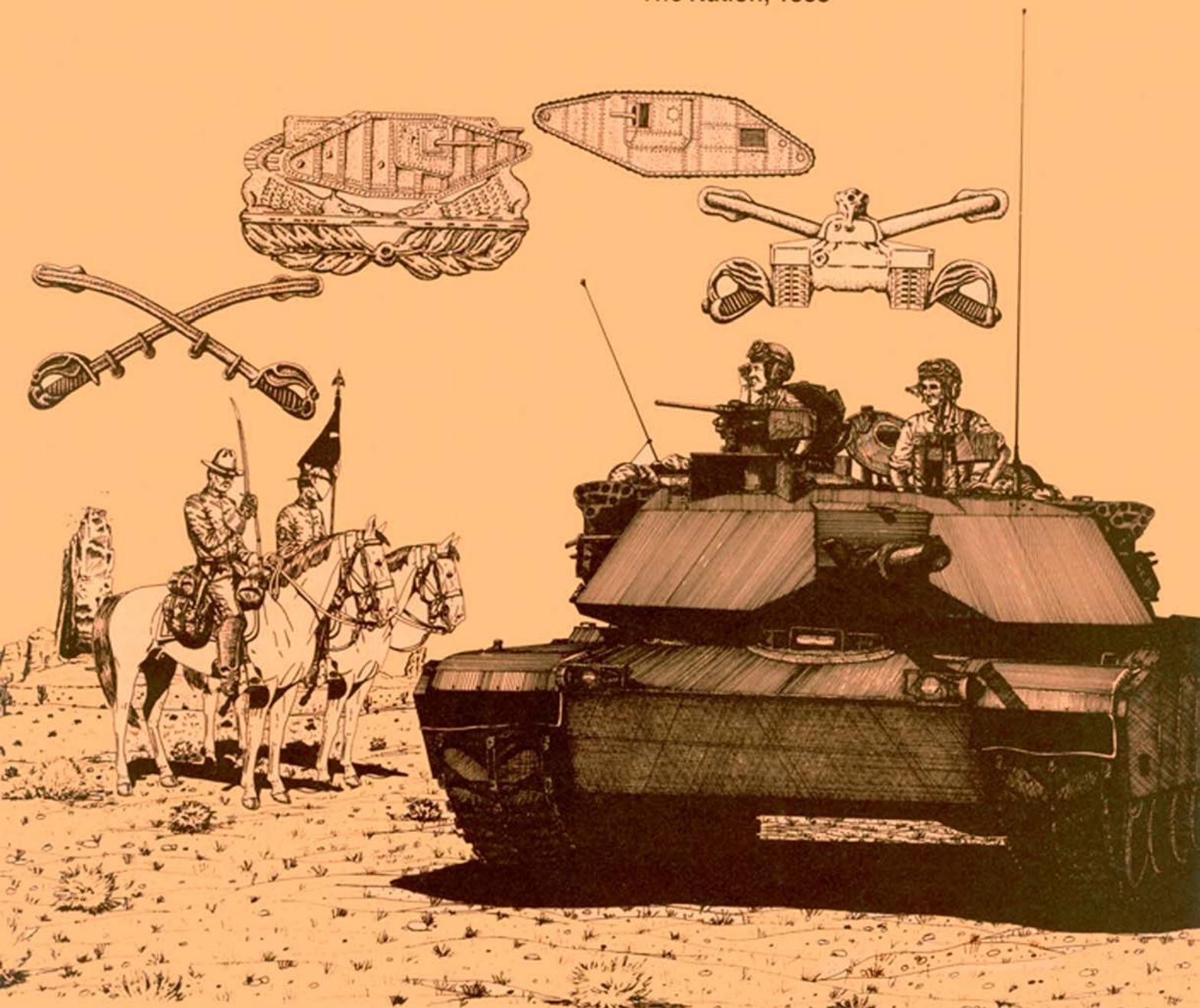


ARMOR

100th Anniversary Issue

"...The initial number of **The Journal of the U.S. Cavalry Association** for March has come to hand. It is well printed at Leavenworth, Kansas, and is good reading...."

— **The Nation**, 1888



PB 17-88-2 (TEST)

March-April 1988

Tank Tracks



This press notice appeared in the "Public Service Review" in 1888:

"A trumpet blast, sounding a rallying note, comes to the ears of American cavalymen with the initial number of "The Journal of The U.S. Cavalry Association." For the first time in the history of our professional literature we have here a periodical devoted to the improvement of the Mounted Service and the prospect seems good for the preservation in an enduring form, convenient for reference, of the results of matured experience in the field, as well as a record of interesting modern experiment, for the future guidance of the cavalry world."

The fellow who wrote this, despite his incredible perception, long ago slid into obscurity; but the product of which he wrote still provides "the results of matured experience in the field, as well as a record of interesting modern experiment, for the future guidance of the cavalry world," a century after that first issue emerged from that steam press in Leavenworth, Kansas.

We produce the magazine much differently now, with the latest technological smoke and mirrors, but it is spell-binding to consider how much the guts of the publication remains the same. Yeah, instead of the care and feeding of horses, we talk about maintenance; and instead of the use of saber or pistol, we write about combined arms and synchronization in

the AirLand battle. But if you put all the articles over the last century into a sack, shake it up, and spill it out, the mass that emerges is how to move, shoot, and communicate.

It is impossible to measure the impact the combined wisdom from all those authors, first printed during the Indian Wars, has had on our warfighting success over the last ten decades, but we can measure the survivability of a publication that has continued in an enduring form for 100 years. That itself is an impressive milestone. That it continues to do what it set out to do a century ago is a more remarkable one.

For this success, plaudits must go not only to the relatively few who have staffed the publication and the association that gave it birth, but to the many more, past, present, and future, who have taken the time to put their thoughts into words for the rest of us to share and study.

Underscoring this sentiment is the simple fact that the magazine has endured and succeeded to its lofty reputation largely due to the strength it derives from association membership. This, like its contents, is not likely to change. Any officer who has reached the Advanced Course, or an NCO who has reached ANCOC, therefore, has a professional and moral obligation to subscribe. It is that simple.

ARMOR now moves into its second century of service to the force. To borrow a phrase...
And so it goes. — PJC

By Order of the Secretary of the Army:

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

CARL E. VUONO
General, United States Army
Chief of Staff

ARMOR

The Professional Development Bulletin of the Armor Branch PB 17-88-2 (Test)

Editor-in-Chief

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MG THOMAS H. TAIT

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LETTERS

RC Course Described

Dear Sir:

My compliments to CPT Gordon L. Wiborg, Jr. for his "tell it like it is" article, "WARNING ORDER: AOAC 1990...Be Prepared" in the Sept-Oct '87 ARMOR. His fine article describes the new concept of the Armor Advanced Course. As a current student in the Reserve Component (RC) class, I fully agree with CPT Wiborg's observations.

The RC course is now the same as the active component course, except for length. To be more exact, the active component (AC) student attends a 20-week course, whereas the reserve component student attends a 12-week course. AOAC RC 1-87 was the last composed entirely of RC students. The Reserve Component can now attend throughout the year and integrate with members of the Active Component.

The Reserve Component students (Army, National Guard and USAR), captains and senior first lieutenants, are of different backgrounds. For example, the current course is composed of many service branches of the Army. Also, most of the RC students are more experienced than their AC counterparts and many are combat veterans. Many have been assigned to primary staff positions at brigade and battalion levels and have held company command. Because of this experience, a false assumption is made that the RC student is possibly better prepared. However, AOAC 1990 demonstrated exactly what we did not know.

I have high hopes for AOAC 1990 and the future RC student who will attend. My fellow students and I have found the course to be challenging to us and beneficial to our parent units.

The team leaders are professionals who not only work with the group as a whole, but ensure each individual student understands what is to be learned. This is especially helpful to the RC student who does not have an opportunity to conduct daily tactical operations.

I only believe that AOAC 1990 will be successful. We will return to our respective components better prepared and productive at brigade, battalion and company levels.

There is also a greater understanding between the components because of the RC and AC interaction. This should greatly facilitate our fighting as one Army.

Thank you, CPT Wiborg, for giving us a refreshing article on AOAC 1990 that "tells it like it is." As your class was the "guinea pig" for the Active Component, our class "tested the waters" for the Reserve Component. I am sure the USAR and Army National Guard students planning to attend will also thank you for that "Warning Order."

Because of it, they will be prepared to accomplish their mission. However, RC students must be better prepared both physically and mentally. Having the proper attitude will help them adjust to this new and challenging method of instruction.

Matthew B. Chandler
CPT, SCARNG
Fort Knox, KY

IDF M60 Machine Guns

Dear Sir

In September of 1982 I wrote a letter to you about some unusual information I was able to discern from a photograph of an Israeli Defense Force M60-series tank. The photo came from U.S. News and World Report and showed IDF tanks in Lebanon during their limited incursion there in 1982.

Among other things I noted that they appeared to have equipped their tanks with an M2 or M85 caliber .50 machine gun in a Telfare-like mounting. What was unusual about this was that the tank was deployed in a tactical situation, complete with Blazer reactive armor and with full weapons and ammunition load.

At the time I noted that the weapon appeared to be belt-fed and coaxially mounted to the main gun. Further, the article I cite had both the TC and loader in the photograph manning pedestal-mounted M60-series weapons. I asked for comment about the impression I received that the caliber .50 mounting was a fighting arrangement to provide precision gunnery for the gunner with a heavier machine gun than the 7.62 coax M240.

In both the November-December 1987 and January-February 1988 editions of ARMOR magazine you have again provided clear photographs of M60-series tanks in combat configurations that mount this same heavy machine gun in the Telfare-like mounting. Six years after my first letter we see further evidence that the IDF is augmenting the usual three machine gun armament of their M60 fleet with a fourth, heavy, machine gun

mounted in a manner that allows both the gunner and TC to fire the weapon.

This return of the caliber .50 to the M60 armament mix suggests that our own armaments be reviewed in light of the IDF's more recent and successful combat experience. It is interesting that they have apparently chosen to add the weapon in a manner that allows the TC and gunner two machine gun options through the fire control system, including a heavy machine gun employable while buttoned up. It suggests that their experience in Lebanon showed the need for such a weapon when conducting MOUT and when dealing with irregular forces and lightly-armed infantry employing ATGM, RPG and hardened emplacements. The additional range and penetration power of the caliber .50 must represent a capability that was missing in previous configurations. Yet what is significant here is that they apparently chose to add another gun while keeping what they already had, suggesting they were unwilling to lose the firepower of the three light machine guns. It would be interesting to learn more about the combat experience that prompted such a decision and to review the assumptions we make about our existing weapons mix.

WILLIAM A. HIPSLEY
CPT, AR, CA ARNG

"Can-Do" Attitude Won't Do

Dear Sir:

In "Irrational Weapon System Acquisition" (January-February ARMOR), LTC Bryla missed the most significant irrationality: the uniformed military's "can-do" attitude. Political guidance often degenerates into micromanagement, but it is the military that justifies such guidance by immediately and optimistically supporting it, no matter how poorly thought-out the idea. This is then followed by "gold-plating." Congress may have wanted the 9-mm pistol, but it was the Army that created technical specifications that could not be subsequently justified. The 120-mm tank gun may have been a political decision, but the choice was immediately vindicated by Army test agencies. I well remember watching the commandant of the Air Defense School telling TV reporter Geraldo Rivera, on "20/20," how great the SGT York (air defense gun) was. The greatest hiccup of the MBT 70 program was our desire for the high-tech 152-mm missile/cannon system. The Germans were satisfied with the conventional 120-mm. The examples are legion. Someday, we will dust off the "Concept-Based

Requirements System" (CBRS) and read it: define the concept; establish doctrine; balance organization; resolve training deficiencies; and field new equipment. Someday. Meanwhile, we create hollow divisions without staying power and marvel over how the Advanced Combat Rifle and C37I will revolutionize land warfare as we know it.

Before we critique others, let's clean up our own act.

Chester A. Kojro
Alexandria, VA

Retracing Track of the CAT

Dear Sir:

After reading the article, "On the Track of the CAT," which appeared in the November-December Issue, I was lead to believe that the U.S. Army has competed in the CAT for the past 24 years. Is this information correct? To my knowledge, the first U.S. unit to compete was the "Red Lion Battalion," 2d Bn., 81st Armor, 1st AD, in May 1977. I was fortunate to be a tank commander during CAT-77. For the past 10 years, I have lived with the reputation of being one of those first U.S. tankers to take part in the CAT. Please set the record straight.

The CAT-77 team consisted of eight tanks from C Co., two tanks from A Co., B21 and my tank, B14.

Congratulations to the men of the winning platoon. They have accomplished this tanker's dream....

MSG Dana T. Driscoll
Clarkson University
Potsdam, NY

(While the article did not say that the U.S. Army participated in CAT for 24 years, it did leave that impression. The CAT competition is 24 years old. MSG Driscoll is correct: the first U.S. participation was in 1977. -Ed.)

Comments on Cavalry

Dear Sir:

Two comments about cavalry, if I may, brought to mind by your excellent November-December issue.

While not attempting to diminish the accomplishments of the 4th Bn., 8th Cavalry, as an old cavalryman I resent the Army's move to designate tank battalions as cavalry. Armor and cavalry designations should reflect unit mission

capabilities. Armor units are maneuver units designed to destroy the enemy through direct firepower. Cavalry units should be those units with a reconnaissance mission in their mission list. The 4th Bn., 8th Cavalry isn't cavalry; the authors of "On the Track of the CAT" said it themselves: they're the old 3-33 Armor "Pickles," a proud old tank battalion well known to generations of tankers in Europe.

My second comment concerns 1/11th ACR's preparations for the Boeselager competition. Captains Ortiz and Butcher said several times that German reconnaissance tactics were quite different from ours. Noting the requirements accurately to identify Soviet and Warsaw Pact uniforms, equipment, and weapons, to disassemble and reassemble Soviet weapons, and the emphasis on stealth, while remembering years of problems as an S2 sergeant getting accurate spot reports from scouts who were interested in staying alive, rather than killing tanks, it appears the Bundeswehr might have something to teach us here. Perhaps Captains Ortiz and Butcher could favor us with an article on Bundeswehr reconnaissance tactics and standards.

SFC Peter L. Bunce
Fort Bliss, TX

UCOFT Beyond TT VIII

Dear Sir,

In his article titled "How Is The UCOFT Working Out?," Major Mark C. Thomson really misses the mark. His method for measuring UCOFT effectiveness, while maybe quantitatively correct, is, practically, way off base.

It is true that the benefits and potential of the UCOFT to combat units are unlimited. Every commander and tank crew will tell you how superb the system is. The increase in tank crew proficiency as they train through the UCOFT cycle is significant. Unfortunately, Major Thomson's use of TTVIII as an instrument to measure UCOFT effectiveness demonstrates his lack of appreciation for what the UCOFT really can do for unit training, and it could generate bad thoughts among readers who may actually try and use the UCOFT as a TTVIII trainer.

The UCOFT goes well beyond TTVIII in its capability to train and test tank crews. If anything, TTVIII qualification should be a prerequisite for use of the UCOFT. The many UCOFT target configurations which include multiple moving and stationary tar-

gets in and out of an NBC environment, and its purely objective scoring procedure make it a much more advanced measure of crew proficiency than TTVIII. A better measure (but not as neat quantitatively) would be to merely compare crew improvement in terms of UCOFT results themselves. For example, measure crew improvement in terms of time, target hits and crew drill from the UCOFT, not TTVIII results.

It is too bad that we as an armor community continue to use TTVIII as our main measure of gunnery training. We may never kick that burden. But don't limit the UCOFT potential by making it a TTVIII trainer. Naturally, anytime you take a tank commander and gunner and make them work together over a large number of hours as you do in the UCOFT, they'll get better and probably even score higher on TTVIII. But it goes far beyond that. Its use in better preparing crews as part of sections, platoons, and companies is much more important as a measure of combat readiness than TTVIII.

LTC JOSEPH W. SUTTON
Carlisle Barracks, PA

TF Baum: A "Deep Attack?"

Dear Sir:

A few comments on CPT Dickey's article, "The Destruction of Task Force Baum" ((November-December ARMOR) based on research for an officers' class I taught while in 2d Bn., 37th Armor. I, too, evaluated the raid in terms of deep attack, but I reached some different conclusions about the effectiveness of the raid.

The raid, of course, did not accomplish its assigned mission, but consider the damage inflicted on the Germans. TF Baum disrupted the German rear, liberated Russian prisoners, damaged and destroyed military trains, antiaircraft, units and assault gun units, disrupted the deployment of at least two divisions, damaged and called air strikes on the railroad yards at Gemunden, and caused the Germans to divert resources to destroy the task force. Patton later said the raid on Hammelburg was a feint to deceive the enemy into thinking the Third Army was going east, instead of north.

This is a significant amount of damage to be inflicted by a small, inadequately supported force. It shows the potential of a properly executed attack.

I found the following lessons applicable to deep attack:

1988 Armor Conference

10-12 May, 1988

Proposed Agenda

- Units must have detailed plans for insertion and reentry.

- The force should be capable of sustaining independent action (battalion-size or larger) with accompanying service support.

- Fire support (field artillery, ADA, attack helicopters, or CRS) must accompany the raiding force or be dedicated to it.

- Air, space, and EW recon has a high probability of locating attacking units.

- Deep ground attack is dangerous, although this can be minimized through proper planning and support. Attacking ground forces face potential destruction due to the ease of detection, deployment of field artillery, echelonment of Threat ground forces, and operations in an environment with, at best, limited air parity.

- Commanders ordering such a mission must carefully weigh the payoff against the potential loss of combat power to their command.

I would like to add to CPT Dickey's comment about the maps available to the raiders. By our current standards, the number and quality of the maps was tremendously substandard. During several conversations with COL James Leach, he has indicated many times that he had the only map in the company. COL Leach has also stated that his company, and others in the 37th Tk. Bn., moved on roads until contact, then moved off road and maneuvered. Let's hope we've solved the map coverage problem and have learned not to stay on roads until we get shot at.

CPT Michael K. Robel
Redlands, CA.

For the Record...

Dear Sir:
Congratulations to Colonels Leach and Haszard on their being named honorary professors of Armor and Cavalry. Your biography failed to mention that COL Leach commanded 3d Squadron, 12th Cavalry, 3d AD, from July 1962 to September 1963. We are proud to count COL Leach as one of our former squadron commanders.

LTC James P. McGourin
3d Squadron, 12th Cavalry
FRG

Tuesday, 10 May 1988

0900-2200 Registration (Officers Club)
1300-1645 Displays
1700-1730 Retreat Ceremony for Past Asst. Commandants
1800-2000 Commanding General's Garden Party
2030-2200 Buffet and Regimental Assemblies

Wednesday 11 May 1988

0800-0815 Welcome/Admin
0815-0900 Keynote Address (GEN Thurman)
0900-1200 Report to the Force (MG Tait)
Threat and Soviet Command & Control
Soviet Exercises
Armor Association General Membership Meeting
Executive Council Armor Association Luncheon
Lunch
1200-1300 Training in USAREUR/CMTC
1300-1500 3d ACR at the NTC
Tank Gunnery Panel
1530 Displays
1800 Armor Association Banquet (LTG Tuttle)
Cocktails – Patton Museum
Banquet – NCO Club

Thursday, 12 May 1988

0800-1130 Leadership
Training Strategies
Scout OSUT
Tank OSUT
Light Armor
1145 Chief of Armor Luncheon (GEN Palastra)
1300-1515 DCD
Israeli Experiences
1500 Farewell (MG Tait)
1515 Displays, Demonstrations (SIMNET, COFT)

POC for General Officers and Presenters Billeting:
USAARMC Protocol Office; AV 464-6951/2744

Billeting for other personnel:

Housing at AV 464-3138
Transportation will be provided from Standiford Field

POC for Equipment Displays:

DCD, LTC James, AV 464-1750

Estimated Cost of Social Events: \$30.00

Uniform: Class "B"

Overall POC for Armor Conference:

1LT Rowe, AV 464-1050

Cavalry and Armor at 100 Years

This year our Association's professional journal, **ARMOR**, celebrates 100 years of service to Cavalry, Armor, and the profession of arms. That's a pretty imposing performance, considering that nothing much lasts 100 years anymore! So what should we say to and about ourselves looking back, and what targets should we put up for the future?

In retrospect, **The Cavalry Journal**, **ARMOR**, and our Association have been on hand for all the nation's wars since the late Indian wars of the 19th Century. About those wars, and the intervening periods of non-warlike activity, we have provided the medium for professional commentary, debate, and communication about the tactics, techniques, and operational art of our profession and our branch. Reading the bibliography of published articles, the list of their authors reads like a "Who's Who" of Cavalry and Armor. The great names of our branch have, almost without exception, been contributors; it has been their interest, concern, and willingness to contribute to the debate, to share their experience and knowledge with others, that have enabled our journal and our branch to survive, grow, and be the strength we are today.

The post-WWII experience of all professional journals has been somewhat precarious – at least more so than in earlier times. With the early 1950s came an attempt to merge all branch journals into one. In this controversial move **ARMOR** persistently demurred, continuing on course. With time other branch journals reappeared, invoking a spate of attempts – from the early 1960s onward – to abolish all branch journals. Those attempts continue to this day. Much of my own time at senior command levels has been devoted to helping keep our Association and our journal alive and well.

Forced to move the Association from Washington in the early 1970s, we brought it and the journal to Fort Knox, determined that both survive. However, almost annually, some misguided soul in an elevated echelon takes a swipe at resources devoted to branch journals. That is why we see changes in format, in paper quality, in color content, and other details from time to time. Interestingly enough, in all my experience with this problem, no one in those "on high" places has yet been willing to discuss the issue of the journal or the Association as professional institutions. All the clamor has been generated by budget cutters or folks who do not, or cannot, understand or admit that the military is a profession and that professional journals and associations are essential parts of our lives.

Going forward, these pressures will continue, likely even increase. So, succeeding generations of Armor leaders must sustain the determination and vigilance – the steadfast resolve that these important features of our branch and its professional viability will survive, flourish, and continue to grow. So here we are a hundred years down the road, surrounded by naysayers on all sides. Some despair at that; on the contrary, being surrounded simplifies a lot of things – it obviates the need for a big debate about which direction the attack should take. So let's just take the initiative and press on. You see – it's our move!

DONN A. STARRY
General, U.S. Army (Ret.)
President, U.S. Armor Association

Cavalry - Readdressed 100th Anniversary

*MG Thomas H. Tait
Commanding General
U.S. Army Armor Center*

As is painfully obvious to all fighting soldiers, the division cavalry squadron organization is not capable of providing the division commander the reconnaissance he so desperately needs to win the AirLand Battle. We are all aware that a combination of factors created this situation: only two ground troops, a six-vehicle vs a ten-vehicle scout platoon, no tanks, and scout helicopters that cannot perform at night or during periods of limited visibility. The logical question to ask the proponent for cavalry is, "What are you doing about it?"

