

# **ARMOR**

*The Magazine of Mobile Warfare*



## **The Ultimate VISMODS**

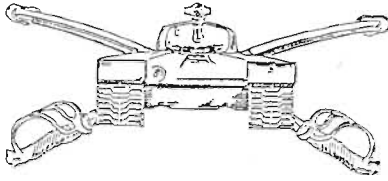
---

**Soviet Vehicles in USAREUR**

page 26

*November-December 1985*

# SCHWERPUNKT



This issue of *ARMOR* is what some editors would call 'eclectic.' (That's just a fancy way of saying that there's something for everyone in the magazine!)

Our first article, "The Technology of Teamwork," by **Captain Peter Schifferle**, draws on the author's experience from two years as a tank company commander and two rotations to the National Training Center. He shows how company and battalion commanders can build 'killer crews' through stabilization.

With three years of experience at the NTC, **Major David Ozolek** gives us a reasoned and practical approach to disrupting the Threat's use of mass and momentum in an excellent article called "Barrier Planning."

The successful execution of AirLand Battle requires that we be able to strike deeply and hit the Threat on his flanks. **Sergeant First Class Peter Bunce**, an intelligence analyst who has served with two armor and three cavalry units, points out what we can expect in "The Soviet Reaction to a Flank Threat." It is a detailed and excellent treatment of a subject that we have largely ignored.

None of us like to consider the possibility of being encircled on the battlefield. In a thoughtful view of that possibility, **Captain Michael Deaton** gives us tactical alternatives in "Fighting 360 Degrees."

In this Year of Leadership, we often hear the term "mentorship." What is it? How does it work? **Major James Patterson**, in "Defining Mentorship," illustrates how this vital element of leadership serves to improve the soldiers in-

involved and most importantly, our Army and our Nation as institutions.

**Richard Ogorkiewicz** is a frequent contributor to *ARMOR* and a much-respected writer on issues in mobile warfare. His article, "Israel's Merkava Mark 2 Battle Tank," is a definitive explanation of the development of this unique tank and an informative report of how it performed in combat.

"Random Recollections" by **Lieutenant General Samuel L. Myers** is an interesting — and humorous — view of a new lieutenant's experiences as a young cavalry officer on the American-Mexican border. I highly recommend the article as an illustration of how things change — and don't change — in cavalry.

Nearly all leaders complain about the administrative tasks that we believe take us away from our soldiers. In "Keeping Count of Your Platoon," **First Lieutenant Mark Asbury** gives the new armor/cavalry leader — and the old ones, too — an efficient and effective way to maintain accurate equipment accountability at the platoon and company levels.

With this final issue of 1985, we at *ARMOR* wish you, your soldiers, and their families a Merry Christmas and the happiest of New Years in a joyful holiday spirit. I can think of no better way to do that than in giving you a short piece written by **CW3 Daniel Kingsley** and called "Cav Esprit." The spirit of which he writes is truly not limited to any particular part of our armor/cavalry community. It is a spirit that thrives in all units of armored cavalry, armor, and air cavalry all over the world. —GPR



