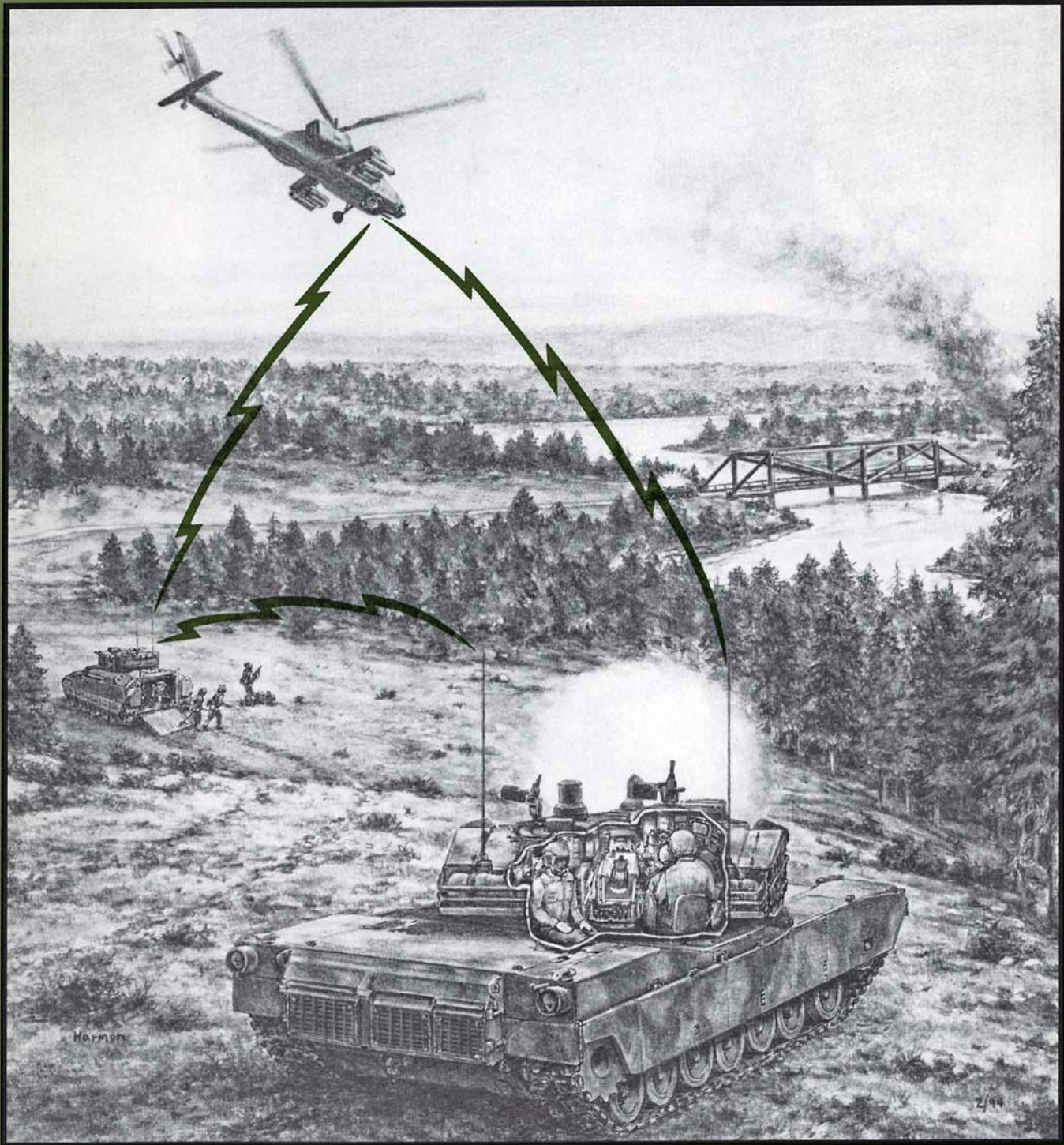


ARMOR



The Journey to Force XXI

PB 17-94-2

March-April 1994

Approved for public release; distribution is unlimited.

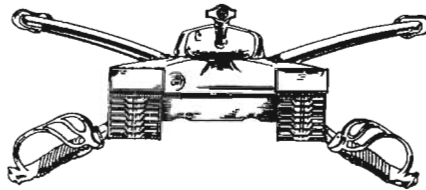


The 1994 Armor Conference at Fort Knox, 3-5 May, will offer a veritable cornucopia of digital delight. If you ever wondered where all that Force Modernization of the Reagan-inspired, budget-rich 1980's was leading, you need only get your TDY orders squared away and come to Kentucky this spring. On display and demonstration, you will find the tools that will enable the commander to control his forces on the battlefields of the 21st century, hence the new term, "Force 21." But that's not the only new concept being tossed around here at the Home of Armor, and the surest way I can think of to fall behind the developmental curve is to miss this conference. I'm no digitization wiz; in fact, I tend to still be a map & compass, dead-reckoning kind of guy; but even I am getting excited about the technology and forward-looking command and control goodies I've seen just during the planning stages of the May get-together.

It's become a cliché to say that we live in a rapidly changing, technology-driven, military world; but the simple fact is that those of us who don't strive to understand those changes and take advantage of the IVIS, GPS, and other modernized features of battle control will be condemned to eating the

professional dust of those who do. Just as surely as General Chaffee pulled the horse soldiers of the 1920's kicking and screaming into the 20th century, today's armor leaders will transition us cold warriors into the 21st.

In this issue of *ARMOR*, we feature not only stories about the upcoming conference, but we continue to provide a mix of historical and current technology articles to keep the force well grounded in the fundamentals of fighting and winning. A. Harding Ganz's excellent examination of the "11th Panzers in the Defense, 1944," offers many lessons for today's defensive theorists, and more importantly, today's executors that find themselves in the Mohave or elsewhere. CPT Scott Womack is one of our readers who responded to the challenge of discussing



the AGS employment, and I'm particularly pleased with the fine short piece by CPT Krichilsky on "The Army Field Feeding System" — the kind of no-nonsense, helpful information leaders can apply immediately to make soldiers' lives better.

Enjoy the issue, keep reading and writing for *ARMOR*, and I hope to see you at the conference.

— J.D. Brewer

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

Milton H. Hamilton
MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army

06129

ARMOR

The Professional Development Bulletin of the Armor Branch PB-17-94-2

Editor-in-Chief

MAJ J. D. BREWER

Managing Editor

JON T. CLEMENS

Commandant

MG LARRY R. JORDAN

ARMOR (ISSN 0004-2420) is published bimonthly by the U.S. Army Armor Center, 4401 Vine Grove Road, Fort Knox, KY 40121.

Disclaimer: The information contained in ARMOR represents the professional opinions of the authors and does not necessarily reflect the official Army or TRADOC position, nor does it change or supersede any information presented in other official Army publications.

Official distribution is limited to one copy for each armored brigade headquarters, armored cavalry regiment headquarters, armor battalion headquarters, armored cavalry squadron headquarters, reconnaissance squadron headquarters, armored cavalry troop, armor company, and motorized brigade headquarters of the United States Army. In addition, Army libraries, Army and DOD schools, HQ DA and MACOM staff agencies with responsibility for armored, direct fire, ground combat systems, organizations, and the training of personnel for such organizations may request two copies by sending a military letter to the editor-in-chief.

Authorized Content: ARMOR will print only those materials for which the U.S. Army Armor Center has proponentcy. That proponentcy includes: all armored, direct-fire ground combat systems that do not serve primarily as infantry carriers; all weapons used exclusively in these systems or by CMF 19-series enlisted soldiers; any miscellaneous items of equipment which armor and armored cavalry organizations use exclusively; training for all SC 12A, 12B, and 12C officers and for all CMF-19-series enlisted soldiers; and information concerning the training, logistics, history, and leadership of armor and armored cavalry units at the brigade/regiment level and below, to include Threat units at those levels.

Material may be reprinted, provided credit is given to ARMOR and to the author, except where copyright is indicated.

Features

- 6 DESERT STORM — The First Firefight**
by Captain Jonathan J. Negin
- 10 Controlling Armored Operations: The Israeli Experience**
by Lieutenant Colonel David Eshel, IDF, Retired
- 14 The Journey to Force XXI's Mounted Component**
by Colonel John C. Johnston, Director of the Armor School
- 17 The Army Field Feeding System — No More Nightmares**
by Captain Philip S. Krichilsky
- 18 Techniques for Sustaining Your Task Force**
by Major James Madigan, Captain Arthur DeGroat, Captain Bobby Brown, Captain Kevin Wright, and Captain Scott Jacobsen
- 21 Fighting for Time: An analysis of the fourth-dimension of warfare**
by Captain James K. Morningstar
- 24 The Cadre, How the British Army Trains Gunnery Experts**
by Lieutenant Colonel Harry D. Owens and Captain Justin Young
- 26 The 11th Panzers in the Defense, 1944**
by A. Harding Ganz
- 38 M1A2 Tank Distribution**
by Lawrence G. Vowels
- 42 The AGS in Low-Intensity Conflict: Flexibility Is the Key to Victory**
by Captain Scott Womack
- 45 The Immediate Attack and the Attack of Opportunity**
by Captain Jeffrey N. Stowe
- 47 NEOs: The New Mission**
by Captain Robert L. Bateman

Departments

- 2 Letters**
- 2 Contacts**
- 5 Commander's Hatch**
- 50 Bustle Rack**
- 51 Armor School Essay Contest**
- 52 Books**
- Back Cover Armor Conference Agenda/
Armor Trainer Update**

ATTENTION FREE DISTRIBUTION APO ADDRESSEES: Please send your new address and unit number to ARMOR, ATTN: ATZK-PTD (Ms. Hager), Ft. Knox, KY 40121-5210. Be sure to include your current mailing label.

Second-class official mail postage paid at Fort Knox, KY, and additional mailing offices. Postmaster: Send address changes to Editor, ARMOR, ATTN: ATZK-PTD, Fort Knox, KY 40121-5210.

Distribution Restriction: Approved for public release; distribution is unlimited.

USPS 467-970

LETTERS

One Shot, One Kill....Maybe

Dear Sir:

I read with great interest Major Miller's and Captain Averna's article, "Direct Fire Planning," in your November-December 1993 issue. It is a subject to which we sometimes pay scant attention and one which they have tackled in a most informed, and informative manner.

There is one area, however, where I believe some may be misled. While I am quite happy with the general thesis and approach, there is room for confusion in understanding the *effectiveness* of massed

fires. First of all, the article talks about "86 percent probability of a hit/kill with training sabot." This is fine for training shots against targets, but with service ammunition against real tanks will not do. There is, generally speaking, no guarantee that hitting an enemy tank equates to killing it, as any cursory glance at history will show. Therefore we need to differentiate between single shot hit probability (SSHP) and single shot kill probability (SSKP), and the latter is probably considerably less than the former.

Leaving that to one side, the really interesting question is, how does the commander best apply the fire of the tanks under his command to destroy the enemy?

Take the example quoted in the article of an average M1 crew, whose SSHP against a T72 at 2,000 meters is 62 percent, and assume that the velocity and setback produced by service ammunition does not allow for the correction of fall of shot. The SSHP applies to every round fired by this crew, and the probability of the M1 hitting the T72 can be calculated by applying the formula $PH = 1 - (1 - SSHP)^n$, where PH is the probability of a hit and 'n' is the number of rounds fired. Note the PH never reaches 1, i.e., hitting the enemy can never be absolutely guaranteed. And, while this is a sequential engagement involving one tank firing a number of rounds, the same rule applies to more than one tank firing at the same target simultaneously.

DIRECTORY — Points of Contact

(Note: Fort Knox Defense Switch Network (DSN) prefix is 464. Commercial prefix is Area Code 502-624-XXXX).

ARMOR Editorial Offices

Editor-in-Chief	
Major J. D. Brewer	2249
Managing Editor	
Jon T. Clemens	2249
Editorial Assistant	
Vivian Thompson	2610
Production Assistant	
Mary Hager	2610
Contributing Artist	
SPC Jody Harmon	2610

MAILING ADDRESS: ARMOR: ATTN: ATZK-PTD, Fort Knox, KY 40121-5210.

ARTICLE SUBMISSIONS: To improve speed and accuracy in editing, manuscripts should be originals or clear copies, either typed or printed out double-spaced in near-letter-quality printer mode. We also accept stories on 3½ or 5¼-inch floppy disks in MultiMate, WordStar, Microsoft WORD, WordPerfect, Ami Pro, XyWrite, Microsoft Word for Windows, and ASCII (please include a double-spaced print-out). Please tape captions to any illustrations submitted.

PAID SUBSCRIPTIONS/ST. GEORGE-ST. JOAN

AWARDS: Report delivery problems or changes of address to Connie Bright or Tonya Mitchell, P.O. Box 607, Ft. Knox, KY 40121 or call (502) 942-8624, FAX (502) 942-6219.

UNIT DISTRIBUTION: Report delivery problems or changes of address to Mary Hager, DSN 464-2610; commercial: (502) 624-2610. Requests to be added to the free distribution list should be in the form of a letter to the Editor-in-Chief.

ARMOR HOTLINE — DSN 464-TANK

(The Armor Hotline is a 24-hour service to provide assistance with questions concerning doctrine, training, organizations, and equipment of the Armor Force.)

U.S. ARMY ARMOR SCHOOL

Commandant	(ATZK-CG)
MG Larry R. Jordan	2121
Assistant Commandant	(ATSB-AC)
BG Lon E. Maggart	7555
Chief of Staff, Armor School	(ATSB-DAS)
COL John C. Johnston	1050
Command Sergeant Major	
CSM Ronnie W. Davis	4952
Armor School Sergeant Major	
CSM Henry F. Hurley	5405
16th Cavalry Regiment	(ATSB-SBZ)
COL Richard W. Rock	7848
1st Armor Training Brigade	(ATSB-BAZ)
COL Henry Hodge	6843
Directorate of Combat Developments	(ATZK-CD)
COL Edward A. Bryla	5050
NCO Academy	(ATZK-NC)
CSM Stephen R. Morgan	5150
Reserve Component Spt Div	(ATZK-PTE)
LTC Billy W. Thomas	5953
TRADOC System Manager for Armored Gun System	(ATZK-TS)
COL Charles F. Moler	7955
Mounted Warfighting Battlespace Lab	(ATZK-MW)
COL David L. Porter	2139
Office of the Chief of Armor	(ATZK-AR)
COL Don Elder	7809
	FAX - 7585

The basic choice left to the commander, therefore, is either to have all his tanks firing at a single target simultaneously, giving a high immediate PH and rapid destruction of that target, but also a large expenditure of ammunition and risk of overkill, or individual tanks engaging targets individually and firing sequentially. The latter option conserves ammunition and ensures that a larger target array is engaged at the same time, but will not ensure rapid destruction of individual targets. There is obviously a middle ground where enemy targets are attacked by several tanks each, engaging in an order of priority set by the commander. In both cases, fire control is extremely important, and the recent Gulf War shows the difficulty of differentiating between active and inactive enemy vehicles at distance, especially at night.

Whatever technique the commander chooses will decide the effect on the enemy, and the article gives fairly good advice on methods of ensuring they are used to best effect. There are a whole host of factors which will influence him, including logistics, surprise, state of training, future tasks and so on. But we must get away from the idea that a hit equals a kill and realize that one-round engagements are the exception rather than the rule, especially at longer ranges.

S.W. CRAWFORD
LTC, RTR
The Staff College
United Kingdom

Human Factors in Fire Distribution

Dear Sir:

There should have been comment on the human factors and difficulties that are entailed in controlling fires in Major Miller and Captain Averna's, "Direct Fire Planning," (Nov-Dec 93). As it is a two-part article and focused on prepared defense, my comments may be precipitous.

Complex and detailed fire plans will not be easy to implement. Smoke, noise, and anxiety will distract and confuse soldiers and leaders. The desire for self-preservation will mitigate against complex fire plans. Soldiers will instinctively engage those targets nearest to them and most threatening. They will use their most accurate and destructive weapons first. They also tend to engage targets from left to right. It is expecting a lot of crews to fire past an obvious target to engage one farther away, change orientation during battle, and spare their best weapon.

Soldiers may not remember which targets are theirs. They may not be able to comply with orders to shift fires. Target reference

points, engagement areas, quadrants, etc., can help clarify a chaotic situation, but they should not be overemphasized. There might not be time for thorough rehearsal. The plan may not appear logical to those concerned because it has not been possible to put them in the "big picture."

Avoiding overkill is important, particularly because there may not be an abundance of main gun and missile ammunition. Although overkill is not as bad as "underkill," or soldiers hesitating because they are unsure which target they should engage.

The authors state that "it is vital that commanders not assume that the command 'fire' ...will suffice to synchronize his unit fire." Although this is a critical command, and it is prior to an engagement that a commander can most influence massing of fires.

Distribution and massing of fire can be best achieved by the thoughtful placing and orientation of weapons, and the use of battle drills and SOPs. For example, train soldiers to watch their arc, and to engage left to right, with flanking weapons targeting the extremities and working inward. Place weapons to fire in enfilade to engage following enemy formations rather than have to fire in depth. Ensure that soldiers are fully aware of their weapons' capabilities and characteristics so that they use them effectively, e.g., 25-mm cannon against APC/IFV from medium range.

This is not to say that there should not be planning. Commanders must attempt to influence the distribution of fires. However, they should not presume that they will be able to do much in the mist of battle.

The authors observe that setting engagement priorities "may not be effective in every situation" because it is difficult to identify target types except at close range. As deficiencies of eye sight must influence direct fire planning, so should the imperfection of human psychology.

RUSSELL MILES
Watsonia, Australia

WWII Small, Combined Arms Unit

Dear Sir:

A very interesting article, titled "Independent Operations," by Ralph Zumbro, appeared in your September-October 1993 issue. The author concludes we need small units capable of operating independently; i.e., organized and equipped to be self-supporting and self-sustaining for substantial time periods. He suggests the solution "...might be a small combined arms unit that's never existed before, something between the company and the battalion."

Let it be recorded that just such a unit was employed in Burma during most of the year 1944 by the 5307th Composite Unit (Provisional), popularly referred to as Merrill's Marauders. This unit was an infantry regiment of three battalions with a few specialized units attached, the latter being further detached to each of the battalions. Each battalion was organized for operations into two "combat teams," designated by color. e.g., the 3d Battalion consisted of Orange Combat Team and Khaki Combat Team. This was in lieu of the usual company-type organization.

It is believed this type organization was based on concepts developed by British General Orde Wingate, and perfected by his Chindits in their foray into Burma during 1943.

Anyone desiring further information on this system should contact the Merrill's Marauders Association, c/o Ray V. Lyons, Secretary, 11244 N. 33d St., Phoenix, AZ 85028.

W.B. WOODRUFF JR.
LTC, AUS, Ret.
Decatur, Texas

Challenges of the "Three by Five" Platoon

Dear Sir:

I was intrigued by two of the letters in the November-December 1993 issue about the Hunter Killer article published in July-August 1993. Second Lieutenant Cruz and Lieutenant Colonel Crawford brought up interesting points. I have three main points that I will offer for debate.

First, I don't agree with the command and control structure that 2LT Cruz suggests. A troop commander should not have to personally control six independent sections. That is why we have platoon leaders. Success also depends on the initiative and expertise of the section sergeant, but it should be controlled by the platoon leader. He is the first line leader who is responsible for the integration of fires and flow of information. In addition, there is a danger if the troop commander is personally controlling six sections over a front of 10 to 15 kilometers. There may be a gap in communication. This may result in crucial spot reports and engagement criteria being missed. This, I believe, was the point of LTC Crawford's letter.

The H-Series MTOE was a highly versatile and very effective organization. With the fielding of the M1A1 Abrams and the M3A2 Bradley, the Army developed the L-series MTOE for divisional cavalry squadrons. The base unit in this organization was the three by five platoon — three tanks,

five Bradleys. The Army tested this configuration with 1-1 CAV and my unit 3-4 CAV, 1AD and 3ID's division cavalry squadrons. I can only speak for my own unit's experience under the MTOE. We were extremely happy with the versatility and firepower. Together with our air troops and FIST teams, the cavalry platoon leader gains a true appreciation of integrated fires and combined arms. The sheer size and complexity of the organization made the three by five platoons a challenge to properly master. It is an extremely difficult position for a new second lieutenant. Don't expect him to perform well right away. A gifted few excelled in this organization, and the real standouts were the senior lieutenants who had developed their skills in a tank platoon. Since the cavalry is the eyes and ears of the division commander, a solution is to select the cavalry platoon leaders from the top lieutenants in the division. Nevertheless, I believe the organization to be very effective.

The emphasis must stay on highly trained section sergeants and platoon leaders with a thorough understanding of direct and indirect fires and maneuver. To ensure this happens requires intensive professional development of the officer corps at squadron and troop level. Then, allow the platoon leaders time to train with and learn from their NCOs.

CHRISTOPHER M. DONESKI
1LT, Armor
3-4 Cav
Schweinfurt, Germany

Arming Abrams Drivers

Dear Sir:

The recent deployment of a U.S. Army armored task force to Somalia raises the sticky issue of potential Abrams vulnerability in urban terrain.

The tactical situation may preclude supporting infantry from dismounting Bradley fighting vehicles, and preceding the Abrams. Narrow streets and building proximity may constrain free turret traverse needed to employ the 7.62-mm coaxial machine gun.

Under these circumstances, a Molotov cocktail thrown at close range, a satchel charge, or an antitank mine placed under a track could become significant threats.

Abrams drivers can use their excellent peripheral vision through hatch-mounted vision blocks to spot sappers approaching the tank from either side. Unfortunately, the Abrams driver is the only crew member without access to externally-mounted supplemental armament.

The Army will issue its new M4 5.56-mm carbine as personal weapons to all Abrams

tank crews. The driver's M4 could be externally-mounted to improve flank security.

Two options appear feasible:

-Mount the M4 on the front glacis, using a pivotable, manually-operated rear post, and a front post that slides throughout a 90-degree firing track.

-Mount the M4 upright, using a single, pivotable, hatch-penetrating post.

Under both options, the M4 would be manually-aimed and electrically-fired by the driver inside the tank.

The concept has some potential limitations. Depression of the tank's main gun may interfere with M4 operation. Fumes could obscure the driver's vision blocks. Magazine reload could be difficult.

Still, the advantages of equipping Abrams drivers with external armament deserve further investigation.

Engineering analysis could wring out the feasibility issue, while providing design, chassis location, and cost insights.

RICHARD K. FICKETT
Hemdon, Va.

The Plight of the Scout Vehicle

Dear Sir:

Since there has been warfare, there have been scouts. Someone has to get close to the opposition, observe him, and report his actions back to the commander. The knowledge gained may determine the outcome of the next battle. Yet, with all the emphasis we attach to our scouts, we slight the scout vehicle. Throughout the history of armor, scouts have made do with what was available, modified to varying degrees, but never designed to the unique requirements of combat reconnaissance.

Four years ago we made the decision to replace our tracked scout vehicles in the armored and mechanized infantry battalions with the HMMWV. We based this decision on results obtained from the NTC after tests with both Bradley CFVs and HMMWVs. The tests determined that the HMMWV was an adequate scout vehicle. And, adopting the HMMWV increased the number of platforms in the scout platoon.

Scouts have been less than satisfied with the HMMWV for several reasons including: mobility, survivability, load capacity, and most significantly, the loss of the CFV's long range sights. In DESERT STORM, many commanders consciously decided to substitute CFVs.

Abrams and Bradleys travel high speed cross-country. The scouts must have mobility as great or greater. The HMMWV travels well on hard surfaces, but can't cross obstacles or knock down trees.

In operations against an armored threat, we now place our scouts between two mechanized forces in what amounts to a utility vehicle. Between tank rounds, shaped charges, mines, CBU, DPICM, and HE Frag, the survivability of the HMMWV scout is doubtful. If the scouts fail to survive, so goes their valuable information.

Scouts sneak and peek, and stealth is critical to survival. Here the HMMWV may outshine a tracked scout vehicle. Still, there are times in scouting that stealth is secondary and lethality becomes crucial. While scouts shouldn't get decisively engaged, weapons are often necessary in providing security, gaining and breaking contact, and conducting counterreconnaissance. The ability of the HMMWV to deal with a BMP3 or even a BRDM is questionable.

Sensors currently available to HMMWV scouts are outmoded. The Bradley has an on-board thermal that is effective and dependable. Scouts must have that capability.

There are programs planned to improve the scout HMMWV. Still, today we have a wheeled vehicle with limited armor protection, struggling to maintain the pace of tracks with much greater survivability.

The Army has been arguing whether scouts should have tracked or wheeled vehicles since World War II. We continue the debate today. Tomorrow's scouts must be the best equipped scouts in the world. They need capable technology and the proper vehicle to do their mission.

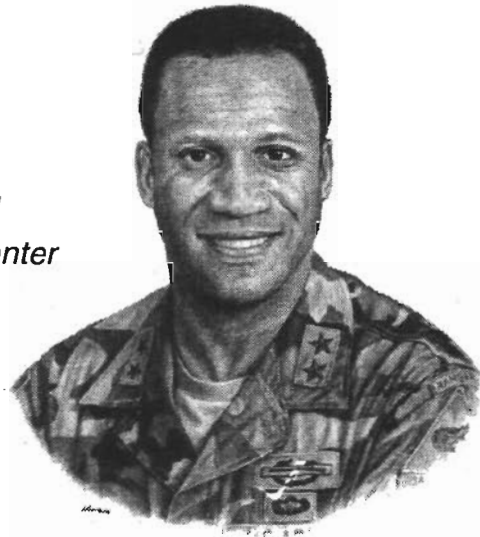
I make two suggestions; first, we reexamine the decision to replace track vehicles in tank and mechanized infantry battalions with the HMMWV. In speaking with and working with scouts, I have found without exception one constant comment: "The HMMWV is an excellent, comfortable field vehicle; it is fun to train with, but I don't want to face the real thing in it."

Second, we must keep in mind that the force as we know it is changing constantly. Scouts need to be part of that change. For that reason, we should look at the feasibility of creating a Program Manager (PM) for scouts. PM Scout would oversee future force development plans, and tailor the scout's capabilities accordingly. The PM would stay abreast of technology pertinent to scouts, ensuring they can shoot, move, communicate, and survive on the battlefield of tomorrow.

There is always room for improvement in a system, and any decision can and should be reevaluated to ensure it is still viable. Our scout vehicle needs to be reexamined in the light of how our scouts operate and what they need to do their elite mission.

SFC JAMES C. LAWRENCE
Cavalry Scout
Ft. Knox, Ky.

MG Larry R. Jordan
Commanding General
U.S. Army Armor Center



Force XXI Battle Command: Enabling Tomorrow's Leaders

"War is the province of uncertainty: three-fourths of those things upon which action in war must be calculated, are hidden more or less in the clouds of great uncertainty."

— Clausewitz, *On War*, 1832

"... Army doctrine recognizes that advanced weapons and technologies are no better than the skill with which leaders and soldiers employ them against the enemy."

— FM 100-5

Imagine being part of a fighting force that is capable of controlling all information of tactical importance. Imagine that every soldier in this fighting force is equipped to know — *with certainty* — the precise location, situation, and status of every element within it: every artillery piece, every truck, every fighting vehicle, every aircraft, indeed *every individual soldier*. Imagine that this same force is able also to know the disposition and actions of all the enemy forces arrayed against it. To this force, war would no longer be so completely "the province of uncertainty" as described by Clausewitz, but rather would be able to dispel most of those "clouds of great uncertainty."

It is the information age and all of the promise that its technologies pre-

sent that enable us to anticipate the day that this force will be a reality. It is hardly an overstatement to say that warfare will be transformed like seldom before; historically, technological advances that have "revolutionized" warfare have, for the most part, increased lethality, mobility, or protection of the force. The technologies of the "information superhighway" are the first to directly increase all of these together — plus command and control, intelligence, efficiency of combat support and combat service support, mobility and counter-mobility, and uncounted other ways.

It is, to say the least, an enormous challenge to keep pace with the advance of emerging technologies and to track developments that are building one upon the other at such a dizzying rate. But the promise is so vast, the possibilities so extraordinary, that all of Fort Knox is working with the rest of TRADOC and the Army in making Force XXI — the Army's vision for the 21st Century — a reality. Our challenge is to explore every possible advantage that tomorrow's technology can deliver. Doctrine, firmly based on current capabilities, may be profoundly affected. Tables of organization and equipment are likely to undergo significant change. Training

strategies will be based increasingly on simulations of every kind.

Our principal focus is on the art of *Force XXI Battle Command*, enabling the commanders of the twenty-first century to seize every advantage of the information age. Our goal is to create leaders equal to the technology — commanders that can make rapid, accurate, well-informed decisions, issue their orders, and have those orders instantaneously communicated and executed. That all of this is achievable has already been most thoroughly and convincingly demonstrated, and we are today much closer to our goal than anyone could have imagined. For more detail on how we are pursuing this, I encourage you to read the article "The Journey to Force XXI's Mounted Component" that appears on page 14.

One important point in closing: Never do we forget that our sole reason for existence is to fight and win the Nation's wars. After all is said and done, in all that we do: it is the skill, professionalism, and warrior spirit of the soldiers manning the force that determine success. New technologies will never change that — not even those of the next century.

Forge The Thunderbolt!

DESERT STORM — The First Firefight

by Captain Jonathan J. Negin

Third Platoon, I Troop, Third Squadron, Third Armored Cavalry Regiment made the first ground contact of Operation DESERT STORM on 22 January 1991. It has been well over three years since then, and from after-action reviews, I realize that this was just the prelude to larger and more significant battles in the war. However, this was the first contact, and despite its small scale, it is interesting because of its relevance to combat on a larger scale.

We received the mission to conduct a moving flank screen westward to an overnight observation post, and screen back the following day. We were clearing the sector to our west for the 24th Infantry Division to occupy on the regiment's left flank. First platoon was following us four to six hours later with a similar mission.

Our final destination was over 100 kilometers from the squadron assembly area, so logistics and communications were a major concern. Accordingly, we brought long range antennas and formulated contingencies for resupply. Unfortunately, because of the distances involved, we left our habitually associated M106 4.2-in. mortar carrier behind. Later, we wished "Blue Seven" and Staff Sergeant James Kennedy's indirect firepower had been available. We did have an unexpected "attachment" when Colonel Douglas Starr, the regimental commander, and his Bradley crew took this opportunity to conduct a leader's reconnaissance with our platoon. We also had a ground surveillance radar track from the 66th Military Intelligence Company, with Sergeant Todd Morgan as the squad leader.