The answer is, not as much as you in the field or we at Fort Knox would like to do. However, there are some initiatives underway. First, we are dusting off and updating our analysis that indicates we need the third ground troop and tanks in the cavalry squadron. We can prove this analytically, as it has been done before and will be done again. The one thing that we cannot model is the cohesiveness, trust and understanding that comes when the cavalry troops have their own tanks and not ones borrowed from another battalion. As I stated in previous articles, we learned this lesson the hard way in World War II. It is always a wonder why succeeding generations cannot learn from the past. Maybe we're running so fast that we haven't the time to study the past, which may be a fatal mistake. I will not address here the question of whether tanks are needed at all. However, if doctrine dictates a

guard mission for the squadron, then the squadron should have tanks, and I believe this will be reflected in our doctrine.

The next question will be: "From where will the spaces come?" I don't have the answer for that. There are folks in TRADOC who will find the spaces if they receive the mission to do it.

Another capability that should end up in the cavalry squadron, which rightfully belongs in the brigade scout platoon, is an RPV-M. This would be a simple RPV, with positive navigation, that would enable the brigade commander to see over the hill. It would be under his control and would be totally responsive to his needs. If the brigade scout platoon cannot be reinstated, then this reconnaissance means should be in the cavalry squadron and attached out to the brigade commanders at their call. This capability is overdue and is needed now. We can garner spaces, in my opinion, that would allow us to field the RPV-M in a relatively short period of time. This assumes, of course, that we can overcome any number of bureaucratic hurdles.

The 1st Cavalry Division has been examining the feasibility of converting all maneuver battalions to a fixed or combined arms battalion. This is attractive because it allows those who will fight together to live and train together. The jury is still out on the overall concept.

However, there is a good chance that we'll have a standardized HHC for mechanized infantry and tank battalions. This will certainly be a step in the right direction.

There has also been discussion about the feasibility of having a fixed brigade organization similar to the 194th Armored Brigade or the 197th Infantry Brigade. This has definite appeal for all regimental cavalymen who are used to fixed organizations. However, since we want to examine change, why not get really radical? Let's organize some true cavalry divisions with three regiments of cavalry organized as they are today with the following additions:

- A mechanized infantry battalion to each regiment.
- An E-Force engineer battalion to each regiment. This will provide the capability to breach obstacles in stride.
- Create an artillery battalion in each regiment to command and control the artillery batteries in each squadron.

This would be an organization that would be difficult to defeat. It would have the panache, vigor, and ferocity necessary to win the maneuver portion of the AirLand Battle.

Treat 'Em Rough

by CSM John M. Stephens, CSM, U.S. Army Armor Center

Training

The Reduced Budget Way

Here we go again! Tighten your belts, folks — the money is not there!

How are we going to train our soldiers? The cost of training with armored vehicles is very high, especially M1s and M3s. Does it mean we can't train?

Does it mean readiness will be affected? Does it mean reduced standards? Does it mean untrained non-commissioned officers? What does it mean?

First, it really means that good old American ingenuity will excel: it does not mean reduction of anything or loss of anything. Done with the right attitudes, it could mean increased training, refined or better standards, better trained soldiers, NCOs, and officers.

The Chief of Staff of the Army has directed continued support for the NCOES, so there should be no effect on NCO attendance. This decision is a very positive and needed support to ensure we train the proper soldier. The school house is making adjustments to reduce resource-intensive requirements and still maintain the high standards demanded for graduation.

Let's look at a couple of realistic adjustments that we can accomplish in unit training which improve a unit's readiness. First, we can train all common tasks and Skill Level 1 through 3 tasks without moving the vehicle, except for those that specifically require a moving vehicle. As a matter of fact, if a unit combines

common task testing and the TCCT-1 or SCCT-1 into one test, it can squeeze an extra week from the training schedule for other training. Instead of testing two things separately, it makes sense to simultaneously test two subjects that we require all soldiers to do together anyway.

Next is tactical training, our most difficult task because of reduced resources and time. The answer is to put on your walking shoes. That's right, tankers, get off the vehicle!

Terrain walks are generally described as part of a commander's evaluation of his unit's tactical situation. But let's look at another form of terrain walks. Develop a scenario over a specific piece of terrain, an example is the GDP mission. Take the soldiers of a platoon or company to the forward edge of the scenario, or where you expect the attack to occur. Recon the map (ensure each NCO has a map) and the ground to select good defensive positions and control points. Share those decisions with the organization. Now walk the battle areas from the standpoint of the enemy. Walk by crews, discussing advantages and disadvantages along the way. Ensure that platoon groups come together every 50-to-100 meters or so and discuss tactical engagements, positions, fields of fire, avenues of approach, boundaries, fire plan, etc.

When you reach your initial defensive position, group the platoon together first for discussion, then expand the discussion to the company. Now all the soldiers have been able to see and review the terrain they must fight over — from the enemy's side and from their side on the defense. I will guarantee you that what was first perceived as a

primary firing position will change in most cases.

One thing is for sure; you have just accomplished more with your organization than you would have by riding vehicles. Don't stop: designate bivouac areas, preposition alert gear, feed them well, and prepare for an overnight stay. Now is a good time to review the tactical SOP. Check chow procedures, sleep plan, communications security, OPs, patrols, perimeter, etc. At about 2130-2200, put them to bed and let the troops get a good night's sleep. Then, in the morning, chow down, load the alert equipment, and continue the operation (walking). Commanders will learn more about their officers, NCOs; and soldiers and officers, NCOs, and soldiers will learn more about themselves and their capability than you ever will riding around in vehicles.

A good GDP scenario recon takes about five days, but the training and esprit developed in those five days cannot be replaced. The platoon leader has really had a chance to evaluate the members of his platoon individually. The company/troop commanders have had the opportunity to work with each platoon observed by their leaders, and have evaluated their capabilities.

In your discussion sessions, let young NCOs and soldiers get involved — you might be surprised how much they know. The cost — a little leather and a little gas for 2-1/2- or 5-ton trucks.

There are many ways to train successfully without a great deal of bucks. A company of officers and noncoms can come away with more than the training program can handle.



The Roots of **ARMOR**

By Jim Schreier

Frederic Remington's "The Trooper" became the trademark of the Journal of the U. S. Cavalry Association. The sketch first appeared on the Journal's front cover in 1903.

One hundred years ago, in March 1888, a handsome quarterly titled *The Journal of the U. S. Cavalry Association* began publication at Fort Leavenworth, Kansas. This *Journal* would be destined to record the step-by-step change in warfare by horse to warfare by machine. Today, the *Journal* continues as *ARMOR*, the professional bulletin of the Armored Force.

Mobile warfare in 1888 meant horses. A mounted army required officers and men skilled in horsemanship, familiar with specialized and complex equipment, proficient with saber and firearms, and schooled in modern cavalry theory. To advance the technical knowledge of mounted fighting, a group of officers promoting "professional unity and improvement, and the advancement of the cavalry service generally," organized the United States Cavalry Association at Fort Leavenworth in 1885. The Association's president was Colonel Wesley Merritt, Fourth U.S. Cavalry, who started his military service in the pre-Civil War dragoons.

The new U. S. Cavalry Association had close connections with Fort Leavenworth's School of Infantry and Cavalry Application, which was designed to bring graduates of the Military Academy, as well as other officers, up to standards necessary for the field.

The school taught a full curriculum. The association was able to act as a resource for the school. It maintained an extensive English and foreign language library, and many

of its member officers had firsthand Civil War and Indian War experience.

The association's members met twice a month and presented papers. Equipment and technical considerations were important topics that often prompted sharp clashes of opinion in follow-up discussions: Could firearms best be used while mounted? Were sabers more valuable than revolvers? Might the cavalry act as an effective dismounted force? These were

Fort Leavenworth was the home of the Army's school of Infantry and Cavalry application. This lithograph of a Fort Leavenworth Cavalry review was first published in 1887.

CREDIT: Kansas State Historical Society.



Captain Camillo C.C. Carr was an instructor at the Fort Leavenworth school as well as one of the Cavalry Association's earliest members. Carr served as the *Journal's* editor from 1890-1894. Excerpts from his translation of de Brack's "Cavalry Outpost Duties," like many other works of foreign cavalry theory, were first published in the *Journal*.

PHOTO CREDIT: Fort Verde Historical Park.

some of the issues explored during the association's initial meetings.

The association's interests, however, were not limited to equipment and theory. Discussions covered serious cavalry problems, like desertion. One paper proposed that deserters might be identified by branding or tattooing. Another proposed a rather novel solution: photography. An extraordinary amount of Civil War history, and what might be the most important collection on horses, military equipment, and horsemanship ever published, filled the early journals.

A publication committee edited the *Journal* until June 1890, when field duty required by recent Indian troubles relocated many of the officers. Major Camillo C. C. Carr, First U. S. Cavalry, was then appointed as the *Journal's* first in-

Fort Leavenworth about the time that *The Journal of the U. S. Cavalry Association* first appeared in March, 1888.

CREDIT: Kansas State Historical Society.



Major George B. Sanford, First U. S. Cavalry, was an early member of the U. S. Cavalry Association. He headed the Department of Cavalry at Fort Leavenworth's cavalry application school. Sanford was one of the first contributors to the *Journal* in the March 1888 issue.

CREDIT: Arizona Collection, Arizona State University.

dividual editor. He served as vice president of the association and editor of the *Journal* until December 1894.

WWI halted the *Journal's* publication, but in April 1920, the *Journal* resumed under the name *Cavalry Journal* and was published through WW II.

By 1943, horse-mounted cavalry was no longer useful to the Army. Military historian Constance Wynn Altshuler, wife of an Army medical officer at Fort Bliss, Texas, remembers what it was like as the Fifth Cavalry was finally dismounted. "It was a sad time," she recalls. "The whole town was upset. In the officer club's ballroom were silhouetted mounted horsemen in maneuvers. One by one, the horses were overlaid with silhouettes of tanks. Final-

ly, all of the horses had been covered. That was a sad day." The U. S. Army's transformation from horse to machine was complete.

The word "Armored" was added to the *Journal's* title in 1946, and in 1950, the name became simply *ARMOR*. It is in this format that the *Journal's* heritage continues. Today, the roots of *ARMOR* are a century deep.

Jim Schreier, a Fellow of The Company of Military Historians, is interested in the role of the U. S. Cavalry in the American West. He lives in Phoenix, Arizona.



Ten Commandments for the Small Unit Tactician

by Major Roger Cirillo

Every small unit leader has his own set of rules pertaining to training for ground combat. Some are culled from manuals, others were drilled into the subconscious by instructors or evaluators during training tests. Seniors with combat experience always have their pet theories, sometimes learned at great cost. The old standby "noise and light discipline," stands beckoning for anyone lacking interest or expertise in the arts of ground fighting and needing a quick fault to find. Its electronic brothers, proper radio-telephone procedure and lengthy transmissions, likewise, are good standbys. Probably the only unifying theme in the search for rules is each man's perception of how to win or at least survive on the battlefield.

My rules, too, are perceptions. They are drawn from interviews with combat veterans of different wars and different armies, from analysis of numerous small unit actions in past wars, and from a careful study of current doctrinal literature. There are only ten for simplicity's sake. Good tacticians will identify more. But good trainers will tell you that you need to start with basics. These ten are basic to winning and surviving on the armored battlefield.

First Commandment: Adjust Fire/Open Fire Early.

Take enemy vehicles under fire at the earliest possibility and for as prolonged a period as possible. For cavalry units with scouts out, artillery is normally the first to engage. This slows enemy movement, causes him to deploy prematurely, and may destroy or damage vehicles or separate the thinner-skinned BMPs and ZSUs from the tanks.

Some tacticians prefer a multiple "ambush" effect with artillery fired on command simultaneous to both direct fire and attack helicopter missile attacks. Easier to describe than implement, this technique requires a high degree of training and finely-tuned control. Battle smoke and ter-

rain intervisibility also make it difficult to time. Unlike an orchestra, however, all the instruments playing, even if in tandem, can produce a sound sweet to a warrior's ear.

Regardless, this type of ambush should be initiated at the far end of the ambushing system's range, allowing not only for longer periods of keeping the enemy under fire, but also permitting fire to be continuously walked forward with the attack. It is best to adjust fire to the enemy's pace early, thus ensuring maximum fire is placed on the enemy during the more critical period when the enemy reaches his final assault phase.

Units lacking an indirect fire capability should also open fire at the maximum range of their vehicle-killing systems. For tank/missile mixes, minus artillery, some tradeoff

might be made if only a few longer-ranged missiles are available, so as not to uncover the unit's positions until the bulk of weapons can fire. Judgement, not only regarding relative numbers, but probable success to be achieved by longest-ranged fire, (consider visibility, intervening terrain, and target windows defined by target exposure time), will be critical to judging exact engagement techniques. The company or troop commander decides on massed fire versus piecemeal fire but, in either case, engagement should be at the farthest possible range.

Second Commandment: Never Break Contact.

Cavalry units follow an old axiom, "Never break contact". Its truth holds good for all combat units, whether attacking, defending, delaying, or covering. Contact may be physical or visual, but in either case, once contact has been established, scouts or combat elements must maintain it. Defensive fighters quickly point out that contact assures preventing being surprised. More important, it provides a commander with information that can be used as the basis for offensive action. Small units usually generate their own combat intelligence, and small unit leaders must realize their responsibilities to pass on intelligence to their parent units.

"...Losses of men and leaders are the tragic reality of war...."

Knowing when to fight for intelligence is a judgement determined by the unit's mission. Part of any combat unit's repertoire must be to know when and how to do it.

**Third Commandment:
Maintain 360-Degree
Orientation**

The armored battlefield is non-linear, despite what graphics might portray. During movement to contact, units are susceptible to surprise flanking fire, not only from enemy positions, but from enemy attack helicopters. Enemy special forces or infiltrating units will attempt to draw friendly forces rearward from a forward-looking orientation, or to cut off or cripple combat service support units. To expect trouble from any quarter and to have an aggressive attitude toward dealing with it wherever encountered is a necessity for the small unit tactician.

**Fourth Commandment:
Expect Casualties**

Small unit combat is fierce, and casualties must be expected. Losses may take on a greater effect than the actual numbers of men or guns taken out of the fight. Psychiatric casualties will occur. Paralysis of action due to fear, or the shock of friends cruelly killed or wounded is common. The small unit tactician must prepare his troops mentally to face the reality of war. Pre-battle training, including medical films in the wound series, and simulated casualties during exercises, is critical to removing the make-believe

combat atmosphere that pervades peacetime training.

The tactician must be prepared to finish his fight by mobilizing soldiers still combat effective and by temporarily ignoring those who don't respond to orders or the discipline of crew drill. Especially important is the survival of a chain of command. Units decapitated by early loss of their leaders while retaining the bulk of their fighting power is a sadly common story in war.

Leader losses must be replaced instantly by named replacements designated prior to battle and known to all. Competence and experience must sometimes overrule seniority in designating such leaders. Units must train their designated leaders to assume their responsibilities by naming "assistants" to understudy every green tab leader in a unit, as a minimum.

Combat usually produces "emergent leaders." In wartime, commanders must identify and nurture these. Losses of men and leaders are the tragic reality of war. Combat leaders must plan to continue their missions to ensure that such losses are not for naught.

**Fifth Commandment:
Reduce Confusion**

Small unit armored combat is the realm of confusion. Simple plans, prior reconnaissance when possible, rehearsals, use of SOPs and drills, and clear explanations of unit missions and how they fall into the

larger tactical picture can reduce confusion. The simple act of telling soldiers where they are located often proves critical. Soldiers who follow or ride, without access to maps or being told where they are going or have been, may have trouble assuming leadership positions during a crisis or even being able to clearly report their own situation to other friendly elements. Unit leaders must put immediate subordinates at every level into the picture to the fullest extent.

Prebattle training is the best underpinning for reducing confusion. Every soldier must have a conceptual understanding of how his unit fights. He must understand how flanking elements may "disappear" due to intervening terrain. The noise and mind-dulling concussion of combat must be expected. The realities of nonlinear battle, once understood, will go far to reduce some of the air of confusion.

The individual fighter must expect confusion in combat as a normal state of affairs. Thus, anticipating confusion, soldiers and leaders will be better able to dispel it.

**Sixth Commandment:
Report!**

Without effective command, units fight as uncoordinated bands. Command and control is impossible without information on friendly and enemy activity. Small unit leaders must understand the dynamics of information-flow during battle and how it affects their own fighting capabilities. Thus indoctrinated, they must ensure that they are using information to focus their combat

"...Drills are not a substitute for thinking or good tactical movement..."

power effectively and to control their units within the framework of the actions of a larger unit.

Units must have reporting procedures to outline minimum reporting requirements. Normal requirements such as sitreps every thousand meters past the line of departure and every five hundred meters after contact are good minimum guides for platoons-to-troop or company, and, likewise, onto squadron or battalion.

"Silent running" is desirable when attempting to achieve complete surprise. Otherwise, the benefits of coordinated movement outstrip those of movements where the small elements are unheard from, and launched into battle independently and unlocated.

All actions must be reported. Too often, fighters assume that what they can see, their immediate commander can also see, to include contact with the enemy. The size of the battlefield precludes this in many cases. Fighters must understand that they are the small unit commander's eyes until he arrives on the scene to personally control elements. Not only do they see for him, but often their assessments feed his decisions for massing of fires and the maneuver of combat elements.

Other small unit leaders must listen to their appropriate command nets to mentally "post the tactical situation" to their flanks. Lateral information flow is served not only by small unit leaders listening to all situation reports, but by the small unit commander periodically outlining the situation for his elements as he sees it in a short radio transmission or as he visits the elements, if static. This is critical if the unit is

engaged in heavy terrain or on an extended front.

This also provides subordinates the opportunity to correct "higher's" perception of their own situation, if needed.

Flanking fire, success or failure of units or elements to the flanks, or enemy action to the immediate rear, pose the greatest threats and opportunities for small unit survival. Information is the only element that allows the tactician to anticipate and act on these contingencies instead of merely reacting to enemy initiatives.

**Seventh Commandment:
Use Drills/SOPs**

The small unit commander must ensure that combat information flows up, down, and laterally in the chain of command.

Actions upon contact and most planned actions can use rehearsed drills to guide actions, or SOPs to provide general control. In all cases, the drills simplify action and provide a general "play" whose specifics conform to the immediate tactical situation.

Drills are not a substitute for thinking or good tactical movement. While drills may provide formations that relate vehicles or weapons to each other, they are not geometric. Movement must use terrain driving and overwatch techniques.

Drills grant three advantages to the small unit tactician:

First, they can be adapted for all foreseen conditions and provide a simple basis for pre-combat training.

Second, in combat, they eliminate detailed orders and provide a conditioned response to varying situations while maximizing mutual support, distribution of fires, flexibility, and speed.

Third, unit drills permit the cross-attachment of vehicle and personnel within sections and platoons in combat without the need to give them detailed orders how to perform.

**Eighth Commandment:
Look Both Ways**

Small unit tacticians must stress seeing the battlefield. An eye for terrain must consider the ground both from the point of view of friendly and enemy forces. Not only does this apply to map reconnaissance, which should precede all tactical movement, but to visual inspection as well.

Vehicle commanders must learn to study terrain. They must use their binoculars to carefully study terrain in all directions before movement.

Viewing the terrain must be with a "mental mirror", namely, fighters must be able to visualize how they look to observers from any compass point opposite their own locations.

Looking toward the expected locations of the enemy is not enough. This reverse mental mirror image is key to survival in selecting routes, firing positions, and unit locations.

"...Good gunnery is a pre-battle concern. Training realistically is a 'you bet your life' concern...."

**Ninth Commandment:
Be Prepared to Fight
Under NBC Conditions**

Chemical operations are a key part of both friendly and enemy doctrine. The use of protective equipment and an in-depth understanding of the limitations placed upon troops by NBC employment is basic survival knowledge for all soldiers. Rigorous pre-battle training and continuous vigilance in combat are the only guarantees of being able to operate in an NBC environment. Of all the small unit rules, this requires the least elaboration: be prepared, or die.

**Tenth Commandment:
Understand the Three Gs
of Ground Combat.**

A commander during the 1973 Arab-Israeli War described ground combat as being a function of "good ground, good gunnery, and good luck." These "Three Gs" form the foundation for armored warfare, both in pre-battle training and in combat.

The "good ground" segment recognizes that terrain gives structure to the battlefield. Having learned how to see it, the tactician must learn how to use the ground. Killing zones, mobility corridors, avenues of approach, hindering ground, trafficability and intervisibility profiles form the basis for the tactics of any fight.

The schematics depicting fire and maneuver as drills or positions to occupy or assault, are given reality by the tactician's use of ground.

Ground is not always of the user's choice. When it is his choice, no excuse exists for picking unfavorable ground. When forced to go onto the enemy's chosen ground, how it's done, and the specifics of fire and maneuver, are the tactician's choice. Making the best of what's available, to include the art of going where it's impossible or unlikely to go, are key skills in the master tactician's repertoire. There is no simple school solution telling you to maneuver left or right, or how to task organize for the whole war. But, the ground provides a large part to the key of any tactical solution.

Terrain grants advantages if used well. To understand how the terrain affects enemy movement, particularly unit deployment, is key for the small unit tactician. Terrain estimates by map inspection must be done with enemy techniques and capabilities in mind, as well as the capabilities and characteristics of friendly units.

Good gunnery is a pre-battle concern. Training realistically is a "you bet your life" concern. Crew proficiency makes possible all the tactical advantages granted by knowing how to use ground. Amateurs lose face-to-face gun fights. Armored crews must understand that fact, whether their main system is a tank gun, chain gun, or missile. With a high degree of gunnery proficiency, a unit's combat worth multiplies, as does the survival rate of its crews.

The continuing inability of many units to stabilize and develop crews for the long term will cause unnecessary losses in battle.

..And Then There's LUCK...

Luck is not a doctrinal term. But it exists. Units are sometimes set up for instant success or failure by the factors of METT-T. Sitting on a good piece of ground and fighting an incompetent opponent helps. Sometimes, the tradition of being a hard luck or "snake bit" outfit happens for the opposite reasons. Poor leadership, inadequate training, or substandard equipment are the normal contributors to the beginning of a tradition of failure. All can be cured, and — in most cases — prevented.

The now-abandoned cliches about "First Battles" and the "Come-As-You-Are-War" originated in bad experiences, mostly by outfits with bad luck. Tacticians make their own luck by determined, well thought out, pre-battle training, and aggressive, reasoned action on the battlefield.

Major Roger Cirillo was commissioned in the ROTC in 1971 and has served in divisional and regimental armored cavalry assignments in CONUS, Korea, and USAREUR. A CGSC graduate, he has served on the faculties of the Armor School, Air Defense School, and the C&GSC. Currently, he is a war plans officer at Central Army Group headquarters in Heidelberg.



Providing Soldiers The Decisive Edge

by Captain Curtis L. McCoy
and SFC(P) Michael R. Womer, Sr.

New SHAFTS system control levers, at left, allow manual override of an M1's protective systems in combat.

You pull up and start to engage the enemy with your main gun. Suddenly, you hear a loud bang. You think you are hit, but you are obviously alive. The TC is screaming: "Back up, back up!"

You place the transmission selector in reverse and give the tank full throttle, but nothing happens. You look up. It seems like every indicator light in the driver's compartment is lit. You hit the reset button, but still nothing happens. You can hear the engine running, but it won't increase horsepower according to the throttle response. You look to the front and can see the enemy coming your way.

You tell the platoon sergeant that the tank is in some kind of protective mode, but the engine is still running. The next thing you know, you are preparing the tank for destruction to prevent its use by the enemy.

In this situation, the survivability of a tank crew might well depend on the ability of the system to extricate itself from a hostile environment, particularly after taking a hit. In such circumstances, mobility, to include placing the transmission in gear, becomes paramount, even at the expense of increased probability of long-term damage to the engine or transmission.

Two electronic systems that control throttle response and transmission drive range selection govern the mobility of the current M1 tank. The first major factor is the throttle response. An electronic control unit (ECU) that modifies the fuel flow to the turbine + regulates throttle response, depending on the driver's demands and the state of the engine. The unit has inherent algorithms called "protective modes" (PMs), which protect the engine — and these take precedence over driver commands. This prevents needless damage to a malfunctioning engine in peacetime exercises. One such protective mode is called

PM-III. When the ECU experiences a loss of electrical power — or believes it is sensing an engine fuel control malfunction — it throws the engine into idle and disconnects it from any further control. In this circumstance, the tank must operate with less than five percent of its available power, which effectively prevents it from moving. The crew can neither alter the fuel flow nor steer the vehicle when it is in PM-III. If the crew cannot reset the ECU, the system must be shut down. This neutralizes the tank's firepower and makes it likely that the system will not restart.

The other major factor is the electronic control of the transmission. If the electrical signal is broken within the system because of any component failure, the driver in a combat situation has no way to engage the drive train, even if the transmission is still functional. The only way to override this feature is to dismount under fire and attempt to push the forward drive plug in the rear of the transmission — not an option in combat.

In battle, transient losses of electrical power or erroneous sensor readings resulting from hostile fire might cause a reasonably high occurrence of PM-III or transmission malfunctions. In these situations, engine and transmission protection is a moot point. One must weigh the whole concept of protecting the power train during peacetime against the ramifications of possibly endangering the crew during combat.

In July 1986, the science advisor to the Commander-in-Chief, US Army Europe (USAREUR) and 7th Army, requested the Ballistic Research Laboratory (BRL), Human Engineering Laboratory (HEL), and the Ordnance Center and School (OC&S), at Aberdeen Proving Ground, Maryland, to inves-

tigate the potential of a "quick and easy" PM-III and transmission manual override fix that would be used only in battlefield situations.

The result of their efforts is the Shift Hand Actuated Fuel Transmission System (SHAFTS) on the M1 tank. This system provides the M1 tank a marked improvement over its current limp-home capabilities. The concept was to make the entire tank hull operational in a manual mode if required after an engine start cycle was complete. Second, the tank driver had to be able to operate this emergency system without exiting the tank under combat conditions. Additionally, there would have to be protection against frivolous peacetime use.

The SHAFTS that was proposed to offer an improved limp-home capability has essentially three subsystems:

- A mechanical fuel metering valve (Fig 1).
- A mechanical transmission shifter (Fig 2).
- A two-lever control box (Fig 3).

The mechanical fuel metering valve for regulating fuel flow to the M1's gas turbine en-

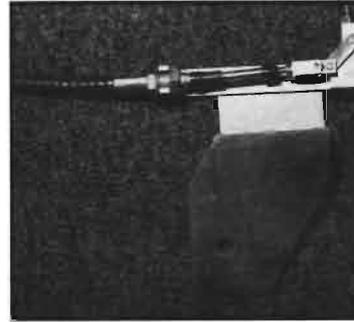


Fig 1

Mechanical fuel metering valve assembly

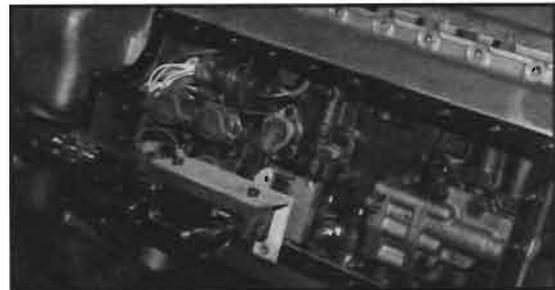


Fig 2. Mechanical transmission shifter assembly

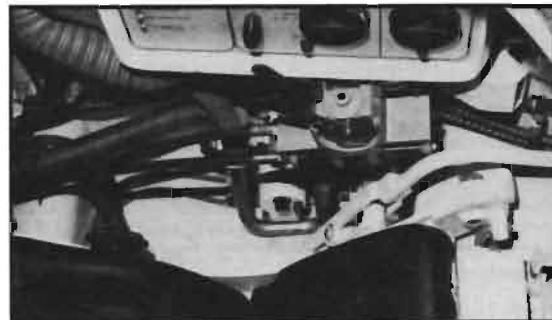


Fig 3 Two-lever control box at driver's station actuates cable links to engine.

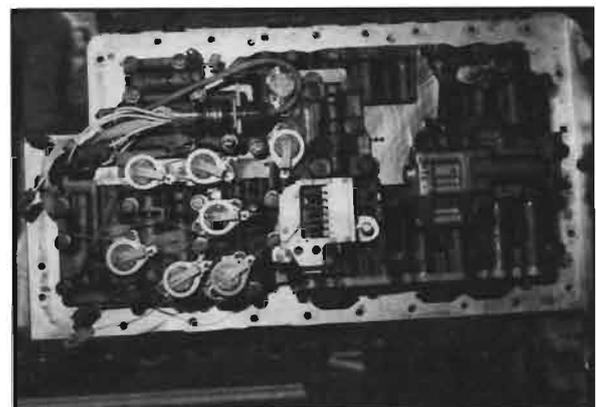


Fig 4 A full view of the transmission valve body shows transmission solenoid tripping mechanisms mounted at lower left.

gine consists of two bypass hoses connected to a fuel-metering valve, which permits a flow rate from zero to approximately 218 pounds per hour (PPH). A control arm with 90-degree rotation mounted in the driver's compartment actuates the valve. This allows fuel to bypass the engine's hydro-mechanical unit (HMU) during a PM-III. The bypass metering valve controls pressurized fuel provided by the HMU's high-pressure pump. The high pressure fuel is available at the "P1" test port on the HMU.

The manual fuel metering valve, which is closed during normal operation of the tank's fuel supply system, permits injection of a metered amount of fuel into the "P3" test port on the HMU. This fuel is directly injected into the gas turbine engine's combustion chamber. The restricting orifice controls the maximum volume of the valve's control arm. The driver remotely controls this arm through a flexible cable and control box. The valve's orifice was selected to permit a maximum fuel flow of approximately 335 PPH in PM-III, yielding an engine output of approximately 400 hp. The valve/orifice arrangement permits engine output (and vehicle speed) to go from zero to the maximum output permitted by the valve.

The manual transmission shifter for regulating the electronic solenoids within the transmission valve body assembly consists of a solenoid-tripping mechanism (Fig 4), connected to a cable from the driver's station. The tripping device operates the electrical solenoids within the automatic transmission, thereby permitting mechanical transmission operation without the need for electrical power. The mechani-

cal control on the transmission (Fig 2) does not interfere with the electrical functioning of the valve body. A disconnect device in the mechanical arrangement separates the mechanical control from the electronic system. The result was a tripping mechanism with four positions: drive, reverse, neutral, and unlock. The tripping mechanism raises the check balls in each solenoid in the required combinations.

The two-lever control box (Fig 3), used in conjunction with a manual flow and manual transmission shifter (Fig 2), permits control of both fuel flow and transmission shifting without electrical power. The interlocking device prohibits increasing fuel flow above the 72-horsepower limit under PM-III conditions unless the driver places the transmission into a drive gear. Conversely, the transmission may not be taken out of a drive gear unless the fuel flow rate is returned to the corresponding 72 hp. During combat operations, the driver can accomplish this.

In December 1986, the SHAFTS technical data package was delivered to MACOMs for evaluation. The end result was a possible solution to the user's requirement request to increase the M1's mobility survivability on the battlefield under a PM-III condition or possible transmission failure.

Thanks to the soldier and the chain of command, the Army Materiel Command's Field Assistance in Science and Technology (FAST) program and the U.S. Army Tank Automotive Command TACOM addressed this potentially hazardous operating condition..

Captain McCoy was commissioned in Armor at the USMA in 1978 and completed the Armor Officer Basic and Advanced Courses, the Motor Officer Maintenance Course at Ft. Knox, KY, and the Airborne, Ranger, and Infantry Officer Advanced Courses at Ft. Benning, GA. He also completed the German Airborne School, and the Combined Arms and Services Staff School at Ft. Leavenworth. He has served as a tank platoon leader, cavalry squadron and battalion motor officer, tank company XO, tank company commander, and is currently an armor research and development coordinator at the Ballistic Research Laboratory, APG, MD.

Sergeant First Class Womer enlisted in 1973 and is a graduate of the Armor NCO Basic and Advanced Courses, the M60A1/A3 Master Gunner Course, the M2/3 Commander's Maintenance Course, Fundamentals of Counseling course, and the Instructor Training Course. Among other positions, he has served as battalion master gunner, 2d Bn, 64th Armor; and brigade master gunner, 1st Bde 3d ID. He is currently assigned as the master gunner/NCOIC of the U.S. Army Ballistic Research Laboratory, APG, MD.



Templating the NTC OPFOR

By Major David J. Ozolek and Captain Michael T. Pierson

Task force operations conducted against the National Training Center's (NTC) Opposing Force (OPFOR) motorized rifle regiment have shown that a template can be a useful aid in quickly determining a projected enemy course of action. When properly selected and applied, a template can assist the commander in anticipating the OPFOR's actions before they occur, thus increasing his available reaction time.

Although OPFOR formations, frontages, and timing are relatively predictable and easily templated, the OPFOR commander has a reasonable degree of flexibility in fitting his concept to the actual conditions of the battlefield. Too often, the task force's ability to react to the OPFOR's mass and speed are seriously handicapped by an initial misunderstanding of the OPFOR's intent and an insistence on adhering to an improperly selected template even when battlefield realities indicate that the OPFOR is not following the predicted course of action.

A mis-selected template, coupled with insistence on making battlefield realities fit the template, rather than adjusting the template

to fit the battlefield realities, can become a deadly trap; the commander fails to react to OPFOR actions because they do not fit his predetermined concept.

One of the main duties of the S2 is to select from the many possibilities the correct template to use. This task has proved to be particularly difficult for many junior intelligence officers. Selection and application of a template require the S2 to have a general knowledge of the conditions under which the OPFOR commander develops a concept of operation. He must have the ability to conduct an accurate METT-T (Mission, Enemy, Terrain, Troops, and Time available) analysis of the situation, and an operational sense of OPFOR tactical doctrine. These enable him to read the battlefield as the situation develops and to adjust his interpretation of the OPFOR effort as OPFOR actions occur.

The OPFOR regiment may begin its attack from a rapid march-to-contact column, deploying for a hasty attack or meeting engagement upon contact with the Blue Force. The march column offers rapid movement and security, but requires considerable time for the

massing of sufficient combat power for the attack. It also offers flexibility, allowing the deliberate commitment of combat power to critical locations as the battlefield situation develops. But until sufficient combat power arrives, committed elements are subject to counterattack and piecemeal destruction by superior Blue Forces.

Alternately, the OPFOR regiment may begin its attack with the regiment's reinforced motorized rifle battalions already arrayed in attack echelons at the line of departure. Deployed formations move at roughly half the speed of the march column, but offer instantaneously available firepower in the direction of the formation's orientation. They are, however, relatively inflexible and, once committed, require a major command and control effort to reorient as changes in the perception of the Blue situation occur.

Generally, the OPFOR regiment will attempt to gain speed by remaining in column as long as possible. When the regiment clearly identifies the Blue forward trace from reconnaissance efforts prior to the attack, it will deliberately build

combat power by developing the battalions forward of Blue positions at the predetermined (and reasonably predictable) lines into assault formations, first to company columns (at roughly six kilometers forward of the line of contact), next to platoon columns (three kilometers), and finally to the assault line (1.5 kilometers). These lines are terrain-dependent norms and not rigidly enforced requirements. If the Blue situation is not clearly defined, the regiment will stay in the march formation, advancing quickly toward the Blue Force until forced to deploy by significant combat power. The choice of initial formation results from balancing or prioritizing the competing requirements for speed and massed combat power.

When discussing OPFOR formations, it is important to be fully aware of the difference in nature between echelons and reserves. Echelons are subunits arrayed in depth, each assigned a specific objective. The first echelon's objective is a line to seize or Blue element to destroy to support the deployment of the next echelon. Upon achieving the initial, or "immediate" objective, the echelon will consolidate and allow the next echelon to pass, and continue the attack to its assigned objective. The relative positions of echelons are predictable and aid in recognizing the formation selected.

Reserves, however, are contingency forces taken from subunits of the echelons and used to accommodate unanticipated developments such as counterattacks or undiscovered defending elements that cannot be bypassed without the regiment or a subunit taking unacceptable losses. Reserves are not assigned missions until after an unanticipated development occurs. Reserves may appear almost anywhere in a formation and must be recognized as reserves or they can lead the analyst to a false

conclusion about the OPFOR formation and intent.

The same factors of METT-T that a Blue commander uses in developing a concept of operation the OPFOR commander uses in developing his assault formation. Even the massive forces of the Soviets cannot attack everywhere at once and still enjoy sufficient combat ratios to ensure success. OPFOR doctrine provides for the concentration of combat power at the critical point of attack, while lesser degrees of combat activity take place elsewhere. For example, within a motorized rifle division of four regiments (three motorized and one tank), the division commander may designate one of the regiments to conduct a divisional supporting attack with a low combat ratio on a wide front, while the bulk of his combat power is echeloned in depth on a relatively narrow frontage at the point of the main attack.

Mission

The particular mission the regiment assigns to the OPFOR regiment is an important factor in determining the type of formation the regiment will use. The Blue brigade S2's analysis of the enemy's courses of actions should indicate to the task force whether it can expect the motorized rifle division's main or supporting attack. If the main attack is anticipated, the task force should expect an attack in depth, preceded by a massive fire support preparation of the area. The assault will follow in multiple echelons, with each subunit assigned a specific objective to support the deployment of the following echelon.

If the supporting attack is predicted, the OPFOR regiment will have the mission of simultaneously attacking all Blue posi-

tions within its extended zone. The primary objective is to fix the majority of the defending force, both by close assault and by denying him knowledge of the location of the main effort. This fixing attack prevents the Blues from moving laterally to reinforce decisively outnumbered forces at the point of the main attack and delays the defending commander's decision of when and where to commit his reserves.

The OPFOR regimental commander under these conditions would probably lean toward attacking with all three reinforced MRBs in one echelon, maintaining only a small combined arms reserve of approximately one motorized rifle company. In this case, the task force must be alert for the probability that no tactical second echelon assault will occur, and that upon defeating the supporting regiment's fixing assault, it must be prepared for rapid relocation to reinforce the hard-pressed units subject to the main attack, or to counterattack to destroy the OPFOR's penetration.

Enemy

The next METT-T factor the OPFOR commander considers is the disposition and composition of the Blue Force. Once again, if the Blue situation is not clearly defined or is fluid, the regiment will move initially in the march column and will deploy as the situation develops. However, when a thorough intelligence picture has been developed, the commander will specify an appropriately echeloned formation.

An additional consideration of the OPFOR commander is the quantity of firepower available. Both direct fire capabilities and indirect fire assets, to include possible NBC weapons, must be considered. Sufficient mass for success must be balanced with required dispersion

for protection against mass destruction weapons. Generally, the OPFOR follows the rule that a defense in depth must be met by an attack in depth. In other words, the greater the depth of defense, the greater the number of echelons that will be required to overcome the defense.

Terrain

This METT-T factor also impacts on the choice of formation. The narrower the sector and the fewer the number of MRB corridors, the more likely the deeper echelon of the attack. Additionally, the commander will orient his echelons, or sub-elements of his echelons, on key terrain that must be taken to ensure the continued advance of the regiment.

Let's consider some possible mission, enemy, and terrain combinations which would likely lead to a choice of formation.

In the first case (Fig.1), the conditions include Blue forces deployed in a linear formation with considerable firepower forward, but lit-

tle depth; multiple MRB avenues of approach into the objective area; the regiment assigned a divisional supporting attack mission.

In this case, the likely regiment formation would be one echelon with a small combined arms reserve. MRBs would attack either with companies in one echelon or multiple echelons, depending on the specific MRB mission assigned by the regimental commander, the disposition of the Blue Force, and the terrain considerations of the individual MRB's zone.

A number of reasons support this concept. The Blue Force has the capability to concentrate great firepower forward to destroy each echelon as it presents itself without an overwhelming force ratio. Attacking with the entire regiment on line, however, would present more targets that the Blue Force could service before its shallow depth was overrun. Multiple routes into the objective support such a formation. Further, the division commander's stated intent for the regiment to provide the supporting attack implies the requirement of fixing the

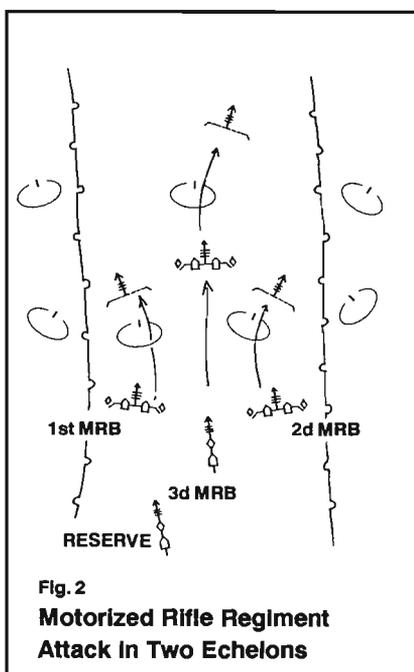
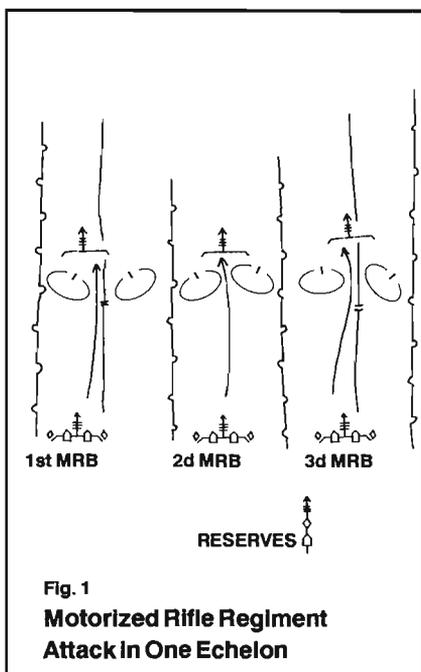
"...The narrower the sector and the fewer the number of MRB corridors, the more likely the deeper echelon of the attack...."

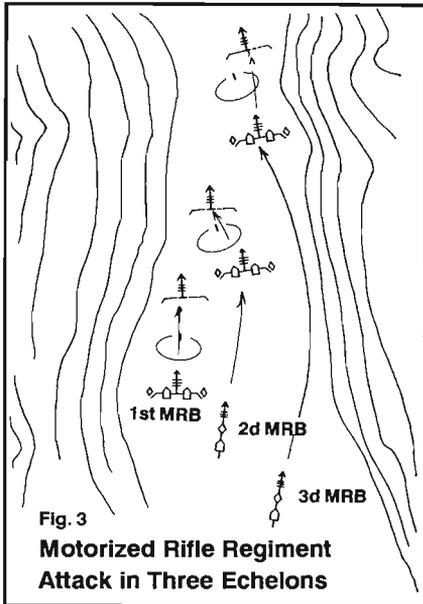
bulk of the Blue Force with simultaneous attacks across the entire frontage.

In the second example (Fig. 2), a different set of circumstances exists. The Blue Force in zone appears to be arrayed with two company teams forward and one team in depth, approximately 3,000 meters to the rear. The terrain offers multiple MRB routes throughout the zone. The regiment is the main attack force of the division's second echelon MRR, which will be deployed around the first regiment and under its covering fires after the regiment has achieved its objective of the day.

With these considerations in mind, the regimental commander would probably order an attack in two echelons. The first echelon's assignment would be to destroy the forward teams and then support the deployment of the second echelon MRB in its attack on the team in depth. A small combined arms reserve of one tank platoon, one motorized rifle platoon, and an antitank platoon would be from the MRB assigned the supporting attack mission and retained by the MRR commander as a reserve.

Here, the commander's reasoning focuses on the depth of the defense and the requirement to seize a line of deployment for the follow-on regiment. By passing the second echelon MRB around or through





the first echelon as it conducts its assault on its immediate objectives, continuity of the attack can be maintained and the time available to the Blue Force for movement of reserves is drastically reduced.

Once again, the multiple routes into the objective support such a concept.

A third example (Fig. 3), denies the maneuver freedom discussed in examples 1 and 2. A narrow defilade, such as a mountain pass, restricts movement to one MRB at a time. The Blue Force is deployed in depth throughout the defilade. The OPFOR regiment is a forward element of the division in a divisional advance to contact. A main and supporting attack has not yet been designated. The division is advancing initially with two regiments forward on separate axes, and two regiments in the second echelon.

The considerable depth of the defense and the terrain restrictions here require a three-echeloned attack. Each MRB would be assigned responsibility for destroying the Blue company teams one at a time to clear the way for the deployment of the next echelon.

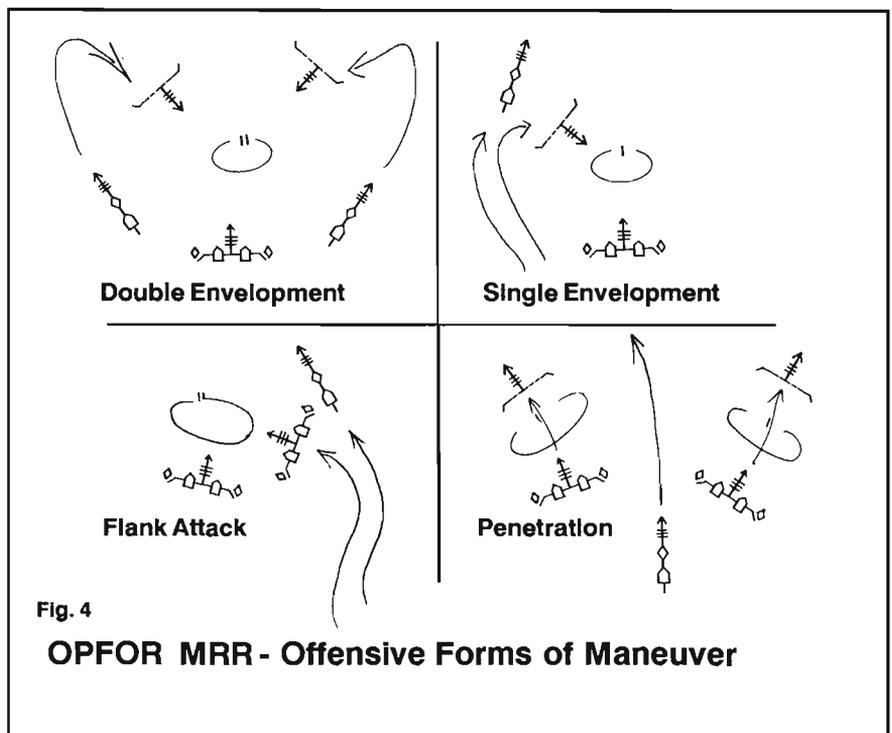
"...A carefully developed, highly sophisticated maneuver system that complements both the hardware available and the social perspective that permeates Soviet society has replaced the WWII massive frontal assaults...."