The weather was clear and cool as we departed to the northwest over varying rocky, sandy, flat, and sloping terrain. Observation was outstanding everywhere as we paralleled the berm

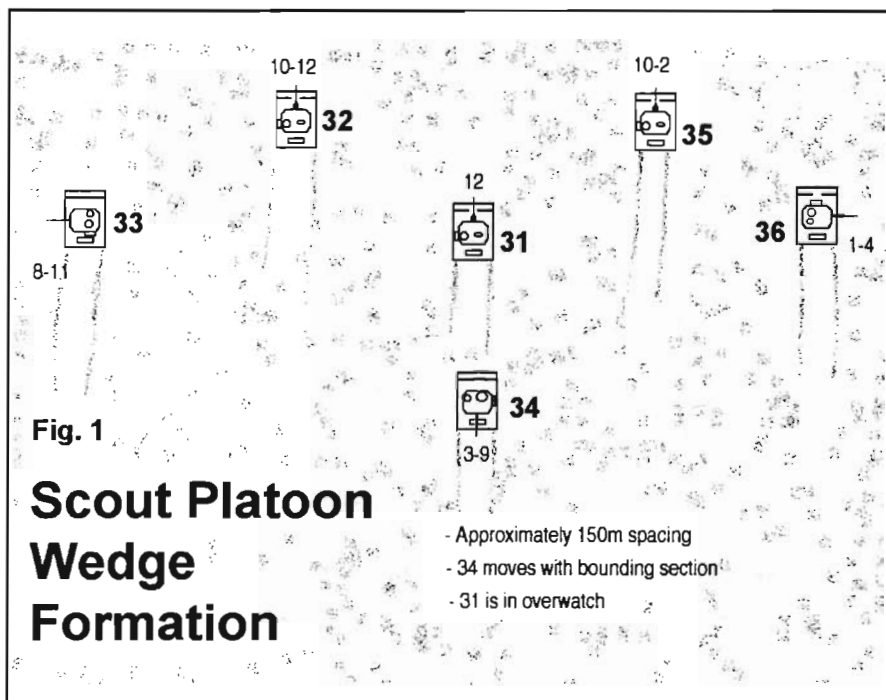


between Saudi Arabia and Iraq. Along the way, we encountered a military police squad securing a main road northward to a town that recently had been under Iraqi mortar attack. This was a reminder that we were operating in unsecured terrain. Colonel Starr informed me that Allied aircraft were scheduled to attack that evening to destroy the enemy mortars.

We continued our mission westward without further contact. As we neared our objective, Corporal Alvin Gage, gunner for I32 detected something on the horizon about five kilometers to the west. I maneuvered the platoon

from a staggered column to a scout platoon wedge (Figure 1). We developed this formation for maneuvering towards targets of opportunity in a hasty attack, moving independently as a scout platoon, or platoon-sized raids, including situations such as we now faced. The formation enhances 360-degree security and flexibility, in addition to providing good command and control. It also allows scout sections freedom to maneuver, of which I now took advantage.

I notified Colonel Starr on my higher radio net that I was sending a section forward to investigate. The



colonel also went forward. As Bravo section maneuvered forward, they reported the vehicle as an abandoned low boy" trailer. However, from here they identified some Saudi border guard vehicles on a ridge about three kilometers to the north, near the first vegetation we had seen all day.

The platoon moved forward into our wedge and continued forward to the next ridge line. Colonel Starr was now in front and dismounted to talk with a Saudi captain. From here, we saw the faint outline of unidentifiable equipment in the dusky distance of the next ridge line. The equipment was on the enemy side of the berm, which now was clearly visible at the bottom of the slope to our front. Remarkably, there was also a large, two-story building in the valley below. It was the first structure we had seen in days.

Colonel Starr quickly briefed us that there was a Saudi border patrol engaged in a firefight in and around the building to our front. The Saudi captain requested our assistance. How could we refuse? As we headed down the gradual slope, we could see the shallow valley was densely covered by scrub and scattered bushes, affording decent concealment and some cover. The far side of the valley rose to the limit of our observation about ten kilometers distant.

The sky was overcast and dim as Colonel Starr prepared us for what was about to unfold. He ordered me to have the platoon close all vehicle hatches, move on line, and prepare for contact as we descended to the berm. We readied our weapons and minds as we intently scanned the valley below. I glanced about at our formation and spacing. We pulled into hull-down positions along the berm with about 150-200 meters between vehicles. The berm was five to six feet tall, consisting of bulldozed dirt and rocks at a formidably steep angle on both sides. I sent my observers forward for local security and looked directly into Iraq for the first time.

Scattered Saudi soldiers moved in and around the lone structure. Border guard trucks pulled out to the west as we arrived. We caught glimpses of the enemy as they ducked in and out of the vegetation to our front. The firefight that had been taking place took on a frightening new dimension with the arrival of the awesome firepower of a Bradley scout platoon. Soon, we all would learn exactly how effective the 25-mm chain gun can be. The enemy could not have been ready for what was about to happen. We had already achieved surprise on the battlefield.

Colonel Starr calmly directed us to scan for targets, but he ordered me to

let him know before we engaged. After a few moments of scanning, I heard the report of a 25-mm gun to my right. Colonel Starr was conducting reconnaissance by fire in the vegetation 1,000 meters to our front. I took this as a sign and commanded my platoon to engage any targets that presented themselves. Colonel Starr continued to engage at intervals and I began receiving reports from Alpha section. They were engaging troops and a bunker, 1,800-3,000 meters distant, with high explosive (HE) rounds.

Colonel Starr told me to control my fires, because he saw the rounds lofting high into the air. I explained to him that this was the trajectory of HE rounds at extended ranges. Staff Sergeant Terry Buchanan, commander of I32, said he actually saw enemy soldiers attempting to dodge incoming rounds they observed in flight.

Alpha section thoroughly covered the bunker with suppressive fire. "It just lit up," Sergeant Morgan later told me. The only enemy we now saw were fleeing out of our range into other bunkers. These targets easily would have been within 4.2-in. mortar range.

Colonel Starr maneuvered his Bradley forward after he had saturated an area to his front with 25-mm armor piercing rounds. He was advancing to flush out enemy soldiers we identified trying to hide in the vegetation to our front. Tracers sprayed all around him as he attacked. He reported that he had pinned down some enemy soldiers and requested that I dispatch a section to assist him. I decided to send Bravo section across the berm because they had no targets in their sector.

The situation had developed into a hasty attack (See Figure 2). We had suppressed the enemy activity and it was time to assault. If we'd had mortars, we could have covered the entire area, including the dead space, and engaged the hazy targets on the horizon. Staff Sergeant Steve Ruch, in I35, initiated the assault by quickly crossing the berm and dashing to the enemy's flank. Staff Sergeant Peter Baez, in I36, had trouble negotiating

the berm. He moved 500 meters behind I35, but still covered his exposed flank. It was not a flawlessly initiated assault, but it was taking shape.

After Bravo section deployed, I was concerned about my left flank, so I instructed my dismounted scouts to focus on that area. Bravo section searched for targets in the thick brush as they closed on the enemy. Alpha section continued to engage on the right. I cautioned the platoon to ensure they could positively identify both Rifles Six and Bravo section before they engaged. Strangely, safety was foremost on my mind at this point. If they could not see all the friendly elements, they were not to fire at all.

Colonel Starr later said we were under small caliber mortar fire, but I barely noticed its presence. The assault developed rather slowly because of difficulty negotiating the berm. Since we appeared to have suppressed the enemy, I began to search for a spot to cross the berm and directed Alpha section to do the same. Alpha began to cross as I35 reached the objective. I told Alpha to hold in place and continue to scan, engage, and report.

Suddenly, I35 came under fire! I saw the flash and smoke of projectiles impacting on I35 as it moved through the enemy position. Staff Sergeant Ruch's voice came over the radio. "I've got casualties in the back! My track's full of holes!" Welcome to war, lieutenant. The word "casualties" hits hard. God, let them live. My gunner and I hung our heads momentarily in disbelief. This was war.

I told Staff Sergeant Ruch to return to the berm, treat his casualties, and report to me. I directed I36 to continue the assault. I informed Colonel Starr of the situation and he agreed with my decisions.

Soon thereafter, Staff Sergeant Ruch reported that his vehicle was full of smoke and that both his scout observers had received leg wounds. One wound was minor, the second more serious. Private First Class Kelly Ocon, driver of I35, skillfully drove

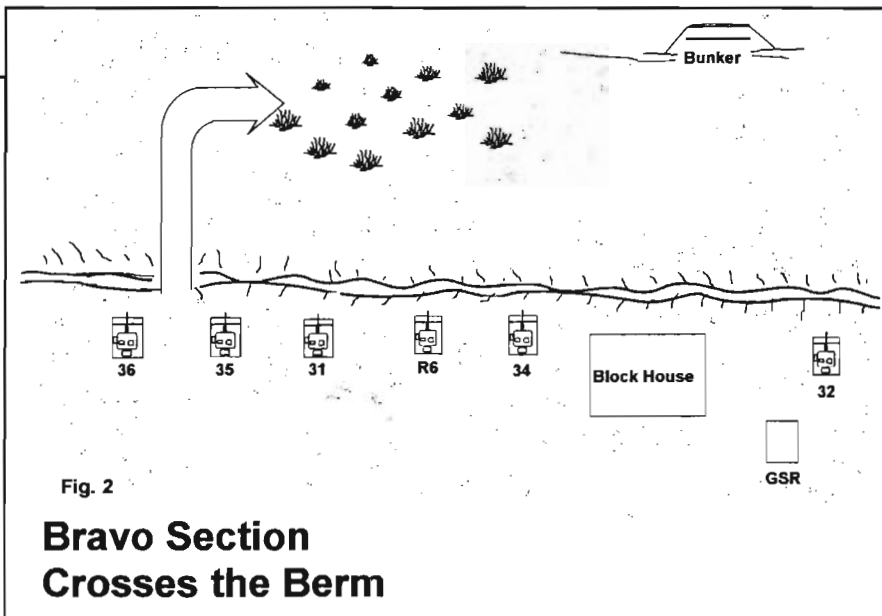


Fig. 2

Bravo Section Crosses the Berm

the Bradley back through a hail of enemy fire. It was an extremely determined effort, and a tribute to the teamwork and training of the crew of I35.

Once back on our side of the berm, the slightly wounded soldier, Corporal Mark Valentine (a combat lifesaver), stabilized and controlled the bleeding of the other casualty, Specialist Trey Garrison. Later, we counted 15 holes of differing sizes in I35, the first Bradley tested in combat. Most of the holes were from medium to heavy machine guns. Also, there were penetrations by a small caliber, older model antitank weapon. We were lucky that most of these rounds either didn't fully penetrate or passed harmlessly through the less vital areas of the Bradley.

Meanwhile, I36 closed on the objective. The enemy seemed disheartened after subjecting a Bradley to such intense fire and watching it drive away, evidently undamaged. Those on the objective raised their arms in surrender. I36 stopped on the near side of the objective and dismounted three soldiers to collect the prisoners. Dismounts from Rifle Six assisted. Sergeant Bryan Hunt, gunner of I36, identified an enemy heavy machine gun team preparing to engage our dismounted soldiers. Acting independently, he swiftly and accurately destroyed them with 25-mm fire. The enemy had seen enough, and didn't care to provoke any further attacks.

The assault was complete, it was time to withdraw and reconsolidate.

Staff Sergeant Baez loaded the prisoners on the trim vane of Rifle Six and moved them back across the berm, where my platoon sergeant, Sergeant First Class Emilio Rios, took charge of them. We moved back about 3,000 meters to evacuate our casualties and process the prisoners. We occupied a platoon assembly area and moved the casualties and prisoners to the center.

Colonel Starr contacted Blackhawk helicopters from regiment to evacuate the wounded and prisoners. We systematically searched the prisoners. They were between the ages of 18 and 45, well armed, but otherwise poorly equipped. Some were frightened and others seemed to accept their fate. The war was over for them.

Later, our squadron S2, Captain Paul Hovey, told me this had been a good drill for all allied echelons of EPW processing. It validated the system that the allies already had established. Once the Blackhawks departed, we displaced to the vegetation on top of the ridge where we had first made contact with the Saudi captain. Night fell as we secured our perimeter and Colonel Starr arranged for aerial resupply. I quickly assembled my Bradley commanders to issue orders and conduct a short after-action review.

After night settled in, the ground surveillance radar reported activity in the valley below. We remained vigilant for a possible counterattack. Colonel Starr had called two OH-58D helicopters and an A-10 into the area. They verified that the enemy was evacuating bodies from the battlefield. The aircraft tried to identify further targets. We saw tracers fly through the air as the enemy unsuccessfully tried to shoot down the A-10 as it made its passes. Colonel Starr called off the close air support and left to brief the corps commander. We girded in for a tense, yet uneventful night.

It was crisp and cool the next morning as we returned to the squadron assembly area. Everyone was excited about our return and immediately inundated us with questions. The squadron commander snatched me away to the squadron TOC to debrief the squadron and troop commanders and staff. Below are the lessons learned that I related to them, and some that I have reflected on since. Many confirm what I already have learned in my Army experiences and schooling.

- The Army trained us well. The soldiers responded as they should have. The Army should continue to emphasize leadership development programs such as PLDC and BNCOC/ANCOC. Cohesion, teamwork, and leadership allowed us to be a flexible and responsive unit, and rapidly and effectively react to any situation that presented itself.

- Combat experience is exceptionally valuable. Colonel Starr set the tone for success with his calm, poised, and confident bearing. We should ensure that combat lessons learned are perpetuated and internalized through officer and enlisted professional development programs.

- Cover your wingman. Emphasize section-level gunnery and the wingman concept during tactical exercises. Section-level teamwork represents fire and maneuver at the lowest tactical level.

- The 25-mm chain gun is a devastating weapon system. Our engagement highlighted its impressive rate of

fire and influential and lethal impact. Crews should have absolute confidence in this weapon system based on its effectiveness as demonstrated in combat. One minor improvement includes the necessity for a turret position indicator in the gunner's sight margin.

- Always retain some form of indirect fire support. Our effectiveness would have been much improved if we had responsive indirect fires available. We could have inflicted much more shock at longer ranges, and perhaps assaulted deeper into enemy territory under the cover of indirect fires. There is always dead space to cover. Even a 60-mm mortar organic to the platoon would have been valuable. Indirect fires are most critical to scouts, not necessarily to kill, but to suppress the enemy and buy time to perform security and reconnaissance missions. Reconnaissance by fire is a useful technique when firing into a concealed area, if the ammunition is available. I would have preferred to execute reconnaissance by fire using indirect fires. Combined arms win.

- Train to use the TOW missile on bunker targets. We could have imposed more damage on the enemy if we had used this technique but it never entered my mind until later. We could integrate this into the UCOFT program and reinforce it by firing at bunkers at long range during TOW live fire exercises. However, HE should be the primary ammunition against bunker targets, if within range.

- Develop a method to communicate with your dismounts. Scout certification courses should incorporate dismounted engagements requiring the vehicle commander to control his dismounts in a tactical scenario. Failure to maintain control of dismounted personnel can lead to mission failure, or worse, the dismounts actually hindering mission accomplishment. There are many techniques to maintain communication with dismounted personnel — employing radios, gunnery flags, vehicle horns, lights, or exhausts. We should ensure we develop and train these skills according to the unit's SOP.

- In a strange way, even in combat, safety is paramount. Controlling fires and maneuvering elements are critical to mission accomplishment **and** preserving the force. At every level, fire plans and sound SOPs for engaging targets and identifying friendly and enemy forces are vital for success. We should continue to emphasize fire commands, fire plans, and vehicle identification in our gunnery programs, especially during live fire exercises including maneuver.

- Corporal Valentine and Specialist Garrison received overwhelming medical attention as the first combat casualties in our sector. Valentine returned to us four days later and Garrison several weeks thereafter. Lieutenant General Luck, the XVIII Airborne Corps Commander, flew to our location to award Valentine his Purple Heart in front of the troop. "This award sucks," he said on a bleak, miserable Saudi afternoon. I agreed. The battlefield is a dangerous place. Fortunately, despite other combat operations, this was the last Purple Heart any of my troopers received.

After the excitement, Third Platoon, I Troop was famous in the regiment. I let my soldiers enjoy the attention, but thought ahead to the day when the real offensive would begin and reminded myself that glory is fleeting. I prayed we would fare as well in the battles to come and wished the same for all those wanting to know, "What was it like?"

Captain Jonathan J. Negin was commissioned in 1988 as a Distinguished Military Graduate from ROTC at Fresno State University (CA), and is a graduate of AOBC, SPLC, CLC, and AOAC. He has served as a tank platoon leader, scout platoon leader, and troop XO, all with I Troop, 3/3 ACR; and as assistant S3, 3/3 ACR. He is currently assistant S3, 1-7 Cav, Ft. Hood, Texas.

Controlling Armored Operations: The Israeli Experience

by Lieutenant Colonel David Eshel, IDF, Retired

Dawn, October 29th, 1956... the tactical command group of the 7th Armored Brigade follows the lead element into central Sinai, along the Nitzana-Kusseima road. Here and there sporadic firing erupts, but the tanks race forward in a cloud of dust. Soon the deserted village is taken, some prisoners gather in the marketplace. On the high ground in a small palm grove, the command group sets up shop. The brigade commander calls his subordinates for a short briefing over the radio. Orders are to take Abu-Agheila, the center of the main Egyptian defense in central Sinai and an important road junction. The battalion commanders acknowledge the mission-oriented order and then fan out to execute.

By nightfall, the brigade reconnaissance company cautiously enters the narrow Dayka defile leading into the rear of the Abu-Agheila complex. By midnight, all communications are lost as the battalions spread out over wide distances exceeding the range of their FM radios. AM communications are jammed by atmospheric disturbances spreading across the entire frequency band. The brigade commander is getting restless. On the suggestion of his signals officer, he agrees to move the tactical command group to a nearby hilltop, but no contact can be made in spite of repeated efforts.

By 0200, a short and weak report, barely distinguishable through the static, comes from the recce company commander. He reports that he is sitting on the northern exit of the pass overlooking Egyptian traffic moving along the main desert highway. Then communications are cut again and all efforts to verify the report fail. The brigade commander decides to trust his subordinate and, realizing that he can outflank the entire Egyptian de-

fense, decides to move immediately through the defile and link up with the reconnaissance company on the far end. Moving all night, the command group leads a tank battalion through the defile and reaches the exit linking up with the recce troops by dawn. As the command group sets up on a hill overlooking the exit, it establishes communications with some of the brigade's forces and prepares a coordinated attack on the Abu-Agheila complex, taking the Egyptian troops completely by surprise. They did not expect the Israeli attack from this direction.

Colonel Uri Ben-Ari, commanding 7th Armored Brigade, had taken a calculated risk and it paid off handsomely. The reason for his success was his total confidence that his subordinate commanders would perform their mission without communication. He had trained them thoroughly in the German *auftragstaktik* — a mission-oriented order that enabled short and precise orders over the radio to direct mobile actions without the commander "breathing down his subordinates' necks" while they were executing their given orders. The commander on the spot would be given full freedom of action, using his professional initiative to carry out his mission as best as he could with the forces under his command.

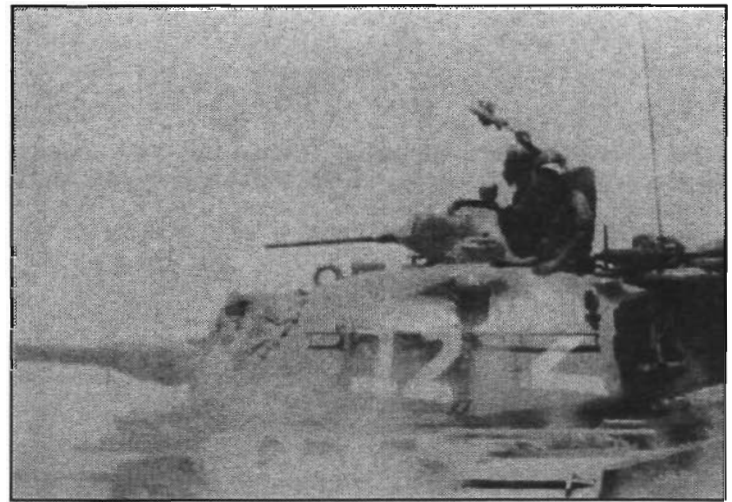
Even when radio communications were working perfectly, which in modern combat is highly doubtful, subordinate commanders were encouraged to act on their own when the situation called for it, making decisions to counter situations that could not have been envisaged before the enemy reacted. Even if the higher commander was close to the battle, which is the typical Israeli command and control procedure, the man up

front would certainly be better informed, given his immediate contact with the enemy. He would have to be trusted to make important decisions on the spot. All that was required was that he act according to the general mission plan. A fully mutual basis of trust between the commander and his subordinates was the vital element for total success in mobile combat operations.

By evening, having captured the Egyptian defense complex at Abu-Agheila, the brigade was now spread over almost a hundred kilometers of the Sinai peninsula, hopelessly out of range of any radio communication. During the night, all radio sets, which had been working sporadically during daylight, became strangely silent. The command group made an effort to re-establish some sort of contact with at least the lead battalion that travelled in front of it along the main desert highway towards Ismailiya, speeding up to close the range. The signal officer, in a last-minute decision, had commandeered a halftrack with a high-powered transmitter, complete with generator trailer, and ordered one of his junior officers to stick to his tail and follow. Just before midnight, the command group reached Jebel Libni junction and became involved in a sharp and confused skirmish following an Egyptian ambush near the roadside. Leading the charge were the brigadier and his staff officers, who routed the Egyptians with submachine fire, supported from the machine guns mounted on the command halftrack.

The command group was totally out of contact. All radios were silent over the entire frequency spectrum except for dance music! The operators were frantically working their tuning buttons, searching in vain to find a clear spot. Then the high power transmitter





At left, the 7th Armoured Brigade tactical command group in action during the 1967 Arab-Israeli War. Above, an IDF tank commander uses visual signals to move his troop forward into the attack.

was turned on and managed to break through the disturbances. After an hour, first contact was finally made with one of the battalions, still barely audible over the strong static, but a position report was established. This enabled the command group to come into the battalion laager, located in an abandoned Egyptian airfield. Here, the battalion signal officer had used his own initiative and made use of a working Egyptian high-power transmitter, which was the one that contacted the command group. The reason for the total blackout was never established. Rumors had it that the Russians, who during that very night invaded Hungary, had used their powerful electronic jamming devices for the first time and, as a by-product, affected the Israelis in Sinai. In fact, British and French military communications in Egypt were also experiencing problems on their frequencies at that time.

The first time electronic warfare was used in the Middle East was in 1960 when the Egyptian Army moved five entire divisions into Sinai under the cloak of signal silence, completely surprising Israeli intelligence monitors who remained unaware of the big operation. Israeli intelligence has been haunted by that operation ever since, investing huge amounts of money in sophisticated signals intelligence equipment, much of it locally developed to solve the problem.

The proper place of the commander controlling armored operations has been a frequent subject of discussion ever since WWII, when the German panzer leaders led up front with their most forward combat elements. Indeed, the price was horrendous and the number of senior German commanders killed in action was the highest in any army during that war. Sometimes this emphasis approached the ridiculous. When senior commanders, like General Erwin Rommel, the Desert Fox, became completely out of touch with their battle, they not only endangered themselves personally, but were unavailable during crucial stages of the battle when their decision-making would be vital for the success or failure of the entire operation. During Operation CRUSADER in November 1941, such a situation occurred and was only saved by the courageous initiative of one of his staff officers.

The Israelis followed the German example and even took it a step further during the Arab-Israeli wars. They were fighting against Arab armies with traditionally rigid command and control doctrine, their commanders rarely up front. The Israeli combat leaders led from the front by personal example, making snap decisions whenever opportunity presented an opening. But once again, the price was high; casualties among Israeli combat leaders are among the highest in the world.

Israeli commanders normally control their fighting elements from small tactical command groups that contain no more than two or three command vehicles, among them usually tanks. There have been experiments in creating specially developed command tanks, by removing turrets and mounting various radio sets in the hull, but the practice was soon discarded as these vehicles were easily detectable in battle and became prime targets. Moreover, as specialist command tanks could break down through mechanical failures, the commander would have to change over into a normal tank anyhow, so commanders chose normal tanks to control their operations in the first place, and this practice stands.

With restricted space in the fighting compartment of most tanks, crews must adhere to a priority schedule for monitoring tactical radio nets. The usual solution will be to monitor high priority command nets first and switch over to alternative frequencies as required, using auxiliary receivers and intercommunication harnesses. Israeli commanders prefer to monitor subordinate radio nets and have the higher echelon break into the command net whenever these are clear. Otherwise, senior commanders prefer to monitor as many frequencies as they can but will not break in during the heat of the battle, using direct links between commanders to transmit their orders.

Radiotelephone directories and pre-planned map overlays make mission-oriented order control possible during fast moving operations and these are widely used throughout the armored corps.

The Israeli Merkava main battle tank is ideally suitable for command purposes. Its fighting compartment is roomy, perhaps more so than in any other tank, which permits the mounting of additional radio sets when necessary. Since the Merkava power pack is at the front of the hull, there is also space in the rear of the hull that is normally used to store ammunition. Here, staff officers can be seated at folding map tables in acceptable comfort. But mounting too many radios in one command vehicle would be a great mistake. Not only does this require difficult technical solutions to overcome mutual radiation problems, but if not otherwise solved, each transmitter needs its own antenna, and this once again gives the nature of the vehicle away to the enemy. Vehicles with several antennae are prime targets. A small and highly flexible command group blending into the overall force is the best possible solution to command and control procedures.

Modern radio equipment is far more reliable, even in electronic warfare environments, provided that commanders use careful communications practices. By closing ranges to forward combat elements and carefully choosing the right vantage points, commanders can ensure reliable communications, even in combat, using minimum power and exchanging power for range with FM radios. The closer he can get to the subordinate formation, the more the commander reduces the danger of being jammed by enemy monitors. Even under severe jamming, using high power selectively will, in many cases, ensure communications to at least immediate subordinate units.

In the Israeli Army, experience shows that a close relationship between the commander and his signal officer is crucial during fast moving mobile operations. This in itself can

create problems because in modern military formations, communications has become a highly specialized operation requiring the best technical capabilities to solve urgent problems fast. Thus it is questionable whether the signal commander should remain with his own unit or work closely with the commander in his tactical CP where he can solve problems on the spot. If he leaves the conduct of the technical side to his deputy, that officer must be an expert. In any case, Israeli commanders still prefer to keep their signal officers nearby. Too many times in battle they have experienced the need for the swift intervention of an expert communicator to keep communications intact under the most difficult conditions. Thus it is also of paramount importance to keep a well trained command group crew together. Members should be familiar with each other and the staff officers they serve. During combat, when nerves are strained to the utmost, only a well-oiled machine will be able to perform without a hitch. This can become the difference between success and failure.

In the command group, vehicles should travel far enough apart to keep tactical distances, but within visual communication range so that low power radios can be used to transmit intercommunication messages or work as rear link relays.

Another problem, which became painfully clear during DESERT STORM, is identification between friendly forces in battle. During highly mobile operations, this can become a very difficult problem. Mistaken identification happens in every war. In the IDF experience, one of the most serious incidents happened during the 1956 Sinai Campaigns when two tank companies from two different brigades clashed and an entire tank company was destroyed within minutes. Many of the tankers were killed. The firefight happened near Abu-Agheila, after the Egyptian complex had already been secured by elements from 7th Armored Brigade. The company from 37th Reserve Armored Brigade was led forward into the sec-

tor without making arrangements prior to their move. As a result of this serious mishap, the IDF Armor Corps made a thorough investigation and devised new techniques and combat procedures to overcome future mutual clashes. The procedure included monitoring a special emergency frequency on every combat level, using auxiliary receivers for that purpose. The procedure was hammered into all tank crews until it became second nature. Indeed, there have been identification problems during the wars that followed, but as long as soldiers followed the procedures, there was never another similar incident.

Lieutenant Colonel David Eshel, IDF, Retired, was born in Germany. He served as a career officer in the IDF for 26 years. Educated at Saumur Cavalry and Armor School in France, he served in various command and staff assignments, taking active part in the Arab-Israeli wars. In the 1956 Sinai Campaign, he commanded the signal company in 7th Armored Brigade, and in the 1967 Six-Day War, he commanded the signal battalion in 84 (Regular) Armored Brigade, which stormed into northern Sinai and reached the Suez Canal in record time. Chief of Signals in the Armored Corps, his last assignment before retiring was lecturer on tactics at the IDF Command and Staff College. Editor in Chief of *Defense Update International*, he is currently an analyst and commentator for several international defense magazines as well as author of books related to the Arab-Israeli wars. His book *Chariots of the Desert*, a history of the IDF armored corps, was published in the UK.

The Journey to Force XXI's Mounted Component

by Colonel John C. Johnston, Director of the Armor School

It seems every article published today starts with comments on change. There is so much change that talking about it is sometimes boring. After all, we have been involved in change for most of our careers. Some of the changes have been significant, almost as great as going from the horse to the tank. Yet today, we are in the midst of change that would register 10.0 on the Richter Scale and we cannot afford to be bored.

Downsizing, though not complete, is a reality. A seemingly infinite number of potential adversaries with varying capabilities to do harm to the United States is a fact of life. Our keystone doctrine described in FM 100-5, *Operations*, has officially moved us out of Europe. New concepts like "Battle Command" and "Battle Space" require all of us to exercise our gray matter. The information age is redefining the capabilities of our weapon systems. Many have likened today to the period from 1934 to 1941, a time of fundamental and far-reaching change for the U.S. Army. One key difference is that today's change is at such a pace that if we cannot adapt, the change will leave us in the dust — a place we can never allow our Army to be.

America's Army for the 21st Century, Force XXI, is at stake. We know that Force XXI must be capable of decisive victory — overwhelming the enemy, winning quickly, and sustaining minimum loss of life and materiel. Additionally, Force XXI will be smaller, tailorable, digitized, largely CONUS based, and a mix of active and reserve units. Force XXI must be capable of fighting anywhere and at any level of operations from Operations Other Than War (OOTW) through general war.

This article highlights the path the mounted force will follow to build Force XXI. As Adna Chaffee and his contemporaries did in the 1930's, we must understand that we are breaking with the past. What has been accepted must now be questioned. We are starting with a "clean sheet of paper." New molds must be built.

The journey to Force XXI began with Operation DESERT STORM. Equipment like the Global Positioning System (GPS), Multiple Launch Rocket System (MLRS), Forward Looking Infrared (FLIR), Air-to-Air Combat Missile System (ATACMS), and Joint Surveillance and Target Attack Radar System (JOINT STARS) forced rapid changes in how we did business. New concepts concerning early entry, combat service support, and depth and simultaneous attack were born. We began to look at command and control differently, which produce the concept of Battle Command. The Battle Space concept was developed to enable us to come to grips with the changes to our area of operations. The gathering of DESERT SHIELD/DESERT STORM Army lessons learned was the catalyst for change. The journey had begun.