Troops

Another major METT-T factor the OPFOR regimental commander considers is the status of his own troops. Important items he must evaluate include the number of tanks available per MRB, other equipment shortages, ammunition constraints, the availability of fire support, condition of the troops and equipment, morale, etc. These considerations serve as a final check that the concept is viable, and the existing force structure can support it.

In addition to understanding the OPFOR's application of METT-T, the Blue S2 must understand the OPFOR's forms of maneuver. A carefully developed, highly sophisti-

cated maneuver system that complements both the hardware available and the social perspective that permeates Soviet society has replaced the WWII massive frontal assaults. Although the commander displays little hesitancy in the conscious decision to accept the attrition of a designated portion of the force to ensure the success and survival of the larger body, he will employ a relatively high-cost maneuver such as the frontal attack only when more favorable forms of maneuver are not practical (Fig. 4). Much more likely than a frontal assault is an envelopment or double envelopment, in which forces move quickly through gaps in forward defensive positions and attack the defender's rear.



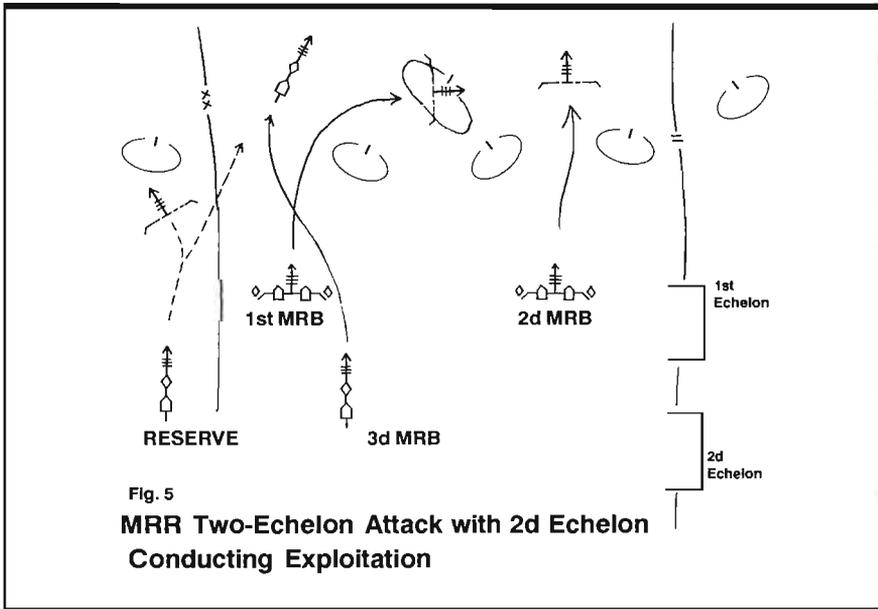


Fig. 5
MRR Two-Echelon Attack with 2d Echelon Conducting Exploitation

Flank attacks are also a preferred maneuver. When flanks are not exposed and gaps do not exist or cannot be created by nuclear, chemical, or conventional fires, a frontal attack to achieve a penetration may be a last resort. When given the opportunity, he will always employ the principles of fix, bypass, and conduct a deep attack, which lead to final refinements in the formations. If the S2 recognizes these, they can help in the early determination of the OPFOR's intent. A few examples illustrate this idea.

The first example (Fig. 5), is that of a first echelon regiment on the divisional main attack axis that has located a gap in a boundary between defending divisions. The regimental commander has decided to attack in two echelons with the 2d MRB conducting a fixing attack against the lead teams, and the 1st MRB passing through the gap between divisions and conducting an exploitation in march column deep into the Blue rear.

In the next example (Fig. 6), a first echelon regiment has the mission to exploit a gap in forward defenses created by a fire strike. To gain as

much ground as possible before the Blue Force can reorganize and commit reserves, the regimental commander has decided to begin his advance in the march column. After having advanced a considerable distance, the combat reconnaissance patrol has located a Blue task force which has occupied hasty defense positions, blocking the regiment's route of advance. The division commander feels this force must be eliminated and orders the regiment to conduct an attack.

Reacting to a fluid situation this deep in the defensive sector, and with the bulk of its forces still in contact in the forward defen-

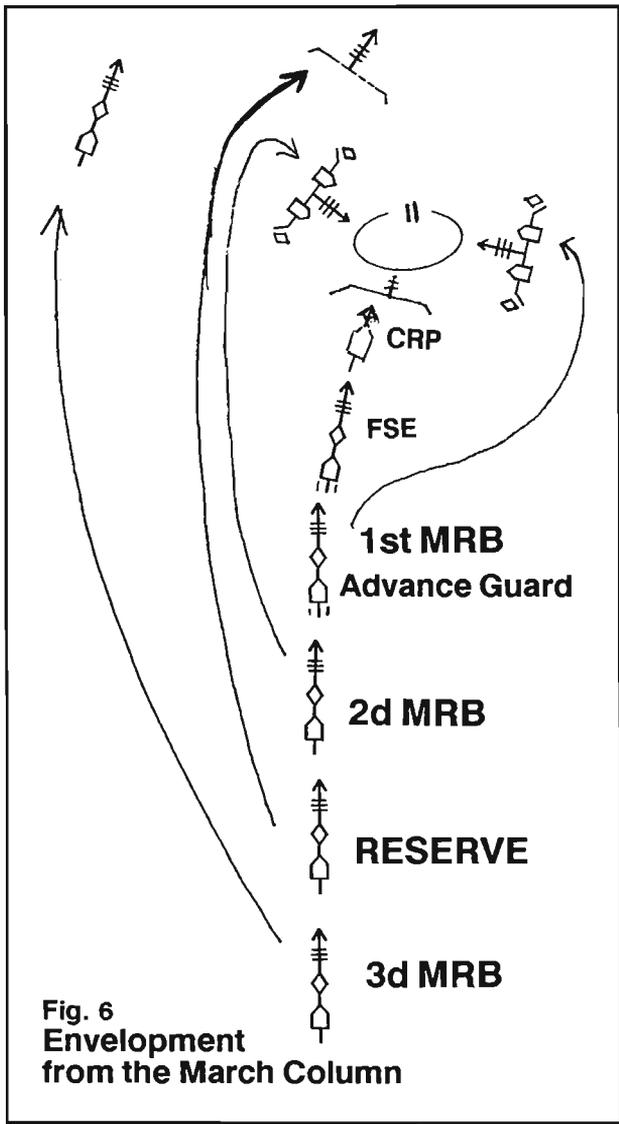
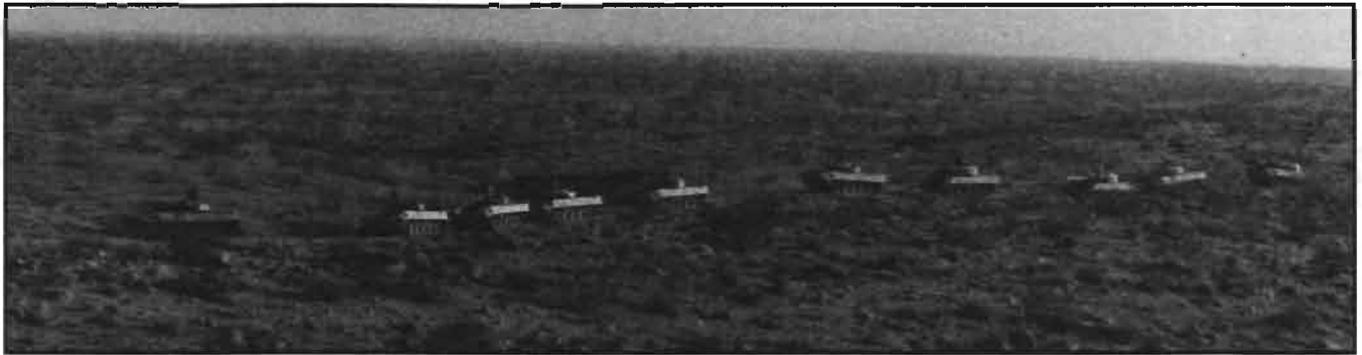


Fig. 6
Envelopment from the March Column



sive positions, the defenders have neither the assets nor the time to tie together a well-established, concentrated defense. The flanks of task forces occupying such hasty defensive positions will be wide open, and the OPFOR will be quick to exploit such an opportunity. The regimental commander in this situation would order his advanced guard battalion to fix the defender with its forward security company and conduct a flank attack on the defender's right flank, occupying and attriting him until the regimental main body can deploy. His concept is to complete the destruction of the task force with an envelop-

ment of its left flank by the 2d MRB. The regimental reserve, consisting of one tank platoon, one infantry platoon, and one antitank platoon, will bypass the second MRB and establish a blocking position behind the Blue Force to prevent its withdrawal and to isolate it from any reinforcements. The 3d MRB will bypass and continue the exploitation in march column.

Upon completion of this battle, the regiment will reorganize and continue to exploit. These OPFOR tactical principles show that there is considerable flexibility and complexity in OPFOR doctrine when outnumbered and out-gunned. Our own tactical doctrine, however, offers battlefield advantages that can result in victory, but only if we dominate the battle by anticipating the enemy's actions, seizing the initiative, and forcing him to react to our pressures, rather than vice versa.

The template is a valuable tool that can assist in exploiting an enemy weakness, but it is only as effective as the insight of its user. Thorough knowledge of the enemy and his combat philosophy can give us the edge, the rapidity of action, necessary to win.

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Captain Michael T. Pleron served at the NTC as the commander of the OPFOR EW/REC detachment, S2 of the OPFOR motorized rifle regiment, and as a scout platoon leader. He graduated from Carson-Newman College, East Tennessee University, Military Intelligence Advanced Course, and the Combined Arms and Services Staff School. He has been S2, 1st Battalion, 35th Armor, and is currently S2, 2d Brigade, 1st Armored Division, Germany.





Desert Maintenance For XO's and BMO's

by Captain Kevin P. O'Dwyer

Because many future battlefields may lie in deserts, our armored forces must be ready to sustain the fight in a desert environment. The purpose of this article is to provide the maintenance leader, at battalion level and below, with comments on what FM 90-3, "Desert Operations," says or doesn't say about maintenance in the desert. FM 90-3 says some things that I feel are not emphasized enough or that are untrue. Some quirks of maintenance in the desert are omitted.

Four environmental extremes make the desert different: low humidity, extreme temperatures, lots of grit, and winds to stir up the

grit. Each extreme makes desert maintenance different from European "tanker country" maintenance. The hints I'll give are gleaned from 20 months as a cavalry troop executive officer at Fort Bliss. The desert there closely resembles the Sinai and Ethiopia in climate, land forms, and soil composition. Let's examine each extreme and how we can counteract it in maintenance operations.

Low Humidity

FM 90-3 contains good advice on water use in the desert. It is correct in stating that batteries are strained in the desert. But the biggest threat

to vehicle batteries may be crew maintenance. Batteries filled with otherwise drinkable water can lose power. Local water often contains a zoo of dissolved minerals. The process of filling, evaporation, and refilling of batteries can weaken the acid solution. The specific gravity will read true, but batteries will not hold a charge. Push distilled water down to crew level, and liberally stock it at the support platoon.

Heat Extremes

The temperature in the Ft. Bliss desert normally swings 40- to 50 degrees Fahrenheit each day. The problems in maintenance come with

high temperature. There are ways to negate the electrical and physical stresses associated with high heat.

Heat causes great strain on vehicle solid-state electronics. Carry extra solid-state regulators for the M60- and M113-series vehicles. The DS maintenance company will often not be able to keep up with exchange and repair demands for M113 regulators. Overcharging is a very real danger in tanks and personnel carriers due to hydrogen buildup. Set voltage levels properly, and carry extra batteries.

Our current radios are also prone to fail in the desert. You have to stop both radiant heat from the sun and accumulated heat inside vehicles from killing radios. A VINSON "doghouse" is always desired for an externally-mounted radio. It gives ventilated shade to the radio, whether or not the radio is secure. Oddly, the newer, solid-state generation VINSON devices, if on top, never fail in direct sunlight. The solution to accumulated heat is simple; we use fans. Twelve volt fans, hot-wired to a single battery, keep a TOC working all day. You can use damp towels, but they dry out quickly and require air circulation.

Physical stress due to temperature is negligible for metal, but it kills synthetic materials. For metals, have mechanics carry glove shells. Tools, decks, and parts left in the sun for more than five minutes become too hot to handle. Synthetic materials not only get too hot, they begin to break down quickly. FM 90-3 advises us to tape wires before they are worn. This doesn't work with

regular electrical tape. It softens and unravels. If you don't want tape flapping around in an engine compartment, use high-temperature tapes or plastic ties and spirals.



Engine swaps and other major maintenance tasks are complicated in the desert by the grit problem and aggravated further by constant winds. Sheltering the working area to keep things clean is a challenge.

Tires soften incredibly in the heat. The worst enemy of tires is a stretch of hot, dry weather. This not only softens the tires, it hardens the thorny, spiny desert plants. Shrapnel will work its way into tires. Cross-country movements can become impossible in wheeled vehicles. Each

wheeled vehicle should carry a minimum of two spares. Unit PLL must increase the number of tires, patches, and especially inner tubes. A pool of fresh spares allows quick exchanges.

Grit

Probably the one extreme that makes people think of a desert is the sand (big grit), and dust (small grit). It lies everywhere and it gets everywhere through the air. Your biggest problem is grit in the running gear of tanks. Wheel bearings become gritty and then literally explode as they overheat. Prevention consists of frequent checking and frequent lubrication. Frequent lubrication pushes out fine dust, much as in an over-pressure NBC system.

Track will suffer track bushing wearout before the track pads will wear out. The heat and cyclical stretching allows dust to enter and destroy bushings. FM 90-3 states that T97 track is inferior to T142 track. We found the opposite to be true. T97 track usually lasts at least 18 months, while T142 track lasts a year. I feel the Army should seriously study this disparity. The way to counteract bushing wear is to stock extra track, and to watch track tension closely. Loose track quickly throws in soft sand. Tight track causes rapid bushing wear. Tight track also seems to cause too many number one hubs to burn out.

Again, contrary to FM 90-3, vehicle recovery is not the same. You can't tow tanks without tracks through the dunes. You will plow the desert hip deep. While doing this, you subject roadwheels to

undue lateral stresses, cause hubs to bend out of true, and dust to enter seals. Try to fix mobility problems in place, even if it violates doctrinal evacuation and repair times. HETT recovery is possible only on paved or scraped roads.

Dust ingestion by engines is the second biggest problem. Air filters will fill up in one field problem. Don't band air boxes, but be dead sure crews don't destroy seals when cleaning air filters. Be liberal when stocking air filters, and replace them freely. One field problem a week is all it takes to completely fill tank bellies enough to cause overheating. Cleaning of air boxes and hulls must be a part of field recovery. Whenever you remove engines, shovel out the engine compartment. Mineral dust is not a problem in fluids like oil and fuel. But organic dust, from pollen, wood, and leaves usually clogs filters. It enters dry, then swells into a gelatinous mass at the filter. Carry extra fluid filters.

Grit will only fog optics if they are touched. Blow, rinse or brush dust off glass optics. A finger or "drive-



Heat, humidity, grit, and wind create unique maintenance problems in a desert environment. Here, tanks are rolled out at the equipment issue point at the National Training Center in the California desert.

on" rag scratches. One fatal problem is storage of PVS-5 goggles without cleaning. Always clean glasses before storage, right then and there. Plastics normally decay before they fog. This problem occurs frequently in vehicle periscopes. Heat and light break down adhesive layers, causing early replacement of the periscope.

FM 90-3 contains good advice on keeping weapons free of dust. Lubricate only moving parts. I'd take this one step further and say only lubricate moving parts where they touch other parts. Solvents, like dry cleaning solvent, are best for cleaning weapons. Break Free, unfortunately, leaves a sticky, oily residue.

Winds

Flat deserts have high winds, often in three dimensions. The speed of the winds allows them to carry enough grit to shut down a normal maintenance operation. The trick is to keep only what you need clean out of the wind. Position engine compartments down wind. Portable shelters work well. All your extra track will hold shelters down. Carry lots of garbage bags. They keep grit off greasy parts, off spindles, and out of holes.

You must do some operations, like engine removal, outside. All the soft aluminum, plastic, and brass adapters we routinely strip from engines will wear out. Carry a spare set for each type of engine, and equip every mechanic with Teflon tape. Don't let a 20-cent adapter, worn by sand, deadline a new engine. Accept the fact you must work in gritty winds. Windstorms can last for weeks.

I have outlined countermeasures to use against desert climate extremes. At least, think of how the extremes can disrupt your support. Plan what you will do to counteract the climate. If you're not sure, contact a unit that has spent time in the desert; they do have expertise. Just don't waste energy in fighting the desert that is better spent keeping tanks rolling.

Captain Kevin P. O'Dwyer is a 1982 West Point graduate who served as platoon leader, XO, acting S3, and S3 Air at the 3d ACR, Fort Bliss. He wrote this article while a student at the Armor Officer Advanced Course, Fort Knox.

The Battle of Perryville, Kentucky: Initiatives Lost and Won

by Robert E. Rogge



Union and Confederate forces tangled at Perryville, KY, on 8 October 1862, amid blistering 90-degree heat and a plethora of counter-productive and confusing orders on both sides. Neither commander really knew what was going on, and it was up to the subordinates to get the battle going, keep it going, and to try to win.

Because the battle offers a number of valuable lessons in command and control that apply to today's AirLand Battle precepts, the U.S. Army Armor School at Ft. Knox, some 50 miles from Perryville, conducts periodic "staff rides" of the battlefield for students of AOAC classes. These day-long excursions take the student officers on walking tours of the rather extensive battle site, and knowledgeable instructors point out the tactical situations as they developed during the battle in which some 7,500 men became casualties.

TRADOC recently inaugurated the practice of visiting battle sites near Army service schools to reinforce students' understanding of current-day battle C&C problems by understanding how those same problems were solved or ignored in previous battles. At Perryville, C&C problems were mostly ignored, as the students learn on their hikes across the rolling countryside that once shook to the battle's roar.

MAJ William Shoup, chief of the leadership branch at the Armor School, said of Perryville: "In addi-

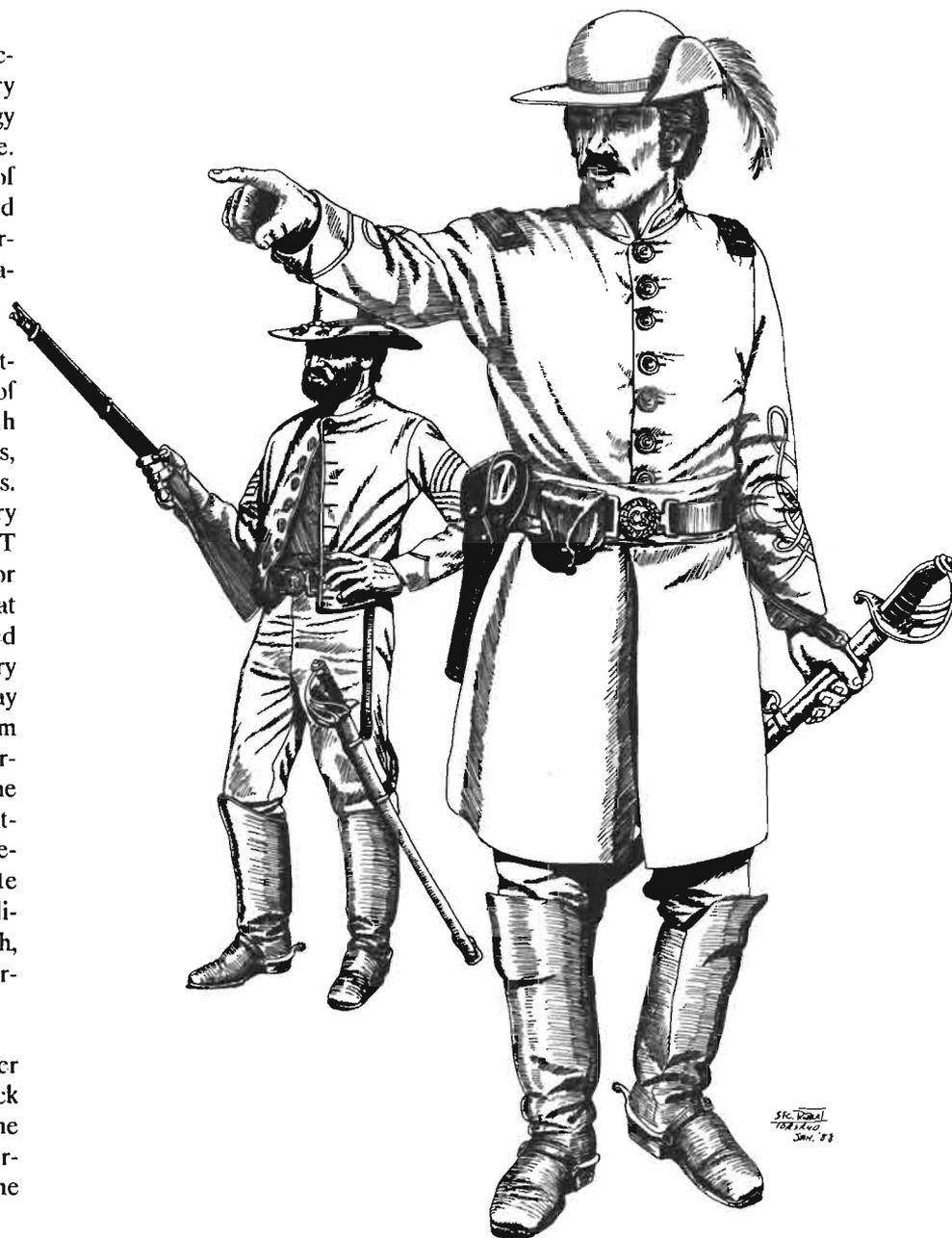
"...Union cavalry did little better during the battle, again due to lack of reliable intelligence and, in some cases, bull-headed orders that forbade them taking action when the taking was good...."

tion to teaching the students the tactical points of the battle, we also try to imbue them with the psychology of the men who fought that battle. That is a very important part of their training here at Fort Knox and one that could very easily be overlooked in the usual staff ride operation."

During the course of the battlefield tour, students study some of the more glaring errors of both Union and Confederate leaders, from generals down to lieutenants. In stressing the modern day cavalry role of reconnaissance, CPT Stephen C. Hawkins of the Armor School cavalry branch noted that the Confederate cavalry performed no reconnaissance of Union infantry forces as they fought a several-day cavalry delaying action south from Louisville and Frankfort to Perryville. The cavalry units became separated, each fighting its own battle, during the retrograde movement. As a result, Confederate General Braxton Bragg had no reliable information on the strength, route, or intentions of the Union forces he was going to meet in battle.

Union cavalry did little better during the battle, again due to lack of reliable intelligence and, in some cases, bull-headed orders that forbade them taking action when the taking was good.

A striking example of initiative, of deceiving the enemy and keeping him off balance long enough to have an influence on the main action,



was the action of CSA COL Joe Wheeler who, with about 700 men, tied up 21,000 Union troops under MG George Thomas, MG Don Carlos Buell's second in command. Wheeler accomplished this by feint attacks with dismounted cavalry and by rushing his mounted troops back and forth across the field, which caused the Union leaders to greatly overestimate his real strength. Wheeler's excellent deception kept a large part of the Union forces away from the main battle where they could have exerted a profound influence on the action. This was but one example of individual initiative that instructors point out to the students.

CPT David L. Andersson, a history instructor at the school, noted that, "Virtually everything that could happen in a battle today happened at Perryville, including deception, subordinate initiative, logistical problems, even a severe shortage of water for the troops who fought under that blazing October sun."

Today's commanders learn to fight their battles from positions that will enable them to get and keep the clearest overall view of the action. A great many Civil War battle leaders on both sides did just that, directing their men from the very front lines. Generals Buell and Bragg, however, did not. Buell was so far from the battlefield he didn't even know there was a major engagement in progress until his aides told him. And Bragg holed up in Perryville and relied on such incomplete intelligence and scouting reports as, "There's a whole bunch of 'em out there, sir."

As they walk the battlefield, the students visualize various examples of how hide-bound orders can affect a battle. A prime example was that of newly-promoted BG Phil Sheridan, (who later won fame for

ders to stay put and to "Do nothing to bring on a general engagement."

A Confederate infantry brigade was forming up on one terrain feature in front of Sheridan's position, and Sheridan requested permission to attack before the enemy could complete his formation and begin an attack. His request was denied. Sheridan had orders to maintain his position, and that was what he would do, period. The opportunity passed for Sheridan's troops to break up the enemy formation and relieve another sector of the Union line before the coming attack.

That Confederate brigade, however, did not get off scot-free. When it began its advance, another infantry brigade marching under conflicting orders crossed its front. When that mess was sorted out, the attackers found themselves charging a high cliff with Union troops on top firing down on them. The instructors emphasize the lesson of one commander not knowing what was going on at his flank.

Again and again, the instructors stressed the lesson to the students that various commanders at Perryville lost vital opportunities to gain the initiative simply because they either did not have accurate and timely intelligence, or they ignored what information they did have and proceeded to fight in accordance with what they could actually see. Instructors emphasized the importance of factual scouting reports at many stages of the tour.

The students divided into manageable groups and toured the bat-



his historic ride up the Shenandoah Valley to rally his troops after a defeat), who commanded an infantry division at Perryville. Sheridan's division was sited on a conspicuous terrain feature with or-

"...The Confederate forces withdrew because Bragg mistakenly believed (in view of the inaccurate intelligence he had received) that he was facing a much larger Union force than was actually on the field...."

tlefield under the guidance of their instructors. Each instructor carried detailed terrain maps with several acetate overlays marked to show the positions of various units at progressive stages of the battle. By actually walking the battleground, the lieutenants and captains saw for themselves what the maps represented. They saw the hills and the valleys, the water course (hauntingly named Bull Run), and, in the distance, Perryville. The tours are good hands-on training, better than sand tables, for they present the scene as it actually is, and the officers saw for themselves how vision was restricted in one direction, open in another; how the folds of ground hampered or helped troop movements; and many other tactical tidbits that would prove useful when they returned to their units.

According to CPT Bill Callaghan, one of the instructors, it is the desire of every battlefield commander to put "the masses of his forces against the pieces of the enemy." This is simple arithmetic: The more firepower you can concentrate against individual enemy units, the more likely you are to win.

None of the commanders at Perryville seemed to know of or use this very basic principle of fighting. The regimental and brigade commanders seemed only interested in fighting their own fight without paying attention to what was going on around them. As a result, many regiments suffered heavy casualties in charges against superior forces, charges that could have been as-

sisted by flank movements from neighboring regiments.

In one such movement, a Confederate attack was cutting Union regiments apart, one by one, as it advanced inexorably toward the Union left flank. One Union commander saved the day. COL John C. Starkweather, brigade commander on the left-most flank of the Union line, had his brigade positioned in a swale, concealed from Confederate sight. He watched the Union regiments being cut to pieces to his front and made ready to receive the enemy.

As the remnants of the Union forces fled through his line, Starkweather moved his men to the top of the swale and opened volley fire on the Confederates. Unprepared for such a surprise, the Rebels wavered, then came on again. Starkweather skillfully maneuvered his brigade in a series of controlled retrograde movements from terrain feature to terrain feature until he was established in a position that he could hold. His daring and skillful use of his men protected the Union left flank, destroyed the attacker's initiative, cost him severe casualties, and held the flank. The instructors emphasized how Starkweather's quick grasp of the initiative prevented what could have been a Union rout.

Neither side won a clear-cut victory at Perryville. The Confederate forces withdrew because Bragg mistakenly believed (in view of the inaccurate intelligence he had received)

that he was facing a much larger Union force than was actually on the field. His withdrawal gave the Union a strategic victory and kept Kentucky in the Union. Conversely, Buell did not win the battle by physically defeating the Confederates on the field. He won by default. It was a battle fought at the expense of many lives that could have been saved had the commanders known what was going on, had they paid attention to what little intelligence their scouts brought to them – and had they received reliable information in the first place.

The AOAC staff rides to Perryville illustrate the vital importance of accurate and timely intelligence, the commander's use of such information, the necessity to keep totally informed about flank actions, the importance of subordinate commanders' knowledge of their commander's intent, and the importance of mission-type orders that allow subordinates to fight the battle as they see it from their frontline view.

The Perryville staff rides will continue to be a major part of each Armor Officers Advanced Course at Fort Knox. The lessons learned by the young officers on that 125-year-old battle site are as applicable to today's AirLand Battle concepts as they were in the days of muzzle-loaders and horse cavalry.

Robert E. Rogge is the Assistant Editor at ARMOR.

The Dynamo Connection:

Major General Ernest N. Harmon and the American Armored Division During World War II

by Colonel John W. Mountcastle

The profane and hot-tempered Ernest N. Harmon brought to corps the rare combination of sound tactical judgement and boldness that together make a great commander. More than any other division commander in North Africa, he was constantly and brilliantly aggressive; in Europe he was to become our most outstanding tank commander....¹

— GEN Omar N. Bradley

A West Point graduate, class of 1917, "Ernie" Harmon was just one of many solid young men who sailed for Europe in early 1918. Assigned to the U.S. Second Cavalry, Harmon was determined to do more than his share in the struggle popularly known as the War to End All Wars.

Like so many of his classmates, the young officer (a captain by war's end) spent a great deal of his youthful enthusiasm and some of his blood in the muddy trenches and shell-churned fields of France. His combat experiences in the St. Mihiel and Argonne offensives led to an enduring hatred of the tactical situation that was epitomized by trench warfare. A revulsion at the great losses suffered by infantry formations and a suspicion that the day of the horse cavalry was done on the modern battlefield were among the mementos that he brought home from Europe.

These impressions led him to frequently question those solons of the *status quo* he encountered in the troop assignments and schools that

filled his time during the interwar years. The same aggressiveness that was Harmon's combat hallmark in two world wars led him to compete in the 1924 Olympic Military Pentathlon, to serve with great success



MG Ernest N. Harmon in postwar assignment as commander of U.S. Constabulary, the occupying force in Germany after the war was won.

as a leader of the Civilian Conservation Corps, and caused his eventual decision to leave the cavalry for the bastard child of the U.S. Army — the undermanned, partially equipped Armored Force. His personal commitment to the new armor branch proved to be, in his case, a marriage born of conviction, nurtured by devotion, and fulfilled in combat. It was a union of dynamos.²

Ernest Harmon would command the 2d Armored Division in North

Africa and again in northwest Europe. His demonstrated talent for aggressive battlefield leadership dictated his selection as a replacement for the battle-weary commander of the 1st Armored Division in the acrimonious aftermath of the Kasserine Pass debacle.

Harmon led the still-shaken 1st Armored through the successful destruction of the Afrika Korps that followed Kasserine and took his adopted division to the deadly, dreary slugfest that was Italy. The last year of the war in Europe would see him leading his tankers, armored infantry, and self-propelled artillery on the drive for the Roer River basin and through the crucial actions that blunted the spearhead of Hitler's last great offensive in the Ardennes. A corps commander by war's end, Harmon participated in the final destruction of the Third Reich.

Despite his battlefield successes, Ernest N. Harmon would retire in 1948, still wearing the two stars of a major general. There was, it seems, no call for his talents in the upper echelons of the peacetime Army. He was a fighter, first and last. The general, called "Old Gravel Voice" or simply, "The Bull," by his troops, the armored division commander who perhaps best understood the concepts of mechanized combat, the tough fighter who rode into battle in the turret of a Sherman tank in order to "feel" the battle, had always been ready to speak his mind, to let the chips fall where they may. He ruf-

"...Patton was to comment favorably on Harmon's personal bravery and drive in several of his diary entries...."

fled some high-ranking feathers along the way and it all came home to roost once the fighting was done. In this respect, Harmon resembled another American tankerman of WWII, George S. Patton.³

For a student of maneuver warfare in the age of mechanization, Ernie Harmon's story provides a classic example of a field commander who attended the birth of the American Armored Force and then matured along with the men of "Old Ironsides" and "Hell on Wheels" as they honed their skills in the lightning war – Blitzkrieg.

First Steps

Ernest Harmon watched the growth of Hitler's power from a desk as he wrestled with small peacetime appropriations, while trying to modernize various branches of the Army and the Army Air Corps. During the period 1935-1939, Harmon reached a decision that would ultimately affect his future and that of thousands of soldiers who served with him during WWII:

I liked horses, I liked being in the saddle, and I liked polo. But...I had become convinced that, in modern war, horse cavalry was as obsolescent as the arrow and the spear... I had been following German, French, and British military reports on the development of the tank...mechanized units could and should take over the traditional battle functions of cavalry....⁴

Harmon's decision to leave the cavalry made no friends for him within the office of the Chief of Cavalry, but afforded him the opportunity to become intimately ac-

quainted with the development of the neophyte U.S. Armored Force. He served in the First Mechanized Cavalry Regiment and in Brigadier General Adna R. Chaffee's Armored Force Headquarters from 1939 until 1941. After a short stint in the Army's War Plans Division, he was again able to rejoin troops, this time as a newly-promoted brigadier general assigned to the 9th Armored Division, then just forming at Fort Riley, Kansas.

Transfers were a way of life in the rapidly expanding U.S. Army of 1942 and, after less than a year at Riley, Harmon found himself flying east to assume command of the 2d Armored Division. Joining the unit on maneuvers in North Carolina, he soon put his personal stamp on the division that he would lead in combat on two continents. Within a month of taking command, (a period of frenetic activity), Harmon was tasked to select three invasion teams from within the division. Each team was a combined arms force capable of independent action and was supported by its own "slice" of the division's support units. On 8 Nov 1942, these forces were engaged in Operation TORCH as they landed at three locations in North Africa. While the troops of the "Hell on Wheels" division faced only desultory resistance from the French forces occupying Morocco, they nevertheless demonstrated a high degree of commitment and enthusiasm that fit perfectly into Harmon's set of guidelines for armored operations.

Harmon's commander during TORCH, Major General George S. Patton, was quite pleased with Harmon's performance after such a short time in command. Patton was to comment favorably on Harmon's

personal bravery and drive in several of his diary entries. One illuminating passage in the published *Patton Papers* indicates just how important to Ernest Harmon the first few months of active operations would be. From Patton:

Shortly before we left the U.S. last October, General Marshall sent for me and said that he had a hunch Harmon was no good and suggested that I leave him. I said that if he ordered me to leave Harmon, I would, but not otherwise. He said, 'On your head be it'. Tonight he said 'Patton, I was wrong about Harmon and you were right. Will he make a corps commander?' I said yes.⁵

In the U.S. Army, like most others, an officer's chance for greatness may well depend on the impressions drawn by a few key superiors. With the situation secure in Morocco, Ernie Harmon got his chance to make a greater contribution to the Allied effort in North Africa within a few months, this time in Tunisia, in the aftermath of an American setback.

Harmon and "Old Ironsides"

Ernest Harmon's introduction to the 1st Armored Division, in February 1943, came about through unusual circumstances. Responding to British complaints about inept leadership at the U.S. II Corps Headquarters and to disparaging remarks about the battleworthiness of the 1st Armored Division, General Eisenhower sent Harmon to investigate and report to him his findings in the II Corps area of operations. In essence, Harmon went from his quiet sector in Morocco to the battlefield in Tunisia as a "headhunter." After spending time with both MG Fredendall (II



MG Harmon reviews his Constabulary troops in Germany after the war.

Corps) and MG Ward (1st AD), Harmon verified the unsatisfactory state of Fredendall's leadership. George Patton subsequently replaced Fredendall. Having completed this ticklish mission, Harmon returned to his own division, then training in Morocco.

He was to remain with "Hell on Wheels" only a little more than a

month before being called once again to Tunisia, this time as Orlando Ward's replacement in the 1st Armored Division. Harmon led the division throughout the rest of the fighting, which took place in April and May.

During this two-month period, his greatest challenge was restoring confidence in a unit that had suffered from hesitant leadership in a number of critical positions. Operating on the theory that troops fight best when they are motivated to do so, Harmon relentlessly prowled the forward areas. Coaching, cajoling, scolding, he was always where he could "feel" the battle as his division participated in the Allied drive that would achieve victory through destruction of the Afrika Korps.⁶

To serve as one of the mercurial Patton's subordinates was not easy. Given very little guidance by Patton as to his initial mission, Harmon elected to change the tempo of operations in the division. Just prior to his arrival, the 1st AD had been defending against German attacks each morning; then counterattacking to regain lost ground each afternoon. The Germans, it seemed, retained the tactical initiative even though, by April 1943, their situation in Tunisia was desperate. Harmon records his decision and Patton's response this way:

From now on I want us to make a limited attack every morning, from five hundred to one thousand yards. If we meet the Germans on the way up, we'll fight it out. And we will inform Corps each morning that we are attacking. We put this policy into effect the next morning, and Patton soon reacted.

"What in hell are you doing out there?" he roared at me over the telephone.

"Nothing," I replied innocently. "We are just attacking here."

"I told you to stay on defense!" he shouted.

"You didn't tell me a damned thing. You just told me to get the hell out," I said. Then I explained that the attacks were limited, designed simply to keep the Germans off balance.

Patton approved the new tactic and hung up.⁷

Harmon continued to press the leaders in the division to seize the initiative and maintain forward momentum. The American forces must, according to Harmon, bring unrelenting pressure to bear on the Axis forces. On 9 May 1943, Harmon came upon the lead element of his Combat Command B whose advance had been halted by enemy forces seeking to delay the capture of Bizerte. Harmon's tactic was simply and effectively to urge the tank force commander into action. Harmon recorded later:

As I reached the front...I came upon a cluster of tanks parked by the side of the road, firing bravely but not moving forward. There was fairly severe machine gun fire, but I managed to pick my way to the tank's commander; he told me that his tanks were being held up by heavy machine gun and tank fire.

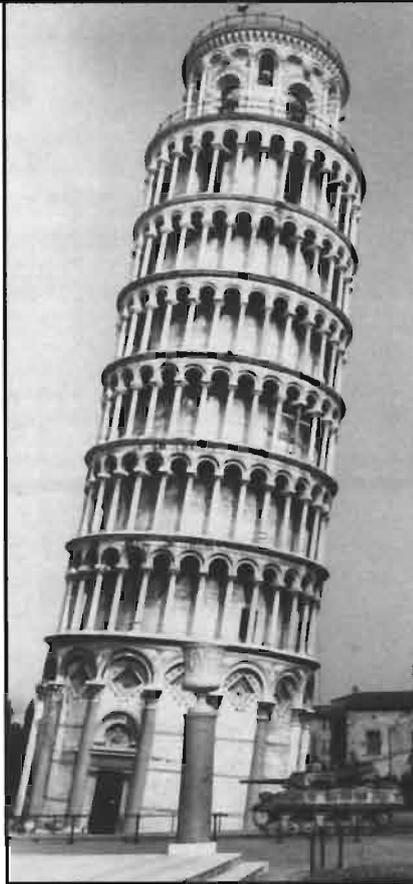
"All right," I said, "You follow my jeep forward," and I climbed back into the vehicle. This was sufficiently embarrassing to stir the young commander into action; the tanks began to move up.⁸

Throughout the final stages of the fighting in Tunisia, Ernest Harmon strove to overcome the widely-held feelings of resistance to a new leader, which frequently exist within an organization that has been accused of below-par performance. In later years, Harmon admitted that he had, perhaps, been a bit harsh in

his first meeting with 1st AD officers, flogging those who were late and criticizing their past performance. But his motive was evident. Harmon was determined to restore a sense of aggressiveness to a unit that had lost heavily in both casualties and confidence. Those leaders who did not measure up to "The Bull's" standards were removed and, in their place, came new leaders who had demonstrated their grasp of the techniques of maneuver warfare so aptly shown by the Germans.

The summer of 1943 was spent re-equipping the 1st Armored and training the division's units to function as well-drilled combat teams. Battle "plays" were repetitively practiced to encourage quick responses to different combat situations. They analyzed lessons learned in battle and made changes in techniques. One of the most significant adjustments made was in the concepts surrounding the use of tank destroyer units. The Germans had destroyed the TDs in wholesale lots during the battles around Kasserine, primarily because U.S. field commanders insisted upon using the lightly armored, self-propelled guns as surrogate tanks. Harmon became deeply involved in reworking the tactics employed by the tank destroyers, modelling their new employment techniques in part on German practice. Henceforth, the American TDs would make full use of their mobility, but instead of assaulting German armored formations head-on, they would assume protected positions from which to engage the Germans from the flank or rear.

The division's armored infantry regiment, so often employed in a static defense role for which it was poorly suited, was reoriented toward its intended purpose, that of assisting the tank regiments in seizing assigned objectives. The use of armored infantry to secure the



An American M10 tank destroyer speeds past the Leaning Tower of Pisa during the Italian campaign.

flanks of armored assaults in restrictive terrain had worked in May. It was practiced again and again in the hot summer months as Old Ironsides prepared itself for its next taste of combat in Italy.

Assaulting the "Soft Underbelly of Europe"

In September 1943, the 1st AD sailed from Oran to Naples and joined GEN Mark W. Clark's Fifth Army. Harmon had been concerned about the potential problems of employing an armored division in the difficult terrain of Italy. After two months of grinding slowly northward toward Rome, he wrote:

I am also tremendously interested in the problem of the use of tanks in

Italy and am looking forward to it with a very serious mind for I feel that we are going in under a tremendous handicap as to terrain. The antitank gun, when it is able to canalize our advance and restrict it to a narrow front, has a great edge over the tank.

He completed the letter by commenting upon the challenges raised by hills, gullies, narrow roads, and unfordable streams. "We are well equipped, well trained, and morale is high, but I look forward to one of the most difficult campaigns the Division has attempted to take part in."⁹

Harmon was correct in his assessment. The division received heavy casualties as it pushed north. But the 1st Armored was not the only unit to suffer at the hands of the tenacious Germans. So slow was the Allies' progress up the Italian peninsula that the decision was made to conduct Operation SHINGLE, an amphibious turning movement that would inject Allied troops behind German defense lines. The site selected for the operation was Anzio, only 35 miles from Rome. The major command in the beachhead, the U.S. VI Corps, was led by MG John P. Lucas.¹⁰

Ernie Harmon reported to Lucas at Anzio on 24 January 1944. The 1st AD (less Combat Command B) moved directly from landing craft into combat as it was pressed into the makeshift defense that had been implemented in the face of frequent and well-executed German counterattacks. It would be in this role, as the "Anzio Fire Brigade" for the beachhead's defenders, that the "Old Ironsides" troops would fight most of its combat actions throughout January and February. Churning through muddy fields, along heavily-mined roads and trails, and across storm-swollen ir-

rigation ditches, the tankers and armored infantrymen fought a war that was a far cry indeed from that envisioned by the founders of the armored divisions.

After a month of this sort of action, which closely came to resemble the trench warfare of WWI, Harmon in a letter to Lucas laid out the urgent need for effective counterattack planning by the VI Corps staff. Harmon's major complaint was that many opportunities for telling counter-strokes were being lost because each new enemy encroachment was dealt with on an *ad hoc* basis by those troops immediately threatened. Harmon felt that much more effective use of his armored strength could and should be made if only infantry division commanders had proper guidance from Lucas and his staff.¹¹

However frustrated Harmon might be, his feelings were vented on the Germans, not his own soldiers. The energetic commander stayed on the move, frequently visiting his front-line units. At Harmon's insistence, a regular schedule of rest and recreation trips to Naples was scheduled for 1st Armored troops. And, when he heard that rear echelon military policemen were harassing his combat troops on R & R, Harmon went to Naples to personally affect a solution.

As spring came to Italy, Harmon's troops undertook a vigorous training program, while at the same time, continuing their defense of the Anzio perimeter. Anticipating an eventual Allied breakout, Harmon and his G3 published a series of well-written training notes that served as the basis for stepped-up combined arms maneuver training in areas not under enemy observation and fire. Ernie Harmon longed, of course, for an end to the stalemate and for an opportunity to

fight a tanker's maneuver war again. In a letter to his friend, LTG Leslie J. McNair, Harmon spoke candidly on a number of topics: his frustration with the terrain, the distressing lack of technical proficiency among the British officers with whom he worked, the need for improved tracks for his Sherman tanks, and the proper techniques for employing an armored division in breakthrough and exploitation. Clearly, "Gravel Voice" Harmon was ready to roll again!¹²

The 1st Armored had the opportunity to take up the attack again that summer. Breaking out of the beachhead on 23 May 1944, the division fought its way to Rome, entering the Holy City on 4 June 1944, just two days before the Allied landings in Normandy. Harmon did not tarry in Rome, but pushed on to the north, attacking skillfully and with great effect throughout the month of June. It was not until early July that the 1st AD was pulled from the attack to rest. During this respite, two major changes took place. The 1st AD would belatedly comply with a War Department directive that reduced the size of the division while, at the same time, causing a significant change in the organization and composition of armored and infantry battalions. In addition to the reorganization, the troopers of the 1st AD would have to get used to a new commander, because Ernie Harmon had been called back to the U.S. to take command of an army corps.

It was with real emotion that Harmon bade farewell to a division that had truly fought the good fight and would continue to do so.