Four key elements are necessary for a successful journey to Force XXI. They are:

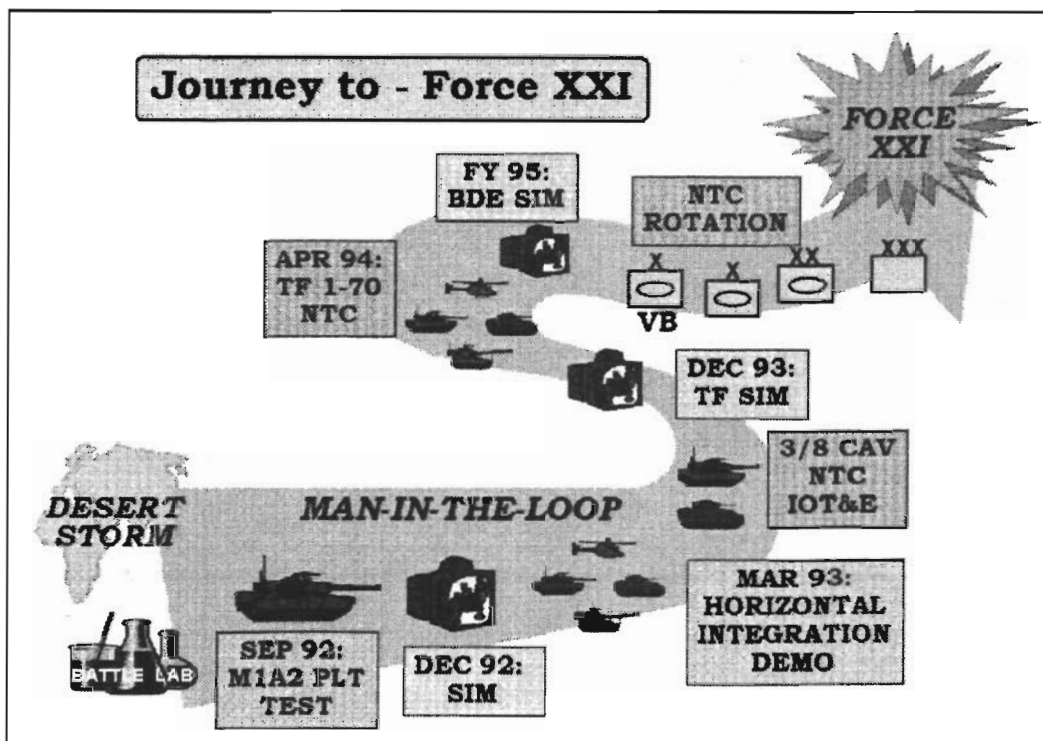
- an organization designed to facilitate the journey
- the digitization/modernization of our weapon systems
- an extensive simulation capability
- virtual training programs.

These elements must be woven and meshed together. Each provides products crucial to the success of the others. Equally important is that each is being worked now at Fort Knox.

We must move forward with a broader view to field Force XXI than we have historically possessed. The Armor soldiers who are working to build Force XXI must consider all mounted forces. Any parochial approach that does not consider the "big picture" fails to gain the benefit derived from the complete combined arms team. We cannot allow 19th or 20th Century thinking to limit or restrain the capabilities of a 21st Century force. The TRADOC Battle Lab initiative created the Mounted Warfighting Battlespace Lab (MWBL), the organization that, among other things, will give us this broader perspective. The MWBL, one of several battle labs now in existence throughout TRADOC, has taken the lead to enhance the mounted combined arms team. Other labs are working specific areas which, when integrated, will lead to Force XXI.

The MWBL's mission is to visualize the 21st Century battlefield, identify the needs of the mounted combined arms team, and aggressively obtain solutions from across the community (warfighters, other labs, ARPA, ARI, PM/PEOs, industry, etc.), which ensure our continued dominance of land combat. The MWBL will use modeling, simulations, and field trials to influence the change necessary to maintain dominance of land combat in the 21st Century. Experimentation via simulations or prototypes using real soldiers and real units will be used to determine where technology insertion is possible. The MWBL has the freedom to explore, be creative and innovative, leverage technology and produce smart and affordable alternatives. The MWBL has broken the "stove pipe" mold and is horizontally integrating across proponents. Additionally, the MWBL is focusing on the integration of "DTLOMS" — Doctrine, Training, Leader Development, Organizations, Material, and Soldiers.

Key to the MWBL success is the concept that the MWBL is not just the assets in the MWBL itself, but is ALL the ASSETS at the Home of Mounted Warfare and all those that the Home of Mounted Warfare touches. This includes other TRADOC centers and schools, academia, industry, Army labs, NASA, Institute of Defense Analysis (IDA), Advanced Research Projects Agency (ARPA), etc. The commander of the Armor Center is the director of the MWBL. The chief of the MWBL, a colonel, is his executive agent. This ensures that every aspect of Fort Knox is committed to



In December 1993, a simulation exercise was done at Fort Knox by Task Force 1-70 AR to validate lessons learned from the field trials done by 3-8 CAV. Additionally, the simulation exercise was part of Task Force training in preparation for its NTC rotation in April 1994. The training program, a key part in getting to Force XXI, will be discussed later.

the MWBL mission and that external agencies are integrated and involved.

The most prominent MWBL effort in building Force XXI is leveraging the power of information age systems to advance our warfighting mastery of future battle, especially in the areas of lethality, survivability, and tempo. Information age technology provides better and faster access to intelligence data, improves situational awareness/combat identification, facilitates battle command, enhances force protection, and better synchronizes direct and indirect fires. We will revolutionize today's command and control systems and practices. The result of the revolution will be Force XXI's Battle Command.

The first "pit-stop" on the road to Force XXI Battle Command was the test of a digitized unit, a platoon of M1A2 tanks, conducted in September 1992. This test was followed in December 1992 by a simulation exercise using the SIMNET facilities at Fort Knox. The battle lab methodology, a continuum of modeling, field trials, and simulation, had begun.

In March 1993, the MWBL moved up the continuum with an experiment in which Abrams tanks, Bradley fighting vehicles, self-propelled howitzers, OH-58 helicopters, mortars, and scouts were digitally linked in a demonstration of horizontally linked systems. The demonstration consisted of a task force tactical exercise and a combined arms live fire exercise across realistic distances. The tremendous potential of horizontal integration became obvious.

The experiment was followed by field trials with "real" soldiers in a "real" unit, 3-8 CAV. The first field trial was the 3-8 CAV's NTC rotation in July 1993. The second was the Initial Operational Test and Evaluation (IOT&E) done by 3-8 CAV at Fort Hood about four months later. The results of these exercises were cranked back into the battle lab at Fort Knox. Successes were transformed into Tactics, Techniques and Procedures (TTP). Problems were analyzed for causes to ensure they were not repeated. Upgrades were made to the software, based on lessons learned.

Digitization's impact during these exercises was most impressive. Digitized spot reports reached the battalion in five minutes, as compared to nine under conventional communication means. Conventional means required repeating the message about thirty percent of the time, versus only four percent when digitized. Digitized spot reports were complete 98 percent, against 22 percent for voice spot reports. Synchronization of direct and indirect fires, the ability to shoot quickly and to place the heaviest possible fire on the enemy, showed marked improvement. Simulations showed that attack helicopters could be in the fight faster (18 vs 26 minutes) and could be more effective (18 vs 11 kills). Digitized command and control resulted in mission accomplishment, more enemy kills, and fewer friendly losses. Said another way, it means decisive victory.

Though digitization has clearly been a success, it has also raised many difficult questions. New graphics may be needed to better describe new TTPs. New TTPs mean our basic fighting doctrine is changing. The fighting formations we know today, especially in the defense, will likely change because digitization allows for the rapid movement and concentration of forces. This allows for greater dispersion. What are the implications concerning offensive and defensive operations? Operation orders, and especially FRAGOs, can be published and distributed in minutes, as opposed to hours. The questions go on and on. How do we get answers? Simple — continue on with the triad of model, simulation, and field trials.

The next major event in developing Force XXI is the April 1994 NTC rotation by TF 1-70 AR, currently the most digitized unit in today's Army. The co-location of TF 1-70 AR and the MWBL at Fort Knox has facilitated rapid gains in knowledge and insights. The meshing of the soldier with the "thinkers" gives solutions that work. TF 1-70 AR's NTC rotation will validate many of the digitization insights and set the stage for more work.

Following the battalion effort, current plans call for brigade simulation exercises in FY 95 to be followed by a digitized

brigade NTC rotation. The eventual outcome is a logical progression through division to corps.

Inextricably tied to the progress ongoing in digitization is the simulation capability available at Fort Knox. Without simulation, the road to Force XXI would be much more difficult to travel. Because of the scarcity of digitized equipment, frequently the only way to test ideas is in simulation. We have created a Mounted Warfare Test Bed to do this. In the test bed an idea or concept that has surfaced is developed into a model that replicates the concept. Then, simulations are run to get the ground truth on its potential. An example is the automated TOC, which has shown the incredible capabilities of the computer to assist with planning and conducting operations. Another is the Line of Sight Anti-Tank (LOSAT) weapon system. For LOSAT the test bed built a mock-up and had soldiers use it during simulated engagements. Their feedback resulted in quick modifications to the LOSAT weapon system. Crucial to success is the test bed's capability to produce the simulators necessary to conduct the experiments.

The test bed frequently spills over into virtual training in addition to its normal testing function. An example was building M1A2 simulators (reconfigured M1 simulators) so that TF 1-70 soldiers could train for their rotation. The co-location of the test bed and the SIMNET facility (about 20 feet away) lets us use SIMNET in MWBL tests. Virtual training will play a key role in the training of Force XXI because of the scarcity of digitized equipment (ala TF 1-70) and expected resource constraints. But facilities and simulators are only the tip of the iceberg concerning virtual training.

For almost two years Fort Knox, through the Army Research Institute's field office at Fort Knox, has been developing a virtual training program for the reserve components. The objective of the Reserve Component Virtual Training Program (RCVTP) is to provide a Combat Training Center (CTC) like experience. This effort is producing platoon, company, and battalion/task force tactical tables run on SIMNET (Close Combat Tactical Trainer (CCTT), when fielded) and JANUS. The program follows the crawl, walk, run model to allow units to enter at their level of proficiency. The commander has the option to go to higher levels of difficulty, once the unit is ready, or continue to run the exercise until the unit is proficient. Permanent observer/controller teams (just like CTCs) work with the unit to plan and execute the exercise. After Action Reviews (AARs) with full take-home packages are included. JANUS (Brigade/Battalion Battle Simulation (BBS), when fielded this fall) will be linked to ensure staffs are fully exercised. Trials of the RCVTP are currently underway. Portions of it have been used by TF 1-70 AR in training for their NTC rotation. The completion of the RCVTP development effort in September 1994 will mark a major advance in training tactical operations.

Though the RCVTP will be a major advance, it is only a stepping stone to the Virtual Brigade. The goal of the Virtual Brigade effort is to determine the optimal level of simulation and field training necessary to maintain a high level of unit combat readiness for a heavy brigade. The RCVTP will provide the maneuver portion of the brigade program. Realistic virtual training will be developed for the combat support and combat service support elements of the brigade. The focus is training that engenders the friction and stresses of combat.

A three-phased approach will be used to field the Virtual Brigade training program. During Phase 1, Commander's Assessment, the leadership will define a simulation-intensive training strategy. This includes identifying shortfalls in existing training aids and devices, simulators, and simulations (TADSS); prioritizing research and material development; and developing the virtual brigade's training strategy. The identification of shortfalls in current TADSS is most important to the success of the Virtual Brigade and its contribution to getting to Force XXI. For example, SIMNET does not have "vehicles" to train CSS elements. Clearly, there exists a requirement for "reconfigurable" simulators, simulators that in a matter of hours can be reconfigured to simulate another vehicle. A Bradley could become an M113 and an M1A1 could become an M1A2.

Phase 2, Training Development, will be a phased process in which the training programs for successive components of the brigade are developed. A priority will be established with the brigade headquarters likely receiving the top priority for development of its virtual training program. Following the headquarters could come the development of the training program for the field artillery battalion, the forward support battalion, the engineer battalion, etc. until all elements of the brigade can train in a virtual environment. Deliverables for this include structured training packages, training support packages, and train-the-trainer programs. Plans for the virtual training program have been developed that allow the first digitized brigade to train with the virtual training program.

Phase 3, Evaluation, will be focused on cost, training, and operational effectiveness. It will be a continuous process with lessons learned cranked back into the process to ensure the best possible product. The evaluation will include a rotation at the NTC.

In addition to giving maneuver units an opportunity to reach levels of proficiency unattainable even with extensive field training, the virtual training programs provide tremendous opportunities to advance other components of the DTLOMS. A steady stream of units training in a virtual world will provide the MWBL a fountain of ideas. Successes can be easily documented for further analysis. By sharing the simulators, the MWBL will be able to "tinker." Variations of successful operations can be conducted without expensive field exercises. Different doctrine and organizations can be tried. A continuous iterative process of refining successes will be possible. The result will be Force XXI.

Early in this article the MWBL was described as being ALL the ASSETS at Ft. Knox. To ensure that the greatest advances are made toward Force XXI, the Armor Center is *adjusting* all of its organizations and responsibilities. The MWBL will grow to better handle its growing responsibilities. Resources are being shifted to enable the Armor School to better integrate doctrine, training, and leader development, and play more of a role in organization and materiel development. The involvement and commitment of those at the Home of Mounted Warfare will shorten the turn-around time from concept to "a way of life."

Force XXI is just around the corner. The development and quality of that force are our responsibility. The road to it is clear. The Mounted Warfighting Battlespace Lab is moving the mounted force toward Force XXI at a record pace. You can come along for the ride or you can contribute to getting there. This is our future. Be a part of it.

The Army Field Feeding System — No More Nightmares

by Captain Philip S. Krichilsky

It is 1700. The sun is quickly setting over the Western horizon, and your HMMWV, loaded with the evening's dinner meal, is stuck in a rice paddy. But don't worry, whether you are the company commander, the executive officer, or the support platoon leader you will have to sign the paperwork when you get back from the field. Then comes the added incentive: make a mistake and explain it to the survey officer.

On 1 October 1991, the Army Center for Excellence, Subsistence, adopted the Army Field Feeding System (AFFS). This system was created to eliminate the problems field food service brought in the past and replace it with a simple system. AFFS is outlined in AR 30-21 and replaced the Combat Field Feeding System, Field Ration Issue System, and other systems that may be familiar to you. The new system has been expanded from only combat units to the entire army. It has minimized paperwork from six forms to three forms and eliminated a tedious audit trail.

AFFS requires that two hot and one cold meal be served per day. Hot meals can consist of either A rations, T rations, or MREs (with flameless heaters or heat tabs). By regulation, MREs should not be served for more than ten continuous days without either an A or T ration supplement, and A rations should not be served more than one time in a three-day period.

Commander's Food Service Checklist

1. Develop Tactical Training Plan
2. Determine number of meal card holders and non-meal card holders attending the training.
3. Decide when and where you would like to feed your soldiers a hot meal.
4. Determine how many soldiers will eat at each location.
5. Submit a food service request to your Food Service Sergeant specifying:
 - a. the inclusive dates of training
 - b. the number of personnel to be subsisted (if this number changes throughout the training, specify the number changes)
 - c. the type of rations you want to be issued each day
 - d. whether you want these rations split up for multiple feeding locations
 - e. the number of personnel at each location
 - f. if you want supplemental cooling or warming beverages
 - g. if you want MREs issued at specific time and place
6. Submit a memorandum to your PAC requesting payroll deduction on your non-meal card soldiers for the entire training period.
7. Sign the 5913-R provided to you by your Food Service Sergeant, confirming the number of people you plan to feed.
8. Feed your soldiers
9. After the field exercise, sign a consolidated 5913-R that reflects the actual number of soldiers that were fed (this number can differ from your projections).

The Troop Issue Support Agency (TISA), the organization responsible for supplying food, has significant impact on precisely what type of ration your unit will receive. When you arrive in the field, such factors as how you fit into TISA's menu cycle and their stock-age level will directly influence the type of food you receive.

Prior to deployment for a tactical exercise, you need only consider three things. One, project the number of soldiers with and without meal cards that will be participating in the training. Two, inform your PAC, using a memorandum, of the name, social security number, and inclusive dates that your non-meal card soldiers will be participating. PAC will then initiate a DA Form 4187 for Payroll Deduction. Finally, determine when you would like to be given hot meals and in how many places you would like them to be served.

At the beginning of the field training, the Food Service Sergeant supporting you will ask you to fill out a Strength and Feeder Report (DA Form 5913-R). He will ask you to fill this form out prior to each ration issue from TISA (approximately every three days). You will provide him with your present for duty strength over this time period.

It is your responsibility to accurately report the number of soldiers participating in the tactical exercise to the mess sergeant and to report who will receive payroll deduction. The AFFS recognizes that occasionally more food will be issued than consumed. As soon as meals are issued, they are considered to be consumed by AFFS. That is, any uncooked, leftovers can be transferred back to the garrison dining facility and used as "extra" food.

Tactical exercises will no longer require the use of headcounters. The information that you provide on the DA 5913-R will be the only information needed. Additionally, visitors who would normally pay cash, can continue to do so using normal cash collection procedures. At the conclusion of the exercise, you will sign a consolidated 5913-R for the entire field problem.

The Army Center of Excellence, Subsistence, has fielded a system designed to allow combat leaders to concentrate on fighting, not paperwork. All leaders must do is decide how much food they need, when and where they need it, and how to get it there. The food service people take care of the rest. AFFS does not prescribe a technique to get people into trouble. There is no longer a need for worries about Reports of Survey, a field head counter, filling out multiple forms, or worrying about closing the food service account in tolerance. Now leaders can concentrate on getting their HMMWVs out of the rice paddies and food into their soldiers mouths instead of worrying about tedious paperwork.

Captain Philip S. Krichilsky graduated from the U.S. Military Academy in 1988. He served as a weapons platoon leader and rifle company XO with 1-506 Infantry at Camp Greaves, Korea; as a rifle platoon leader and support platoon leader with the 3d U.S. Infantry (The Old Guard); and as a logistics coordinator for the Armed Forces Inaugural Committee. A graduate of Armor Officer Advanced Course, he is currently a plans officer for S3, 3d Brigade, Ft. Carson, Colo.

Techniques For Sustaining Your Task Force

by Major James C. Madigan, Captain Arthur S. DeGroat, Captain Bobby B. Brown, Captain Kevin W. Wright, and Captain Scott K. Jacobsen

It is 30 minutes prior to LD. Your task force is to lead the brigade combat team in a deliberate attack against a well defended enemy force. Your operational readiness (OR) rate for combat systems is 74 percent. Twelve of your "killing systems" are below basic load of fuel and ammunition. Thirty-seven of your replacement soldiers have not arrived due to the 40 percent died-of-wound (DOW) rate sustained during your last combat mission. Has your CSS team succeeded? Are you ready to execute your mission? Does this situation sound familiar?

CSS is a key and essential battlefield operating system (BOS) and is just as important as the others, but rarely receives the attention necessary for success. Leaders have four inherent difficulties regarding CSS operations. These are: (1) the lack of detailed information in doctrinal manuals that establish standards and procedures for TF CSS systems; (2) lack of practical experience in CSS operations by commanders, executive officers, S4s, S1s, medical platoon leaders, and maintenance officers; (3) the great disparity between garrison and field CSS systems, and (4) a lack of dedicated sustainment training at home station. Current manuals, such as FM 71-123 and FM 71-2, address these functions, but do not offer detailed information to establish efficient sustainment operations over extended periods of time. In the absence of "how to" information, units must use proven techniques, and experience to execute. The intent of our article is to provide a few proven techniques to improve task force sustainment operations. We will discuss these techniques for members of your CSS team.

The TF XO is the most critical player on the CSS team. He must synchronize all staff actions to support the mission. He must know the functions and responsibilities of his CSS

team and effectively supervise them on the battlefield.

The synchronization process begins with the issue of detailed warning orders (WARNO) to all subordinates, to include all CSS leaders. The XO must develop a timeline, which includes key CSS events that support the maneuver plan. As the TF "chief of staff," the XO is responsible for the integration of CSS into all TF plans. He must ensure that key CSS leaders are involved in all planning events, to include course of action (COA) development, wargaming, and COA comparison. The TF XO must consider all battlefield operating systems (BOS) when developing, wargaming, and comparing COAs. Once the commander approves a course of action, the TF XO must supervise the production of the service support paragraph to the operations order (OPORD), CSS matrix, and overlay/graphics.

It is critical for the TF XO to understand the functions and responsibilities of all CSS activities. He must understand the detailed procedures involved in vehicle recovery and repair, medical treatment and evacuation, LOGPAC, emergency resupply, weapon system replacement, KIA evacuation, personnel replacement operations, and logistical reporting. The tool enabling him to accomplish this is the tactical standard operating procedures (TACSOP). The XO must ensure that the logistics annex to the

TF TACSOP accurately articulates the systems used within the TF. He must continuously direct the refinement and use of the TACSOP. Additionally, the TF XO must require that all CSS staff sections have internal SOPs which describe procedures for the planning, preparation, and execution of their missions, and are in accordance with the TF TACSOP.

Command supervision of the CSS functions is a critical troop leading procedure performed by the TF XO. He supervises the tactical operations center (TOC) and monitors CSS operations through reports and on-site visits to the combat trains command post (CTCP), unit maintenance collection point (UMCP), main and forward aid stations (MAS/FAS) and the field trains command post (FTCP). The TF

Figure 1

XO's ability to execute these visits requires a system where the TOC can be managed for short periods of time (2-4 hours) by battle captains and staff NCOs. The TF XO must involve himself in maintenance and resupply of the task force. He must verify the deadline report with the BMO daily and provide guidance to maximize combat power for each mission. He should review the status of all supplies and reports with the S4, and establish priorities for resupply. Finally, the TF XO facilitates the maneuver rehearsal and ensures critical sustainment actions support the operation.

The S4 and S1 are also key players in task force sustainment operations. We observed two distinct shortcomings of their roles in logistical planning and reporting.

The following techniques, when used, improve these systems. The S4 is the CSS planner for the task force. He often performs this function without input from the other CSS leaders (BMO, Med Plt, S1). The S4 must formally elicit key information from the CSS team in order to develop a sound logistics estimate and timeline. This estimate, coupled with the commander's planning guidance and an understanding of the S3's scheme of maneuver, should give the S4 the essential information needed to develop a good service support plan for the task force.

The next area needing improvement is the communication of the service support plan. The S4 needs to produce a service support paragraph (paragraph 4) to the OPORD to articulate the "concept of support." This concise paragraph must give an overview on "how" the task force will execute the support plan. The next product needed is the CSS matrix. This matrix should give details pertaining to the "what, when, and where" of the plan. We advocate the use of a matrix as seen in Figure 1.

Accurate and timely logistical reporting is an absolute necessity to efficiently resupply the task force. Most units demonstrate great difficulty with this task. Shortfalls in reporting result in poor LOGPAC formation, inefficient resupply operations, insufficient emergency resupply, and critical sup-

LINE	UNIT	CO/CM	SCOUTS	MORTARS	ADA	ENGINEERS	TOC	UMCP	CBT TNS	FLD TNS
	LRP TIME									
	LRP LOCATION									
	AREA SPT RESP?									
	IND RESP FOR LOGPAC									
	ITEM	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC	REQ/LOGPAC
CLASS I										
1	HEADCOUNT	/	/	/	/	/	/	/	/	/
2	ICE BREAK	/	/	/	/	/	/	/	/	/
3	WATER	/	/	/	/	/	/	/	/	/
	CL BRV REQ RCVD ?									
CLASS II										
5	PACK POL ROBT RCVD ?									
6	BULK/TYPE FUELERS	/	/	/	/	/	/	/	/	/
7	MOGAS	/	/	/	/	/	/	/	/	/
CLASS IV BARRIER										
8	CONCERTINA ROLLS	/	/	/	/	/	/	/	/	/
9	PICKETS	/	/	/	/	/	/	/	/	/
10	ZK4	/	/	/	/	/	/	/	/	/
CLASS V										
14	120 MM HEAT	/	/	/	/	/	/	/	/	/
15	120 MM BABOT	/	/	/	/	/	/	/	/	/
16	LOW	/	/	/	/	/	/	/	/	/
17	25 MM AP	/	/	/	/	/	/	/	/	/
CLASS VI BARRIER										
31	M17 MINES	/	/	/	/	/	/	/	/	/
32	M21 MINES	/	/	/	/	/	/	/	/	/
33	M15 MINES	/	/	/	/	/	/	/	/	/
34	MINE DUMP LOCATION									
CLASS VII REQ/MT										
CLASS IX										
35	PARTS									
36	2404 LULLS PRINT OUT									
37	FIELD TRAINS 2406									
PERSONNEL										
38	MAIL									
39	REPLACEMENTS									
40	CAMED RTD									
41	DISTRIBUTION									
LOGPAC RETURN										
42	MESS EQUIP RETURNED									
43	WATER TLR TOPPED OFF									
44	NEXT AM HEADCOUNT IN									
45	CL/IV REQNS DROPPED									
46	LOGPAC WANT SLIPS T1									

Figure 2

ply shortfalls. The key to ensuring accurate and timely reporting is the use of a standard, user friendly system. The format for this system must be the same for both written (hard copy) and radio (FM) reports. The S4 and the HHC commander must track these reports at the CTCP and FTCP, using the same chart format. Additionally, the TOC must track the status of combat power and resupply. The S4 is responsible for receipt and dissemination of supply requests to the logistic executor, the HHC commander, in the field trains. All subordinate units must report within one hour of consolidation and reorganization, and submit the hard copy reports to the S4 at the daily LRP meeting. The reporting formats must require units to report on-hand quantities for each class of supply. The S4 can then allocate and cross level supplies based on the commander's guidance and priorities. The tracking chart shown in Figure 2 is an excellent tool to accomplish this task.

The efficiency of LOGPAC formation is directly related to the task force logistical reporting system. Units that report well demonstrate

greater ability to efficiently resupply using the LOGPAC system. The HHC commander is responsible for the formation of the LOGPAC. He must chair the pre-LOGPAC meeting to guide the formation of the LOGPACs based on reports received from subordinate units and established priorities. Units with well established systems of reporting and LOGPAC formation provide "custom made" LOGPACs as opposed to standard "push packages" which may not bring the unit to full basic load. Units that can resupply by routine LOGPACs have sufficient time to prepare for the upcoming mission.

The greatest inefficiency in field maintenance operations is the failure to maximize combat power prior to each tactical operation. Most task forces observed did not use controlled exchange procedures effectively. A lack of reporting of on-going repairs by the company maintenance team (CMT) contributes to this shortcoming. The BMO often finds out that a combat vehicle is non-mission capable (NMC) minutes before the mission begins. CMTs attempt to repair vehi-

Linear Layout Site (Forward/Main Aid Stations)

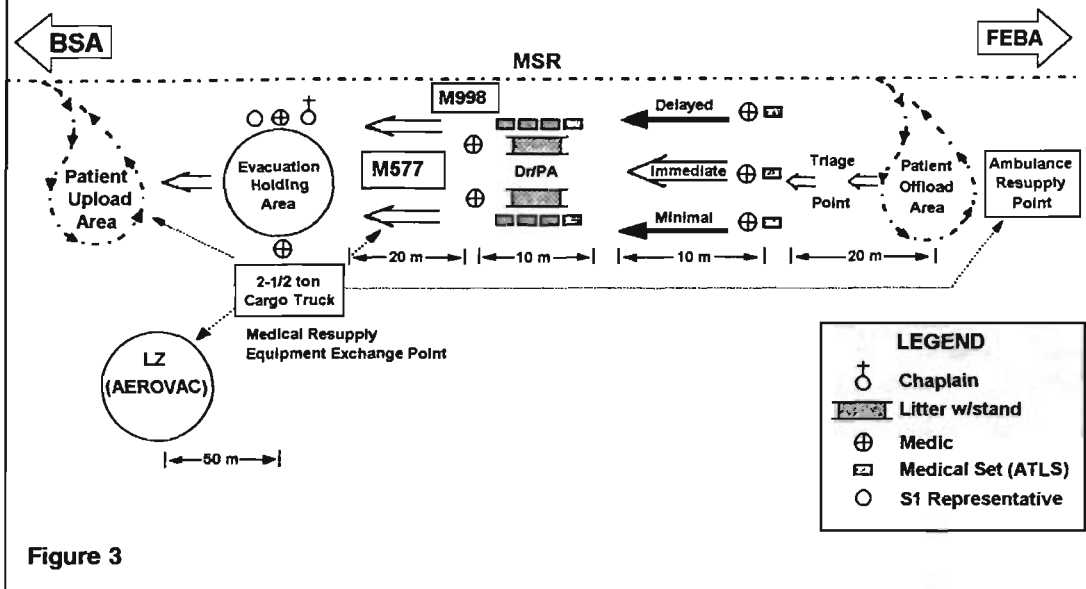


Figure 3

standardized method of organizing and operating aid stations. Aid stations operating without uniformity create confusion for medics. Many units cause DOWs at the aid stations due to ineffective lay-out and control. We recommend the site layout plan shown in Figure 3.

In conclusion, we feel that these techniques will increase the efficiency of your task force sustainment operation. By integrating these tips into your standard operating procedures, and training these systems at home station, your task force will improve its capa-

cles forward until the last minute and often fail to notify the BMO or BMT of problems. This lack of information gives the BMO, BMT and TF XO a false status of the maintenance situation and, consequently, no time to fix these vehicles. Accurate reporting gives the BMO an accurate assessment of the maintenance situation and will enable him to direct the repair effort at all repair sites (UMCP, field trains, and company trains).

Controlled exchange generates and sustains combat power when needed repair parts are not readily available. The BMO, BMT and TF XO must develop a timeline to (1) assess the maintenance situation, (2) determine what exchanges to perform, (3) perform repairs, and (4) to evacuate non-repaired vehicles to the rear. Once a system is in place, units must establish a chain of responsibility to authorize and direct controlled exchanges.

Units that do this effectively consistently produce 90 percent or greater combat power rates for their commander.

The most serious issue facing the Health Service Support (HSS) at the TF level is reducing the died-of-

wound (DOW) rate, and increasing the return-to-duty (RTD) rate. The problem of high DOW rates is caused by poor or nonexistent initial treatment at the crew level, poorly executed evacuation plans, and inefficient site-management at the forward and main aid stations.

The ability to provide timely self and buddy aid is critical to saving soldiers lives. We often see poorly trained and resourced combat lifesavers. Properly trained and employed combat lifesavers are the key resource needed for initial treatment. Units must maximize participation in this training program and enforce the standards of proficiency.

Effective evacuation of wounded soldiers begins with a sound plan. Most often, the medical platoon leader and S1 do not estimate the number of casualties nor anticipate casualty distribution on the battlefield. An accurate estimate will help to develop an effective plan. Units must then communicate and rehearse their evacuation plan and procedures to make it work.

The final area needing improvement is site management of the aid stations. Unit medics must develop and train a

bility to kill the enemy, and protect and sustain the force.