Back to "Hell on Wheels"

After 20 months overseas, the general enjoyed a short leave with his wife before traveling to Camp Bowie, Texas, to take command of

the XXIII Corps. But before he could assume his well-earned promotion, Harmon would receive a fresh call to combat. Summoned hurriedly back to Washington, Harmon was advised by Army Chief GEN George C. Marshall that GEN Eisenhower had sent an urgent request for Harmon's return to Europe, this time to assume command of his former division, the 2d Armored, which was fighting in France. Harmon recalled the meeting with Marshall this way:

You don't have to go; you have earned your promotion," said Marshall. "It's up to you." There was a silence while he waited for my reply. For me, it was a painful moment. Once again that third star of a lieutenant general, which had seemed almost on my shoulder, was flitting out of reach. But down deeper I knew that the job of getting the war won was more important to me than personal promotion.

"When do you want me to go?" I asked.

Marshall's face crinkled into a grin. "Since the day before yesterday."¹³

Taking over from MG Edward H. Brooks in September, Harmon rapidly began to re-establish himself with the "Hell on Wheels" Division as the unit pushed toward the Belgian border as part of Courtney Hodges' First Army. The 2d AD continued its offensive without a significant break during the next three months. Harmon's presence was soon felt throughout the division as he traveled, frequently by tank, armored car, or light plane, back and forth across his attack zone.

The 2d AD soldiers understood his concepts of blitzkrieg. They demonstrated their grasp of the basic tenets of maneuver war during the 2d Armored's drive. In crossing

the Albert Canal in Belgium, Harmon displayed his mastery of maneuver by sending one third of his combat strength on a looping, turning movement that quickly collapsed the previously stubborn German defense of the water obstacle.

A proud commander reported, "As the dust settled two days later, the 2d Armored had bagged several thousand prisoners, suffered only a handful of casualties, and controlled all the land between the Albert Canal and the River Meuse."¹⁴

In November, the 2d Armored served with distinction in what was to be the last major Allied offensive before the onset of winter. Now assigned to Simpson's Ninth Army, the 2d AD drove toward the Roer River basin inside Germany's border. From 16 November until the end of the month, Harmon drove his forces forward. Despite rain and sleet that mired tanks and made maneuver across open ground difficult for tracked vehicles, and all but impossible for trucks, the division continued to seek out weaknesses in German defenses, open a hole, then punch through with attacking tanks and fast-moving armored infantry.

By the end of Operation QUEEN, "Hell on Wheels" division had destroyed 86 German tanks, killed an estimated 830 Germans, and captured an additional 2,385.

Having demonstrated its ability to attack with great effect, the 2d Armored reverted to a temporary defense while the weary troops rested, and equipment received much needed maintenance. The division was largely recuperated from the rigors of its offensive when, on 16 December 1944, word came of the German offensive in the Ardennes.¹⁵

The Bulge and Beyond

Harmon's 2d Armored went on alert for possible movement from its positions along the west bank of the Roer River in Germany late on 16 December 1944. The unsettled conditions attendant to the German advance in the Ardennes region kept the "Hell on Wheels" troopers and their commanding general waiting until, on 21 December, Harmon received orders transferring the 2d AD from control of Simpson's Ninth Army to Hodges' beleaguered First Army. The 2d Armored Division history states:

With only three hours advance notice, the entire Division packed up, turned its Roer River line over to the 29th Infantry Division, and staged an amazing forced march by night on 21-22 December to vicinity of Huy, Belgium. All combat elements covered the 75 miles over strange roads within 22 hours, in spite of a shortage of maps and a minimum of previous reconnaissance. Von Rundstedt's spearheads were threatening Liege, Dinant, and Namur at the time. Upon arrival in Belgium, patrols immediately moved out to the south and east, making contact with the enemy on 23 December, near Haid, Belgium, uncomfortably close to Namur....In the five-day battle, 24 December to 28 December, in which "Hell on Wheels" gained the upper hand by unrelenting shock attack, the division effectively destroyed the German 2d Panzer Division, which had paced the enemy's 60-mile westward advance. The American VII Corps summarized the division's smashing victory as one that "may well be remembered as having one of the most far-reaching effects of any action of World War II."¹⁶

As indicated in the published history, Harmon's troopers made a superb road march and rapidly occupied their new assembly areas in

Belgium. Harmon's personal influence was felt everywhere during the period 21 December 1944 until 19 January 1945 when he bid farewell to the 2d Armored for the last time, in order to assume command of the XXII Corps. Although ostensibly on the defensive, the 2d Armored took every possible opportunity to carry the fight to the Germans. In this respect, Harmon had made his single greatest contribution to the division because he had instilled in it the fierce desire to close with and destroy the enemy through the use of maneuver, firepower, and shock.

Aggressive patrolling by 2d AD units resulted in the first report of enemy contact near Haid, Belgium, about mid-day on 23 December. Harmon's response was typical. Running from his headquarters to a tank company assembled nearby, he gave the order to move at once to blocking positions near the town of Ciney, in the path of the German advance. The company was rolling in less than five minutes. Harmon's troopers knew he meant it when he shouted, "Move out, now! I'll have the whole damn division coming right behind you!"¹⁷

Despite instructions from Field Marshal Montgomery (then in temporary command of all Allied forces on the northern shoulder of the Bulge) to withdraw farther west on 24 December, Harmon felt that the time was ripe for a full-blown counterattack. Second AD scouts had brought him word of a major German concentration near Celles which appeared to be halted for lack of gasoline. Harmon's appeals to his corps commander, J. Lawton Collins, for permission to attack reflect the nature of the man called "The Bull" perfectly:

1430 — Harmon to VII Corps: "One of my patrols just spotted

Kraut tanks coiled up near Celles. Belgians say the Krauts are out of gas. They're sitting ducks. Let me take the bastards!

1435 — Harmon to VII Corps: "We've got the whole damned 2d Panzer Division in a sack! You've got to give me immediate authority to attack!"

Despite his misgivings, Collins authorized the Harmon attack.

1625 — Harmon to VII Corps: "The bastards are in the bag! In the bag!"¹⁸

Harmon was right. The 2d Panzer Division, a unit which had fought to the outskirts of Moscow in 1941 and threatened the Allies' control of the River Meuse in December 1944, ceased to exist as an organized fighting force. Harmon's forces enveloped the German units, many of which could not maneuver because of fuel shortages. A determined attempt by the 9th Panzer Division to rescue its sister unit was beaten off with heavy German losses. The remainder of December and the first three weeks of January found the 2d AD advancing through near-blizzard conditions to secure ground lost in the early stages of the German offensive.

Repeatedly, the 2d AD demonstrated its ability to find the enemy, fix him in position, then maneuver to strike his flanks and rear. Assisted by Allied aircraft flying close air support sorties whenever the weather permitted, and by self-propelled artillery noted for its responsiveness, the Americans

showed the Germans that they too understood the blitzkrieg concept.¹⁹

On January 1945, Ernest N. Har-



Harmon enjoys a hunt in Germany after the war.

mon assumed command of the XXII Corps, an organization designed to exercise tactical control over combat divisions in field operations. But for Ernie Harmon, the war as he had known it was nearly over. Saddled with a staff composed largely of superannuated also-rans and assigned duties more in keeping with administrative housekeeping, Harmon chafed at the bit like an old cavalry horse put out to pasture.

As V-E Day came and went, Harmon was asked to stay on in Europe to command the Army's portion of the Occupation Forces, the Constabulary. He undertook this mission, so different from the battle commands he had known for the last four years, in good faith and gave it his all. He would hold his post until late in 1947 before returning to the United States. Finding no worthwhile assignment forthcoming, Old "Gravel Voice" retired, still a major general, still recognized as one of America's foremost practitioners of blitzkrieg warfare.

Anyone who reads the history of the U.S. Army during WWII must eventually reach the conclusion that the army that contributed mightily to the defeat of the Axis was essentially a small army that had swollen so quickly to meet wartime requirements that its primary stabilizing factor was its leaders. And, having grasped this truth, the basic question must be addressed: What made a successful leader?

In Ernest Harmon's case, success must be measured in terms of battles won; not in terms of stars pinned upon his shoulder straps.

Harmon was truly a product of his times. Not a brilliant student at West Point, he was commissioned in the Cavalry (a distinctly "sweaty" service), not the intellectually-prominent Corps of Engineers. A veteran of the Great War, he shared the disillusionment of the trench warfare participants, but took all of 20 years to finally cut himself loose from the

anachronistic cavalry that he loved. When he did make the break, he swore allegiance to the new combat arm of decision, the Armored Force. Striving to make a success of and in his adopted service, Harmon first studied those more advanced than he, then applied the concepts preached by Guderian, Liddell-Hart, and Rommel.

The fact that high level commanders continuously sought Harmon attests to his progress as a tank leader. Full of fight, Harmon was a small, stocky fellow who personified the man who goes through life struggling to overcome a "runt complex," demonstrating his manhood through aggressive behavior. But there is more than that to Harmon, the professional officer.

He understood soldiers, their wants and fears. He liked being with them. And he could lead. In times of deepest peril, Harmon could blend firepower, maneuver, and shock action — that maelstrom of whirling, slashing action overlaid with fire — into a full-blown tank attack. Ernie Harmon had a feel for the relationships of time and space: he knew how long it would take a tank company to move from its present position to the designated line of departure and then close with the enemy. He was, in fact, a dynamo married to a dynamic creation, the American armored division. Full of fight, robust, energetic, and leading a perfectly melded winning team, Ernie Harmon was the Dynamo Connection.

Notes

¹Omar N. Bradley, A Soldier's Story (New York: Henry Holt, 1951), P. 100. While praising Harmon, Bradley also chided him for sometimes failing to make optimal use of his infantry.

²Harmon's own biography provides a wealth of information on the years lead-

ing up to WWII. See Ernest N. Harmon with Milton Macraye and William Ross MacKaye, Combat Commander, (Englewood Cliffs NJ: Prentice-Hall, 1970). Look especially to Chapters 1-4.

³Harmon's ability to upset more circumspect soldiers (like General George C. Marshall or General Ben Lear) is commented upon in Combat Commander, pp. 46-47, and pp. 142-143. Harmon's collected papers contain correspondence files that provide real insight into the thoughts and feelings of "Old Gravel Voice." See the Ernest N. Harmon Papers, U.S. Army Military History Institute, Carlisle Barracks, PA (hereafter referred to as Harmon Papers, USAMHI).

⁴Combat Commander, pp. 56-57.

⁵Martin Blumenson, The Patton Papers, 1940-1945, Vol. II (Boston: Houghton Mifflin, 1974), p. 258. The vote of confidence from Patton was beneficial, but Marshall became irritated with Harmon the next morning and cast doubts upon his fitness for corps command.

⁶George F. Howe, The Battle History of the 1st Armored Division (Washington, D.C.: Combat Forces Press, 1954), pp. 117-252. See also The Patton Papers, pp. 172-177S.

⁷Combat Commander, p. 125.

⁸*Ibid.*, p. 136.

⁹Letter, Harmon to MG E. J. Hughes, Dep. Theater Commander, HQ, NATOUSA, 13 Nov 1993. Harmon Papers, USAMHI, Correspondence April-December 1943, Box 1.

¹⁰For an appreciation of the difficulties faced by Allied forces in Italy, see Martin Blumenson, U.S. Army in World War II: Salerno to Cassino (Washington, D.C.: U.S. Army OCMH, 1969).

¹¹Letter, Harmon to MG John P. Lucas, CG, VI Corps, 12 Feb 1944, Harmon Papers, USAMHI, Correspondence January-July 1944, Box 1.

¹²Letter, Harmon to LTG Leslie J. McNair, CG, Army Ground Forces, 23 March 1944, Harmon Papers, USAMHI, Correspondence January-July 1944, Box 1.

¹³Combat Commander, p. 206.

¹⁴*Ibid.*, p. 210.

¹⁵The advance to the Roer is covered in Harmon's book, but look also to Edward A. Trahan, ed., A History of the Second United States Armored Division (Atlanta: Albert Love, 1947) Chapter VI. An excellent overall treatment of this phase of the war in Europe is found in Charles B. MacDonald, The Siegfried Line Campaign (Washington, D.C.: U.S. Army OCMH, 1953). For readers with less time to spend, look to another book by MacDonald, The Mighty Endeavor (New York, Oxford University Press, 1969).

¹⁶Trahan, op cit. Chap VII.

¹⁷Combat Commander, pp. 233-234.

¹⁸John Toland, Battle: The Story of the Bulge (New York: Random House, 1959), pp. 242-245. The decision-making process surrounding the decision to unleash Harmon's attack is covered in a number of sources. An excellent treatment is found in J. Lawton Collins, Lightning Joe (Baton Rouge: Louisiana State University Press, 1979), pp. 286-294.

¹⁹The 2d AD was credited with destroying the 2d Panzer Division by LTG Courtney Hodges. In a memo dated 5 January 1945, Hodges describes the "Enemy Equipment Counted in CELLES (P-0675) Pocket." The memo was heartily endorsed by MG Collins and sent with a note from Field Marshal Montgomery stating, "my very best congratulations to the 2nd Armored Division." Harmon Papers USAMHI, After-Action Reports November 1944-January 1945, Box I.-30-

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Directed Energy Weapons: Training Today for Tomorrow's Battlefield

by Richard B. Armstrong

Changes in equipment, organization, and doctrine typically drive training development in the Army. For example, the fielding of a new vehicle sets into motion a systematic process whereby the Army develops training manuals, revises programs of instruction, and designs training devices. Training development will always lag behind technology and doctrine, but we must keep the distance between them as short as possible. Failure to do this could result in training gaps that reduce combat effectiveness in the field. A case in point is directed energy weapon technology.

A Present, Not Future, Threat

The term "directed energy weapon" (DEW) usually conjures up images of Captain Kirk firing his hand-held phaser on "Star Trek."

Certainly, the futuristic ray gun is a type of DEW — but that is tomorrow's technology. What few people realize is that the technology to field other types of DEWs is here today.

A low-energy enemy laser, such as a rangefinder/designator, can pose a serious hazard to personnel and equipment.

Other DEWs, like radio frequency weapons, and particle beam transmitters, are in the prototype stage, but their potential impact is frightening. What are we doing now to prepare soldiers who might encounter DEWs on the battlefield?

Very little, unfortunately. Two problems have posed significant obstacles toward the development and integration of DEW training.



The Classification Problem

First, the amount of classified material on the subject has restricted the flow of information. With a few exceptions, such as an unclassified report published by Fort Benning's ARI Field Unit in 1984, accessible information on DEWs has been rare until recently.

As a result, training and doctrine developers have lacked an adequate knowledge base.

This has created a second problem — the relative absence of DEWs in doctrine, task analyses, and concept studies. Without doctrinal references, training developers are hesitant to include DEWs information in training literature and courses.

Yet, due to their limited knowledge of DEWs, doctrine

writers hesitate to address DEWs in their manuals. It's a "Catch-22".

Near-Term Solutions

Due to several parallel initiatives, the situation has improved over the last two years. In February 1986, the Combined Arms Training Activity (CATA), mandated that all service schools integrate some form of DEW awareness training into their institutional courses by February 1987. To meet CATA's requirement, the Armor School produced a seven-minute unclassified videotape called "Directed Energy Awareness Training," which has been incorporated into existing blocks of instruction. On the other hand, the Logistics Center developed a separate 60-minute lesson plan on DEWs.

The purpose of both presentations was to raise the level of awareness by defining what DEWs are, describing how they affect soldiers and equipment, and providing simple countermeasures against them. Currently, CATA is seeking to integrate instruction on DEWs into the common core for officer basic and advanced courses. An exportable training package is also in development. The CATA initiatives are a step in the right direction, but they are only the first step.

It is imperative to address DEWs in doctrine for until DEWs are elevated to a doctrinal level, they will never be taken seriously. A videotape can raise awareness, but

its impact will fade quickly unless reinforced by doctrine that reaches the field.

Currently, the only Armor/Infantry doctrinal manuals that address DEWs are FM 7-20, *The Infantry Battalion (Infantry, Airborne, and Air Assault)* (Dec 84); FM 17-95, *Cavalry Operations* (Feb 86); and FC 17-15, *The Division 86 Tank Platoon* (Oct 86). These manuals contain appendixes that provide general overviews on current and future directed energy hazards. Another manual, which has the potential to have a greater impact, is the Combined Arms Center's forthcoming TRADOC Pam 525-57, *Directed Energy Operational Concept*. This classified manual could provide a sound base for future doctrine/training development.

Armed with current doctrine and with guidance on classification issues, training developers can begin to revise task analyses to reflect the presence of DEWs on the battlefield. The amount of revision may be slight, perhaps involving only a minor change in a task standard. But the importance of including DEWs in task analyses cannot be overemphasized.

Once incorporated into analysis data, information on DEWs can start to impact systematically on the design/development of Soldier Training Publications, ARTEP Mission Training Plans, programs of instruction, and training devices. In an effort to dispel some of the

myths surrounding DEWs, the following unclassified handout complements the Armor School's videotape. Although brief on technical data, it provides a general overview on DEWs, their effects, and limitations.

What is a Directed Energy Weapon (DEW)?

A DEW is a "soft kill" weapon system that concentrates relatively small quantities of energy on critical areas of targets, causing them to jam, malfunction, or burn out. They are called "soft kill" because they destroy or damage the electrical systems necessary to operate a vehicle, instead of blowing it up with conventional explosives.

There are three types of DEWs: lasers, radio frequency, and particle beam. Lasers exist now on the modern battlefield in the form of laser rangefinders or designators. Radio frequency weapons emit radio waves and high-powered microwaves, which can jam communications and upset or burn out electrical systems. The technology to field radio frequency weapons is here today; they may become a major concern on the battlefield. The last type of DEW is the particle beam transmitter, which — when developed — will melt or fracture vehicles and equipment. Engineering problems have hampered the development of the particle beam transmitter. It is not here now, but could change our concepts of tactical warfare in the future.

"...You should avoid using magnifying optics, such as binoculars, in an area where a laser is operating. A laser that is harmless at one kilometer becomes a sight hazard when binoculars magnify its intensity...."

Can Lasers "Vaporize" People or Equipment?

Contrary to what most science fiction movies would have us believe, lasers can't zap people into ashes. Nevertheless, they are a serious personnel hazard. If directed toward a person's eyes, lasers can cause temporary or permanent blindness. They can damage electro-optics, too. A laser of the appropriate wavelength can burn out an electro-optic's detectors. A high-powered laser can also burn skin and clothing at distances of several kilometers.

How Will I Know When I'm Under a Laser Attack?

Since most lasers are not visible to the human eye, it's sometimes difficult to recognize a "laser attack." The most obvious indicator of an enemy laser is the sighting of a bright flash or light. This flash may be so intense that if you look at it without protective lenses, you may suffer immediate blindness, a gradual loss of vision, or a temporary "whiting out" of your field of view.

This latter effect is called flashblindness. Although your vision returns to normal after a few minutes, flashblindness can be psychologically frightening and dangerous, especially if you're operating a vehicle or weapon system. Another indicator of a laser attack is when the screen of an electro-optic device "washes out" suddenly. However, it is often dif-

ficult to determine the difference between a laser attack and normal system degradation. Therefore, it is imperative to report all system errors promptly.

How Can I Protect Myself From Lasers?

Whenever possible, use electro-optics as your primary means of tactical observation. The reason is simple: If "lased" by the enemy, the electro-optic may burn out first, keeping the laser light from reaching your eyes. When electro-optics are not available, wear laser protective goggles. Although current goggles will not protect you against all wavelengths, they decrease the risk of laser injury.

You should avoid using magnifying optics, such as binoculars, in an area where a laser is operating. A laser that is harmless at one kilometer becomes a sight hazard when binoculars magnify its intensity. And, finally, be cautious of reflective surfaces, which can unintentionally aim a friendly laser in the wrong direction.

What Tactical Countermeasures Can I Take Against a Laser Attack?

Treat a laser like any other direct-fire weapon: use cover and concealment, employ smoke, and suppress/destroy the laser source. Since laser beams can travel only in a straight line, use terrain to obstruct their path. Smoke is an effective countermeasure for two reasons. It

makes target acquisition for the enemy difficult and it may also diffuse the power of the laser beam, lessening its effectiveness. Still, the most effective countermeasure against any weapon is to destroy it.

For additional information on Directed Energy Weapons, consult the following references:

Training Implications of Directed Energy Weapons for the U.S. Infantry: A Preliminary Report, Oct 85, Unclassified, ARI Field Unit, U.S. Army Infantry School.

Laser Survivability Manual, Vol. 1: Soldier's Guide, Sep 85, Unclassified, Army Materiel Systems Analysis Activity.

Directed Energy Awareness Training (Videotape A0515-87-0006), Oct 86, Unclassified (Distribution Code B), U.S. Army Armor School.

Richard B. Armstrong is an education specialist at the U.S. Army Armor School, Ft. Knox, KY. He holds a master's degree in Instructional Systems Technology from Indiana University. He wrote and produced the videotape, "Directed Energy Awareness," and is currently developing an automated collective task analysis database to aid training evaluators in the production of timely training literature.

RECOGNITION QUIZ

This Recognition Quiz is designed to enable the reader to test his ability to identify armored vehicles, aircraft, and other equipment of armed forces throughout the world. *ARMOR* will only be able to sustain this feature through the help of our readers who can provide us with good photographs

of vehicles and aircraft. Pictures furnished by our readers will be returned and appropriate credit lines will be used to identify the source of pictures used. Descriptive data concerning the vehicle or aircraft appearing in a picture should also be provided.

Answers on Page 49



A Minor Reorganization Of The Tank Company To Increase Its Effectiveness In The AirLand Battle

by General Bruce C. Clarke, Ret.

When I retired in 1962, I had commanded two combat commands of armored divisions in offensive and defensive fighting in France, Holland, Belgium, and Germany. I was asked to write an article on division organization for an Army magazine. Among other things, I recommended that the modern tank platoon be changed to one of three tanks.

In WWII we had a five-tank platoon, each tank with a five-man crew. It was employed in two sections — a section of three tanks, including the platoon leader, and a section of two tanks including the platoon sergeant.

The cost of the WWII platoon was about \$200,000. The cost of the present four-tank platoon is about \$10 million. A comparison between the M4 tanks of WWII and the present Abrams tanks would be equally striking in battle.

The present AirLand concept of employing armor was tried in only a few battles of WWII. Today, it is adopted policy.

The tank is a psychological weapon. Its position with reference to enemy force affects the attitudes and the psychology of enemy troops. This is especially true when our tank forces are on the flanks or to the rear of the enemy.

The crossing of the Moselle and the circling of Nancy in September 1944 placed CC "A" of the 4th Armored Division in the rear of the

German corps defending the line of the Moselle and Nancy. It took the German headquarters. The German units disintegrated.

The German General Manteuffel, employing his 5th Panzer Army similarly on 16-18 December, 1944, in the Ardennes, caused 8,500 men of the 106th Infantry Division to surrender.

The tank has three major weapons: its tracks, its machine guns, and its main gun.

They are often important in that order, especially in an AirLand battle. The tracks accomplished the circling of Nancy and the breaking of the Moselle defensive line. The 5th Panzer Army in the Ardennes was able to create a "Bulge" through the use of its tracks.

Modern land battles are becoming more and more dispersed and are fought in smaller packets. The battles are more fluid. This will be apparent as we employ the AirLand Battle concept.

A platoon column of tanks progressing by secondary roads or cross-country in central Europe will find that there are very few areas where it can quickly deploy on a 100-to 150-yard front because of the terrain, woods, and streams, and man-made ditches and structures.

A four-tank platoon is also divided into two sections, with the platoon leader having two of his tanks controlled by his platoon sergeant. It is a clumsy arrangement. We would

not organize a football team for a defensive or offensive operation in that way.

In time of peace, our tank platoon leaders are officers who are graduates of the Basic Course at Fort Knox. After a few days of battle, former NCOs will lead many of the tank platoons.

I propose a simple change in the tactical organization of the present tank company into four platoons of three tanks each. I referred this proposal to two experienced tank company commanders who had fought in my combat command in WWII. Both said they could easily handle a tank company of four platoons of three tanks each. Both said that it would increase the company's flexibility and effectiveness. Both agreed that it would facilitate the tactical logistics problems at the company level. Both said it would create a personnel problem of an extra platoon leader in time of peace. I do not think that is insurmountable. In my experience, a company is never 100 percent of its TO&E. Soon after the battle starts, there will be bigger personnel problems than that.

A Bit of History

One evening during the Battle of the Bulge, one of my tank battalions received 175 replacements. When asked where they had trained to be tankers, they said that they had never seen a tank; they were Infantry. The battalion used them to fill out the tank crews.

The next morning, the tank battalion did well in the attack.

What's With Our 19Ds?

Of the two enlisted MOSs in Armor, one far exceeds the other in the number of tasks it requires a soldier to master. Career Management Field 19 "Master Task List" has no less than 450 tasks in skill levels 1 through 4 in which the 19D must be proficient. Four hundred and fifty! Compared to the armor crewman (19K), the cavalry scout has 119 more tasks in which he must be proficient if he is to be a viable factor in the armor/cavalry force.

FM 17-98, "The Scout Platoon," puts it succinctly and baldly: "The platoon leader and noncommissioned officers must be experts in the use of organic weapons, maps, supporting fires, demolitions, obstacles, communications, and reconnaissance and security techniques. They must be familiar with armor and infantry tactics and be able to react (decisively) to rapidly-changing situations. Because of the many missions the platoon must be capable of performing, the scout platoon must literally be a jack-of-all-trades." And master of them all, too, I might add. The cavalry scout must be able to perform his mission in cavalry, armor, air cavalry, light infantry and motorized infantry organizations.

The armor crewman, the 19K, on the other hand, is vehicle specific (M1, M60A3, etc.) and weapon specific. Even at that, he has 331 specific tasks to learn, and learn completely. A number of 19D and 19K tasks are identical and are repeated at different skill levels; i.e., clear, disassemble, assemble and function-check the M240 machine gun.

The 19K crewman is vehicle specific, but the 19D may have to fight the CFV, M113, M1, M60,

ITV, the AR/AAV (Sheridan), and still be able to conduct dismounted operations.

AR 611-201, "Enlisted Career Management Fields and Military Occupational Specialties," states the 19D may be a master gunner (M1), master gunner (M48/M60A1), master gunner (M60A3), ITV, master gunner (Bradley Fighting Vehicle), tactical air operations specialist, ARAAV M551 crewman, and aerial observation scout.

To the uninitiated it seems that the 19D has an impossible job to fulfill. But a great number of them are doing the job, and doing it professionally.

A comparison of 19K and 19D SQT results in 1986 reveals some interesting facts relative to the complexities of the various skill levels in the two career fields:

SQT SCORES				
(19Ks vs. 19Ds)				
(Percentage of the 19K population achieving that score.)				
SCORE	SKILL LEVEL			
	1	2	3	4
90	13	22	16	24
85	34	50	40	52
80	58	74	63	75
75	76	90	79	87
70	87	97	91	94
(Percentile of the 19D population achieving that score.)				
SCORE	1	2	3	4
90	4	7	8	4
85	14	22	23	13
80	30	43	43	29
75	49	65	63	49
70	69	81	80	68

For example, 58 percent of those tested at skill level 1 on the 19K SQT achieved a score of 80 or higher, and 13 percent scored 90 or higher. For the 19D, however, only 30 percent scored 80 or higher and only 4 percent achieved a 90 or better score.

That tells you a lot, doesn't it, when comparing these MOSs: especially when enlistment and reenlistment criteria are exactly the same for both career fields.

Because 19Ds are so highly skilled in so many complex and diverse tasks, the unit commander faces a very real problem in training these soldiers and in maintaining their skill retention levels. No matter how intelligent, how dedicated, how skilled a 19D may be, if he doesn't train in all of his tasks on a regular basis, he is going to lose the fighting edge. That's human nature, and the only way to overcome it is to train regularly to standard.

But how, you ask, can I train all my 19Ds in all their required skills, when there are so many other things that have to be done each and every day? There are only 24 hours in a day, and only seven days in a week.

You answered your question when you said, "24 hours a day, seven days in a week." Normal garrison duty runs to about eight hours a day, five days a week. That leaves evenings and weekends for additional training. One squadron commander set his NCOs to training two hours a night, one night a week. They resisted, naturally, but when they realized that they were actually learning from each other, they became more proficient, and their SQT scores went up. Equally impor-

arose among the NCOs, and the unit as a whole benefitted.

Another training quirk that works is for the commander and the first sergeant to designate the SQT task(s) to be conducted each day. This creates "hip pocket" training. Result: Everybody trains on the same task, and the troops pass a lot of knowledge back and forth. Also, the unit training schedule is an excellent tool by which platoon sergeant time can be dedicated to teaching SQT tasks.

Company and squadron commanders and first sergeants also have an excellent aid in establishing what tasks need to be taught more frequently — those tasks that are most quickly degraded through lack

of repetition. This aid is the Army Research Institute's "Manual For Predicting Military Tasks Retention." It can be used manually or in an automated mode. Either way, it will show how long (on the average) soldiers will retain specific tasks in time spans of weeks or months. Using this manual, the commander or first sergeant will identify how often they must retrain tasks, based on the predicted decay rate of those tasks. Using the manual enables the commander or first sergeant to most effectively schedule his most precious resource—time.

Other facilities available to the troops are battalion learning centers. These are excellent, but they are not always available to the soldier who spends his work day with his unit. The solution is simple:

keep the learning centers open in the evenings and on weekends. Better yet, set up a reference library in the unit training room where soldiers can sign out manuals for self-study.

If you demand, as you should, that your armor crewmen and your cavalry scouts reach and maintain a high level of proficiency in all their tasks, then you must do all you can to help them. There is no substitute for study and hands-on training.

Don't short-change your soldiers and then wonder why they fall short of your goals.

HERMAN CROWDER
SSG, Armor
D Co., 4-34 Armor, FRG

Battle Leadership: Are We There?

A three-week tour at the National Training Center (NTC) as an enlisted observer from the U.S. Army's Sergeants Major School at Fort Bliss, Texas, taught me some lessons in leadership.

The purpose of my trip was to observe the interaction of platoon sergeants and platoon lieutenants under simulated combat conditions. I was tasked to observe a tank platoon that had been task-organized with an infantry company to form a combat team. It was a highly interesting time, and I'd like to pass on some of the things I saw.

I joined the tank platoon in the infamous "dust bowl" where it was going through the trauma of drawing, servicing, and preparing four M60A3s for combat operations in

the desert. I saw some interesting, alarming, and gratifying things.

I noticed that the platoon was seriously involved with getting its equipment ready for the mission. The next thing I noticed, and this really hit me, was the total lack of leadership. The platoon leader was leading the team's quartering party to its initial battle position, and the platoon sergeant was off coordinating with the infantry first sergeant for his tank platoon's logistic requirements during the exercise. And the tank commanders, well—you've heard the story, "While the cat's away..."

The most gratifying thing about this whole episode was the way the gunners, drivers, and loaders got with the problem and made things

happen without their erstwhile supervisors riding herd on them. I recalled a statement by the late GEN Patton that the leader must "decide what has to be done, issue the appropriate orders, and then stand back and be amazed at the initiative and intelligence of the people who work for you."

Far too often our leaders forget Patton's philosophy, but I want to testify to the fact that those young armor crewmen were living proof of his words. They were getting done all those things that had to be done without their leaders to lead, or possibly, hinder them.

When the tank platoon moved out, the lieutenant was still away with the quartering party, so the platoon sergeant had to receive and issue the operations order, conduct pre-

combat inspections, upload ammo, and prepare his platoon for movement.

These were no small tasks by any means, but the sergeant rose to the occasion, and his platoon made it to the start point in good time.

The team's mission was to defend a strong point in the center of the task force's battle position. Some of the things that I saw were not only interesting, but cause for some rethinking where leadership is concerned.

The team had engineer support to dig its tank fighting positions, and I saw a big no-no happen at this point. The platoon sergeant was charged with the responsibility of digging-in and emplacing all the tanks. Why each TC didn't do this, I never found out. But since the platoon sergeant had to do it, the time taken to dig, site, and emplace each of the four tanks turned out to be a long, drawn-out process, and the tanks wound up with only one fighting position instead of having a main fighting position and one or two alternates, as laid down in the manuals. There just wasn't time to dig alternate positions.

When all the tanks were in place, the NTC observer-controller and I rode through the platoon's position and checked each tank's position, the range cards, sleep plans for the crews, and sundry other things. We found that the tanks, instead of making up their range cards from their primary fighting positions, were sitting to the right or left of those positions, some even in front of their holes. They were sitting anywhere but in their positions.

There were no aiming stakes in place, no overlapping lines of fire, and no attempt had been made to coordinate with the flanking infantry units. I asked the platoon

leader if he had any pre-plotted fires laid on. He said he was awaiting the fire support plan from the FIST. When I asked him when he expected to get it, he said, "In the morning." The OPFOR was scheduled to attack at dawn! The platoon then spent the night on thermal watch, the tanks still outside their fighting positions.

The OPFOR attacked at dawn with a massive artillery barrage. Only two tanks, the platoon sergeant's and the platoon leader's wingman, moved into their fighting positions. Not only that, but it took them about 15 minutes to find their positions because they were buttoned up and it was still dark. Nobody had had the foresight to mark the fighting positions when they had been dug.

On came the OPFOR, and both the observer-controller and myself figured that they would punch through the platoon like a hot knife through butter. The OPFOR punched through the infantry on the left flank, and the T-72s and the BMPs rolled over the ground troops with little loss. I estimated that the attacking force was a reinforced motorized rifle company.

After breaking through the infantry, the OPFOR tried to exploit the gap, and the four tanks that had been engaging the OPFOR with intermittent fires began to shoot in earnest. Those four tanks, huddled in their only fighting positions, proceeded to wipe out the OPFOR. It was sort of amazing. After they had almost hashed completely their pre-combat preparations, dug only one fighting position for each tank, and without air or artillery support, these four annihilated a reinforced motorized rifle company. And when the OPFOR commander called in two HIND helicopters for support, the tanks blew them away, too.

They did all this with the loss of only one tank. That loss came about because the TC, for some unknown reason, decided to fight outside of his prepared position. Two T-72s got him. The post-battle inspection was amazing. We found that the M60A3s had destroyed almost all of the tanks and the APCs of the OPFOR, according to the MILES kill codes.

I tried to draw some conclusions from this exercise, and the most evident one I came up with was the fact that our soldiers, and especially our tankers, are some of the finest young men around. They are smart, dedicated, and more than willing to rise to any challenge thrown their way. In this particular instance, they took on an operation that by any normal standards should have failed at the worst, and at the least should have been a substantial defeat, and they turned it around into a smashing victory.

My post-trip evaluations included one great admonition: We need to teach leadership in our courses. Yes, leadership! I mean battle leadership, wherein the leader, be he officer or NCO, takes his stand as the leader of his men and gives them intelligent directions so that they can win the fight.

When a young man enlists in the Army, he has certain preconceived notions about the Army. He expects the Army to be hard and tough and demanding, all without compromise. He also expects these same qualities from his leaders, the ones who will teach him the art of mounted warfare. In less time than it takes to tell, the recruit realizes that he is in the killing business because that's what the combat arms are all about. He definitely did not enlist for a 9-to-5 job.

I believe that one of the reasons the tank platoon that I observed

made some rather basic errors can be laid to our personnel system. This system makes fundamental errors in assigning our NCOs to certain jobs during their careers. I'm probably wading into real deep water, but I think this is worth some discussion--and some positive action.

The platoon sergeant involved had not been on a tank in nearly four years. He had been in the recruiting service where he had done a very creditable job. But he wasn't on tanks, and when he came back to his tanks, he had to re-learn almost his whole profession from scratch.

The Marine Corps has a good system, I think. When a Marine NCO reaches the grade of E7, he makes a decision that will affect his future career. He decides to go troops or staff. If he elects to stay with the troops, he spends the remainder of his career in troop-oriented assignments. If he goes the staff route, he stays there. Neither area affects his chances for promotion to E8 or E9;

he advances in his chosen field regardless of what his contemporaries are doing in their fields.

It has been my limited experience that people tend to work better, perform better, and are happier when they are working in jobs they know and like. I can think of any number of cases where NCOs are "putting in their time" in some offshoot career field until they can get back to their preferred duty, whether it be armor, or signals, or squad leader. The bottom line is that we owe our crewmen the best leadership that time, money, and experience can give them. In their eyes, Sergeant Rock and John Wayne are still alive and well, and we, as TCs, platoon sergeants, or platoon leaders, are expected to fill those roles. We, as leaders, need to take a hard look at this and we need to review the NCO progression program and perhaps bring it into line with the Marine Corps system.

Isn't it a fact of life that people find it much easier to do a job well

when they like that job, when they know it, and when they really enjoy doing it? Why don't we take one step to the rear and give this a good, hard look? Far be it from me to say what needs to be done to correct the problem. I'll leave that to the people who enjoy dabbling in personnel and academic problems.

It is going to take a concerted effort on everybody's part. Just like the black beret and the Expert Armor Crewman Badge, we'll achieve results only with combined efforts. I'll quote a famous leader when it comes to how we should operate: "L'audace, l'audace, toujours l'audace!"

Audacity, audacity, always audacious!

Let's roll 'em and "Treat 'Em Rough!"

SFC Stephen D. Kennedy
Fort Bliss, Texas..

Sending Your Soldier Off

After a hard tour of duty in an overworked unit, soldiers who did a good job deserve more than a token award from someone they hardly know. There are many ways to thank the soldier and make him feel good about the unit he is about to leave.

Take Care of Him Professionally

If the soldier did a super job, make sure he gets the commensurate award. Start the paperwork early enough to give him his award in front of his peers. Those peers need to know that the super soldier got his reward.

There is nothing more frustrating and hollow than to mail an award to

someone. It's like saying, "Oh, by the way, thanks." If you are forced to do this, send it to his gaining unit and attach a cover letter to his new commander telling him what a good trooper he is getting.

Give Him Some Memories

Of all the military knick-knacks I have collected, the most cherished is a personalized beer mug from my first platoon. Other suggestions include: An autographed platoon picture, framed if possible. (It needs to be protected since it will probably travel in a suitcase.) If the departing soldier is not in the picture, then it becomes just a picture of some soldiers. A platoon certificate of

achievement with quotes and anecdotes familiar to the soldier is sometimes more valuable than a battalion letter of appreciation. Most important, make it mean something. Don't just cover it with tanks and sabers and the unit crest. If you tell your soldiers what your intentions are, one with talent will usually step forward to do the art and write the prose.

Let Him Speak

Present the soldier an opportunity to address the group he lived and worked with. Ensure that leaders are present. You may suffer from a few verbal broadsides; usually the soldiers who are staying will get

some positive reinforcement about themselves and the unit. (Remember — you are doing this for the soldier who did a good job; not the chapter case.)

Send Him Home On A Good Note

The last thing a soldier needs to worry about (especially if he has dependents), is how to get to the airport, train, or bus station. No matter how busy the training schedule

looks, someone can be released to get him to his ride.

Benefits of the Program

When a soldier knows he will be recognized for his dedication and work, he gets an extra sense of satisfaction. The extra mile or late night seems to go by easier. If a leader knows that he took care of the departing soldier, then it is reasonable to believe that the soldier was also looked after during his

tour of duty. Few things will unite soldiers faster than a sense of being wronged or neglected by the chain of command. It is all too easy to forget about the soldier who is clearing, and instead, to look for his replacement. Actions always speak louder than words, and a leader can show his soldiers that he does believe in them and supports them by giving them the proper goodbye.

CPT Lee MacTaggart
Ft. Gillem, GA

Division Cavalry in Transition

by Lieutenant Colonel Emmett R. White

Author's Note: Since the decision was made in 1980, the heavy division cavalry squadron has been transitioning to the J-Series TOE. But a slowed Bradley production rate has forced the creation of an interim TOE that retained the M60A3 tanks. As a result, I think the Army has inadvertently created a tank/helicopter team with combined capabilities far greater than its parts...Our challenge is to exploit the concept.

In days of old when cavalymen rode
On steeds of Iron Thunder.
There was no doubt
No thought about
The threatening force-mod blunder.

Who would have believed,
Who could have conceived
Of a cavalry without tanks?
But the logic was sound,
It needn't hold ground,
And tanks are not needed on flanks.

Put Cobras with Bradleys, a few scout if
you please
To build a force of stealth.
T'would be able to see
And report enemy,
But fighting would ruin its health.

To complete the charade, simply add a
brigade
To overwatch this force.
Do away with the Blues,
Brigade scouts, too,
Then add a LRRSD, but of course.

Thus a bargain was made and the cavalry
paid
To assure a procurement decision.
The price was quite high.
A 6,000-tank buy
For the eyes of the heavy division.

But as is the case
With a plan made in haste
That bureaucrats have to complete.
Time marches on,
The decider is gone,
And unforeseen forces compete.

For the force to behold, a cure did unfold
Sparked by a production delay.
With no Bradleys to spare
The squadron was bare
And tanks for a while must stay.

Thus an air-ground team of high esteem
A cavalry of fierce repute
With speed and decision
For the heavy division
Had emerged from the protracted dispute.

The studies we've done of the new
squadron
Would convince most all of you
That three troops outranks
Replacing Bradleys with tanks,
But I assure you the opposite is true

For if we place, in the enemy's face,
A cavalry with no KE,
You'll get a report,
But it'll be short,
And the division will no longer see.

So exploit what's evolved, be ye resolved
To retain the tank/Cobra team.
Make technology provide,
Keep the concept alive,
'Tis the future of Cavalry we've seen.

Lieutenant Colonel Emmett R. White commands
the 1st Squadron, 1st Cavalry in the FRG.

When in Doubt - Fire!!

"Fire distribution is practically non-existent in our army, with the result that those portions of the enemy who are visible receive all the fire, while those portions of the enemy who are not visible, fire on our men with perfect impunity. This defect will be corrected."

— George S. Patton Jr.

Whenever the old masters of armored warfare speak to us, they speak from experience gained with the blood of soldiers who had learned lessons in combat that they hadn't learned in peacetime training.

From observation of many recent field exercises, and from attending many lectures in professional classrooms, it occurs to me that a very important component of successful close-combat is missing, or only lightly touched upon. That missing component is direct-fire suppression and reconnaissance.

All professional soldiers understand that the foundation of modern tactics is fire and maneuver. Those same soldiers understand that it is the shock power inherent in aggressively-used tanks and infantry fighting vehicles — whether infantry troops are mounted or dismounted — that generally decides who wins. However, too often one sees friendly forces timidly advancing in dribbles rather than in a flood, searching mightily for a target that will most often remain hidden, while friendly vehicles and groups of dismounted soldiers receive, again and again, accurate, unopposed direct fire.

Such occurrences reflect a poor application of the shock tactics needed to suppress a defending enemy.

Webster's Dictionary describes shock as, "...an alarming and disconcerting experience, prostration, caused by sudden emotional disturbance...to dismay, to horrify..." The dictionary goes on to describe shock tactics as, "...depending for their effect on the force of impact...any action than seeks to achieve its object by means of SUDDENNESS and FORCE (*emphasis added*).

Units achieve suddenness and force by rapidly appearing where the enemy least expects them and by overwhelming him with such a concentration of fire on his weak spots that he cannot effectively react in a disciplined and cohesive manner.

In close combat, direct-fire suppression and reconnaissance by fire — in close association with indirect fires — are the primary means of inducing shock effect. Once a unit makes significant contact, the time for fancy maneuver is over, and any attempted movement without the support of violent suppressive fire courts disaster.

Experience shows that actual combat develops more slowly than is generally expected. Unless delivered against a weak and unprepared foe, the battle develops as a slow, grinding, relentless push, with increasingly violent fire growing in direct proportion to the effectiveness of enemy resistance. Unless a unit places fire on every known or suspected enemy position along the entire course of the advance, whether the unit observes the enemy or not, that advance is likely to receive confident, precision fire from the enemy.

To pin down the enemy with fire is a basic concept most soldiers understand. It is a concept perhaps as old

as direct-fire weapons. The problem today is that U.S. gunnery training places virtually all emphasis on the direct-fire engagement of only clearly identified targets. This is a mistake, a mistake compounded by the unwise practice of rewarding soldiers only for direct hits with laser-based training devices in mock combat exercises. As a result, soldiers withhold fire until an identifiable target appears.

In actual combat, only a very foolish or badly trained soldier or crew would so limit themselves in the face of the astonishing accuracy of modern combat vehicles.

Perhaps another cause is the scarcity of on-board ammunition in the two main U.S. combat vehicles, the M1A1 tank and the M2 infantry fighting vehicle. Scarcity of ammunition will make soldiers hesitate to use it.

Hesitation can be fatal on a battlefield. That is one of the reasons that our gunnery and tactics manuals tell us that the combat vehicle that fires first is the one that wins. The odd thing is that on direct-

"...In tank attacks especially, the action of opening fire immediately into the area which the enemy is believed to be holding, instead of waiting until several of one's own tanks have been hit, usually decides the issue... Even indiscriminate...fire...is so effective that in most cases the enemy is completely unable to get into action or else gives up his position."

— Irwin Rommel

fire gunnery ranges, near misses don't count, and crews receive extra points for the return of unspent ammunition. In the light of reality and the lessons of history, we must correct this. Our soldiers are not learning a basic fact for survival on the battlefield, which is: when in doubt - fire!!

This should be a conditioned reflex, important to mission accomplishment and survivability. Soldiers who tend to withhold fire unless a target is clearly presented will only learn to fire first after watching their buddies become torches, or they themselves take a hit.

Another peacetime training problem is that training rarely duplicates the fear and confusion that shock tactics create. Participating soldiers do not clearly understand that victory often depends on breaking the enemy's morale and not solely on the amount of equipment they destroy or the enemy soldiers that they kill.