This article was prepared by former members () of the Armor Task Force CSS Training Team (Cobra's) NTC, Fort Irwin, California. The team members include:*

*Major James C. Madigan, XO/CSS Trainer; XO of 2/2 ACR; XO and S3 of 2/7 CAV.**

*Captain Arthur S. DeGroat, Maintenance Trainer; A Company commander and BMO, 2-67 Armor, 3AD.**

*Captain Bobby B. Brown, S4 Trainer; HHC Cdr, 4-8 Cav and HHC, 2D Brigade, 3AD.**

*Captain Kevin W. Wright, HHC Trainer; S4, B Company commander and HHC commander of 4-8 Cav, 3AD.**

Captain Scott K. Jacobsen, Medical Trainer; Medical Platoon Leader, 4/17 IN, C Company (Med) commander, 79th FSB, 7th ID.

Fighting for Time:

An analysis of the fourth-dimension of warfare

by Captain James K. Morningstar

Artillery rained down on the elements of the brigade as they inched forward towards the enemy positions. Unexpected delays in the planning process led to a late crossing of the Line of Departure that contributed to confusion on the battlefield and hesitation among the ground commanders. The slow advance enabled the enemy to determine the brigade's axis of advance and reposition elements to blunt the anticipated point of attack. Chemical agents and concentrated artillery fires added further delays as soldiers stopped to assume protective postures and send reports on the command radio nets according to their SOPs. When reports reached the headquarters indicating the enemy had repositioned, the leaders took time to analyze their response and execute refinements to their initial plan. By the time the brigade reached the direct fire range of the enemy, the weakened companies and battalions were off their prospective timelines. Some more aggressive company commanders and platoon leaders hit the enemy first while units suffering from heavier attrition or with more hesitant commanders lagged behind. The enemy had time to commit his reserve to mop up any stray brigade forces that managed to penetrate the first echelon. The result: the brigade suffered defeat.

This scenario unfolds month after month, battle after battle, at the National Training Center. Elements of the finest army in the history of warfare go down in defeat one brigade after another. On a few occasions, these defeats spring from poor intelligence preparation of the battlefield, weak de-

cision-making processes, or other doctrinally defined aspects of staff preparation and battlefield command. Some unit commanders find it easy to credit their red star opponents or blame the lack of stars on a dark night for their defeats. But as Shakespeare might say, the fault lies not with the stars but within ourselves, or, more accurately, in our inability to win the battle for time.

FM 100-5 explains that our current war fighting doctrine is called the AirLand Battle "in recognition of the inherent three-dimensional nature of modern warfare."¹ This illustrates a deficiency in our way of looking at war. Granted, the AirLand Battle Doctrine focuses on maneuver, but we cannot limit our view of combat to three dimensions: warfare is four-dimensional. The fourth dimension is time. Units moved across the battlefield are only effective when measured in relationship to the opposing forces. We define these relationships in terms of abilities and locations relative to time. A tank company moving to an objective is of no use if the enemy has moved a reinforced tank regiment there first. Unfortunately we do not stress concepts of time in our doctrine. We list "Time Available" for planning as a factor in the Estimate of the Situation but the fourth dimension in combat deserves much more attention. Military students will not find time listed under the Principles of War, the Dynamics of Combat Power, the Tenets of AirLand Battle Doctrine, or the Airland Battle Impera-



tives, but the concept is interwoven into all these things.

He who wins the battle for time usually wins the battle. Successful commanders understand this. Napoleon said, "I may lose a battle but I shall never lose a minute."² As a result, he rarely lost a battle. The fight for time is decisive and continuous. It is the very essence of getting inside the opponent's decision cycle and for synchronizing all combat elements to produce synergy on the battlefield. It pervades every aspect of planning and execution; and it faces countless roadblocks and stumbling points. There is never a resupply of minutes in a day. This battle for time begins before the fight and never stops. Time can kill us through the limitations it places on our abilities when we lack an appreciation of its effects. The appreciation for time in warfare must be reflected in our knowledge of, planning for, and execution of battle operations.

Staff officers who write plans must reflect time considerations in every detail. Perceptions must go beyond typical timelines and time hacks on an event template. Planners need to contemplate the field through the perspective of the fourth dimension. Plans, for example, must consider not only how fast units will move but also how long it will take the supporting

artillery to range to targets, reload, and fire effectively. Operations officers need to be able to answer questions regarding how quickly their units can react and accomplish missions. An enemy force moving at 20 kilometers an hour will cover the maximum effective range of a TOW missile in 11.25 minutes. How many rounds can a TOW company fire in that time, considering reload times and missile times of flight? How long will it take to get close air support to the target? Battlefield synchronization is a result of timing. Only those who realize the difference between moving 20 kilometers on a map and 20 kilometers across unfamiliar terrain at night will succeed in orchestrating the proper tempo of events on the battlefield.

All those charged with executing the plan must agree with these planning times. Recently, after a brigade battle plan failed because the reserve got into position late, the brigade S3 said he had expected the reserve movement to take 30 minutes, the reserve commander said he had operated on a 45-minute timeline, and the actual reserve movement took an hour and 15 minutes. Sometimes these planning differences result from optimistic or unrealistic expectations, and sometimes they result from unforeseen difficulties that arise in war. It is not enough to know the timelines for the events planned; commanders must see the possible timelines for the unexpected. They must look past the obvious and near term. Rehearsals and wargames can reveal timing misconceptions and uncover possible enemy responses that allow commanders to see beyond the expected. When describing the reason for his success over his opponents, Rommel said, "I see further ahead than they do."³

Staffs are notorious for losing time through their own desire to produce a perfect plan. Patton noted that, "The best is the enemy of the good. By this I mean that a good plan violently executed **now** is better than a perfect plan next week."⁴ He understood planning time is not execution time. This does not mean that staffs should issue a quick and simple order, then rest on

their accomplishments. It does mean that staffs must realize that the units need to know what to do as soon as possible so that they may begin preparations. Planners that keep details of upcoming operations to themselves until they can reveal their plans all at once are doing their commanders a disservice. Many planners use the $\frac{1}{3}$ - $\frac{2}{3}$ planning rule as a guideline that allows them a minimum of one-third the available time and more if they really need it. They should think of it as a time limit. If they have not given the units enough information to fight within one-third of the time, then they are inefficient as a planning staff. After providing an initial OPORD, many units would make better use of their time by concentrating on their contingencies rather than continually refining the primary plan.

A review of successful leaders in battles at the brigade level and lower reveals just how simple successful plans can be. When Colonel Creighton Abrams commanded Combat Command B of the 4th Armored Division on its remarkable drive across France, he made simple and concise operations orders an art form. Details rarely went beyond the form of checkpoints, an axis of advance and an objective. Once, when a commander questioned an order that consisted solely of a route forward, Abrams verbally gave the entire OPORD: "We are going down the goddamn road and we are going to kill Germans until there are not any more."⁵ They went forward and did just that. Plans may not always be that simple but they should not be complex either. Patton said no typewritten order should exceed a page and a half with most information provided on a map.

Rommel pointed out that no plan survives the first shot fired. This may not be entirely true, but it does serve as a reminder that the key to a successful plan is the amount of flexibility it allows the commander in adapting to a fluid battle. If the plan locks the commander into Option "A," when battle conditions change, "A" may become too costly or plain impossible to achieve. The commander may hesitate to adjust to Option "B,"

and that hesitation may allow the enemy to get a leg up and win. A brigade that hinges its plan on an air assault or a helicopter screen line can see its entire plan grind to a halt when the weather changes. Plans must take into account the need to adjust "on the run" to battle conditions and allow the commander the ability to keep the initiative in the field. This planned agility saves time and lives.

Successful commanders never forget that, as important as it is to maintain their own timely flow of events, it is equally important to disrupt the enemy's timeline. When intelligence officers identify likely enemy reserve locations, operations officers must ask, "When will they move?" and then plan to interdict their movement. Properly identified named areas of interest lead to good targeted areas of interest designed to disrupt the enemy's timeline and therefore disrupt his plan. Brigade planners must emphasize timing their targets to interdict enemy movements. This is essential to getting inside the enemy's decision cycle and beating him to the punch.

In the battle of Midway, the Navy displayed an acute sense of timing. After reconnaissance revealed the position of the four big Japanese aircraft carriers, the Navy prepared to launch a strike. As the planes readied for departure from the *Yorktown*, *Enterprise*, and *Hornet*, the Japanese bombed Midway Island. CPT Miles Browning, the executive officer on the *Enterprise*, advised delaying the strike. He figured that the Japanese aircraft would return to their ships and refuel and rearm. By calculating their times of flight and resupply, he determined the most effective time to hit the carriers which would be when the planes were on the decks with fuel and ammo. They then back-planned launch times so that the American planes would arrive at precisely the right moment. The result: three enemy carriers sunk and a fourth damaged. The tide of war turned in the Pacific.

Nathan Bedford Forrest won many a battle because, he said, "I generally got there first with the most men."⁶ His calculation of Union movements

at Brice's Crossroads displayed his incredible grasp of time factors in combat. Alfred Thayer Mahan emphasized the second half of Forrest's statement with a cautious warning, "It is no use to get there first unless, when the enemy arrives, you also have the greater men — the greater force."⁷ Getting there first, however, remains the key to winning a meeting engagement. If you can find adequately defensible terrain and beat the enemy to it, you may not need the greater or even equal force. Every student of military history recalls how 5,000 Greeks held off 100,000 Persians for three days at Thermopylae because they "got there first."

Speed is, of course, a cornerstone of winning the battle for time. From Napoleon's Grand Armee, to Jackson's troops in the Shenandoah to the U.S. Army in DESERT STORM, it is a proven fact that the fastest army generally prevails. This is an edge for which we have spent a great deal of money to build fast tanks and personnel carriers, but no vehicle will go faster than the soldiers who drive it. It is only natural to hesitate on a battlefield when situations change, things explode, and people die. Commanders must instill in their soldiers an appreciation for the need for speed. Napoleon would often ask a commander, "I presume you are not losing a minute in pursuing the enemy...?"⁸ Stopping in an obstacle breach, like stopping on a beachhead, is much more likely to get you killed than driving on and closing with the enemy. The greatest responsibility for keeping soldiers moving falls on the shoulders of the platoon leaders, platoon sergeants, and squad leaders. Eisenhower said, "The most terrible job in warfare is to be a second lieutenant leading a platoon when you are on the battlefield."⁹ They must act fast and think faster. No matter how hard the higher commanders push on the pedal, it is the junior leaders who decide how fast the engine goes and whether or not the unit succeeds. Stonewall Jackson put it frankly: "To move swiftly, strike vigorously, and secure all the fruits of victory is the secret of successful war."¹⁰

Speed is essential to winning battles but it should never be confused with haste. Patton delineated the difference between the two when he said,

"Haste exists when troops are committed without proper reconnaissance, without the arrangement of proper supporting fire, and before every available man has been brought up. The result of such action will be to get troops into action early, but to complete the action very slowly... Speed is acquired by making the necessary reconnaissance, providing the proper artillery and other tactical support, including air support, bringing up every man and then launching the attack with a predetermined plan..."¹¹

The difference is in the preparation. Notice I say preparation, not planning. There is a fine distinction. Planning connotes action by few while preparation is action by all.

Once the combat on the field has ended, the battle for time accelerates. Reconstitution and resupply can change a defeat into a victory. Many times the side that rests after a victory finds itself subsequently routed by a quicker rebounding foe. Napoleon at Wagram and Grant at Shiloh overturned defeats because they moved more quickly and thought in longer time frames than their opponents. A moment lost, even after a battle, can mean lives lost.

Time touches every aspect of warfare. Commanders and their staffs must think in this fourth dimension when they plan and execute the fight. They need to carry with them the knowledge of time factors of critical events to occur on the battlefield. In their plans, they must time actions to disrupt the enemy while synchronizing their own combat elements. Before the battle, they must plan to overcome the problems that can make time an enemy rather than an ally. In execution they should strive to get inside the opponent's decision cycle and maintain the initiative. They must consider their minutes a precious commodity that is invested with sweat

or lost in blood. When the fighting slows down they have to increase their efforts to resupply and reconstitute. Throughout it all they must always keep in mind: If you lose the battle for time, you will lose the battle.

Notes

¹U.S. Department of the Army, *Operations, Field Manual 100-5*, (Washington D.C.: U.S. Government Printing Office, 1986), p.9.

²Department of History, U.S. Military Academy, *The Wars of Napoleon*, (West Point, N.Y.: [n.p.]), p. 10.

³David Irving, *On The Trail of the Fox*, (New York: Avon Books, 1980), p.186.

⁴George S. Patton, Jr., *War As I Knew It*, (New York: Bantam Books, 1980), p. 335.

⁵Lewis Sorley, *Thunderbolt*, (New York: Simon & Schuster, 1992), p. 56.

⁶John Allan Wyeth, *The Devil Forrest*, (La.: Louisiana State University Press, 1989), p. 31.

⁷*The Military Quotation Book*, ed. James Charleston, (New York: St. Martin's Press, 1990), p. 70.

⁸Napoleon to Murat from *The Wars of Napoleon*, p. 104.

⁹*The Military Quotation Book*, p. 89.

¹⁰G.F.R. Henderson, *Stonewall Jackson and the American Civil War*, (New York: Da Capo Press, 1982) p. 702.

¹¹*War As I Knew It*, p. 331.

Captain James K. Morningstar is an Assistant S3 Trainer for the Bronco Team, Brigade Trainers. His prior assignments include tank platoon leader and armor company executive officer with 1-33 Armor in Germany, and S4 for 1/4 Cavalry, at Ft. Riley, Kan. He commanded Delta Company, 3-37 Armor at Ft. Riley, Kan., with which he was attached to TF 2-16 Infantry during the Gulf War, where they conducted breach operations for VII Corps.

The Cadre

How the British Army
Trains Gunnery Experts

by Lieutenant Colonel Harry D. Owens and
Captain Justin Young



Unlike the U.S. Army's armor or scout specific focus in gunnery training, the British system trains its cadre in all major systems, ranging from the Scimitar's 30-mm autocannon (see above) to the 120-mm main gun of the new Challenger, at left.

The cadre — no other two words strike more of a despondent yet challenging chord in the heart of British Army officers and noncommissioned officers selected for service in the “gunnery world.” Whether assigned as instructors at the Gunnery School at Lulworth Camp, England; staff advisers in the Gunnery Wing at Bergen Hohne in Germany; or to other gunnery posts worldwide, they must partake of this rite of passage. And what the name symbolizes is three months of grueling preparation, requiring instructor candidates to learn their material in excruciating detail, repetitively present it for grade, and commit it to memory.

Undoubtedly, the 16-week “cadre” is the academic Ranger school of the Royal Armoured Corps. For without successfully meeting its standards, students do not earn their red and yellow “instructor” tabs. Prospective students are specially selected for assignment as instructors by their regimental (battalion) commanders and as the re-

sult of their demonstrated performance during previous courses at the Gunnery School.

Unlike us, the British do not provide basic or OSUT type training for armored soldiers at the Royal Armoured Centre. Instead, they receive their training at training centers located elsewhere in the United Kingdom, and only come to the Centre for specialized training. Officers, however, are the one exception to this rule, as they are completely trained here.

While “cadre” students can range from sergeants to colonels, the predominant ranks selected for gunnery-related postings are captains and senior noncommissioned officers. The average noncommissioned officer selected for an instructor post has been to Lulworth twice before for specialized training. In the first instance, he has attended the Gunner Mechanic Course as a senior trooper or lance corporal, where the knowledge and

skills he gained in basic training are reinforced. Later, he would have returned as a corporal for the 12-week-long regimental instructors course. Here he is prepared to act as a regimental instructor through further enhancement of his weapons system specific knowledge and by introduction to methods of instruction. During the course, he will give up to four teaching presentations (TP) per week and learn how to debrief crews on the ranges. Upon completion, he is prepared to conduct basic gunnery training for drivers who have been selected to become gunners in their home regiment. Throughout the conduct of the course, students are evaluated by Gunnery School instructors and the most promising identified for later assignment to the school as instructors.

Officers follow a somewhat similar route. During the Troop Leaders Course (AOBC), lieutenants are observed for particular strengths, and if that strength is gunnery, academic re-

ports are so annotated. Should a lieutenant later impress his regimental commander during gunnery exercises, he will stand an excellent chance of being selected for the position of Regimental Gunnery Officer once his platoon leader days are finished (The Regimental Gunnery Officer performs many of the functions performed by our battalion master gunners and assistant S3s). When so selected, the officer will attend the gunnery officers course at the Gunnery School for approximately 12 weeks. During this course, he will teach engagement techniques in the classroom, conduct course firing exercises, and learn to supervise all aspects of regimental gunnery. Those who do exceptionally well in the course are identified for future assignment as a course officer (instructor) at the School.

The "cadre" begins in the first week of January and runs until the third week of April. Candidates arrive without their families, as assignments are not confirmed until the course has been successfully passed. An RTU (Return to Unit) can be given at any time during the course, and the absence of the family ensures the student's complete attention to his duties. The first four weeks are devoted to the 30-mm cannon system found on the Scimitar reconnaissance vehicles. This instruction can be quite a chore for those students coming from Challenger tank regiments; but all students must pass every section of the course and become qualified to teach all subject material.

When the 30-mm cannon system has been mastered, the next eight weeks are allocated to the 120-mm gun system fitted to the Challenger tank. Students assigned to reconnaissance units now encounter the same problem with their lessons that tankers had with the 30-mm cannon, but the standard does not change.

Instruction consists of teaching practices (TP) on the vehicle, engagement technique lectures, engagement sequence practices on the simulators, and day and night firing. What is a teaching practice (TP)? Primarily, it is a lesson given by a student, that is thoroughly critiqued and graded by

the instructor for delivery, knowledge of subject matter and clarity of explanations. The student prepares the lesson during off-duty time and the pressure to succeed is enormous. They have been found rehearsing in turret trainers after midnight and some have even taken sleeping bags to the classroom so that more time can be devoted to preparation.

The last month of the course is devoted to assistant instructor of gunnery training, indirect fire, and an industrial tour of the factories that produce British armor and ammunition, such as Vickers and Royal Ordnance. Since the Gunnery School provides a gunnery inspectorate function for the entire Armoured Corps, course officers and instructors are trained to monitor, advise, and conduct gunnery exercises undertaken by the regiments in the field. As part of their training, they learn to run test exercises, debrief crews, and make daily reports to the regimental commanders. The officers also learn to write final reports. Such training prepares the student to effectively function in a high pressure, intimidating environment, through simulated exercises that put knowledge, mettle, self-confidence, and professionalism to the test.

As the British still practice tank indirect fire gunnery, one week of the cadre is devoted to learning that methodology and then practicing it on the range. Such training is provided only to "cadre" students in an attempt to keep the basic knowledge of such procedures alive.

The industrial tour is the crowning event of the course, as students are taken to Vickers and Royal Ordnance for tours, demonstrations, and explanations. The tour allows them to develop a link with the manufacturers of the equipment and encourages students to forge professional relationships that will be vital as they become the next generation of instructors.

Upon their return from the industrial tour the students gather for a small ceremony to recognize them, and the old instructors who will be leaving the school and returning to their regiments. The highlight of this ceremony

comes when the brigadier places the red and yellow instructor epaulettes on the shoulders of each man. From this day forward he will be recognized as a gunnery expert, capable of teaching in the specialized environment of the Gunnery School and as an adviser and instructor in the field.

Captain Justin Young graduated from the Royal Military Academy Sandhurst in 1989 after receiving a BA in Psychology at Durham University. He then joined his regiment, The Royal Scots Dragoon Guards in Fallingbommel, Germany. He served as a Challenger Troop Leader during Operation GRANBY (DESERT STORM) and returned to Germany to be a squadron second in command and regimental gunnery officer. He is currently a course officer and IG at the RAC Gunnery School, Lulworth.

Lieutenant Colonel Harry D. Owens was commissioned in 1975 from the University of Scranton, Pa. He served as a tank platoon leader, company XO, adjutant and assistant S3 in 2/11 ACR; company commander in the 19th Battalion, 4th Training Brigade, Ft. Knox; assistant secretary of the general staff, USA TACOM, Warren, Mich.; Assistant Professor of Military Science, Bucknell University, Lewisburg, Pa.; S3, 1/11 ACR and regimental adjutant, 11th ACR. He is currently serving on exchange as the Deputy Commander of the Royal Armoured Corps Gunnery School, Lulworth Camp, England.

The 11th Panzers in the Defense, 1944

by A. Harding Ganz

Frankreich! Visions of *fräuleins*, of the *ma'm'selles* of sunny southern France, tantalized the weary *Landsers* — troopers — of the 11th Panzer Division. The rumors were true: it was the spring of 1944, and the battered division was to be redeployed from the Russian Front to southern France for recuperation and rebuilding. On the *Ostfront*, the brutal struggle continued unabated. The German defense of the Dnieper had been costly, as massive Russian offensives resulted in huge encirclement battles at Korsun-Cherkassy and Kamenets-Podolsky. Fierce winter blizzards had alternated with the *rasputitsa*, the sudden spring thaws, that sank vehicles into the Ukrainian mud, and then froze them in solid again, as in concrete.

The elated troopers boarded their trains near Kishinev, bound for Bordeaux. The rest of the division followed in May, by road and rail, via Budapest and Vienna. But even if the home of the 11th was in Silesia, safely beyond the fighting fronts, Allied bombing of the homeland and talk of the expected invasion of *Festung Europa* by the British and Americans was sobering. Long gone were the dramatic days of the blitzkrieg through the Balkans and the drives on Kiev and Moscow. These had made the reputation of the *Gespenster* Division — the “Ghost” Division, its emblem an eerie sword-wielding spectre on a halftrack. Now its mission would be mobile defense, against the overwhelming power of the Allied armies in the West. In August, the 11th



Panzer would wage a fighting withdrawal up the Rhône valley of southern France against the advancing American Seventh Army, and in September and again in November play a significant role in thwarting Patton's Third Army drive toward the Rhine.

Even if Germany were ultimately defeated, the 11th PD would generally accomplish the difficult missions given it, improvising methods and operations, and contribute a valuable chapter in the history of armored warfare.

Rebuilding in Southern France

Under its popular commander, Generalleutnant (Major General) Wend von Wietersheim, the 11th PD was brought up to strength according to the 1944 T/O&E. At full strength, it would have 13,726 officers and men in 15 battalions and detachments and divisional trains. It thus approximated the American armored division of 1944 which, with the routinely attached tank destroyer and antiaircraft battalions, had an aggregate of 12,774 personnel, also in 15 battalions and trains. But unlike the U.S. division, which interchanged battalions under three combat command headquarters, the Germans retained the regimental structure with a panzer regiment of two battalions, two panzer grenadier regiments of two battalions each, and a panzer artillery regiment of three battalions. For operations, however, the Germans mixed panzer and armored infantry companies in improvised *Kampfgruppen* (battle groups), and the Americans cross-reinforced companies in battalion-sized task forces and exchanged platoons to form mixed company teams. German armored doctrine was based on the "combined arms team" concept with battalions of the three combat arms — tanks, infantry, artillery — all synchronized to work together; and their opponents had now adopted that concept as well.

The American armored division had three tank battalions, but these had light M5 tanks with 37-mm guns and medium M4 Sherman tanks with a short 75-mm gun. The German panzer regiment had two battalions of mediums, one of the older Panzer IV, now mounting a high-velocity 75-mm gun, the other with the newer Panther, with an even more powerful 75-mm gun. The 1st Battalion of Panzer Regiment 15 had received its Panthers at the Grafenwöhr training area in 1943, shortly before the battle of Kursk. The new tanks had numerous mechanical problems, especially with hydrostatic lock and the final drives, according to Walter Rahn, then battalion adjutant, and Martin Lange, a corporal in the

maintenance section. But these had now been worked out, and with its wide tracks, thick angled armor, and powerful gun, the Panther was arguably the best tank of World War II.

While all three of the American armored infantry battalions were mounted in armored halftracks, production shortages allowed only the first of the four panzer grenadier battalions to be so equipped by 1944. The Sd.Kfz. 251-series halftracks were very versatile, and some variants mounted mortars, flamethrowers, and searchlights, comprising at least 22 different models. They were technically sophisticated, according to Guy Franz Arend of Belgium, who has examples of all models in the Victory Memorial and Bastogne Historical Center museums, but were rather underpowered. The American M3 was mechanically more reliable, but its rubber tracks gave poorer cross-country mobility in muddy terrain than the German steel track, and both had open troop compartments, exposed to overhead artillery fire. To Major Karl Thieme, who commanded the 11th Panzer's halftrack-equipped battalion, German unit leaders and vehicle drivers, veterans of the Russian campaign, could determine trafficability with a more experienced eye than could their American counterparts, and employed their halftracks accordingly. The other panzer grenadier battalions were transported by truck. The Opel-Blitz was preferred, but most lacked the front wheel drive of the sturdy American GMC 6x6 "deuce-and-a-half. In any case, equipment shortfalls had to be made up with civilian and French vehicles, even including wood-gas fueled trucks, and Captain Franz Thelen, adjutant of Pz.Gren.Rgt. 111, found himself going up to Paris to requisition whatever he could.

Likewise, only one of the three panzer artillery battalions was self-propelled, the others being halftrack-towed, while all three American armored artillery battalions were self-propelled, on the tracked M7 carriage. But all the American howitzers were 105mm, with a range of 12,000 yards (11,000 meters), whereas the German division included 150-mm pieces with

a longer range of 15,000 meters, some of which were self-propelled as the tracked *Hummel* ("Bumble Bee"). (The Americans acknowledged their range limitation, and a 155-mm battalion was routinely attached or in support from corps assets.) The 105s of the SP battalion were carried on the Panzer II chassis as the *Wespe* ("Wasp"), though captured chassis were also utilized.

In France, the towed battalions of Panzer Artillery Regiment 119 further traded batteries so each had 105-mm and 150-mm batteries. Experience had demonstrated that the division usually operated in three *Kampfgruppen*, each supported by an artillery battalion, and this mixed artillery support was more versatile. The 3rd Battalion, which Captain Walter Schaefer-Kehnert commanded by September, also incorporated a battery of Russian 120-mm mortars, and a battery of long-range 105-mm guns, the battalion thus providing supporting fires from 6,000 meters to 20,000 meters (11 miles). But because of the variety of fire missions required, and dispersal because of Allied air control, notes Lieutenant Rolf Wandhoff, regimental adjutant, battalion fires were seldom massed, and individual batteries often fired independent fire missions.

Replacements were brought in to rebuild the units. One of the strengths of the Wehrmacht was the concept of each field division maintaining a replacement battalion (*Ersatzbataillon*) in its home military district (Silesia, for the 11th PD). Not only did the recruits share a common regional background, but also were immediately trained for and thus associated with the unit they would be joining in combat. The training cadre were members of the division, and could imbue the new recruits with their combat experience and their unit procedures and esprit. This ensured unit cohesion and morale, generally considered the most important ingredients in the motivation of soldiers to fight. (Many who have analyzed the capabilities of the German Army have unfavorably contrasted the American "scientific management" method of processing individual replacements through replace-

ment depots, the hated “repple deples,” and allocating them to units as needed.)

But maintaining this regional relationship proved ever more difficult given wartime demands, and by 1944 replacements were usually allocated by Army and Army Group headquarters as needed. It was the nucleus of veterans and the unit commanders, who now provided the cohesion and continuity that kept the 11th Panzer an effective combat organization. The unit commanders came from within the division, and the battalion commanders of 1944 had been lieutenants in 1940. Karl Thieme, for example, was a platoon leader and then a company commander in Pz.Gren.Rgt. 110. In May 1944, he was promoted commander of its 1st Battalion (half-tracked) as major, and in November, promoted to lieutenant colonel, would become the regimental commander — “For me a dream come to fulfillment,” he said. Wounded six times, Thieme had received the Knight’s Cross for the Kursk fighting, and subsequently was awarded the Oak Leaves and Swords.

Tactical Realities in the West

With the long-awaited Allied invasion at Normandy in June 1944, General Wietersheim dispatched a number of the division’s officers north to observe how battle conditions differed from the Eastern Front. Their reports were analyzed and discussed in commanders’ conferences, and tactical responses were improvised: Allied airpower was all-pervasive, as already demonstrated in North Africa and Italy. What Luftwaffe remained was committed to defense of the Reich itself. Therefore, standard vehicle road-march procedures (a panzer battalion moving by day at 20 kmph and 50 meter intervals had a time length of about 30 minutes and a road space of some 8,000 meters) were now unrealistic. Vehicles, well-camouflaged with nets and branches, with constant air lookouts, would have to “spring” from cover to cover in Einzelgruppen — single groups of 3-5 vehicles. If at-

tacked by the *Jabos* — *Jagdbombers*, or fighter-bombers, troops would pile out of the vehicles while crews would put up a barrage of fire.

Allied artillery had plentiful ammunition, and its effectiveness was enhanced by accurate observation and corrections from spotter planes aloft. Panzer artillery fire control exercises emphasized coordination of artillery, rocket, and mortar fire on concentration points, and rapid displacement to avoid counter-battery fire. Wire communication would be destroyed by shell fire and by bombing; radio would be the primary means of communication, recognizing transmission range limitations imposed by a topography of wooded hills.

American ground advances were, however, methodical and cautious, halting at any resistance, and as a rule ending at nightfall. The *Amis* lacked the grim stubbornness of the Tommys or the Ivans, preferring to call for artillery support. Training by Major Heinz Bödicker’s Pioneer (Engineer) Battalion 209 was emphasized for all units, as delaying tactics with mines and obstacles would further slow an enemy advance. Aggressive reconnaissance by all units would be important, not only for security, but also to take advantage of the occasional negligence of the more powerful enemy and launch surprise attacks.

Other techniques employed on the Eastern Front were still considered valid, if modified:

Clear, concise *Sattelbefehle* (“saddle orders” or frag(mentary) orders) were imperative, given the pace of panzer warfare, rather than detailed orders and control measures. This exemplified the original concept of *Auftrags-taktik* — mission tactics, upon which German mobile warfare doctrine was based. The *Kampfgruppe* concept of mixed battle groups, the mix of panzer and panzer grenadier units tailored to the situation, would be even more appropriate, but for small-unit engagements because of Allied air power — not mass maneuvers as on the steppes of southern Russia. This further required that company-grade officers

take the initiative and act decisively and independently.

As in Russia, the policy for the combat companies (panzer, panzer grenadier, and recon) was that a third of the unit be rotated back to the field replacement detachment. They would get a rest, would be available as a reserve, and would provide an experienced cadre in case of extensive casualties in the company, given the tremendous enemy firepower. In the course of the coming campaigns, one is struck by the heavy casualties suffered, especially among unit commanders — in the next eight months the two panzer battalions would have eight different commanders, the two battalions of Pz.Gren.Rgt. 110 would have at least six, and the veterans of Pz.Gren.Rgt. 111 cannot recall all their battalion commanders; even Captain Franz Thelen, regimental adjutant, can list and date the last five regimental commanders but, “The battalion commanders changed too frequently, one after another.” The casualties reflect aggressive leadership up front — the adjutant himself often took temporary command — and it is notable how unit cohesion was yet maintained, and the division remained combat-capable, the result of this rotation policy.

To engage the Allied beachhead in Normandy, German panzer units converged on that front. Soon, only the 11th PD was left as the mobile strike force for all of Army Group G south of the Loire, and even it lost some of its tanks and armored cars. General Wietersheim had to prepare for three possible scenarios if the Allies also invaded southern France: an Allied landing on the Riviera, a landing near the Rhône River delta, or simultaneous landings near Narbonne and on the Biscay coast, to cut off Fascist Spain. The theater of possible operations was thus over 600 kilometers in extent (400 miles), and response time could be 4-6 days, given probable Allied air attacks. Only a mobile counter-attack strategy after any landing was feasible. Training intensified with a new seriousness, while officers did endless map exercises and route reconnaissances to identify secondary routes and river fording sites, assum-

ing the major bridges and communication routes would be bombed.

On 13 August 1944, with intelligence identifying the Rhône delta as the probable landing area, the divisional units began to move toward the Rhône valley. Two days later came the Allied invasion, east of Toulon, against the weak coast defense divisions. Allied air activity was not as all-pervasive as in Normandy, though the task of getting tanks across the Rhône, including using a 60-ton ferry at Avignon, was a tedious one.

Delaying Operations

As the Allied armies in the north had by now broken out of Normandy and were racing across France, driving toward the German border, 11th Panzer had the unenviable task of covering the retreat of 19th Army up the Rhône, slowing the Allied southern advance, yet avoiding being cut off in the north. Delaying tactics were now employed, engaging by day, falling back at night, discouraging rapid American advances with hasty minefields of antitank Teller (plate) mines and antipersonnel S (Schuh) mines. The lines of resistance were planned so the next positions were beyond 105mm artillery range (12,000 yards or 11 kilometers) of the last positions, forcing the Amis to displace their batteries forward each time.

Major Karl Bode's Reconnaissance Battalion 11 was especially suited for delaying actions, as well as for the missions of scouting, route reconnaissance, and flank protection. The unit was equipped with armored cars and light halftracked 250s. But surprise engagements had invariably generated a demand for more firepower, and the eight-wheeled armored cars now mounted 50- and 75-mm antitank guns, *Pakwagens*. Lieutenant Werner Strietzel, commanding 2nd Company until wounded in November, feels the ability of the 8-wheelers to drive backwards as fast as forwards, the loader or radio operator being the "reverse driver," was "of enormous importance." Motorcycles had long been



In reconnaissance battalions, eight-wheeled armored cars — *pakwagens* — mounted anti-tank guns and carried a second "reverse driver" who doubled as the radio operator or loader.

discarded as too vulnerable to hostile fire, though Volkswagen's amphibious *Schwimmwagens* were handy. But the versatility and firepower of the recon battalion made it tempting to use in battle itself. That consequent battle losses reduce the ability of recon units to carry out their primary missions has generated an ongoing controversy about the role and weaponry of such units.

As the 19th Army columns of men, wagons, and vehicles retreated up the Rhône valley, they were savaged by medium bombers and harassed by the French Maquis partisans who rose, sensing liberation. The partisans targeted service and staff elements, as attested by Sergeant Albrecht Englert, a radio operator at army headquarters; but they avoided 11th Panzer combat units, and did not affect combat operations.

Several times the more mobile U.S. Seventh Army attempted to cut off 19th Army, but was stymied by the 11th Panzer. Armored Task Force Butler and the U.S. 36th Infantry Division, advancing parallel to the east, swung in toward the Rhône defile at Montelimar on 21 August. Wietersheim divided his units into four *Kampfgruppen*, under Lieutenant Colonel Heinrich-Georg Hax of Pz.Gren.Rgt. 110, Major Thieme of the halftrack battalion, Colonel Wilde of Pz.Gren.Rgt. 111, and Bode's Recon Battalion 11, and attacked. When a roadblock was established on the highway north on the 25th, Wietersheim himself led a midnight charge that scattered it. Several days of fighting in the tangle of hills and valleys discouraged the Americans and they

drew back. Close air support played no role, as XII TAC (Tactical Air Command) bases were too distant. The retreat continued, though the highway traffic was lashed by long-range artillery fire.

Another attempt came when the U.S. 45th Infantry Division cut a highway northeast of Lyon on 31 August at Meximieux. The next day, a 111th *Kampfgruppe* charged through a roadblock of the 179th Infantry and into the regimental headquarters in the town. When F Company was surrounded in an old chateau it was surrendered by its CO. "He was a *Dumkopf*, snorted one of the disgusted GIs, Bob Slingerland, in a recent letter to Lieutenant Jürgen von Pflug, 1st Battalion adjutant — and he spent the rest of the war as a POW in Stalag IIIC on the Oder. The 117th Cavalry Recon Squadron maneuvered to Montrevel to the north, but Bode's Recon Battalion 11 rolled up from Bourg on 3 September. Troops A and B were mauled, and the survivors surrendered. To GIs who ran afoul of the "Ghost Division," it was no "Champagne Campaign."

A last attempt was made by the French I Corps, racing along the Swiss border toward the Belfort Gap, but the 11th PD counterattacked the 3rd Algerian Division at Baume-les-Dames on the 5th and ambushed its M4 tanks near Montbeliard on the 8th.

The 11th PD had been suffering shortages and losses, yet would somehow garner new equipment and lash out anew. By 27 August, near Lyon, Antiaircraft Battalion 277 had finally acquired four of its authorized "Acht-



Map 1

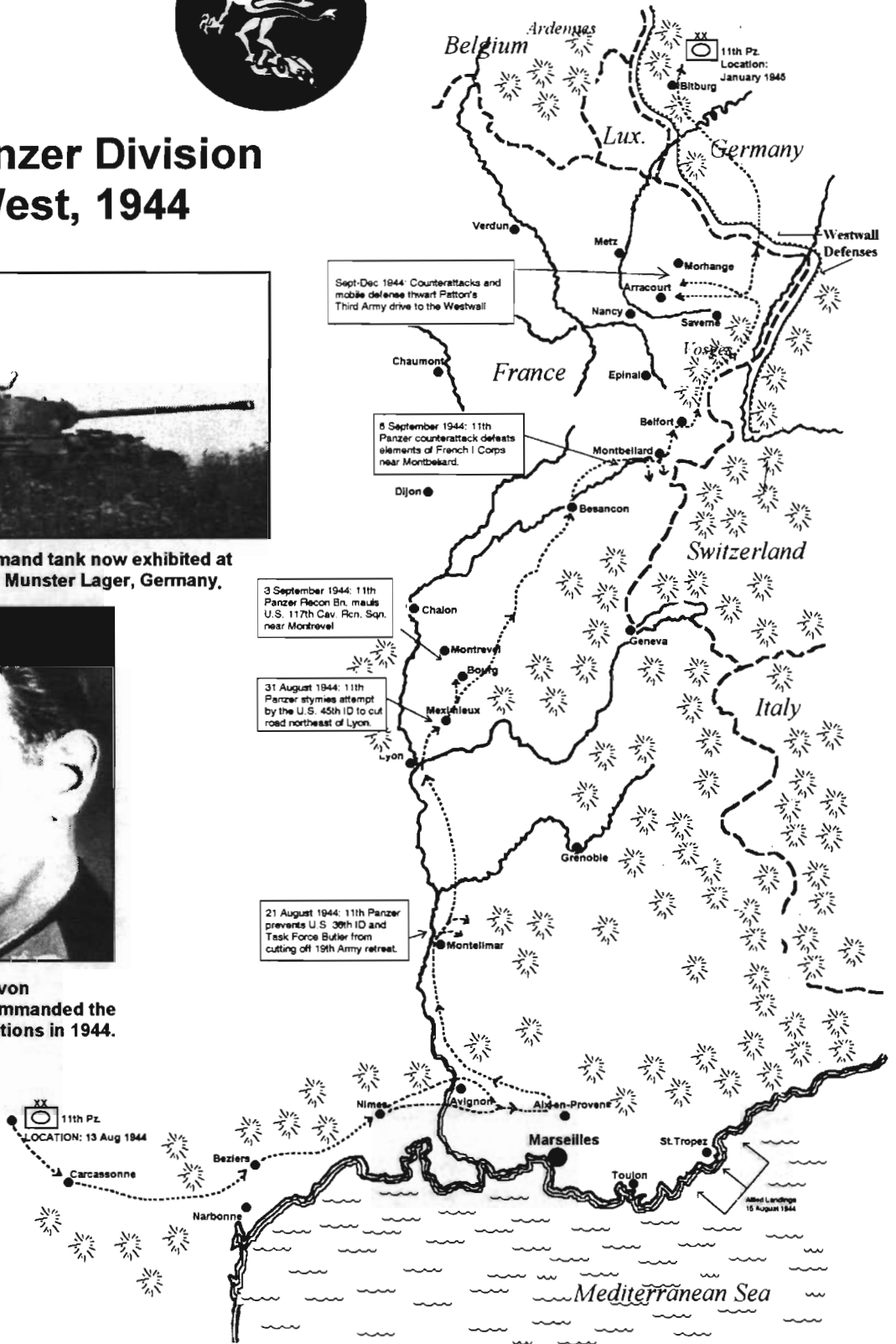
11th Panzer Division in the West, 1944



11th PD Panther command tank now exhibited at the Panzermuseum at Munster Lager, Germany.



Major General Wend von Wietersheim, who commanded the 11th PD during operations in 1944.



acht" (8,8cm) dual-purpose guns, equally deadly against aircraft or armor, known to the American GI as the dreaded "eighty-eight" (mm). They were "procured" from a supply depot by the battalion commander, Major Joachim Menzel, who effectively bluffed the depot paymaster, though the guns were intended for a different unit. This gun had a velocity of over 800 meters per second (2,600 fps) and a flat, accurate trajectory. The best range to engage the short-barreled M4 Sherman tank, says Jochen Menzel, was between 800-2,000 meters. The guns also operated most effectively in pairs.

When French M4s came up the Audincourt road on 8 September they were ambushed by Menzel's 88s. On one side of the road, where it entered a narrow valley, Captain Giesebrecht had two guns tracking the leading tanks. Menzel himself was with the second pair on the other side, sited to knock out the tanks at the rear, to trap the column. The guns were well-camouflaged with branches, and the officers did not use their binoculars lest light glint off the lenses. When Menzel shouted "Feuer!" all guns fired simultaneously, turning the column into a burning shambles.

By mid-September 1944 the German armies had successfully rejoined in Lorraine in eastern France. But the Allies had exacted heavy losses, and even the 11th Panzer had lost half its personnel and most of its tanks and assault guns in the continuous fighting. The remaining men were exhausted, and their vehicles worn out. The Panther tanks required major maintenance after 800 kilometers; yet many had now over 1,500 km on their odometers. But there was to be no respite for rehabilitation.

Armored Counterattack

American General Patton's Third Army had slashed into Lorraine, and in early September Major General John Wood's 4th Armored Division broke out of the Moselle River bridgeheads and drove spearheads be-

yond Nancy. Hitler ordered a counter-attack and converged panzer units to restore the situation. Two panzer brigades, the 111th and 113th, were hurled against Colonel Bruce Clarke's brigade-sized Combat Command A near Arracourt, but the panzers were handled roughly by the veteran American tankers in the days that followed. These were new-type formations that had no artillery, and organic maintenance and flak assets were weak; they were not balanced combined arms teams. Then, when the sun burned off the early morning fog, P-47 fighter-bombers swept the battlefield with a vengeance. The two brigades were wrecked; one commander was killed by American artillery, the other by the aircraft.

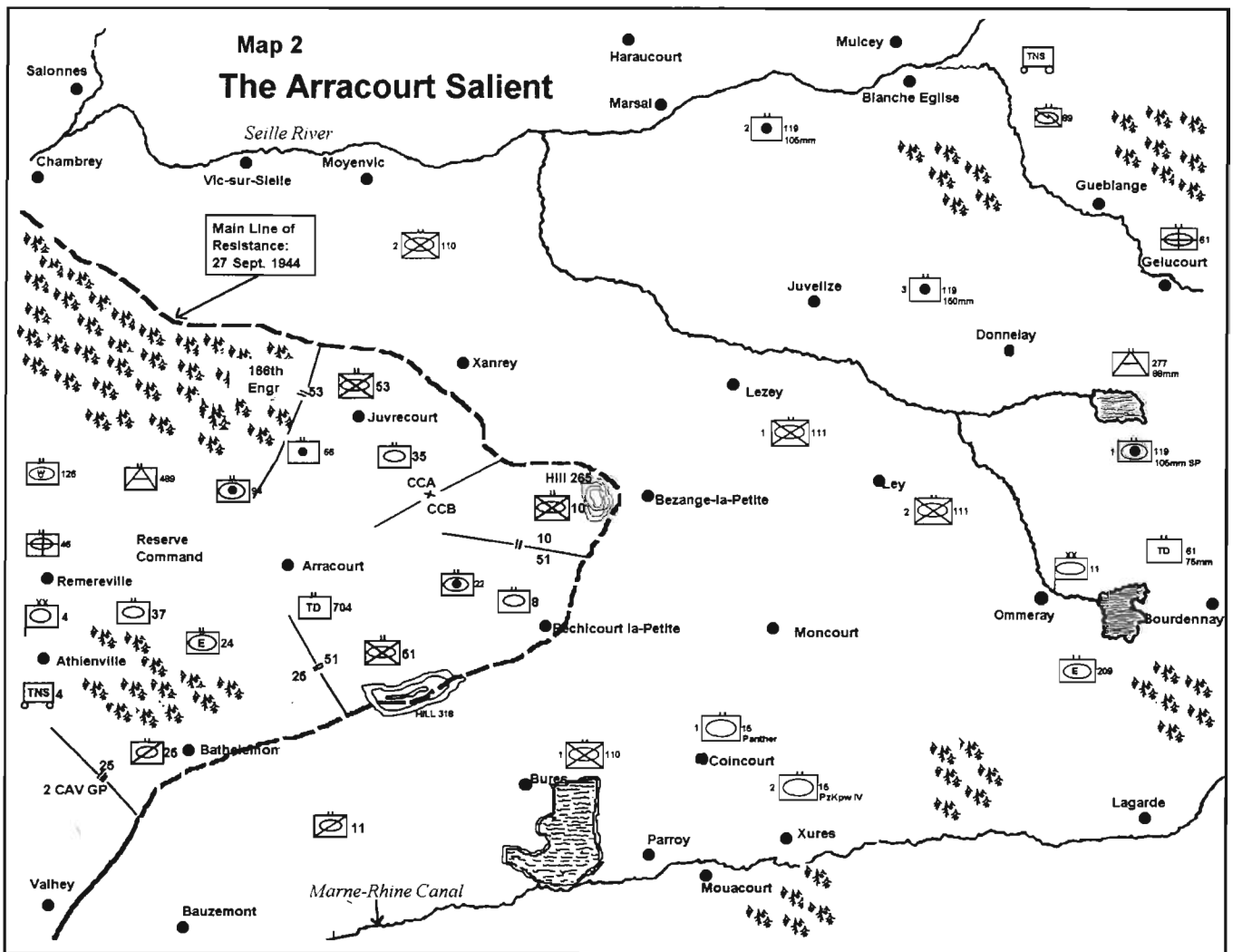
The new German commanders, Lieutenant General Hasso von Manteuffel at 5th Panzer Army and General Hermann Balck at Army Group G, were fresh from the Russian Front and had to learn the bitter lesson that, as Balck's Chief of Staff Colonel Friedrich von Mellenthin said, "it was clear that American air power put our panzers at a hopeless disadvantage, and that the normal principles of armored warfare did not apply in this theater" — something the Western veterans had tried to tell them.

But now the experienced 11th Panzer Division had arrived, and on a rainy 25 September *Kampfgruppen* of Lieutenant Colonel Stenkhoﬀ's Panzer Regiment 15 and Colonel Hax's Panzer Grenadier Regiment 110 drove down the valley of the Seille against the CCA perimeter. This "certainly put us on notice that some real pros were joining the opposition," said Captain Jimmy Leach, CO of B Company of Lieutenant Colonel Creighton Abrams' 37th Tank Battalion. The 4th Armored's Reserve Command had come up from fighting at Luneville, and Wood now pulled back west of the Moyenvic-Bourdonnay highway and brought his CCB down from Château Salins, where it had clashed with Panzer Brigade 106, consolidating his division for some of the most dramatic armor combat of the European theater.

Yet Wietersheim's 11th Panzer was badly understrength. It had assembled in the Sarrebourg area after being redeployed from the Belfort Gap, but had to detach a *Kampfgruppe* under the artillery commander, Lieutenant Colonel Erich Hammon, which included the self-propelled artillery battalion. In addition, Recon Battalion 11 had not yet arrived and Major Arnold Kessler's Tank Destroyer Battalion 61 was back at Saverne, retraining with new Jagdpanzer IV assault guns. In redeploying in the face of American air power, the wheeled vehicle march serials had moved rapidly, covered by the mists of the Rhine River valley, but the tracked vehicles, moving by rail, had been delayed by bomb damage. The trains had moved at night and held in tunnels by day, though 2nd Company of Panthers lost heavily to medium bombers as its train left a tunnel near Colmar too soon before dusk. Pz.Rgt. 15, even incorporating the remnants of Pz.Brig. 111, may only have had 16 panzers fully operational, and only two artillery batteries were at hand. Nonetheless the two panzergrenadier regiments were at about 70-80 percent strength, and with its veteran tankers, the "Ghost Division" was a dangerous foe.

As they attacked, experienced German tankers instinctively sought defilade in the rolling farmland, and used their longer-ranged 75-mm high-velocity guns to advantage. Lieutenant Karl Zindler commanded his platoon of Panthers, and also fought his own tank: "Driver, stop! Gunner! Main gun, armor-piercing, two o'clock, six hundred, Ami tank, on the slope!" The loader and gunner shouted simultaneously: "Ready!" "Identified!" Zindler finished his fire command: "Shoot!"

Some sources say the M4 Sherman's electric-power turret traverse gave the American tank an advantage over the "manual traverse" of the Panzer IV and Panther. But both German tanks also had power traverse. The Panzer IV had electric power, generated by a small two-stroke gasoline engine. And the Panther, like the heavy Tiger, had hydraulic power, the gunner traversing by foot pedal. The disadvantage of



hydraulic power was that the engine had to be running since the pumps were driven by the engine transmission shaft. But 1st (Panther) Battalion commander Major Jürgen Reichardt and Sergeants Lange and Filla said that in battle the engines were running anyway, according to the maxim "fire and movement." In defense, said Zindler, a tank would be in hull defilade, with its gun tube oriented toward the most likely armor approach, and final gun-laying manually was no problem.

The apprehension Americans had about fighting the German Panther was reflected in XII Corps operations notes to units, advising flank engagements, and warning that head-on at 1,000 yards, 75mm rounds might penetrate "only when hitting the lower half of the mantlet, when they are deflected down, penetrating thin hull top-plate," but that the "Hull is invulnerable to all calibers." The Panzer

IVs of Captain Rodenhauser's 2nd Battalion were less formidable, but did have a lower silhouette. The German disadvantage in the Arracourt fighting was that they were attacking, under cover of morning mist, thus negating their long-range gunnery advantage. And they met their match in the skilled tankers of Wood's 4th Armored, who maneuvered their more agile M4s and M18 "Hellcat" tank destroyers around the undulating countryside in close-quarter engagements.

Pz.Gren.Rgt. 111, under the temporary command of Major Karl Thieme, came up on the right of the 110th as CCA fell back from Juvellize to Hill 265. The panzer grenadiers, riding the panzers or following in their tracks, came in against the armored doughs in their foxholes along the perimeter. Captain Thelen confirms that, at strength, the eight-man panzer grenadier squad had more firepower than

the 11-man American rifle squad, with two belt-fed MGs (Machine Gun 42s) and the automatic MPi (Machine Pistol 40) and selective-fire *Sturm-gewehr* (Assault Rifle 44), to the U.S. box magazine BAR and semi-automatic M1 Garand rifle. Both sides were perennially short of infantry, and the Germans were now mass-producing fully automatic weapons, compensating for personnel shortages with firepower. But GIs traded M1s for "Tommy Guns" and platoons were supported with mortars and heavy machineguns, and both sides were seldom at full strength anyway.

Concealed from American air power in the patches of woods east of the Bourdonnay road were the few artillery pieces available. Menzel's 88s were sited near Gelucourt and tied in to division artillery, adding flat-trajectory fire support across the open fields. But alert 4th Armored ob-

servers in L-4 Cub spotter planes called in counter-battery concentrations from the three armored artillery battalions, and called in fire missions that smashed the German attacks with HE. By mid-day the fighter bombers of XIX TAC would swoop in, strafing with rockets and machinegun fire, adding the decisive factor.

Yet the higher commanders persisted in massing panzers for attacks, over Wietersheim's objections. On 27 September, 25 panzers from all armor units launched attacks on the south flank of the 4th Armored's Arracourt salient, beginning a three-day battle. By now, Recon Battalion 11 had arrived, fleshed out with Luftwaffe trainees, young but poorly trained. The American armored doughs held firm, especially in the bitter fighting for Hill 318, and tanks, artillery, and fighter-bombers lashed the attackers back. On the 29th many of the survivors broke and ran, rallied only by the division commander himself. Nonetheless, the stubborn German assaults seemed to restore the German front, and by the end of the month both sides had gone over to the defensive.

Linear Defense

During the October pause the 11th Panzer held a concave HKL (*Hauptkampflinie*, or MLR, Main Line of Resistance) 18 kilometers long from Moyenvic on the Seille River to Parroy on the Marne-Rhine Canal. By doctrine and equipment armored units were ill-suited for position defense; in addition, one of the two panzer grenadier regiments, the 111th now under Lieutenant Colonel Werner von Ruedprecht, was detached toward St. Die. Thus the HKL could only be held as a series of scattered strongpoints, utilizing the stone farm buildings of Lorraine. In addition, constant artillery fire mandated thinning out the forward positions, and the strongpoints were only linked by patrols at night, giving a semblance of a defense in depth. Pz.Gren.Rgt. 110, holding a sector of some 10 km, had an effective strength of only 600 men. With only a third forward, that averaged 20

men a kilometer! Two or three panzers provided local support in each battalion sector, their squealing tracks at night enough to deter inquisitive American probes.

Captain Johannes Schneider had assumed command of the 2nd Battalion of the 110th near Bezange la Petite. For two nights engine sounds and vehicle movement in the American lines caused his men to be on the alert, but when two young GIs wandered into the front lines, with messkits and apparently lost, it was learned that the new 26th "Yankee" Infantry Division was relieving the hard-fought 4th Armored Division. Stiff local actions followed, and when 5th Company was driven off Hill 265 (by the 104th Infantry Regiment), Lieutenant Rudolph's platoon of three Panzer IVs helped the grenadiers recapture some of the lost ground. Meanwhile Pz.Gren.Rgt. 111 returned, having attacked and stopped the 45th Division in the Mortagne Forest, 6-7 October.

During this position defense, the eagerly awaited company mess trucks came up at dusk, towing the *Gulaschkanone*, the field kitchen trailer with its distinctive stovepipe, to deliver hot meals. The company *Kettenrad*, a half-tracked motorcycle, could also bring up hot rations in a small trailer along narrow trails not subject to harassing and interdiction (H&I) fire. Officers ate with their men, sharing the discomfort of the front, unconsciously manifesting that indefinable blend of quiet authority, competence, and camaraderie that is true leadership. The mess teams would distribute rations for the next day, and depart before dawn. Hot *Wurst* and *Kaffee* were always morale-boosters, offsetting the *Schokakola* energy bars and chunks of *Kommissbrot* hard tack, that was only softened by suspending in coffee containers. Army rations were supplemented by local produce, and Captain Schaefer-Kehnert of the 3rd Artillery Battalion wrote his wife that he found himself the "division agriculturalist," rounding up hogs and



Similar to a halftrack, the German *Kettenrad* motorcycle had a track-laying system instead of a rear wheel.

cattle, and that his command post looked like a stock yard.

The tanks were topped off with fuel, though the crews often had to carry fuel cans up to the forward positions. Panzer crews slept in their tanks, with two of the five-man crew on watch in two or three hour shifts, manning the turret MG and radio. Accompanying panzer grenadiers often slept in a shallow pit, over which the tank drove, straddling it, giving protection from artillery fire and the elements, and warmth in cold weather. This had been learned in Russia, and was a good precaution. Major Ray Mason, S3 (Operations) of the 4th Armored's 22d Armored Field Artillery, for example, said the battalion would fire concentrations 50 yards in from a wood line, for deadly tree bursts.

Sergeant Martin Lange of the Panther Battalion maintenance group did most of his work at night. Maintenance sections were established in patches of woods, all signs of treadmarks leading into the area carefully swept away, hidden from spotter planes and fighter bombers. Canvas tarpaulins were strung for concealment, so lights and welding equipment could be used at night.

If some of the 11th PD veterans pondered Germany's unfavorable situation at this stage of the war, most were too preoccupied with battle, work, and survival to muse for long. Political changes could always occur, new weapons — jet planes, V1 Buzz Bombs, and V2 rockets — were coming into evidence, and defending the homeland, and discipline, routine, and

unit morale kept the men fighting. Nazi ideology was no longer a factor. Most combat troops held the civilian leadership in contempt, and Schaefer-Kehnert often heard the division commander refer to Hitler: "Once again the idiot has ordered....;" but not in the presence of the artillery commander, who was a convinced Nazi, and who was therefore often detached with a Kampfgruppe on missions away from the division.

The 11th PD veterans also resented the preference and publicity accorded the Nazi Waffen-SS (Combat SS), who alone were credited with the capture of Belgrade and of Kharkov earlier. By 1944, NSFOs — National Socialist Leadership Officers, were mandated to give "political instruction" to the troops. But the *Nasofius* were not eager to go up to front-line units, and in the 11th Panzer members who had a record of leadership in the HJ (Hitler Youth) or SA (Storm Troopers) were authorized to give troop information classes. These were not really taken seriously by cynical combat veterans anyway.

Finally the 11th PD was pulled back into reserve, with the 361st Volksgrenadier Division taking over the sector by the end of October. Captain Schneider collapsed from exhaustion, but awoke to find his concerned division commander sitting by his side. Schneider insisted he not be evacuated, as the battalion was now in reserve. The general agreed, but ordered the adjutant to report on how much sleep the captain was getting. "Yes, General von Wietersheim was 'like a father' with his soldiers!" he recalled. In addition, even Army Group commander Balck, who had commanded the division in Russia, came down to visit with some of the veterans. Morale of any military unit is highly dependent on sensing the concern commanders have for the welfare of their men. A few of the division received leave, and others received additional training. Major Karl Thieme went back for regimental command schooling, and would return as a Lieutenant Colonel, to command his cherished Panzer Grenadier Regiment 110.

Elastic Defense

The division received replacements while in bivouacs east of Metz, and tank strength was brought up to 40 Panthers, 20 Panzer IVs, and 10 Jagdpanzer IV turretless assault guns. But 5th Panzer Army headquarters had gone north (to prepare for the Ardennes offensive), and the 11th PD was the sole reserve for Army Group G. During the eight-day rest, Wietersheim met with his unit commanders to discuss tactics against the next American offensive, expected in November, toward the Saar industrial basin. American artillery and airpower, even with the anticipated poorer weather, made large-scale armored operations impractical, and enemy numerical superiority made the OKW (Wehrmacht High Command) order to hold every meter of ground unrealistic.

In a defense in depth, the infantry divisions would hold positions two or three kilometers forward of the HKL with a minimum of forces only, to "absorb" the initial bombardment and attack. The HKL itself consisted of extensive field works and was covered by minefields. The 11th PD was held back as an operational reserve. As the Delme Ridge and the Nied River were designated the first and second positions of the HKL, sharp local counterattacks would be mounted to slow the American advance. "Speed, movement, and surprise," recorded Major Thieme, "should offset the numerical and material superiority of the enemy." Mixed companies, *Panzerkampfrupps* or "tank battle teams" of a tank platoon and two panzer grenadier platoons each, would fight these actions. Small sections of one tank, one halftrack, and an artillery forward observer, if possible, would link the front. Their sudden presence and fire would hopefully magnify their small numbers, encourage their own infantry, and make the advancing Americans more cautious. While these tactics did not conform to the principles of mass and concentration, they seemed the only practical way to slow a powerful American advance along a very broad front.

On 7 November, the 11th Panzer went on alert, and that night elements moved into position north of Mörchingen (Morhange) in a steady rain. On the 8th, Patton's Third Army jumped off with six infantry divisions and three armored divisions, supported by 38 field artillery battalions and the fighter bombers of XIX TAC. By the 9th, the armor was committed, the long armored columns passing through the infantry. But the American armor was road-bound, restricted by the minefields and mud; and sharp German counterattacks resulted in a succession of bloody engagements.

The 88s of the 9th Flak Division stopped one American column at Fonteny, and a *Kampfgruppe* of Pz.Gren. Rgt. 111 occupied Viviers during the night, cutting off another column which had reached Hannocourt. (These were Task Forces Maybach and Churchill of the 4th Armored's Combat Command B.) The Americans finally cleared Viviers but couldn't clear the flanking fire from the forests. The bitter fighting for Fonteny flared up again on the 11th before the Germans pulled back. Two American battalion commanders, one of them Colonel Alfred Maybach, were among the killed in action. The village cost the "Ghosts" as well. The 2nd Battalion of the 110th had come in the night before; Lieutenant Klele's platoon of 8th Company was wiped out in the house-to-house fighting against the stubborn GIs, and the battalion commander, Captain Schneider, was badly wounded by shell fragments and hospitalized until the end of the war.

Also on 11 November, Lieutenant Walter Rahn, adjutant of the Panther Battalion of Pz.Rgt. 15 (and later battalion commander), was at his command post in the Forêt de Château Salins when an excited infantry sergeant of the 559th Volksgrenadier Division burst in reporting that a hundred Ami tanks were advancing up the valley. Rahn immediately alerted the crews of five tanks that were nearby awaiting maintenance, and mounted a *Kettenrad* to reconnoiter. The American column was road-bound, moving up the valley of the

flooded Petite Seille. Though the Panthers were technically deadlined, and averaged only six rounds of ammo each, Rahn found them a reverse-slope position near Dalhain from where they could engage the American column at 1,500 meters from hull defilade, only the turrets being exposed. Several American tanks and vehicles were knocked out; others drove ahead, while the rest of the column backed up, turned around, and detoured on a secondary road. (This was Task Force Bill Hunter's 37th Tank Battalion of Creighton Abrams' CCA.) Contrary to the perception of German regimentation, the initiative shown by, and encouraged in, junior officers and NCOs, was a major reason for the success of German panzer forces.