A solution to these problems must begin in the classroom. Lectures and historical examples attest to the effectiveness of direct-fire suppression techniques. Trainers should then follow up with gunnery exercises, beginning with blank ammunition and laser training devices, and culminating in live-fire battle runs employing suppressive fire and reconnaissance by fire. Quick, responsive direct fire, on known or suspected enemy positions should get high marks for speed in recognition of the dangers and for timely, accurate response. The best response in such a scenario would be for combat vehicles to fire quickly on all known or suspected enemy positions, while using battlesight gunnery techniques on the move, while the wingmen, or overwatch, back up those fires with precision fire on exposed targets. Such techniques expend a great deal of ammunition, so we must have economical sub-caliber ammo and firing devices that will allow this type of

"As we moved forward, we machine-gunned everything - hedges, ditches, houses, haystacks, in fact every possible place which might conceal the enemy, and when we came to a village we put HE into the corner houses while our scatter gunners machine-gunned the doors and lower windows of the houses. These tactics...proved successful...the noise and confusion...frightened the enemy as several of them ran out of their ditches and foxholes and tried to run for it, but many of them were caught in our fire."

- Cpt. J. C. McVail

practice, a practice that more accurately reflects the realities of the battlefield and that can give our soldiers a fighting chance to survive.

CPT Andrew F. DeMario
3ID, FRG

Recognition Quiz Answers

1. T-62 MBT (USSR). Crew, 4; combat weight, 40,000 kg; maximum road speed, 50 km/hr; maximum road range w/o additional tanks, 450 km; engine, V-55 V-12 580-hp diesel; armament, 1 x 115-mm main gun, 1 x 7.62-mm coaxial machine gun, 1 x 12.7-mm AA machine gun; maximum armor, 102 mm at 60° slope, front hull.

2. AT-4 (ATGM (USSR)). Crew, 2; operation, wire-guided, optically-sighted; range, 2,000-2,500 meters; flight time (max), 11 secs; penetration, 500-600 mm armor at 90°; warhead diameter, 120 mm. NATO name, SPIGOT.

3. Spahpanzer LUCHS ARV (FRG). Crew, 4; combat weight, 19,500 kg; maximum road speed, 90 km/hr; maximum road range, 800 km; amphibious (2 propellers); turning radius (8 wheels) 5.75 meters, (front wheels only) 9.7 meters; engine, Daimler-Benz OM403A 10-cylinder multi-fuel, 390 hp, turbocharged; armament, 1 x 20-mm main gun, 1 x 7.62-mm machine gun; armor, front hull and turret 20-mm proof.

4. T-72 MBT (USSR). Crew, 3; combat weight 41,000 kg; maximum road speed, 60 km/hr; maximum road range w/o additional tanks, 480 km; armament, 1 x 125-mm main gun, 1 x 7.62-mm coaxial machine gun, 1 x 12.7-mm AA machine gun; armor, glacis plate, 200 mm inclined to give 500-600 mm protection.

5. VAB APC (Fr.). Crew, 2 + 10 infantry; combat weight, 13,000 kg; maximum road speed, 92 km/hr; maximum water speed 7 km/hr; maximum road range, 1,000 km; engine, MAN D 2356HM72 6-cylinder 235-hp diesel; armament, 1 x 7.62-mm machine gun.

6. Type 88 (ROK). Crew, 4; combat weight, 51 tons; maximum road speed, 65 km/hr; maximum cruising range, 500 km; engine, MTU MB871 8-cylinder multi-fuel diesel; armament, 1 x 105-mm main gun, 2 x 7.62-mm coaxial machine gun, 1 x .50-cal machine gun.1

ARTEPS Now Available

The following publications are available to the field through the U.S. Army AG Publications Center and can be obtained through pin-point distribution:

ARTEP 17-236-10-MTP: Maintenance Platoon, Armor Battalion Mission Training Plan.

ARTEP 17-236-11-MTP: Support Platoon, Armor Battalion Mission Training Plan.

ARTEP 17-236-12-MTP: Medical Platoon, Armor Battalion Mission Training Plan.

For more information on these publications, contact LTC Fuller, AUTOVON 464-5110, Commercial (502) 624-5110, or write Commandant, U.S. Army Armor School, Logistics and Maintenance Management (L&MM) Division, Maintenance Department, Fort Knox, KY 40121-5200.

Cavalry Leader's Course

The Armor School has developed and implemented the Cavalry Leader's Course (CLC) as an add-on module to the Armor Officer Advanced Course (AOAC) 1990 for Specialty Code (SC) 12C officers. The course is three-weeks in length and targeted to students with follow-on assignments to cavalry units. The course will be available to other active duty, National Guard, and Reserve Component officers who have completed AOAC and are assigned to a cavalry unit.

CLC was designed to provide the training required to prepare advance course graduates to perform as troop commanders and squadron operations officers in cavalry units. A hands-on course involving map board and practical exercise, CLC teaches the tactical employment of cavalry troops and squadrons in reconnaissance, security, and economy of force missions. Students

participate in planning and directing these operations, the integration and synchronization of combat support, and combat service support assets.

CLC presents 120 hours of related instruction, hands-on/practical exercise to AOAC graduates that is not contained in AOAC (POI). Students work through an eight-hour "Cold Reason" map board exercise (quick reaction/decision making) involving the tactical employment of a cavalry troop; participate in a "staff ride" and historical vignette on the Battle of Perryville (*See story, this issue—Ed.*), a tactical exercise without troops (TEWT), and approximately 10 hours of performance examinations.

For more information call MAJ Daniel Murdock, AUTOVON 464-2558, Commercial (502) 624-2558, or write Commandant, U.S. Army Armor School, ATTN: ATSB-CS-TAC, Fort Knox, KY 40121-5200.

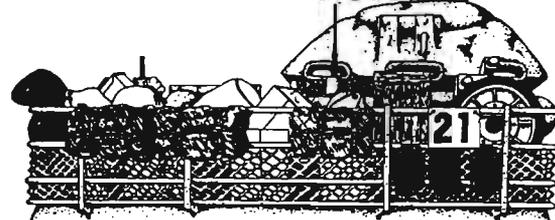
Scout Platoon Leader's Course: Course Number 2E-F137

The Armor School curriculum will be expanded on February 16, 1988 when the Scout Platoon Leaders Course (SPLC) is introduced.

Recent after-action reports from the National Training Center and Arroyo Center studies indicate that scout platoon leaders are not receiving the necessary training to enable them to perform their duties. The restructuring of the Armor Officer Basic (AOB) Course compounded the problem.

SPLC will provide a three-week comprehensive study into advanced scout platoon operations. Class size will be limited to 24 students to allow a low student/instructor ratio.

The Bustle Rack



Training will include two weeks of intensified classroom instruction and a difficult one-week mounted tactical training exercise.

This course is offered to all AOB graduates who are TDY from either armor or mechanized infantry battalions and are slated to become scout platoon leaders, or lieutenants enroute to divisional or regimental cavalry assignments.

Interested RA officers may apply for this course by submitting DA Form 4187 through the unit S3. USAR and NG officers should apply through normal channels.

For more information, contact CPT Jussel or MAJ Wilson, AUTOVON 464-4174, 6783, 6235, or 3154; commercial (502) 624-4174, 6783, 6235, or 3154, or write: Commandant, U.S. Army Armor School, ATTN: ATSB-CS-ACT, Fort Knox, Kentucky 40121-5200.

Master Gunner Stabilized Tours

Because the master gunner is crucial to the combat readiness of armor units fielding the M1 and the M2/M3 Bradley, MILPERCEN policy is to stabilize master gunner tours for as long as possible.

Unit commanders may request stabilization for graduates of the Master Gunner's Course at Fort Knox, effective the date of graduation, for one or two years, based on time-on-station. Requests should be forwarded to Commander, US-TAPA, DAPC-FPR-B for action.

New Soviet Mine-Clearing Vehicle Seen in Afghanistan

A new Soviet mine-clearing vehicle has appeared in use in Afghanistan. It appears to be based on the M1977 armored recovery vehicle and is fitted with the Type KMT-5 combined mine-clearing plough and roller system. The lighter rollers sweep a path about 800 mm wide, and a chain between them detonates mines with tilt fuses. The plough is mounted to the rear of the roller and consists of a 600-mm wide cutting device, which pushes the mine to one side or the other, rather than detonating it like the roller does.

Roller and plough cannot be used together. The crew must decide which to use, based on terrain and type of minefield. The complete KMT-5 system weighs about 7,500 kg and has a quick-disconnect system that enables the driver to release both systems quickly.

Manuscripts Solicited

The Texas A&M University Press has initiated a new military series that will allow for a wide range of military subjects, with preference given to the modern era. Manuscripts of topical interest, along with those that interrelate with other disciplines, are especially invited.

Inquiries should be addressed to the director or editor of the Texas A&M University Press, Drawer C, College Station, TX, 77843-4354, or phone (409) 845-1436.

Loader's Seat Pin On M1 Is Redesigned

The loader's seat pin on the M1 has been redesigned and may be in-

cluded on all new M1s as early as this month. Vehicles in the field will be updated with one-for-one swaps of the entire seat arm and collar. Retrofit kits for units using the old seats will be available in a matter of a few months.

Affiliate By End of FY 86

Senior Army leadership directed in 1985 that all combat arms soldiers be regimentally affiliated by the end of FY 86.

To date, many combat arms soldiers have not become affiliated with the regiment of their choice. Soldiers eligible for affiliation should work through their PACs to become affiliated.

For regimental information on armor/cavalry units, contact: Commander, U.S. Army Armor Center and Fort Knox, ATTN: ATZK-AR-P(CPT Fierko), Fort Knox, KY 40121-5187 AV:464-5155/3188/2162).

Combat arms officers may delay their affiliation until attendance at the Officer Advanced Course, and first-term combat arms enlisted soldiers may delay their affiliation until reenlistment.

Reunions

The 11th Armored Division Association plans to meet August 10-13 at Phoenix, Arizona. Arrangements can be made through Alfred Pfeiffer, 2328 Admiral St., Aliquippa, PA 15001.

The 11th Armored Cavalry Regiment's Veterans of Vietnam and Cambodia plan a reunion in Louisville, KY July 29-31. The reunion chairman is Terry Slivers, 3509

Chapel Lane, New Albany, IN 47150.

Armor Branch Notes

Promotable lieutenants can expect notification of advanced course attendance 5 to 6 months before the start of their classes. Two months prior to the course start date, officers will receive a tentative follow-on assignment to return to troops. Officers need to send a preference statement indicating their assignment choices upon notification of attendance at officer advanced course.

Armor Officer Advanced Course

Officers are slated for the Advanced Course once they are selected for promotion and make it through the rebranching process. Officers returning from OCONUS will be slotted for the course which falls after the completion of their full overseas tour. Officers normally will not return early to attend the Advanced Course.

If an officer needs to be curtailed in a foreign service tour, the action requires general officer approval at USATAPA.

The CONUS tour length is 48 months. As an approved exception to policy, officers will be scheduled to attend OAC after completing a full 36 months time on station.

The Armor Officer Advanced Courses scheduled for FY 88 and 89, and the dates of attendance, are:

88-3 - 17 Apr-7 Sep
88-4 - 10 Jul-2 Dec
89-1 - 2 Oct - 10 Mar
89-2 - 23 Jan - 13 Jun
89-3 - 16 Apr - 7 Sep
89-4 - 9 Jul - 1 Dec

Tank Fighting In Vietnam: A Sergeant's View

Tank Sergeant. by Ralph Zumbro.
Presidio Press, Novato, CA. 1986. 178
pages. \$16.95.

Tank Sergeant is Sergeant Ralph Zumbro's account of his tour of duty with A Company, 1-69th Armor during some of the heaviest fighting in Vietnam. His narrative of armor combat at the tank crew level vividly relates the experiences of tankers in close combat with a tough and skillful enemy.

Sergeant Zumbro's purpose is not to chronicle the history nor the tactics of the small unit actions he fought in. Instead, he describes the sights, sounds, and even the smells of armor combat. The exploits of the men and tankers are recounted in fast-moving, well-written detail. Operating in sections or platoons, sometimes alone, and sometimes with supporting infantry, A Company 1-69th Armor, earned an enviable combat record in the Central Highlands and the Bong Son plain. Developing unique combat methods suited to the local situation and vastly different from European-style tactics, these "jungle tankers" closed with and destroyed NVA and main force VC units.

Sergeant Zumbro describes the combat actions, the off-duty time, and the daily routine with candor and humor. His descriptions and affection for the Vietnamese and Montagnard people he met there show throughout his book. The ingenuity and "can do" attitude of American tankers and soldiers in overcoming logistical and maintenance problems are shown in case after case.

Several years ago, Armor magazine developed a reading list about armor combat. Tank Sergeant is a classic and definitely belongs on the list and in the library of every Armor professional. What Brazen Chariots did in describing tank combat in the Western Desert of WWII, Tank Sergeant does for armor combat in Vietnam.

Sergeant Zumbro has written a fitting tribute to the officers and men of the 1-69th Armor in Vietnam.

1LT Jack C. Thomas
Hershey, PA



A new M48 of A Co., 1st Bn., 69th Armor rolls ashore under Huey air cover as the unit arrives in Vietnam in 1967.

Leavenworth Paper 13: Counterattack on the Naktong.

Dr. William Glenn Robertson. Combat Studies Institute, USAC&GSC. December 1985. 111 pages with maps.

From August 6-19, 1950, the U.S. 24th Infantry Division engaged units of the North Korean 4th Division during the First Battle of the Naktong Bulge. During this time, the 24th Infantry Division launched repeated counterattacks against the North Korean positions to restore the Naktong River Line. This study explores the contemporary U.S. doctrine for counterattacks and the actual conduct of the U.S. counterattacks during this operation.

There is a lot of discussion today about a "come-as-you-are-war." The combination of peacetime economies and heavy losses during previous fighting resulted in the 24th Infantry Division having considerably reduced combat efficiency. Long frontages, infiltrating enemy soldiers, and insufficient resources resulted in a situation that required economy of force decisions and rear area combat actions.

Clausewitz wrote about friction in war. In counterattack after counterattack, this friction resulted in failure to reach objectives and accomplish missions. When attrition and fatigue reduced the combat effectiveness of the initially engaged units, additional units and resources were added to continue the counterattack. The book shows the difficulties of command, con-

trol, coordination, and communication among many different units in detail.

Eventually, the American soldiers and Marines successfully defeated the North Koreans in heavy fighting and drove them back in a rout. This was after many unsuccessful counterattacks, which were costly in casualties and resources. The reader learns most of the lessons of this study in the description of these counterattacks and the many problems that caused them to fail. It is said that one can learn more from defeat than victory. While this was an eventual American victory, the reader can gain much valuable information from the many difficulties encountered.

Basic U.S. Army counterattack doctrine was sound. It was where planning and execution fell short of doctrine that results fell short of objectives.

Well illustrated with maps and solidly written as military history, this historical study is full of important lessons and supports its basic premise about counterattack doctrine.

Counterattack on the Naktong is valuable to students of the Korean War, as well as professionals interested in a "come-as-you-are war." The differences between planning and actual execution are critical lessons to an army that must fight and execute operations efficiently and win while outnumbered in today's AirLand Battle doctrine.

1LT Jack C. Thomas
Hershey, PA

Required Manuals for Armor/Cavalry Leaders

In order to train for combat, each Armor/Cavalry leader should be familiar with the following manuals for which the Armor School is proponent:

Battalion/Brigade Cmdr

FC 71-3 (Coordinating Draft), The Armored and Mechanized Infantry Brigade, Oct 85.

FM 71-2 (Coordinating Draft), Tank and Mechanized Infantry Battalion Task Force, Dec 84.

FC 71-1J (Coordinating Draft), The Tank and Mechanized Infantry Company Team, Dec 85.

*FM 17-12-1, Tank Combat Tables - M1, Nov 86 w/change 1.

*FM 17-12-2, Tank Combat Tables - M48A5/M60A1, Jan 87.

*FM 17-12-3, Tank Combat Tables - M60A3, Nov 86 w/change 1.

FC 71-4, Combined Arms Live Fire Exercise (CALFEX), Jul 85.

*ARTEP 71-2, Army Training and Evaluation Program for Infantry/Task Force, 23 Nov 81 w/change 1.

*ARTEP 17-236-10-MTP, Task Force Maintenance Platoon ARTEP Mission Training Plan, Dec 87.

*ARTEP 17-236-11-MTP, Task Force Support Platoon ARTEP Mission Training Plan, Nov 87.

*ARTEP 17-236-12-MTP, Task Force Medical Platoon ARTEP Mission Training Plan, Dec 87.

FC 23-200-1 M1 Tank Combat Load Plan, May 85.

FC 23-200-3, M60A3 Tank Combat Load Plan, Nov 86.

Squadron/Regiment Commander

*FM 17-95, Cavalry Operations, Feb 86.

FC 17-102 (Coordinating Draft), Reconnaissance Squadron (LID), Mar 85.

FC 17-102-1 (Coordinating Draft), Reconnaissance Squadron (LID), ARTEP Mission Training Plan, Sep 85.

FC 17-97 (Coordinating Draft), Regimental Armored Cavalry Troop, Mar 86.

FC 17-97-1 (Coordinating Draft), Regimental Armored Cavalry Troop ARTEP Mission Training Plan, Sep 86.

FC 17-101 (Coordinating Draft), Light Cavalry Troop ARTEP Mission Training Plan, Sep 85.

FC 17-101-1 (Coordinating Draft), Light Cavalry Troop ARTEP Mission Training Plan, Sep 85.

FM 71-2 (Coordinating Draft), Tank and Mechanized Infantry Battalion Task Force, Dec 84.

FC 71-1J (Coordinating Draft), The Tank and Mechanized Infantry Company Team, Dec 85.

FC 23-200-1, M1 Tank Combat Load Plan, May 85.

FC 23-200-3, M60A3 Tank Combat Load Plan, Nov 86.

Company Commander.

FC 71-1J (Coordinating Draft), The Tank and Mechanized Infantry Company Team, Dec 85.

*FM 17-12-1, Tank Combat Tables - M1, Nov 86 w/change 1.

*FM 17-12-2, Tank Combat Tables - M48A5/M60A1, Jan 87.

*FM 17-12-3, Tank Combat Tables - M60A3, Nov 86 w/change 1.

*FM 17-15, Tank Platoon, Oct 87.

Division 86 Tank Company SOP, May 83.

FC 23-200-1, M1 Tank Combat Load Plan, May 85.

FC 23-200-3, M60A3 Tank Combat Load Plan, Nov 86.

Troop Commander

*FM 17-95, Cavalry Operations, Feb 86.

FC 17-97 (Coordinating Draft), Regimental Armored Cavalry Troop, Mar 86.

FC 71-97-1 (Coordinating Draft), Regimental Armored Cavalry Troop ARTEP Mission Training Plan, Sep 86.

FC 17-97-3, Regimental Cavalry Troop SOP, Mar 86.

FC 17-101 (Coordinating Draft), Light Cavalry Troop, Sep 85.

FC 17-101-1 (Coordinating Draft), Light Cavalry Troop ARTEP Mission Training Plan, Sep 85.

FC 23-200-1, M1 Tank Combat Load Plan, May 85.

FC 23-200-3, M60A3 Tank Combat Load Plan, Nov 86.

Tank Platoon Leader/Platoon Sergeant.

*FM 17-15, Tank Platoon (Coordinating Draft), Oct 87.

FC 17-15-3, Tank Platoon SOP, May 85.

FC 71-1J (Coordinating Draft), The Tank and Mechanized Infantry Company Team, Dec 85.

*FM 17-12-1, Tank Combat Tables M1, Nov 86 w/change 1.

*FM 17-12-2, Tank Combat Tables M48A5/M60A1, Nov 86 w/change 1.

*FM 17-12-3, Tank Combat Tables M60A3, Nov 86 w/change 1.

FC 23-200-1, M1 Tank Combat Load Plan, May 85.

FC 23-200-3, M60A3 Tank Combat Load Plan, Nov 86.

Scout Platoon Leader/Platoon Sergeant.

*FM 17-98, Scout Platoon, Oct 87.

ARTEP 17-57-10-MTP (Coordinating Draft), Scout Platoon Mission Training Plan, Sep 87.

FC 17-98-2, Scout Platoon Leader's Notebook, Apr 85.

FC 17-98-3, Scout Platoon SOP, Apr 85.

FC 23-200-1, M1 Tank Combat Load Plan, May 85.

FC 23-200-3, M60A3 Tank Combat Load Plan, Nov 86.

All commanders and leaders should have SOPs and references for echelons one level above and one level below them.

Drafts of the following Armor School-proponent publications are being currently coordinated with other service schools:

ARTEP 71-3-MTP (Coordinating Draft), Brigade Command Group and Staff Mission Training Plan, Oct 87.

ARTEP 71-1-MTP (Coordinating Draft), The Tank and Mechanized Infantry Company Team, Oct 87.

Manuals denoted with an asterisk (*) are DA print and must be secured from AG Publications Center, Baltimore.

Other manuals, except the drafts being currently coordinated, are available in limited quantities from the Armor Center, Army-Wide Training Support Branch, Non-Resident Training Division, at AUTOVON 464-2914 (commercial 502-624-2914) or by writing: Commander, U.S. Army Armor Center, ATTN: ATZK-DPT- NRT-AWTS, Fort Knox, KY 40121-5000.

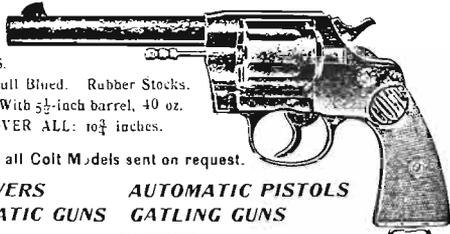
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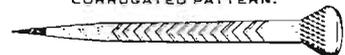
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and delivers pure, clean oats, thereby preventing sickness and disease; will actually remove one bushel of foul matter from 25 to 30 bushels of best white oats. Over 2500 in general use in stables where the health of the horse is wisely considered, and in constant use in the stables of the following:

White House Stable, Washington, D. C.	John D. Rockefeller.
Royal Stables of Queen of Holland.	Daniel Lambert.
Kiekerbaker Ice Co., St. Cloud, Minn.	Marcus Daly.
American Express Company, all cities.	Montgomery Ward & Co.

Write us and we will tell you where you can see one in actual use. Cleaners sent on approval. Set it up, try it 30 days and if not satisfied, return it at our expense. Write at once for prices and full particulars.

KASPER OATS CLEANER, CO. 383 Wabash Ave., Chicago.

FRANK MILLER'S HARNESS DRESSING

For Harness, Buggy Tops, Saddles, Fly Nets, Tramping Bags, Military Equipments, Etc.

Gives a beautiful finish, which will not peel or crack off, mat or creak by handling; does not lose its luster by age; does not get sticky or work soiled with it. Is not a varnish. Contains no Turpentine, Benzole, Naphtha, Alcohol, or other injurious articles. It is simply a finishing dressing.

DIRECTIONS: Let your harness be clean and perfectly dry. Apply with a brush, with strokes of brush, giving a good dry finish, and allow the dressing to dry undisturbed. If a high gloss is required, give a second application after the first is thoroughly dry. This dressing will not work with gum tragacanth, or any other material.

Keep the tin closed tightly when not in use. PUT UP IN GALS, KEGS, AND BARRELS.

MANUFACTURED BY THE FRANK MILLER COMPANY, NEW YORK.

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