The 11th Panzer battle teams were the "fire brigades," trying to intercept the American thrusts. The pattern of fighting was of the American infantry advancing through the dripping forested hills against the German infantry, and the armor advancing along the valleys, thwarted by the mud, mines, and 11th Panzer counterattacks. The cold rain and cloud cover kept off the fighter-bombers, though seldom the ubiquitous L-4 observation Cubs that droned aloft and called in the deadly artillery fire. Casualties mounted on both sides in this struggle of attrition.

The 26th Infantry Division reached Rodalbe, but at dusk on the 13th a *Kampfgruppe* of 11th Panzer Grenadiers riding ten Panthers charged in, and most of the 3rd Battalion/104th Infantry were captured. Captain Ferdinand Biedermann, the panzer commander (of 3rd Company), then received orders from Wietersheim to make a night road march south to mount a spoiling attack on the 26th Division's right flank, near Guebling. His *Kampfgruppe* included 17 tanks, and panzer grenadiers in halftracks under Captain Heinz Wolff, commanding 1st Battalion of the 110th.

Biedermann was just about to launch his attack on the 14th when it collided

with the 4th Armored's own attack (Task Force Oden) in the early morning fog. Biedermann's command tank No. 301 was hit and the ammunition exploded. He was thrown out of his turret hatch with a severe leg wound and his crew members were killed. Delk Oden's 35th Tank Battalion M4s and Major Art West's 10th Armored Infantry Battalion then shot their way across Dordal Creek and into Guebling. But the 110th Panzer Grenadiers concentrated that night and decimated the American defenders, and Colonel Abrams agreed they should be pulled out the next day. Oden complimented the 11th Panzer troopers when he said, "those Goddamn Germans were the hardest fighting things we had ever tangled with." The 26th "Yankee" Division finally crossed the creek again on the 18th, but took heavy casualties from Pz.Gren.Rgt. 110, now commanded by Karl Thieme, back as a lieutenant colonel.

Though badly outnumbered, the 11th Panzer was constantly thwarting each American thrust by a skillful shifting of available forces. American air did not fly at night, and this is when the Germans moved. H&I fire at road junctions was fairly predictable, and tracked vehicles in particular could utilize country lanes. German vehicles road-marched, led by a guide on foot or in a VW *Kübelwagen* ("bucket car") with hooded lights. Tank drivers followed the marker light of the tank ahead, the four slits blurring into two cat-eye images at the correct vehicle interval of 25 meters. During the constant fighting and moving, the crews "just cat-napped when we could," ruefully said Martin Lange, tank driver and mechanic. Frequently, the drivers dozed off whenever the column halted, and then someone would have to go back on foot or on the company *Kettenrad* and bang on the fender to wake them up again. It was important for crewmen to rotate positions, spelling the driver, the others slumped in the seats or curled on the turret basket floor alongside the ammo.

On the night of 18 November the 11th Panzer was ordered to redeploy back near St. Avold, for meanwhile the 48th Division had disintegrated

under the blows of the American 6th Armored and 80th Divisions, and the remnants of the 559th VGD evacuated Morhange. In the days that followed, Pz.Gren.Rgt. 111 lost its regimental commander, Lieutenant Colonel von Ruepprecht, mortally wounded at Hilsprich on 23 November. When Allied forces suddenly broke through the Zabern (Saverne) Gap, Hitler released the Panzer Lehr Division to close it. But the PLD's attack ran head-on into a swing by the 4th Armored east of the Saar and it was pulled out again a week later, leaving 11th Panzer elements to cover east to the Vosges Mountains, a 50-kilometer front.

The three artillery battalions were more dispersed than ever. To supervise his scattered batteries Captain Schaefer-Kehnert, whose 3rd Battalion usually supported Pz.Gren.Rgt. 111 (now under Colonel Graf von Kielmansegg), divided his headquarters into a rear command post administered by his adjutant, and a forward command post from which he himself operated. The battalion commander preferred a captured American jeep nicknamed *Kleinen Willy* ("Little WillyZ") from the Willys Overland builder's plate, because it was light, maneuverable, easy to cover with a camouflage net, and with its four-wheel drive more powerful than the VW *Kübel*.

Panzers in Defensive Fortifications

The bitter fighting in the cold mud, rain, and sleet continued around Sarre Union and Domfessel as the Germans delayed back to their border. The opposing 4th Armored lost two battalion commanders wounded and then, after clashing with his corps commander over the frustrating, exhausting struggle, the able General Wood himself was relieved by General Patton. The 11th Panzer was falling back through the old French Maginot Line fortifications, its works of little use since they only faced eastward. Nonetheless some of the bunkers afforded shelter from artillery fire, though unit com-

manders had to enjoin their men not to become trapped in them.

At Singling on 6 December, a small unit action typical of the campaign was fought when Captain Engelmann's 1st Battalion of Pz.Gren.Rgt. 111 met the advance of the 4th Armored's Task Force Abrams. A tank-infantry team under Captain Jimmie Leach of the 37th Tank Battalion attacked the town, the armored doughs riding the tanks because the halftracks couldn't negotiate the mud. But Leach found the position dominated by the high velocity German tank guns on the Welschoff Farm ridge, 1,200 yards to the north, and four of his 14 tanks were knocked out. Lieutenant Karl Zindler's platoon of Major Reichardt's Panther Battalion launched a counterattack supported by artillery fire, but lost two panzers in turn. One was Zindler's, with two of his crew wounded when they bailed out. Leach recently wrote Zindler that it was probably Sergeant Bob Fitzgerald's B-13, mounting a new 76mm gun, that had knocked him out.

The German advantage was their longer-ranged tank guns. They lost that advantage in an attack that closed the range with the M4, and were more successful when they returned to dominating the position by fire. As Lieutenant Bill Marshall's C Company of Major Albin Irzyk's 8th Tank Battalion came up to relieve Leach's Team B, one of its tanks was also destroyed, and the Americans abandoned the town as not worth the cost.

These sharp, sudden clashes were to buy time, slowing the relentless American advance until the German border Westwall defenses themselves ("Siegfried Line" to the Allies) could be occupied. But the 11th Panzer was stretched thin, all along the Saar River line, its battle teams buttressing the depleted infantry units. Elements of Thieme's Pz.Gren.Rgt. 110 counterattacked the 35th Division at Obergailbach; and ten of Captain Rodenhauer's Panzer IVs were dispatched even further to the right to help con-



Karl Heinz Loschke, now secretary of the 11th Panzer Division Association, at right, with the author on a research visit to Braunschweig in 1989. Loschke served as an artillery officer with the 11th PD in Russia.

advance, enabling the Wehrmacht to regain the initiative. General Wietersheim felt his "cavalry tactics" carried out by even the smallest battle groups, were justified by the results. The "Gespenster" could take pride in reading a captured document in which the American XII Corps commander complimented the 26th Infantry Division, confronted by "some of the best German fighting forces," specifically the "tough and experienced 11th Panzer Division."

Conclusion

test the 90th Division's bridgehead at Dillingen.

The Westwall could be a formidable defensive line. Though the bunker apertures were too small for the antitank guns of 1944, the concrete pillboxes with machineguns were sited for enfilading fire to cover the minefields and "dragon's teeth" anti-tank traps, and they could be held by a minimum of troops. Major Arnold Kessler's assault guns covered the bunkers near Zweibrücken, and the role of the panzer *Kampfgruppen* was to counterattack any breakthrough. The Westwall could have been even more formidable, but the combat troops had been denied familiarization with the system because the Supreme Command wanted to discourage a "defeatist" attitude.

Patton's divisions which had borne the brunt of the November offensive in Lorraine were relieved by fresh units to recuperate; and on 16 December some 19 German divisions to the north launched a massive counter-offensive against the American lines in the Ardennes. The 11th Panzer had played its part in slowing the Allied

The 11th Panzer Division well represents the tremendous fighting ability of the German Wehrmacht, even as defeat loomed by 1944. Studies have been done to explain German fighting power, yet none are really satisfactory. An interesting attempt to measure fighting power through mathematical models rests on questionable data and methodology, and a conclusion in terms of Nazi ideology does not explain German combat effectiveness in 1870 or 1914-1918, well before Nazism. Leadership, training, weaponry, national character, and traditions all seem to be part of a complex formula. In the 11th PD a nucleus of capable and experienced unit commanders and NCOs, and a division commander of ability and dedication, used resourcefulness and imagination to continually assimilate ill-trained replacements, adapt tactics to adverse circumstances, and creditably carry out the missions given them.

The "Gespensterdivision" was rehabilitated in the Eifel while in OKW reserve, receiving new drafts and new equipment. In 1945 it would continue to fight, to the end, at the Orscholz

barrier, in the Rhineland, back across Germany, into Czechoslovakia. As tough a foe as it was, it could also abide by the recognized rules of warfare, and earn the respect of its enemies. In May of 1945, as the Red Army closed in from the east, General Wietersheim met with his commanders who agreed that a delegation approach the Americans to negotiate a surrender to avoid Russian captivity. On 4 May Wietersheim himself met with Brigadier General Herbert Earnest, who had commanded CCA of the 4th Armored Division and was now commanding the 90th Infantry Division. Earnest contacted General Patton, who responded that the 11th Panzer was the "fairest and bravest" German division against which he had fought, and that it be allowed back across the border. Colonel Hank Reed of the 2d Cavalry Group, who had arranged occasional truces with the 11th in Lorraine, stalled negotiations with a Soviet military mission while the columns of the 11th Panzer, depleted but intact, rolled into honorable, unguarded captivity at Kötzing, Bavaria. In subsequent years the American 2d Cav and German veterans would share joint reunions, with the motto: *Aus Feinden werden Freunde* - "Enemies become friends."

Source Materials

Essential for this study was correspondence and discussions with most of the veterans mentioned in the text. Karl Heinz Loschke, an officer in Pz.Art.Rgt. 119 on the Russian Front and Secretary of the 11th Panzer Division veterans' association, has been exceedingly gracious and helpful in facilitating contact between the author and the "Gespenster." The author met with Herr Loschke in Braunschweig in 1989, and was invited to the division reunion in Kötzing, Bavaria in May 1992. Attendance was supported by a research grant from the Professional Standards Committee of the Ohio State University, Newark Campus. Most valuable has been the materials and insights provided by Brigadier General (Ret.) William W. Molla,

a Captain in S-3 (Operations) of the 101st Infantry, 26th Division, who knows many of his former opponents. He generously shared work of his own on the 11th PD, some of which has been published in the division newsletter, "Yankee Doings." Louis T. Holz, Chairman of the 2d Cavalry Regiment Association, was instrumental in enabling the author to benefit significantly from the 11th PD reunion activities; and Martin Lange escorted the author through the Panzer-museum Munster Lager, and we started up Panther tank IIO1.

The 11th PD KTBs (*Kriegstagebücher* - war diaries) and reports are in NARS (National Archives and Records Service) Microfilm T-315, but the 1944 records for the West are lacking. Related reports and KTBs of LVIII Pz. Korps, Pz. AOK. 5, and H.Gr. G are on Microcopy T-314 Roll 1497, T-313 Roll 420, and T-311 Roll 141. Some monthly status reports (*Zustandsberichte*) in the Bundesarchiv/Militärarchiv in Freiburg, in RH 10/49, RH 10/217, and RH 27-11/135 are useful.

U.S. unit records are in NARS, Suitland, Maryland (e.g. 4th Armored Division in collection 604). Panzer Division 44 K.St.N.s are calculated from NARS Microcopy T-78 Rolls 393, 397, and 410, and U.S. T/O&Es of 12 February 1944 (T/O&E 17s) with battalion table changes, copies at the CMH (Center of Military History), Washington, DC, and the USAMHI (U.S. Army Military History Institute), Carlisle, Pa. The USAMHI, where John Slonaker has been quite helpful, also has oral history manuscripts, and the post-war accounts written by General Wietersheim himself, MSS #B-364, B-416, and B-417.

Published sources on the 11th Panzer Division include the division history, Obstlt. Anton J. Donnhauser and Generalmajor Werner Drews, *Der Weg der 11. Panzer-Division* (Bad Wörishofen, 1982), Gustav W. Schrodek, *Die 11. Panzerdivision: Bilddokumente 1940-1945* (Friedburg, 1984), copy provided by Major General (ret.) Raymond Mason (22d AFA/4th AD), and Schrodek's Pz.Rgt. 15 history, *Ihr*

Glaube galt dem Vaterland (München, 1976). Donnhauser commanded Pz. Gren.Rgt. 111 in Russia and Drews was division operations chief, Ia, and Schrodek was an officer in Pz.Rgt. 15. Jochen Menzel provided a copy of his *Der Löwe von Lyon* (Berg am See, 1988), Walter Schaefer-Kehnert his privately published *Kriegstagebuch in Feldpostbriefen 1940-1945*, and O'Gefr. Albrecht Englert his manuscript (with Oberst i.G. Brandstädter), *Kurze Geschichte und Zusammenstellung der Kämpfe der 19. Armee*.

Other studies are Jörg Staiger, *Rückzug durchs Rhönetal* (Neckargemünd, 1965) and Erich Spiwoks und Hans Stöber, *Endkampf zwischen Mosel und Inn: XIII. SS-Armee Korps* (Osnabrück, 1976). American operational accounts include the U.S. Army official histories Jeffrey J. Clarke and Robert Ross Smith, *Riviera to the Rhine* (Washington, DC, 1993) and Hugh M. Cole, *The Lorraine Campaign* (Washington, DC, 1950), and special U.S. Army Armor School studies like *The Nancy Bridgehead* (Fort Knox, Kentucky, 1946) and *Armor vs Mud and Mines* (Fort Knox, Kentucky, 1949-50).

Dr. A. Harding Ganz graduated from Wittenberg University in 1961 with a BA degree, and was awarded an MA degree from Columbia University in 1963. Commissioned from OCS, he served as a tank platoon leader with 3/37th Armor, 4th Armored Division, in Germany 1964-66. He received his Ph.D. from Ohio State University in 1972, and is now an Associate Professor at the OSU Newark, Ohio campus. His fields of specialization are Modern Europe and military history. He is a prior contributor to *ARMOR*.

M1A2 Tank Distribution

by Lawrence G. Vowels

Digital command and control will be a key component of future warfare. A fully digitized force can quickly assess the situation, make a sound decision, and disseminate this decision to the entire force fast enough to continually operate within the opposing force's decision loop. Unfortunately, with today's declining defense budget, we may not have the funding to totally digitize the force. Therefore the Army is seeking to find ways to spread the digital command and control benefits across the force in a cost saving fashion.

In November 1992, the Chief of Staff of the Army asked Training and Doctrine Command (TRADOC) to "look at the utilization of the M1A2 as a leader's tank, vice an everyman's tank." In other words, should select leaders receive the M1A2 tanks as opposed to providing everyone an M1A2 tank? This might provide most of the tactical benefits of digitized command and control at a fraction of the cost. The commander of TRADOC subsequently directed that Fort Knox investigate this concept. In its evolution, this concept became known as the Differential Distribution Concept.

There are substantial advantages to providing the armored force with a digital command and control capability. There is mounting evidence that digital battle command can maximize lethality, aid survivability, and increase the operating tempo of the force. To date, however, the limited exploration of this ability and its benefit has been primarily through simulation. The key differential distribution issues which we sought to resolve were: Will differential distribution work? What are the problems with differential distribution? A two-pronged approach was used to examine the concept. The first used man-in-the-loop simulation in the Mounted Warfare Test Bed (MWTB) at Fort

Knox. The second approach was a limited examination of the concept during the National Training Center (NTC) rotation 93-10 of the 3d Battalion, 8th Cavalry, 1st Cavalry Division. This article outlines the advantages and disadvantages discovered by employing the differential distribution concept in the armor force. The advantages and disadvantages principally reside in the areas of operational effectiveness, logistics, maintenance, training, and operational suitability.

One important consideration is that the M1A2 tank was not designed solely to provide an improved digital command and control capability. The M1A2 tank provides other improvements in the areas of lethality, through the commander's independent thermal viewer (CITV), situational awareness via the inter-vehicular information system (IVIS) and position location and navigation device (POSNAV), and reliability and maintainability with the data bus architecture. These features ensure that the M1A2 is a

much more capable fighting vehicle than the M1A1. Distributing M1A2 tanks only to leaders reduces maximum potential fightability from the remaining tanks in the platoon and company and degrades overall unit fighting potential.

The differential distribution analysis examined three alternative distributions of the M1A2 tank within the tank company. These alternative distributions are as follows:

- All tanks in the company are M1A2 tanks (M1A2 pure).
- The company commander, platoon leaders and platoon sergeants are in M1A2 tanks. The rest of the company are in M1A1 tanks (PL/PSG).
- Only the company commander and platoon leaders are in M1A2 tanks. The rest of the company are in M1A1 tanks (PL only).

These alternative distributions are displayed in Figure 1.

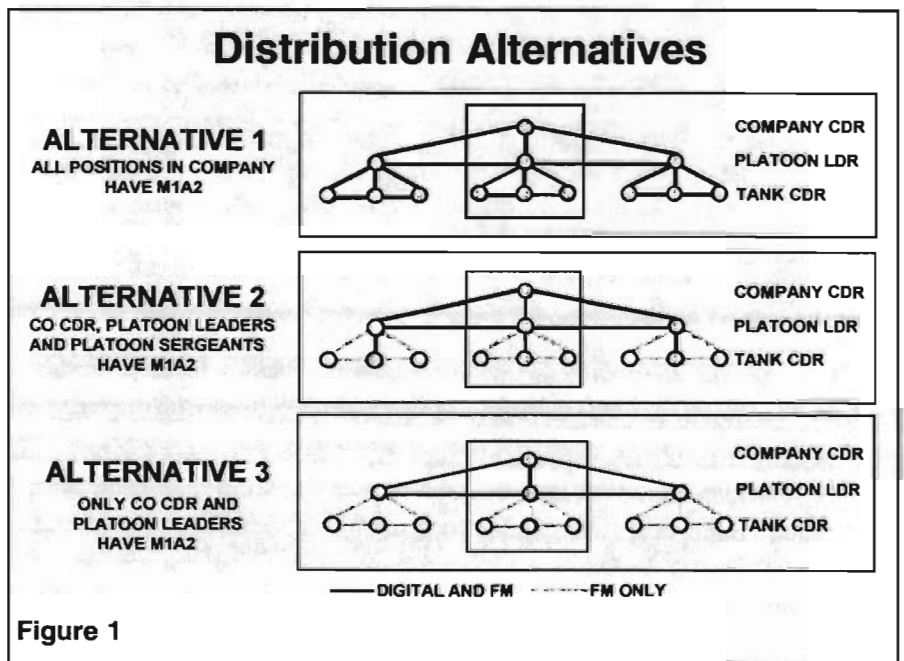


Figure 1

Operational Effectiveness

Examination of the operational effectiveness of the alternatives took place within the man-in-the-loop simulation of the Mounted Warfare Test Bed (MWTB) at Fort Knox using a series of specially constructed scenarios. The examination included a number of iterations of the alternative tank companies fighting against the threat forces via simulation. The threat force included a platoon-size element that defended against the company and an attacking force of 21 tanks that assaulted the company battle position. Data collected both manually and through the automated data logger addressed the objectives of the evaluation.

Examination of the three alternatives' effectiveness was accomplished by comparing the number of enemy tanks killed for each of the company tanks lost during the scenario. This measure quantifies the effectiveness of the alternative in terms of killing of the enemy. Alternative 1, the all M1A2 force, achieved a slightly better score than the other two alternatives, as shown in the following table. The increase in target engagement by the M1A2-pure company and the improved survivability afforded the company through improved situational awareness combined to provide the difference in effectiveness.

Alternative	Effectiveness
M1A2 Pure	3.34
PL/PSG	3.00
PL Only	2.60

Figure 2. Effectiveness Comparison

Additionally the following criteria were employed to examine the differences between the alternatives:

- **Mission completion rate**, defined as the percentage of iterations where the tank company defeated the threat force and retained at least 40 percent strength. This is a criterion that inves-



An M1A2 of A Company, 3-8 Cavalry, 1st Cavalry Division maneuvers during the test rotation at the National Training Center that compared several M1A2 unit organizations.

tigates the success of the tank company in defeating the threat force while retaining combat power.

- **Messages received** is the number of digital and voice messages received at the platoon leader and company commander position. This criterion, and the one following, measure the workload at the key leadership positions within the company.

- **Messages sent** is the number of digital and voice messages sent by the platoon leader and company commander.

- **Number of targets engaged** is the number of different threat vehicles engaged by the alternative tank companies. This measure, and the following one, examined the speed of the engagement of the threat forces by the alternative tank companies.

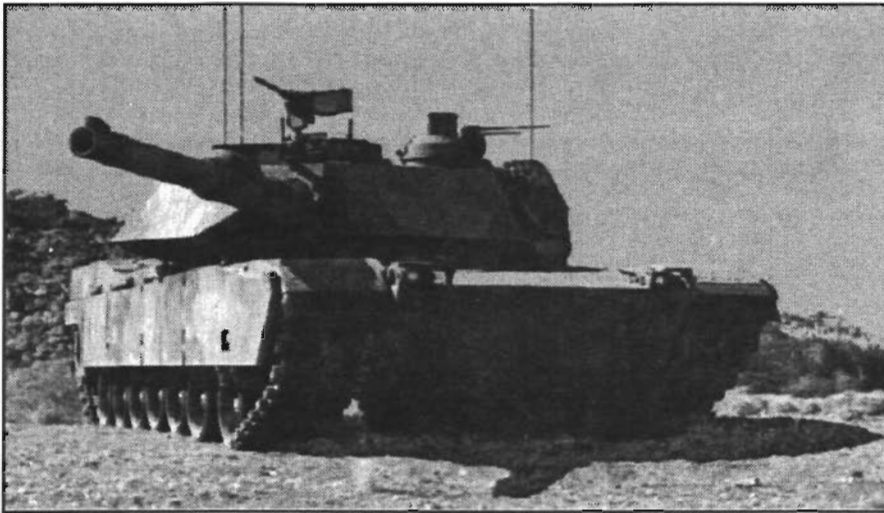
- **Tank engagement range distribution** is the ranges at which the alternative tank companies engaged the threat force.

Analysis of the criteria indicates that the all-M1A2 alternative completed more missions, sent and received fewer messages at the platoon leader position, and achieved more target hits than the other alternatives. This indicates that the M1A2-pure alternative was more operationally effective than either of the mixed M1A1 and M1A2 companies.

During the July time frame, while this analysis was taking place in simu-

lation, the 3d Battalion, 8th Cavalry, 1st Cavalry Division was participating in a rotation at the National Training Center (NTC). While participating in this rotation, the unit was equipped with 17 M1A2 tanks distributed so that one company commander had two full platoons of M1A2 tanks while he was commanding from an M1A2. Another company commander was equipped with an M1A2 tank but the two tank platoons under him were equipped with M1A1 tanks. This distribution of tanks allowed for a comparison between the company with M1A2 tanks at platoon level and the M1A2 commander-only company.

The NTC rotation provided several key insights. The dissemination of information was more complete with the platoon-level M1A2 company team. The platoon-level M1A2 company was given more missions than the commander-only company. This may have occurred due to battalion commander's perception that the platoon-level M1A2 company had enhanced capabilities. The platoon-level M1A2 company reported to the tactical operations center more frequently than the commander-only M1A2 company. The commander-only M1A2 company had difficulty commanding the unit via voice communications while simultaneously communicating with battalion digitally. Additionally, the commander-only M1A2 company lost critical information from the tactical operation center when their vehicles were destroyed or inoperative.



Mixing M1A2s in M1A1 units would present added problems in maintenance, training, manning, and communication between IVIS and non-IVIS vehicles, the study revealed.

Switching to another tank in the company doesn't enable the commander to pick up this information if no other tanks in the company are digitally equipped.

Logistics/Maintenance

A mix of M1A1 and M1A2 tanks will cause the number of class IX repair parts carried on the prescribed load list (PLL) and authorized stockage list (ASL) to increase at the organizational and direct support levels. This could cause inflation of the cost of the PLL and ASL over that of the pure M1A1 or pure M1A2 tank unit. This increase in PLL and ASL size increases the requirement for transportation of the class IX repair parts. Thus, the all-M1A2 alternative is the preferred alternative from the logistics aspect.

In the mixed M1A1 and M1A2 unit, maintenance personnel would be required to maintain two different tanks. This would necessarily lead to less proficiency by the maintenance personnel and a less efficient maintenance effort. Separate diagnostic tools and special repair tools for both tanks would be required by the maintenance personnel. The M1A2, with its built-in test equipment, requires significantly fewer diagnostic tools than the M1A1 tank. An insight developed from the NTC rotation revealed the built-in test equipment of the M1A2 was a time saver and well liked by the mainte-

nance soldier. Savings in test equipment would not be achieved if the unit is composed of M1A1 and M1A2 tanks. From the maintenance aspect, the all M1A2-equipped unit is preferred to the mixed M1A1 and M1A2 equipped unit.

Training

Units owning M1A1 and M1A2 tanks face additional training challenges compared to pure M1A2 units. New equipment training team support requirements increase due to the proliferation of M1A2 tanks across a larger part of the armor force. Differential distribution would require each unit conduct crew training in a manner that would separate M1A1 and M1A2 crews except for the most common soldier tasks. This would have a significant impact on the platoon leader and platoon sergeant in planning and conducting training. If attempting cross training of crews, it would necessarily lead to less individual proficiency, due to the differences in the crew stations of the two tanks. If the difference in the tanks causes the military occupational specialty (MOS) of the crewmen to be different, this would have a negative impact on the training base for both tanks.

Additionally, having two different types of tanks in the platoon and company would exacerbate the effects of crew turbulence. Training in battalions with mixed tanks would require each

battalion have two different sets of training devices such as conduct of fire trainers (COFT), tank weapons gunner simulation systems (TWGSS), and close combat tactical trainers (CCTT). Additionally, more training devices such as these would be required if M1A2 tanks were more widely distributed across the armor force.

Gunnery training would be more difficult in units with two tanks due to the two tanks firing different tank tables and having two different methods of scoring. This would exacerbate the range facility and time management problem for those in charge of training. In the training leading up to the NTC rotation, the 3/8 Cavalry fired both the M1A1 and M1A2 gunnery tables.

Alternative 3 displays another glaring deficiency in the training arena. Since the platoon leader's and company commander's tracks are the only M1A2 tanks in the company, there will be a lack of trained noncommissioned officers (NCO) to provide unit training on the M1A2 tank to the platoon leader and company commander. The maximum level of expertise for the NCO on the M1A2 tank would be the gunner position. Only one third of the gunners would have experience on the M1A2 tank, and that experience would have taken place a number of years (3-4) prior. The new platoon leader will have to be fully trained in all aspects of the M1A2 tank in the basic course for there will be no NCO who has commanded the M1A2 tank in the unit.

From a training perspective there can be no doubt that the all-M1A2 equipped unit is the preferred alternative.

Operational Suitability

The most significant operational problem associated with differential distribution is the obvious requirement for leaders to be able to communicate via two channels (i.e., FM voice and digital burst). In effect, the commander or leader is required to process the digital information from higher

into a form that could be passed to his unit either in hard copy or over FM voice radio. This causes the unit to lose some of the potential benefits of digital command and control such as time savings and accuracy of information. Additionally, the commander or leader would spend a significant amount of time collating reports from his unit and preparing them in a digital format so they can be transmitted digitally up the chain of command. The time spent in collating the reports would degrade the commander's or leader's ability to "fight" the unit. Lethality enhancements, such as the CITV, will go unused due to demand on the commander's or leader's time for communications management, especially during times in contact when the CITV would be critical. These last two reasons figure prominently in the decreased operational effectiveness displayed by the companies of mixed M1A1 and M1A2 tanks.

In alternative 3, the lack of M1A2 redundancy within the platoon will force the platoon leader to operate with a backup system for the functions provided by the M1A2. This means the platoon leader would be required to keep a hard copy of all graphics and overlays in case the M1A2 tank was not mission capable due to equipment failure or combat loss. The fact that there would only be one M1A2 tank in the platoon and it is the most capable tank may cause commanders and leaders to attempt to maximize the M1A2's capability rather than maximizing the overall capability of the platoon. This could re-

sult in the two wingmen always being in the follow-and-protect-the-leader mode, thus, denying these tanks and crews the training and situational awareness necessary to complete the mission should they be deprived of their leader.

Therefore, alternative 1 (i.e., the pure M1A2 alternative) is preferred when comparing the operational suitability of the differential distribution concepts.

Conclusions

Figure 3 summarizes the findings of the differential distribution concept by simulation and the NTC rotation.

Equipping an armor force with the M1A2 tank improves its lethality and situational awareness in addition to providing the means of digitally transmitting information. The increase in lethality and unit awareness is key when considering the fielding of the M1A2.

The all-M1A2 force enjoys an operational effectiveness advantage over the mixed M1A1 and M1A2 force. The all-M1A2 force is also preferred from a logistics, maintenance, training, and operational suitability frame of reference.

The evidence overwhelmingly favors equipping the armor force with pure M1A2 units rather than units with a mixture of M1A1 and M1A2 tanks. If, due to cost or other reasons, the armor force must differentially distribute

Lawrence G. Vowels received a BA in Mathematics in 1970 from Bellarmine College in Louisville, Ky., and an MS in Engineering Management from the University of Louisville in 1980. A career civil servant, for the last 13 years he has worked as an Operations Research Analyst in the Analysis Division, Directorate of Combat Developments, Ft. Knox, Ky. He has also worked for the U.S. Army Reception Station, Directorate of Industrial Operations, Comptroller, Management Information Systems Officer, and U.S. Army Armor and Engineer Board, all at Ft. Knox. He also worked for the U.S. Army Corps of Engineer and Naval Ordnance Station in Louisville.

M1A2 tanks, it is important that as much redundancy as possible be retained at the platoon, company and battalion level.

Sources

Major General Wesley K. Clarke, "Digitization: Key to Landpower Dominance," *ARMY*, November 1993, p. 28.

CPT Wade L. McVey, "The M1A2, IVIS, and NTC — A Company Commander's Perspective," *ARMOR*, November-December 1993, p. 35.

	Effectiveness	Logistics/Maintenance	Training	Operational Suitability
M1A2 Pure	Most Effective	Least Maintenance Burden EBIT/BITE works well	Least Training Challenge Minimizes Effects of Crew Turbulence Provides Solid NCO Base	Each Tank More Fightable Redundancy of Equipment No Voice to Digital Translation Required
PL/PSG	Less Effective	Increase Spare Parts Increased Special Tools Two Sets of Diagnostic Equipment	Increased Training Challenge Increased Training Devices Two Sets of Gunnery Tables	Limited Redundancy Increased Voice to Digital Translation Required
PL Only	Least Effective	Increase Spare Parts Increased Special Tools Two Sets of Diagnostic Equipment	Increased Training Challenge Increased Training Devices Two Sets of Gunnery Tables No Experienced NCO Base	No Redundancy Increased Voice to Digital Translation Required

Figure 3. Summary Information

The AGS in Low-Intensity Conflict: Flexibility Is the Key to Victory

by Captain Scott Womack

Throughout the history of arms some leaders have had the foresight to see beyond the conventional wisdom of their era and employ their forces in an unexpected manner, often with resounding success. King Henry V of England destroyed the army of King Charles VI of France at Agincourt with his innovative use of the long bow, which marked the demise of the mounted warrior in the West for over 500 years. William T. Sherman avoided the costly Napoleonic battles called for by contemporary doctrine in the American Civil War and relied on maneuver to defeat his foes — an idea as effective as it was ahead of its time. Heinz Guderian's acceptance and refinement of the then-radical concepts of J.F.C. Fuller and B.H. Liddell-Hart, coupled with technological progress in mechanization, led to the development of the mounted warrior as the decisive element on the battlefield. Although the ideas presented in this article pale in comparison to the revolutionary brilliance of the above examples, its motif is the same: no single tactical solution can be successful in every situation. Innovative and creative use of the Armored Gun System (AGS) in Low-Intensity Conflict (LIC), rather than blind adherence to dogmatic school solutions, will enhance the effectiveness of the combined arms team and is a key part of making the AGS the truly invaluable asset it should be to light, airborne, and special operations forces.

One effective method of employing the AGS in a LIC environment is attaching platoons or sections of tanks to dismounted infantry units simultaneously operating in several different areas. This may conjure images of such debacles as use of "penny pack-



ets" of tanks supporting infantry at the Somme in 1916 or in France in 1940, but these examples occurred in a more "traditional," linear setting. The history of armor is replete with examples of "independent tank sections" that contributed far more than the sum of their parts, particularly in LIC. Use of armor in Vietnam was not limited to large regimental cavalry or task force-sized operations such as Operation JUNCTION CITY in 1967. Platoons or sections often operated alone, attached to infantry units or escorting convoys. Ralph Zumbro's book, *Tank Sergeant*, contains countless examples of such independent action and clearly demonstrates the terrific impact that even a pair of tanks can have in a LIC situation and validates their employment in small numbers. Other more recent examples of effective section-sized armor employment occurred in Panama during Operation JUST CAUSE in 1989-1990. The M551A1 Sheridans of C Company, 3-73d Armor used their unique capabilities to provide decisive combat power to light forces as diverse as the 82d Airborne Division, 7th Infantry Division, and U.S. Army Special Operations Forces. Sheridan main guns breached the walls of Panamanian dictator Manuel Noriega's military headquarters, silenced sniper fire from buildings, and destroyed vehicles commanded by the Panamanian Defense Forces (PDF). Clearing buildings be-

came a less tedious and dangerous process for the infantry after main gun fire destroyed a few machine gun or sniper locations inside. The PDF and its irregular counterpart, the "Dignity Battalions," quickly learned to respect the M551A1 and the mere appearance of one would create instant quiet and often produce a gaggle of enemy prisoners of war. Sheridans also provided valuable service as bulldozers to push through improvised PDF roadblocks, and as convoy escorts, recovery vehicles, checkpoint enforcers, and as a mobile show of force. These two wars provide a host of examples of using tanks in less than company strength with outstanding success. Other, more conventional wars also establish this precedent, but are outside the scope of this article.

Any manual addressing employment of the AGS should devote some space to its use in unconventional roles such as those mentioned above. While the adage "more is better" applies in AGS employment, the limited numbers available in contingency operations, which often rely on our limited airlift capability, must force the armor community to adapt a more open mind toward flexible use of armor. Using the AGS in small numbers over larger geographical areas in a more independent role is a more common-sense approach to armor employment in LIC, particularly when only a few are

in theater. To wait for an entire company to arrive and then use it in its entirety to eliminate one sniper or to man one roadblock is inefficient when one section or platoon could execute that same mission while the others are doing the same thing elsewhere. This theory may seem to violate the principle of mass, but one must consider the nature of LIC and its relationship to mass. Rather than one decisive time and place, a *Schwerpunkt*, there may be many at once. Given the fact that limited numbers of the AGS will be available in the event of an operation such as JUST CAUSE, spreading them out with small teams of light infantry will help them simultaneously attack several centers of gravity with combined arms teams. If time and METT-T permit, more traditional armored combat may result. To say that the AGS "must" be employed in "x" sized units or for "x" missions only is to tell our contingency forces not to bother bringing it at all. There are many specific missions the AGS can fulfill that any manual dealing with the AGS should address. Since the AGS will primarily work with light forces, operations with dismounted infantry on and around the vehicle will be common. Employment considerations must include communications with dismounts, on- and off-loading procedures, actions on contact with infantry on board, risk management

AGS Platoon Support Package

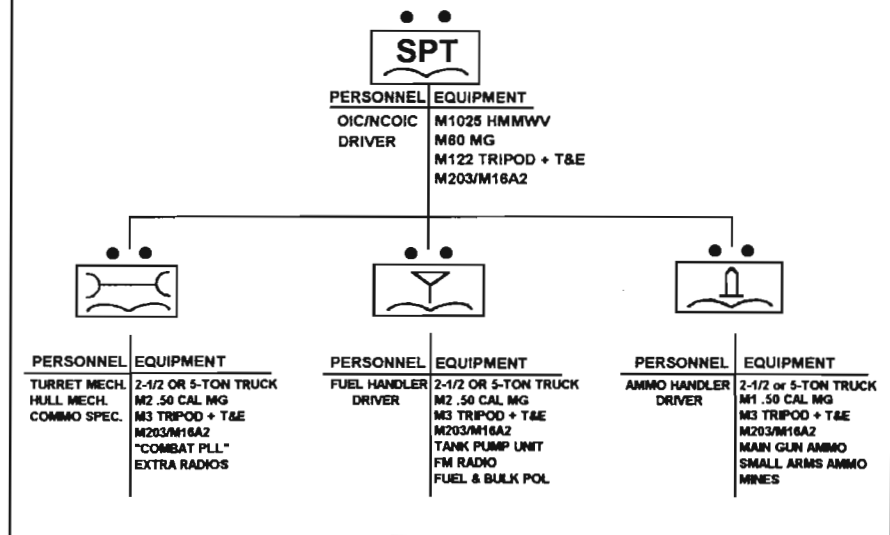


Figure 1. This is one proposal for an AGS platoon support package that has worked well supporting M551A1 Sheridans during JRTC and NTC rotations. It normally locates with the light infantry's combat trains until the rest of the AGS company arrives in theater.

with dismounts, etc. The lost art of using the main gun as artillery may become useful. Sniper tanks, armor ambushes, roadblocks, and building clearance operations should all be a part of the AGS platoon's bag of tricks and part of any manual discussing it. The inherent shock effect of any armored vehicle, even a light one, can be a valuable part of a psychological operations plan. Tracked vehicles such as the AGS offer vastly su-

perior mobility on a battlefield strewn with wreckage, broken glass, and other debris. This mobility edge makes the AGS useful in route proofing and clearing, convoy escort, and recovery operations. The special features currently planned for the AGS can greatly assist light infantry, which is incapable of carrying them in a rucksack. Thermal sights, dual radios, the commander's independent thermal viewer, laser rangefinder, pioneer tools, and the invaluable bustle rack are examples of things the AGS can contribute to the light forces that heavy forces take for granted. Chapter Six and Annex B of FM 17-123 provide a solid foundation for these types of missions, but the AGS manual needs to address them in more detail. The AGS provides light forces with a strategically and tactically mobile system with plenty of firepower and lots of extras. Using it in a variety of ways as METT-T dictates can only enhance its value on the LIC battlefield.

To help units equipped with the AGS work more effectively in an independent role with light forces, some modifications should be made to both the vehicle and the unit's Table of Organization and Equipment (TO&E). The AGS needs some form of infantry railing for dismounts to hold onto

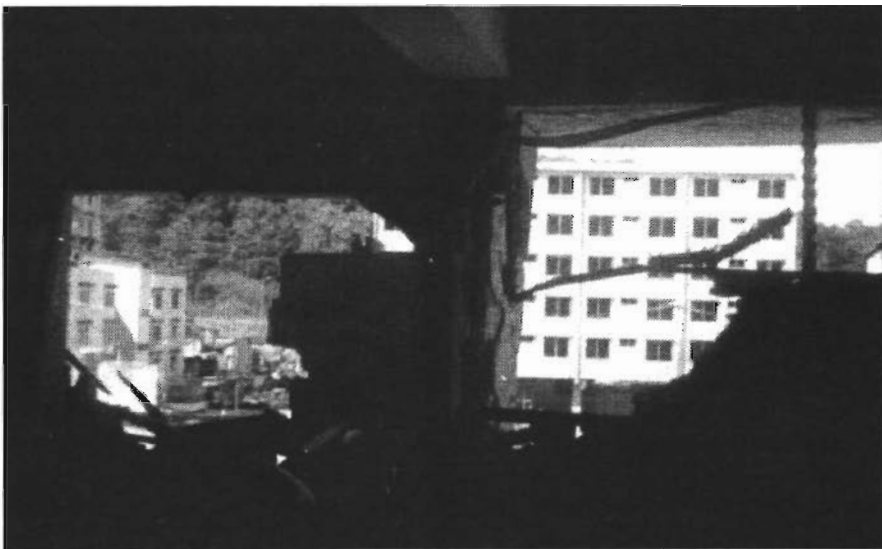


PHOTO: CPT Kevin Hammond

During Operation JUST CAUSE, Sheridan main gun fires were very effective against the reinforced concrete walls of La Comandancia, General Manuel Noriega's headquarters.

when riding on the vehicle. A spacious bustle rack for storage is a must. A handset for the infantry leader to communicate with the vehicle commander and crew, similar to the one on the M551A1, is an important communications tool. An auxiliary power unit would reduce fuel consumption, battery drain, and thermal signature. Ballistic solutions and storage for anti-personnel and incendiary main gun rounds would increase the main gun's versatility. Each vehicle should have dual net capability to facilitate command and control of the widely scattered tankers and infantry. A multi-fuel engine would help keep the tanks rolling despite our light forces' limited logistic support system. Each AGS needs its own tow bar and grappling hooks for obstacle clearing and recovery operations. An air compressor with pneumatic automotive and pioneer tools, a water filtration device, and an M203 grenade launcher are all worthwhile add-ons. Plenty of add-on armor is also a must to help the AGS survive once it gets in country. If many of these ideas sound familiar to faithful *ARMOR* readers, they should; Ralph Zumbro addressed the need for these and other items in his excellent article entitled "Independent Operations" in the September-October 1993 issue of *ARMOR*. The list of items that could help the AGS do its job is limited only by the rich imagination of the armor community.

Deploying the AGS by air and employing it over widely scattered areas creates some special logistic problems requiring creative solutions that see beyond our normal mode of supporting armor units. Whenever the AGS deploys, even in platoon strength, the AGS unit should send a logistics package with it. Past experience shows that contingency forces cannot cope with the amount of fuel, ammunition, and repair parts needed for armor units as small as a platoon; their logistics tail is simply inadequate. Sending the company executive officer or a senior noncommissioned officer with a maintenance team in a truck, a fuel truck, and an ammunition truck for one platoon seems like overkill, but the platoon logistics cell works well, as rotations to the Na-



Soldiers of C Company, 3-73 Armor, perform suspension maintenance on a Sheridan at Tocumen Airport during Operation JUST CAUSE.

Author's Photo

tional Training Center, Joint Readiness Training Center, and combat in Panama have proven. The logistics cell can also assist the deployment of the rest of the AGS company and continue its support once the company arrives in combat. Having the XO there early also helps with follow-on deployments and keeps the platoon leader free from excessive worry over where his next meal will come from. Modification to the current TO&E to place maintenance and cooks back in line companies would help AGS units deploy more efficiently and fight more cohesively. Pathfinder training for personnel assigned to AGS units would help resupply operations, which are frequently done by air in light units. Meeting the unique challenges supporting the relatively low numbers of AGSs that are likely to deploy with widely scattered light forces is a challenge that requires creativity and flexibility.

Making the logistic system, employment doctrine, and the actual hardware of the AGS more flexible than is currently the case is the best way to enhance its effectiveness in a LIC situation. Study of the historical record shows ample precedent for use of small numbers of armored vehicles in an effective role. To teach armor leaders to "never" employ independent sections or platoons is to deny them the chance to develop a skill that may one day save their lives, as well as those of a great many of our infantry brethren. Experimentation with these roles at combat training centers now, where the only potential cost is pride,

is superior to rejecting them out of hand and then having to use them on some far-off drop zone where the cost could be much higher. Hopefully, this article has provoked some thought about alternate missions for armor in LIC and has served as a catalyst for open-minded discussion about the AGS's role. To quote General George S. Patton, "There is no approved solution to any tactical situation."

Captain Scott E. Womack, a native of Atlanta, Ga., graduated from the U.S. Military Academy in 1986 with a Bachelor of Science degree in Military History. He was commissioned in Armor and has served as a tank platoon leader, scout platoon leader, company XO, and assistant S3 (Air) in the 82d Airborne Division's 3d Battalion (Airborne), 73d Armor. He commanded A Co., 2d Battalion, 13th Armor, Ft. Knox, Ky., for 17 months, and currently commands HHC, 2d Battalion, 13th Armor. He is a graduate of AOBC, Airborne School, Jumpmaster School, Pathfinder School, Canadian Airborne School, Ranger School, AOAC, and the Combined Arms and Services Staff School.

The Immediate Attack and the Attack of Opportunity

by Captain Jeffrey N. Stowe

Introduction

Recent experience in Operation DESERT STORM has revealed a weakness in the method we currently use to train the hasty attack. We are allowing units more preparation time than they can realistically expect during a future conflict. One possible explanation is that most unit leaders are inexperienced in working with one another. The extra time allows units to work out the details of how they will conduct the attack. This causes several problems during actual combat operations. Some units will not be able to adapt to reduced planning time, simply because they have never practiced it. The most serious problem is that some units will not formulate standardized plays, since they are always given the chance to discuss and rehearse their attacks. Without these plays, the unit will be condemned to fail when given a mission to attack with limited preparation time. The capability to attack quickly is critical if we are to be able to exploit enemy weaknesses on the modern battlefield.

Current Training

During a typical National Training Center rotation, a blue force battalion/task force will conduct several hasty attacks. The hasty attack mission is normally received from brigade through a detailed warning order followed several hours later by a written order with graphics. The brigade order specifies the LD time and severely restricts the size of elements which can cross the LD to conduct reconnaissance. This order includes very specific intelligence on enemy composition and suspected disposition. The task force is then given a minimum of 10 hours to plan, rehearse, and conduct reconnaissance. Most units utilize this time effectively by templating probable enemy courses

of action, wargaming various friendly courses of action, preparing and briefing a written order, conducting detailed rehearsals, and conducting reconnaissance using the task force scouts or other recon assets.

DESERT STORM

Two hasty attacks conducted during DESERT STORM and described in *ARMOR* Magazine are typical of the limited preparation time many units received. On 26 February, 1st Brigade, 1st Infantry Division was over 80 kilometers into Iraq when the brigade stopped at mid-afternoon to refuel. The brigade then received a change of mission over the radio to attack east to destroy the Tawakalna Division. The start point time was established as 1730. During the two hours of preparation time, the brigade produced a rudimentary operations order which gave only a mission statement, a series of way points defining the direction of attack, three objectives, and a limit of advance. At 1730, the brigade began movement, conducted a hastily planned passage through 2d ACR and attacked to destroy the remainder of the Tawakalna Division, including several hundred armored vehicles.¹

On the morning of 28 February, 2d Squadron, 3d Armored Cavalry Regiment was located approximately 20 kilometers west of the Ar Rumaylah Airfield. After completing stand-to procedures, the squadron was notified that a cease fire would go into effect at 0800 local. At 0922, the squadron received orders to conduct a hasty attack to secure a friendly helicopter crash site near Ar Rumaylah Airfield. At 0945, E and G Troops crossed the line of departure and attacked to destroy several tanks, ZSU-23-4s, numerous dismounts, and secure the airfield.²

In both of these attacks, the amount of preparation time was limited to less than three hours. In both attacks the mission was received by radio, as were the graphic control measures to be used. In the case of 1st Bde, 1st ID, this was followed up with a brief written order and face-to-face coordination with the battalion commanders. Both the battalion staffs did not have enough preparation time to issue a written order. The amount of intelligence available to the battalion staffs varied. In one case, the composition of the unit defending was known but not his disposition. In the case of the Tawakalna Division, the intelligence was several weeks old and only gave a rough location and composition of the enemy forces. Both units relied primarily on intelligence that they gathered for themselves.

Standardized Plays

With the limited information available, the units executed a standardized play which they had previously rehearsed. These plays provided the company commanders a basis for how the attack would be conducted, and allowed the units to attack quickly, without having to stop to conduct detailed planning. From these plays, the units were able to issue fragmentary orders to make minor modifications to react to situations which had not been rehearsed. A typical task force may have as many as ten to twelve plays or as few as five to seven. These plays address common situations the task force is likely to encounter. Typical plays include actions such as attacking through a defile, hasty breach, bypass of a stationary enemy unit, hasty attack by fire, etc. These plays stress habitual relationships and missions for company/teams and platoons. An example of a typical play to conduct a hasty attack by fire is shown in Figure 1.³

Immediate Attack and Attack of Opportunity

Two new training methods should be introduced to better train the hasty attack; the immediate attack and the at-

tack of opportunity. In the immediate attack scenario, battalion/task forces should receive the mission to attack through a brigade fragmentary order issued by radio. The order should include some updated intelligence, a mission statement, checkpoints, phase lines, objectives, and limits of advance. The time of execution should be limited to less than three hours, and there should be few limitations placed on the size force the battalion may use to conduct reconnaissance. During the planning time, some additional intelligence should be introduced to replicate intelligence sources at levels above brigade. Because of the limited planning time, the battalion will be forced to use a standardized play to conduct the attack instead of an elaborate and well rehearsed plan. The battalion will also be forced to use company/teams in addition to the scouts to conduct reconnaissance and will also be much more dependent on the success of their reconnaissance effort.

In the attack of opportunity scenario the battalion receives the hasty attack mission with a not later than mission execution time seven or eight hours in the future. The opposing forces are then arrayed in a very vulnerable situation from which they quickly recover. An example would be a MRC establishing a defense. Initially, there are few obstacles and enemy vehicles are not dug in. This vulnerability is then quickly reduced within the next three to five hours. If the blue force uses all of its preparation time, then the chances of a successful attack decrease. If it recognizes the weakness and conducts a true hasty attack, using a standardized play, then its chances of success are greatly increased. This scenario forces units to conduct aggressive reconnaissance and to depend more on its own recon assets for intelligence.

The goal of these new scenarios is to train units to operate on compressed time schedules, to rely more on standardized plays, rather than detailed planning, and to train to conduct reconnaissance depending primarily on their own assets. If the enemy is arrayed in a much stronger position, then a deliberate attack plan can be developed. The 37th Tank Battalion,

commanded by LTC Creighton Abrams, conducted several hasty attacks in World War II, which demonstrate how we should plan and conduct the hasty attack.

Once things got moving on a day's operation, they would never return to the command post. If more orders had to be issued, Abrams would do it over the radio, or gather a few leaders around his personal map or one hung on the side of a half-track...

In issuing orders, brevity was the rule. Checkpoints, an axis of advance, objectives, and a few other reference points were specified. Task organization, time of departure, order of march, and so on were just grease-penciled on the map....

It was very simple, very basic, very clear, with seldom a need for questions when we got through.⁴

Conclusion

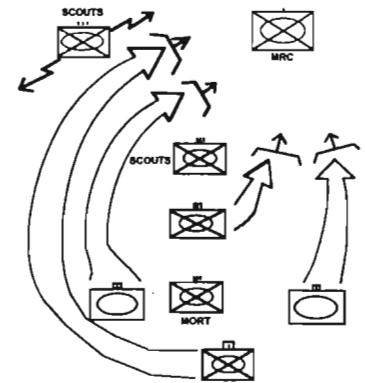
AirLand Battle Doctrine emphasizes the offensive capability of our heavy armored force.⁵ We train our subordinate leaders to take risks and to be bold, innovative, and aggressive. The objective of the commander is to maneuver to position friendly strength against enemy weakness, throw the enemy off balance, and aggressively follow up to complete the enemy's defeat and destruction. Unlike DESERT STORM, during any future conflict we must expect our opponent to act quickly and decisively to react and counter our attacks. If we are to react quicker than our opponent, our units must be able to execute simple standardized plays and conduct planning within a few hours. Nearly every unit will be able to accomplish this if they are given the opportunity to train and practice a more realistic hasty attack during an NTC rotation.

Notes

¹Colonel Lon E. Maggart, "A Leap of Faith," *ARMOR Magazine* (January-February 1992), pp. 24-32.

²CPT Puryear and LT Haywood, "Ar Rumaylah Airfield Succumbs to Hasty Attack," *ARMOR Magazine* (September-October 1991), pp. 16-20.

Hasty Attack by Fire



1. Scouts come under fire, move to covered position, report, call for fire.
2. Lead co/tm establishes base of fire.
3. Right co/tm moves on line, provides supporting fire.
4. Left co/tm and trail co/tm move on enemy flank, destroy by fire.
5. Scouts move to screen exposed flank of TF.

Figure 1.

³LTC(P) Michael W. Parker, "TF 1-5 CAV TACSOP," 16 January 1992.

⁴Lewis Sorley, *Thunderbolt: General Creighton Abrams and the Army of His Times*, (New York, Simon and Schuster, 1992), pp. 55-56.

⁵FM 71-3, *Armored and Mechanized Infantry Brigade*, 1988, p. 1-2.

Captain Jeffrey N. Stowe is currently an assistant S3, 1st Armor Training Brigade, Ft. Knox, Ky. A 1988 graduate of the University of North Carolina at Charlotte, he is a graduate of the Armor Officer Basic and Advanced courses. He was previously assigned to B Company, 1-5 Cav, 1st Cavalry Division, where he served as a tank platoon leader, and during Operations DESERT SHIELD and DESERT STORM, as company XO. After returning from DESERT STORM, he served as the 1-5 Cav scout platoon leader. He has participated in two NTC rotations.

NEOs: The New Mission

by Captain Robert L. Bateman

The noncombatant evacuation operation (NEO) is not a new concept for the Armor community. For decades the contingency plans have been rehearsed and refined for the evacuation of U.S. dependents of our forces in Europe had the Russian bear ever come crashing across the border. Now however, this threat is dissipated and NATO looks in new directions for missions. One of those missions may be peacemaking. For the American forces, another mission may well be the evacuation of United States civilians from an area of unrest. How would the mounted force be integrated into that mission?

Armies have conducted NEOs since men rode to war in wicker chariots. Since then, the mission has changed little — basically, get your civilians out of harm's way. In the past 30 years, however, our nation's ability and need to do so upon occasion have increased dramatically. Traditionally, this has been the province of the U.S. Marine Corps and the Fleet Marine Force. More recently, it has become one of the major contingency missions of the U.S. Army light infantry divisions. Now, perhaps, it will expand to include the armored force as well.

The mission in a NEO is simple: move U.S. civilians and allied personnel out of the area of actual or potential hostilities. The reality can be staggeringly complex, involving Army, Navy, Air Force, and Marine personnel in addition to interacting with the civilians themselves. Also, with the whole of the operation coming under State Department control, the potential for miscommunication, misunderstanding, and plain old disagreement is definitely present.

On the battlefield, the mounted force is prized for its flexibility, ability to maneuver at high speeds, and to gain and retain a firepower advantage. All of these characteristics can prove instrumental in successful NEOs.

In many of the light infantry divisions, the NEO is now the primary contingency mission. Liberia, Panama, Grenada, DESERT ONE, Saigon, Operation Eastern Exit, and Son Tay are all examples of the modern NEO mission. All of these missions, executed by Marines, Special Operations, or line infantry, were dependent most upon the basic light infantry skills of the men who actually hit the ground to contact, collect, process, and evacuate the civilians in the area. Despite this, it hasn't been until recently that the U.S. Army has begun to train for these very complex missions.

There is no published doctrine on how the Army will conduct NEO missions. Very little has been produced at any level on the subject. The 82d Airborne has a NEO handbook, as does the 7th ID(L). At the time of this writing, the 25th ID(L) had perhaps gone the furthest with a complete NEO MTP created by its 3d Brigade. Still, all of this thought and work has aimed toward one specific community, the light/airborne infantry. Little to no thought has been applied to the issue of how the mounted force might be integrated into these missions.

What Is a NEO?

A NEO mission may loosely be defined as any military operation that has as its primary focus the collection, processing, and movement of civilians out of an actual or potential combat zone or area of civil unrest. Civilians may be U.S. citizens, allied civilians, indigenous personnel, or anyone that the U.S. State Department deems appropriate. In addition, the threat level may vary dramatically. Admittedly, this definition covers a wide range of possible scenarios, which is why NEOs are categorized into three basic types: permissive, semi-permissive, and non-permissive.

NEO missions happen anytime the U.S. government decides that the lives of U.S. citizens living or working in a foreign country are threatened by activities occurring in or around that country. Additionally, political considerations often dictate that the decision to evacuate not be made until the last possible moment — and possibly after that point. Obviously, this means that a NEO mission is almost always considered an emergency situation by the government; why else try to extract those Americans? This built-in dichotomy is one factor that can make the NEO mission especially frustrating to unit commanders and may show its effect even down to the lowest (platoon and squad) levels of the operation.

The Permissive NEO

The permissive NEO is the easiest to execute and the least likely to be encountered in the real world due to the political considerations mentioned above. Its characteristics are that there is no expected resistance to the evacuation operation and that the host nation's military and civil law enforcement agencies have control in the area of operations and have the capability and intent to aid in the evacuation process. Given these highly favorable conditions, the NEO itself may be conducted at a slower pace to ensure thoroughness in the search for and processing of the evacuating civilians. Of course, if the situation is that good, it is very unlikely that the State Department would recommend evacuation in the first place.

The Semi-Permissive NEO

As the title suggests, this NEO is slightly more hazardous. It is characterized by an increased threat to the force and to the civilians, mainly from civil disorders and potential terrorist threat. Additionally, the host nation may be indifferent to the situation, or it may not have the ability to assist even if it wants to. The evacuations of Saigon and Monrovia would be prime examples of this type of NEO. Planning considerations

here would require a secure lodgement area and probably an airfield, (possibly co-located) since the host could (or would) not provide them.

The Non-Permissive NEO

This is the most difficult and most likely form of NEO. In this type of operation, hostilities are underway (or soon will be) in the AO of the evacuation. This type of operation might also arise when the host nation actively opposes the evacuation of the civilians or if the population in the AO is controlled by armed forces who have the ability and intent to interfere with the NEO. Non-permissive NEO operations are obviously going to be the most complex, requiring units to conduct both a complicated civilian-oriented mission as well as be prepared to engage in combat operations at any point during the NEO. These dual requirements can lead to some very involved rules of engagement (ROE).

Execution

Generally, non-combatant evacuation operations occur in five phases. These phases are based upon the capabilities and limitations of the light/airborne infantry but the general concept should remain the same for the mounted force. In order, these phases are: alert, deployment to an ISB (initial staging base), evacuation site operations (consisting of marshalling, evacuation control center (ECC) operations, and deployment of the evacuees to the safehaven), safehaven operations, and redeployment. Ideally, the ISB could be eliminated while marshalling and evacuation take place at the same location. Such a location would have to have an airfield capable of accepting C141 aircraft, it should be close to where the majority of the civilians live and work in the host nation, and it should be relatively defensible. Having stated how the light forces plan to execute, the question remains, "If we already have plans for the employment of light forces to execute these missions, why bother planning to use the mounted force?" In other words, "Why Armor?"

Perhaps the best way to answer this is with a hypothetical example: The time is the near future, the place is Eastern Europe. Since the breakup of the Warsaw Pact and the USSR, there has been a great movement east. Western investors, after waiting a few years to assess the situation, realized the potential profit to be gained in the east and have begun to develop the east for its economic potential. With the inflow of money, there has also been a flow of western economic advisors and technicians to oversee the employment of the western capital. There is also a second factor at work here though — traditional ethnic rivalries have flared and continued to smolder despite the best efforts of country X's national government. Finally, things come to a head and outright civil war erupts. Country X mobilizes the militia, only to find that half of the army defects with all of its equipment. The airfields shut down and the borders close. While no direct threats are made against the United States, more than 3,000 American civilians find themselves trapped by circumstances in a war zone. Over 30 U.S. civilians have already been wounded or killed in the fighting in the capital. In an emergency session of the Security Council, the following information is provided.

The President is advised that there is no way that the 75th Ranger Regiment or the 82d ABN can insert with any hope

of success against the air defenses arrayed around the airfield. While the host country's army has not stated that it would destroy the U.S. aircraft attempting to land, it has made clear its intention of stopping all traffic into and out of the nation until the "emergency situation" is resolved. ADA weapons from the former Soviet Union include a large number of shoulder-fired IR-seeking SA-7/14s. Short of employing massive airstrikes against prepared defenses in rugged terrain, there is no way to fly into the country. Additionally, the population centers where the Americans live are more than 500 miles from the nearest coast, thus preventing any potential action by the Navy or USMC. Rotary wing insertions look promising initially, but the number of helicopters required for a one-way long distance insertion to secure the airfields against opposition is prohibitive. There simply aren't enough rotary wing lift assets in the entire theater to conduct this type of operation. Finally, it is determined that a force must conduct a NEO within the next week to two weeks to prevent further U.S. casualties as the civil war shows no sign of stopping.

In this situation and dozens of others like it, the only force that could conduct the mission would be a mechanized/armored task force. The use of mounted forces to conduct non-combatant evacuation operations has already been tested and executed in Bosnia. The evacuation of several Muslim enclaves designated as "safehavens" by the United Nations but later declared untenable provides an excellent example, albeit a negative one. British mechanized troops attempted to evacuate some of these enclaves with often disastrous results. Many of the problems in those missions can be directly attributed to the extreme rules of engagement imposed upon the British by the UN. Their inability to return fire resulted in casualties among the civilians placed in their care. In fact, this meant that the combat units were little more than guides since they could not actively provide for the defense of the civilians. However, rules of engagement are the province of our civilian political masters. We can only advise on the probable results which excessive ROEs may produce.

In either case, either with the UN or unilaterally for U.S. civilians, can there be any doubt that U.S. forces may soon be placed in a similar situation? The scenario above demonstrated how U.S. armored forces might be needed to evacuate U.S. civilians, but with the UN's expanding role in the world, U.S. forces may soon be called upon to execute these missions under the auspices of a coalition or world body like the UN. The decision to execute a NEO is the job of politicians; as professional soldiers it is our job to provide them with options and plan for those contingencies. What then might be the composition of a mounted NEO force?

Composition

Each NEO mission would require a tailored force structured to meet the specific potential threat it may face, the number of evacuees projected, and the potential barriers to movement it may encounter. Having said that, here is a generically composed mounted force designed to evacuate up to 3,000 civilians by ground or air. For this scenario the host nation does not have a coherent combat force above the regimental level and the U.S. can achieve air superiority in the immediate area of the task force.

● Armored Cavalry Regiment Squadron (+): 1

The mixed organization of the armored cavalry regiment squadron is well suited to form the base of the NEO task force. It has an inherent capability for self-sustaining operations and habitually executes missions which require long movements emphasizing maneuver rather than direct fire. The squadron also should be reinforced with one balanced attack helicopter team from the regiment with its attendant support elements. Key to the success of the movement is avoiding contact with significant forces that may intentionally or unintentionally block the force. Close air reconnaissance is potentially the largest combat multiplier available.

Considering how rare the ACR has become recently, this base unit may be replaced by a balanced armor/mechanized battalion task force. This, however, will probably preclude the option of the balanced attack helicopter team, primarily for logistical reasons. Additionally, the TF now loses its indirect firepower.

Either option provides the TF commander with combat power to protect the support assets while enroute to the objective AO, and this is his primary mission. Avoiding contact and intimidating by show of force are probably going to be the primary options dictated to the commander by National Command Authority. Additionally, a single squadron/battalion TF could not believably be construed as an invasion by the host nation forces.

● Engineer Company (-): 1

The engineers assist in crossing natural obstacles. Deliberate obstacles directed against the TF would be bypassed rather than breached. Their task organization reflects this, and is based upon known and suspected obstacles along the TF route.

● Light Infantry Company: 1

NEOs are infantry-intensive. Personnel are required for reception, screening, search, and security of the civilians. This is assuming the absolute best case scenario — that the civilians have already assembled at one (or several) convenient locations and no house-to-house search in a MOUT environment is required. Additionally, since the actual NEO will likely take place in a MOUT or MOBA (Military Operations Builtup Area) area the security of the mounted force must also be considered. Light and airborne infantry forces train in the execution of the NEO marshalling and processing operations and are readily available world-wide within 24 hours of a decision to execute a NEO via strategic airlift. The normal light-heavy considerations must be accounted for, especially the fact that any light/airborne contingency force will arrive without any organic transportation assets.

● S&T Company(s): 1-?

This is the most situationally dependant factor. Will the TF attempt to evacuate the civilians exclusively by ground? Will they secure an airfield and the flight path inbound and outbound to allow for a quicker evacuation of the civilians? Or will a combination of both be used? When a light/airborne force conducts a NEO, local transportation must be secured to move the civilians to the airhead since sufficient transportation generally cannot be flown in without a prohibitive trade-off in combat power. This obviously also applies to the mounted force. Conceivably, the TF could bring enough vehicles to move all the evacuees by ground.

● FSB (Forward Support Battalion): 1-?

This is another truly situationally dependant element. Planning for one brigade's worth of support for one battalion-level element is probably the best ratio. In the NEO, especially

during movement, the primary consideration is not so much maneuver combat power to overwhelm the enemy but to arrive in the NEO AO intact. This implies sufficient support (especially fueling) to move a battalion (+) TF the required distance. (In this case, 500 miles). Host nation refueling capabilities (permissive or otherwise) also should be considered.

● Military Police Platoon: 1

Key to the processing of the civilians, U.S. or otherwise, is the search. Military Police are the experts in this area, as well as in crowd control techniques and civil-military relations at the individual level. A minimum of one platoon should accompany any NEO force. I recommend attaching the MPs to the light infantry company since the two work together during the actual marshalling.

● Translators/Civil Affairs/S5: As required.

Invariably, language problems will exist, both with the host nation and the evacuees themselves. Translators are essential and should be requested. Civil Affairs/S5 will likely be pushed from above and may or may not prove useful. At a minimum, they may act as liaisons to the State Department.

● Combat Control Team: 1

Used to establish USAF airfields in the absence of friendly host nation support.

Given enough time, the proposed task organization could well end up resembling a miniature division. We should resist the tendency to add forces to deal with any and all situations, especially with regards to the mechanized combat units. Keeping in mind the key to successful NEO operations is avoiding contact helps reduce the numbers required. This proposed task organization still has potential gaps, but could serve as a viable basis for planning the mounted NEO.

Conclusion

Use of an armored force to conduct a non-combatant evacuation operation has several drawbacks. It is a provocative act to enter another country with tanks, no matter how few. Currently, the armored force has no significant training in this task, nor in the MOUT environment where it will likely take place. Finally, the infantry intensive requirements for the mission almost dictate the inclusion of some light/airborne element which provides its own coordination and support headaches.

Acknowledging all of the above, it is still almost inevitable that the armored force will eventually be called upon to execute or participate in some form of NEO mission. Recognizing this fact is the first step towards successful execution. The sooner the mounted force begins to address this new mission, the more lives may be saved in the not too distant future.

Captain Robert Bateman was commissioned in Infantry in 1989 as a Distinguished Military Graduate of the University of Delaware. He has served as rifle platoon leader, C/4-87 Infantry, 25th ID(L); Operations South Officer, TF Catamount, USBATT, Multinational Force and Observers, Sinai, Egypt; and S3 (Air), 4-87 Infantry. A graduate of Airborne School, Infantry Officer Basic Course, Air Assault Course, Ranger School, USAF Drop Zone Control, AOAC, and BMOC, he is currently BMO, 2-7 Cavalry, 1st Cavalry Division.

FM 100-5 Education Package Now Available

The United States Army Training and Doctrine Command (TRADOC) has recently put into distribution an FM 100-5 Education Package for use by both Active and Reserve Component soldiers. The package has three elements: a CD-ROM computer disk, a 35-mm slide presentation with recommended script, and a VHS video tape.

The CD-ROM computer disk has both the 1986 and 1993 version of FM 100-5, Operations, FM 100-1, The Army, The National Security Strategy of the United States, and the U.S. National Military Strategy. The programs on the disk include three audio-visual animations explaining: battle space, the dynamic between operational offense and defense as represented in the Yom Kippur War, and the concept of simultaneous attack in depth as illustrated by Operation JUST CAUSE. Additionally, the disk allows the user to perform a variety of research and word processing functions such as word search and split screen comparison.

The 35-mm slide presentation and script explain the new manual in terms of its new concepts, lines of thrust, and the strategic context in which it was developed. The VHS video gives the viewer a historical insight into the production of the doctrine and its relevance to the Army as a strategic force for the 21st Century.

The distribution plan will send 1200 copies of the CD-ROM disk and 650 copies of the VHS tape and slides to the field. Questions concerning the package should be directed to TRADOC, DCSDOC point of contact, LTC Doug Osborne, DSN: 680-3089.

19D ANCOC-RC Phase II

RC enlisted soldiers in MOS 19D30/40 who have successfully completed BNCOC and have proof of completion of ANCOC Phase I are eligible for 19D ANCOC-RC Phase II. SFCs and SSGs assigned to SFC positions will receive priority.

The course lasts 21 days starting with a four-day IDT period scheduled for 23-24 July and 13-14 August 94. A make-up for

those who miss this is scheduled for 29 Aug-1 Sep 94. These four days do not show on ATARS. A 17-day Annual Training period starts on 2 Sep and runs through 18 Sep 94.

For more information contact, MSG Quigle at Fort Knox, Ky., at commercial (502) 624-6563 or DSN 464-6563.

19D BNCOC-RC Phase II (Bradley Specific)

RC enlisted soldiers in MOS 19D20/30-D3 who have successfully completed PLDC, have the D3 identifier, and proof of completion of BNCOC Phase I are eligible for 19D BNCOC-RC Phase II. SSGs and SGTs assigned to a SSG position will receive priority.

The course lasts 14 days and runs 27 Aug-9 Sep 94.

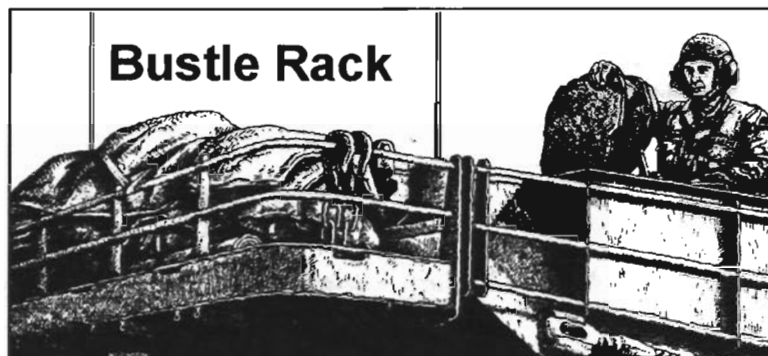
For more information, contact MSG Quigle at Fort Knox, Ky., at commercial (502) 624-6563 or DSN 464-6563.

Assignment Opportunities in Delta

The U.S. Army's 1st Special Forces Operational Detachment - Delta plans and conducts a broad range of special operations across the operational continuum. Delta is organized for the conduct of missions requiring rapid response with surgical applications using a wide variety of unique skills, and the flexibility to maintain the lowest possible profile of U.S. involvement.

1st SFOD-D soldiers are carefully selected and specially trained. Officers and NCOs undergo the same assessment, selection and training. Assignment requires an extensive prescreening process and successful completion of a 3 to 4 week mentally and physically demanding Assessment and Selection Course followed by a 6-month Operator Training Course.

The general prerequisites are:
- Volunteer



- Male
- U.S. Citizen
- Pass a modified HALO/SCUBA Physical and Eye examination
- Airborne qualified or volunteer for airborne training
- Pass a background security investigation and have at least a Secret clearance
- Minimum age of 22
- No history of recurring disciplinary action
- Pass the 5-event physical fitness qualification test (inverted crawl, run-dodge and jump, push-ups, sit-ups, and a two-mile run) and a 100-meter swim, all while wearing BDUs and boots
- Minimum of two years active service remaining upon selection to the unit

In addition, for NCOs:
- Rank of SGT - SFC
- Qualified in primary MOS (MOS immaterial)
- GT score of 110 or higher

In addition, for officers:
- Rank of CPT - MAJ
- Advanced Course graduate
- College graduate (BA or BS)
- Minimum of 12 months successful command at the captain level

The 1st SFOD-D conducts world-wide recruiting twice a year. Recruiting for the Fall Course is from March through July and for the Spring Course is from September through January. Call the 1st SFOD-D recruiters at DSN 236-0649/0689 or commercial at (919) 396-0649/0689.

1993 ARMOR Index Available

The annual index of stories and authors in *ARMOR's* 1993 issues is available by writing to Ms. Mary Hager, *ARMOR*, ATTN: ATZK-PTD, Ft. Knox, KY 40121. In recent years, the index has been published separately, rather than in the last issue of the year, in order to reserve more space for stories.

Battlefield Commission Recipients

The National Order Of Battlefield Commissions is trying to locate all men, WWII, Korea, and Vietnam, who on the field of battle against an armed enemy, received a commission from enlisted or warrant status. It may be you or someone you know. CONTACT: John Angier, 67 Ocean Drive, St. Augustine, FL 32084, or call (904) 471-7695.

Seeks Circle C Patch Holders

Seeking members of armor and/or cavalry units that at one time may have served in the United States Constabulary in the E.T.O. from the years of 1946 to 1952 and wore the shoulder patch of the Circle C. Anyone interested in joining or listing your name as a former "trooper" should contact: National Recruitment Coordinator, Robert Jarrett, 132 Carleton Avenue, Hazleton, PA 18201. Phone: (717) 459-5516.

Seeks Po Valley Campaign Photos

Seeking copy of photos of German tanks and armored cars destroyed during the Po Valley campaign in April 1945. Also seeking contact with members of the 701st

Reunions

The veterans of the **703d Tank Destroyer Battalion Association**, a unit of the 3d Armored Division, will hold a national reunion 17-19 May 1994, in Springfield, Missouri. Please contact: Fred S. Hunt, 2447 Wallis Smith Avenue, Springfield, MO 65804, phone (417) 886-3590.

The **Blackhorse Association of the 11th Armored Cavalry Regiment** will host the 25th annual 11th ACR reunion at Ft. Knox, Ky., 17-18 June 1994. All former members are invited and encouraged to attend. COL William Scott Wallace, 55th and last commander, is the scheduled guest speaker. For additional information, contact Bill Squires, P.O. Box 11, Ft. Knox, KY 40121 or phone (502) 351-5738/351-0933.

The **11th ACR veterans of Vietnam and Cambodia, Blackhorse**, will host its ninth reunion in Colorado Springs, Colo., 6-10 July 1994 at the Sheraton Colorado Springs Hotel. For more information, contact Dave Tessier, 4395 Nonchalant Circle N., Colorado Springs, CO 80917 or phone (719) 591-1824.

The **11th Armored Division** will hold their annual reunion 26-29 August 1994 in Bismarck, N.D. Contact Peg Pfeiffer, 2328 Admiral St., Aliquippa, PA 15001 for more information.

The **740th Tank Battalion** will hold its annual reunion 1-4 September 1994 in Dallas, Texas. For more information, contact Harry F. Miller, 2410 W. Manor Place, #307, Seattle, WA 98199, or phone (206) 283-8591.

Tank Destroyer Battalion, 751st Tank Battalion, and 91st Cavalry Recon Squadron who were fighting in the Po Valley near

Bomporto, Italy, on 21/22 April 1945. Contact: Carlo Mondani, Via Vivaldi 11, 41030 Bomporto (MO), Italy.

Armor Center Sponsors Essay Contest

What will warfare be like in the future? Will Luke Skywalker and Han Solo defeat the Death Star? Will the Terminator come back in time to hunt down an ancestor of some future leader? These are great stories, fun and entertaining. But we all know that they are futuristic fantasy, and probably not likely to actually happen. Or are they? If you believe that fiction writers have no idea what the future holds, try reading some of the works of Nostradamus or Jules Verne!

So what does the future hold for warfare and soldiers? Here is your opportunity to think about that question and share your ideas with other military professionals.

The Armor School is sponsoring an essay contest to solicit ideas on the future of Armor and armored warfare. There is no doubt that war as we know it is changing rapidly. General Sullivan stated that Operation DESERT STORM was a war of transition, marking the end of an era and the beginning of a new era. The new era has frequently been referred to as the 'Information Age' due to rapid changes in technology affecting information gathering, storage, transmission, and retrieval. Technology is changing so rapidly that it must affect the way we fight, as well as how we train.

The topic of essays must address the question, "What does the 'Information Age Battlefield' mean to armored war-

fare?" Papers should be 5-10 pages in length, typed and double-spaced. Mail completed essays to:

HQ USAARMS
ATTN: ATSB-OP (MAJ Corkran)
Fort Knox, KY 40121-5200

Telephone: DSN 464-8878
Commercial: (502) 624-8878

The contest is organized into three categories: officer (including retired), NCO/enlisted (including retired), and civilian. With your essay, please specify which category you are entering, and include your name, rank (if appropriate), and address. Also, please indicate whether you plan to attend the 1994 Armor Conference at Fort Knox, 4-6 May 1994. Cash prizes will be awarded for each category during the conference. (If you cannot attend, the Armor School will mail notification of selection and appropriate prizes to you.)

Entries must be received by the Armor School by 15 April 1994. Essays received after that date will not be accepted due to inadequate time for evaluation. Scoring will be accomplished by a panel of officers, NCOs, and civilians within the Armor Center and School, and will include criteria for grammar, vision, clarity, and understanding of emerging technology. Papers will not be returned, so please do not send your only copy. Winners' papers will be forwarded to *ARMOR* magazine, but are not guaranteed publication.

X Corps in Korea Reflected Its Commander's Strengths and Weaknesses

America's Tenth Legion: X Corps in Korea, 1950 by Shelby L. Stanton, Presidio Press, Novato, Calif. 1989. \$24.95.

Shelby Stanton's recent examination of corps-level operations examines the X Corps in the first months of the Korean War, August to December 1950. In these few months, X Corps experienced the full range of operations that might be expected of a corps-sized unit — deliberate attack (including an amphibious landing under fire), exploitation and pursuit, relief in place while in contact, another landing and attack, and finally defense, breakout from encirclement, retreat, and withdrawal under pressure.

That alone would make X Corps somewhat unique, but this story is especially interesting in the light of current events because it is also a story of both joint and combined operations. X Corps enjoyed a special and separate command relationship with U.S. Army, Far East, and United Nations Command, Korea. Its commander led a joint Army-Marine Corps that employed its own tactical air force and that worked closely and directly with the Navy to plan and execute three separate amphibious operations in four months. X Corps also had the 1st Republic of Korea Army Corps under its operations control for approximately two months. For a time, it performed or supervised provisional governmental functions in a sizeable chunk of "liberated" North Korea. And, perhaps most amazing, X Corps accomplished (or didn't accomplish) all this while it was busy creating itself out of whole cloth. For these reasons, the case study of X Corps' performance in 1950 is a story well worth telling.

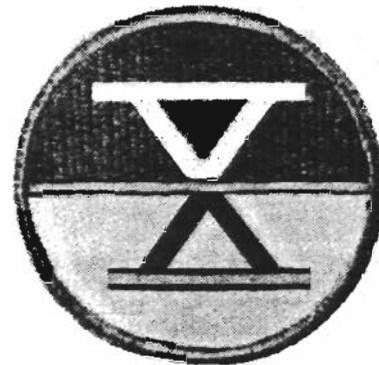
Stanton makes clear that the X Corps story is also inextricably tied to the story of its commander, Major General (later Lieutenant General) Edward M. ("Ned") Almond. Born into a southern patrician family in the Shenandoah Valley of Virginia, Almond graduated from the Virginia Military Institute in 1915. He rose to battalion command by the end of World War I, became a protégé of George Marshall (VMI, '01) during the interwar years, and commanded the all-black 92d Infantry Division in Italy in World War II, with only mediocre results. By the beginning of the Korean War, General Almond had become Chief of Staff to Douglas MacArthur in Japan. His relationship with MacArthur and his supposed ex-

perience in commanding "troops of color" would play a significant role in his selection for command of X Corps and its subsequent successes and failures.

A central theme of Stanton's book is how the commander's personality informs and shapes the unit's persona. Stanton focuses on three particular traits in Almond's character that had tragic results for X Corps — an unswerving loyalty to MacArthur that bordered on sycophancy; a prickly, aggressive nature that made it difficult for him to get along with his subordinate commanders, particularly 1st Marine Division commander Major General Oliver P. Smith, who was Almond's "opposite in almost every quality except one — extreme pride;" and a disdain for the soldiery and fighting qualities of black soldiers, which was a dangerous attitude, given their significant numbers in X Corps units.

Stanton argues that these qualities led Almond to aggressively pursue MacArthur's vision of closing to the Yalu River in spite of mounting evidence suggesting Chinese intervention and his own subordinates' growing concerns. At the same time, Almond was barely on speaking terms with General Smith, one of his key subordinates. And many of Almond's critical tactical and operational decisions were influenced by his distrust in the reliability of many of his soldiers. This was a recipe for disaster that came to fruition in the bitter cold mountains around Chosin Reservoir.

The author makes valuable (and "current") points about joint and combined operations, in particular about the importance of understanding and appreciating your allies' and sister services' way of doing things, as well as understanding your enemy. For students of leadership, Stanton illustrates the importance of establishing bonds of trust and mutual respect with your subordinates. Stanton also shows a side of armored warfare that tankers prefer not to think about much — the use of tanks in direct support of infantry assaults against fortifications, in strongpoint static defenses, and as convoy protection. The lesson is that we should be prepared for those roles whether we want them or not. Cavalry proponents should take note of the annoying frequency with which X Corps units sent out light vehicle mounted (Jeep) reconnaissance patrols, only to have them disappear without a trace.



Stanton has constructed a generally well-written if somewhat laconic narrative. It seems choppy in places because of his habit of abruptly changing scenes or inserting important and necessary vignettes, detailing individual experience and acts of heroism, a quality which was never in short supply in X Corps. The author's decision to use the Korean name for Chosin Reservoir — Changjin — is a bit confusing perhaps. While there is something to be said for the importance of accuracy, there's also value in following well-established conventions. Finally, in terms of his research, Stanton has not broken much new ground in our understanding of the Korean War, although he has done substantial work in the Almond papers.

These are minor complaints, however, in comparison to the value of Stanton's book. This is not as much an addition to the historiography of the Korean War as it is a valuable case study for students of the operational level of war. In this regard, Stanton has filled an important niche. Further, he has demonstrated yet again the truism that units come to reflect the personality of their leaders. This is as true for a corps as it is for a platoon. In this case, X Corps' victory and defeat rested squarely upon the attributes and flaws of its commander, General Ned Almond. This reminder may be Shelby Stanton's most valuable lesson for his readers.

MAJ STEVEN C. GRAVLIN
Department of History
U.S. Military Academy
West Point, N.Y.

Panzerheld: The Story of Hauptsturmführer Michael Wittmann, The Greatest Tank Commander of World War Two by Dr. Gregory T. Jones. Published by the author, Granite City, Ill. 1993. \$22.95.

"Soldiers, like any other soldiers?" This question is often asked about the German Waffen SS of the Second World War. While many of the units and individuals of

the SS did commit heinous war crimes, others were as innocent as any American unit. Some units of the SS were made up of thieves, thugs, cutthroats, and other assorted scum; however, some were also made up of volunteers who, misguided though they might have been, were truly the best of men and soldiers.

Among these latter were units such as 1st SS Liebstandarte, 5th SS Wiking and, 12th SS Hitler Jugend. And among the finest of the young men found in any of these divisions was Michael Wittmann. Gregory Jones traces the life and career of the penultimate tank commander of the Second World War.

Michael Wittmann served first in the German equivalent of the Civil Conservation Corps and then a single term in the German Army before volunteering for service with the Liebstandarte, Hitler's personal bodyguard regiment, in 1936, joining the regiment in April of 1937. Wittmann initially served as an enlisted infantryman, then with the assault guns, and finally, after attending the SS cadet school, as an officer with the panzers. Just as Wittmann had grown, so had the regiment until it was a panzer division.

Wittmann took charge of a platoon of Tiger tanks in the spring of 1943. He participated in the battles around Kursk that summer and in the fall in the desperate defensive fighting around Kiev. Between July, 1943, and the 1st of January, Wittmann's tank accounted for 56 tank kills. In a single two-day period on the 8th and 9th of January, his crew destroyed nine Soviet armored vehicles. For his overall contributions, and especially for his efforts on those two days, Wittmann was awarded the Knight's Cross. By the 13th of January, Wittmann's total was 88 Soviet armored vehicles destroyed. His gunner also received the Knight's Cross for his efforts. Before the month was out, Wittmann and his superb crew had destroyed over 100 Soviet tanks, and Wittmann was awarded the Oak Leaves to the Knight's Cross.

In the spring of 1944, the Liebstandarte's Tiger Detachment was made an independent heavy tank detachment and transferred to the Western Front, scene of Wittmann's most dramatic moment and his death. On the 13th of June, Wittmann and his crew destroyed 21 British tanks and effectively stopped the advance of an entire brigade near Villers Bocage in Normandy. For this effort Wittman was awarded the Swords to the Knight's Cross.

Gregory Jones explores the arguments over Wittmann's death in great detail. Just as Baron Von Richthofen's demise in the First World War is a source of controversy, so too is Wittmann's in the Second. Jones reviews the cases made by Canadians, Poles, the RAF, and finally the Northhamptonshire Yeomanry. I will not reveal Jones' conclusion here. Read it yourself.

Jones has done a remarkable job in compiling the story of Wittmann's life, details of

Tiger operations and tactics, and the photographs to support his story. This is an outstanding book for those of you with an interest in the SS, the German panzer forces, or in armor small unit actions and the role of the individual tank commander and crew in battle.

SFC JOHN T. BROOM
U.S. Army Armor School
Ft. Knox, Ky.

Hitler's Blitzkrieg Campaigns: The Invasion and Defense of Western Europe, 1939-40 by J.E. and H.W. Kaufmann. Combined Books, Conshohocken, Pa., 1993. 382 pages. \$29.95.

This book attempts to explain and describe in detail a part of World War Two that is often overlooked or underplayed by modern day military thinkers and historians: the "Sitzkrieg" and "Blitzkrieg" of 1939 and 1940.

Focusing primarily at the strategic and operational levels, the authors begin by detailing the interwar thinking of the French, British, and Germans. Included in this section is a thorough discussion of the strengths and weaknesses of each Army and its vision of how it would fight the next war. After reading a few pages, it becomes clear that the Allies' defeat originated in their own flawed strategy and "hollow" armies as much as it did in the technical and tactical superiority of the Germans.

The invasions of the Low Countries, Norway, and France are described blow by blow and dramatically show how preparation before the battle (or lack thereof) influenced the outcome of the contest. The German *Wehrmacht* had put together an effective combined arms force (infantry, armor, artillery, and air support), placed aggressive leaders in the right positions, and developed novel operational plans. The Allies did not. The result was the type of quick, decisive victory by the Germans that America now expects its own Army to replicate.

For all of its strengths, *Hitler's Blitzkrieg Campaigns* has some serious weaknesses. The book is poorly edited and poorly organized throughout. Generally, the data presented either do not support the author's conclusions or are only mentioned and left undeveloped. For all its detail on the Maginot Line and TO&Es of both sides, the authors have omitted a discussion of German river-crossing capabilities, without which the Blitzkrieg probably would have stopped at the Meuse or the Marne as it had in World War I.

While the authors' research and observations are well taken, their effort on the whole is hobbled by inadequate editing and organization. Students of the period may be interested in obtaining a copy for reference purposes, but the average reader

may not want to sort through conflicting or unsupported conclusions to read about how and why German Panzers took Europe by storm.

ANDREW D. GOLDIN
2LT, Armor, MDARNG
Arlington, Va.

Four Hours in My Lai by Michael Bilton and Kevin Sim. Penguin Books, New York, 1992, 430 pages, paperback \$13.50.

Scratch the surface of a man and you will find an animal capable of unspeakable atrocities. The authors describe the atrocities that occurred in the Vietnamese hamlets known as My Lai. However, much closer to the core of every professional soldier, this is a study in leadership that failed.

The authors describe Charlie Company as the stereotypical collection of Americans. The majority were from what we would consider very normal backgrounds. What happened to those soldiers that would cause them to commit acts that today are synonymous with cold-blooded violence? On top of that, what could have caused the cover-up that followed the incident?

Sure, these troops were very normal. They were competent and confident. The one thing that was atypical was their leadership. LT Calley was obviously the weak link in that chain. The authors describe him as incompetent. He did not command the respect of his soldiers, peers, and superiors. That lack of respect fostered an atmosphere within his platoon of contempt. In turn, Calley often vented his frustration by assaulting the local women. In order to gain favor from his company commander he would volunteer his platoon for the most hazardous duties. This resulted in the troops placing a bounty on his head.

The company commander, CPT Medina, added fuel to the fire by humiliating Calley in front of his men. The end product, through poor leadership, was a collection of highly trained yet undisciplined soldiers with a disdain for their key leader.

Many other factors added to this "time bomb": an unseen enemy, distrust for the local population, the "short-timers" attitude, the need for high body counts, etc. But undeniably, this ugly event could have been avoided with strong leadership.

For many this is a painful reminder. For others that dismiss My Lai as "war is war...sometimes innocent people get hurt" this is a must read.

DAVID L. GALLOP
Asst. Professor of Military Science
Stephen F. Austin State University
Nacogdoches, Texas

1994 Armor Conference

Tentative Agenda

30 April-5 May 1994

Saturday, 30 April	1200-2130	Armor Trainer Update (ATU) Registration	Gaffey Hall
Sunday, 1 May	0800-1600	ATU Activities	Gaffey/MWSTC
Monday, 2 May	0800-1600 0900-1700 1200-1600	ATU Activities 2d Annual External Unit Scheduling Conference Early Registration for Armor Conference	Gaffey/MWSTC Skidgel CR1 Skidgel Hall
Tuesday, 3 May	0800-2200 1430-1530 1645-1730 1730-1900 1900-2200	Armor Conference Registration Honorary Colonels of the Regiments Meeting Retreat Ceremony - Casing of 11th ACR Colors CG's Garden Party Regimental Assembly	Brick Mess HQ Conf Rm Brooks Field Quarters 1 Brick Mess
Wednesday, 4 May	0700-1000 0630-0745 0800-0815 0815-0915 0915-0945 0945-1045 1045-1115 1115-1145 1145-1300 1300-1630 1800-2100	Late Conference Registration Chaffee Breakfast CG's Welcome/Opening Keynote Address — CG, TRADOC Break/Armor Association General Membership Meeting CG's Report to the Force Force XXI Battle Command Brief Virtual Training Brief Lunch Force XXI Battle Command, Force XXI Operations, Contractor Displays & Virtual Training Program Demo Armor Association Banquet Presentation of Essay Contest Winners	Gaffey 2 Brick Mess Gaffey 1 Gaffey 1 Gaffey 1 Gaffey 1 Gaffey 1 Gaffey 1 Gaffey 1 TBD Armor Inn
Thursday, 5 May	0800-0900 0900-1230 1230-1330 1400-1600 1400-1700	CSA Presentation Force XXI Battle Command, Force XXI Operations, Contractor Displays & Virtual Training Program Demo Chief of Armor Luncheon: CG's Wrap-Up Brigade Commander's Conference -Personnel status (Armor Branch) -OSUT graduate quality (1ATB) -AOB/AOAC graduate quality (16 Cav) Master Gunner Conference	Gaffey 1 TBD Brick Mess Gaffey 2 Gaffey1/VTC

Armor Conference POC: MAJ Corkran, Phone: DSN 464-8878 or commercial (502) 624-8878

Armor Trainer Update Information

The FY 94 Armor Trainer Update is scheduled for 1-2 May and will be held in conjunction with the G-3/DPTM Ft. Knox Scheduling Conference on 2 May, and the Armor Conference 3-5 May. Registration will be held in Gaffey Hall on 30 April. Late registration will be 1 May from 0715-0800 in Gaffey Hall. This year's ATU will not only offer updated information of interest to RC officers and NCOs, but will focus on the integration of simulation technology into the RC mounted force training strategy. Attendees will also have the opportunity to participate in a simulation exercise in the Mounted Warfare Simulation Center and receive an after-action review. Since the ATU will immediately precede the Armor Conference, attendees will have the opportunity to view over 120 displays including the Guard Unit Armory Device, Full Crew Interactive Simulation Trainer (GUARDFIST 1) which is

currently scheduled to begin fielding during the second quarter of FY 95. The G-3/DPTM Scheduling Conference will provide RC units the opportunity to schedule and lock-in Ft. Knox training resources for FY 95. Those units desiring virtual training opportunities through the Reserve Component Mounted Warfare Training Center (RCMWTC) are encouraged to attend this conference.

All personnel who plan to attend the FY 94 ATU should preregister by contacting MAJ Jeff Grant at DSN 464-3214/commercial (502) 624-3214 or Mr. Troy Schaffner at DSN 464-4807/commercial (502) 624-4807. The FAX number is DSN 464-1456. Written requests for information should be sent to: Commander, USAARMC, ATTN: ATZK-SA, Ft. Knox, KY 40121-5000.