# **ARMOR** *The Magazine of Mobile Warfare*

## *Magazine Staff*

Editor-in-Chief  
**MAJOR G. PATRICK RITTER**

Managing Editor  
**JON T. CLEMENS**

Assistant Editor  
**ROBERT E. ROGGE**

Administrative Assistant  
**VIVIAN THOMPSON**

Contributing Artist  
**MARK KAYROUZ**

## *United States Army Armor School*

Commandant  
**MG FREDERIC J. BROWN**

Assistant Commandant  
**BG PAUL E. FUNK**

Deputy Assistant Commandant  
**COL CLAUDE L. CLARK**

Chief of Staff  
**COL RALPH R. WOLFE**

Command Sergeant Major  
**CSM JOHN M. STEPHENS**

Maintenance  
**COL G. L. THOMAS**

Command and Staff  
**COL JAMES B. TAYLOR**

Weapons  
**COL DAVID V. HARBACH**

Training Group  
**LTC JAMES L. KLUENDER**

NCO Academy/  
Drill Sergeant School  
**CSM JAMES M. GREENWELL**

Evaluation and Standardization  
**COL ROBERT HURLEY**

Training and Doctrine  
**COL CLAUDE W. ABATE**

Combat Developments  
**COL ROBERT W. DeMONT**

## *Units*

2d Armor Training Brigade  
**COL WILLIAM M. BOICE**

1st Armor Training Brigade  
**COL ROBERT B. FRANKLIN, JR.**

4th Training Brigade  
**COL JOHN N. SLOAN**

194th Armored Brigade  
**COL SAMUEL D. WILDER, JR.**

## FEATURES

- 10 The Technology of Teamwork**  
by Captain Peter J. Schifferle
- 14 Barrier Planning**  
by Major David J. Ozolek
- 19 Random Recollections**  
by Lieutenant General Samuel L. Myers, Ret.
- 22 Keeping Count of Your Platoon**  
by First Lieutenant Mark E. Asbury
- 26 The Ultimate VISMODOs**  
by First Lieutenant William P. Veillette,  
with Photos by Specialist Four Rex Burger
- 28 The Soviet Reaction to a Flank Threat**  
by Sergeant First Class Peter L. Bunce
- 32 Fighting 360 Degrees**  
by Captain Michael A. Deaton
- 35 Defining Mentorship**  
by Major James O. Patterson
- 39 Israel's Merkava Mark 2 Battle Tank**  
by Richard M. Ogorkiewicz
- 53 Cav Esprit**  
by CW3 E. Daniel Kingsley

## DEPARTMENTS

- |                          |                             |
|--------------------------|-----------------------------|
| 2 Letters                | 44 Professional Thoughts    |
| 4 Commander's Hatch      | 48 Recognition Quiz Answers |
| 7 Driver's Seat          | 49 Regimental Review        |
| 8 Master Gunner's Corner | 51 Books                    |
| 9 Recognition Quiz       |                             |

*ARMOR* magazine (ISSN 0004-2420) is published bi-monthly by the U.S. Army Armor Center, 4401 Vine Grove Road, Fort Knox, Kentucky 40121. Unless otherwise stated, material does not represent policy, thinking, or endorsement by any agency of the U.S. Army. Use of appropriated funds for printing of this publication was approved by the Department of the Army 6 January 1984. *ARMOR* is not a copyrighted publication but may contain some articles which have been copyrighted by individual authors. Material which is not under copyright may be reprinted if credit is given to *ARMOR* and the author. Permission to reprint copyrighted material must be obtained from the author.

*ARMOR* may be forwarded to military personnel whose change of address is caused by official orders (except at APO addresses) without payment of additional postage. The subscriber must notify the postmaster.

**CORRESPONDENCE:** Address all correspondence to U.S. Army Armor Center, ATTN: ATSB-MAG, Fort Knox, Kentucky, 40121. (Telephone: AUTOVON 464-2249/2610 or commercial (502)624-2249/2610.) **SECOND** class postage paid at Fort Knox, Kentucky and additional mailing office.

**SUBSCRIPTION RATES:** Individual subscriptions to *ARMOR* are available through the U.S. Armor Association, Post Office Box 607, Fort Knox, Kentucky 40121. Telephone (502)942-8624.  
**Domestic:** \$16.00 one year; \$27.75 two years; \$39.50 three years. **Foreign:** \$23.50 one year; \$36.75 two years. Single copies, \$2.50.

IUSPS 467-970

# LETTERS

## Control of the Scout Platoon

Dear Sir,

Lessons learned from the National Training Center have surfaced many tactical areas of concern. CPT David L. Irvin discussed one of these controversial areas in the March-April 1985 edition of *ARMOR* in his article, "Who Should Control the Scout Platoon?" He proposes that the task force S2 control the scout platoon, using the results from NTC exercises as the basis for his discussion.

CPT Irvin argues that NTC exercises have shown that the, "Task force as a whole fails to reconnoiter effectively." He contributes this ineffectiveness to the task force commander and S3 using the scout platoon offensively instead of giving the S2 full control of the scouts and using them in a strict reconnaissance mode. I firmly agree that the scout platoon should be used for reconnaissance, unless there is a critical need to use it offensively, especially if the scouts are equipped with M113-family vehicles. I do not think that placing the scout platoon under the control of the S2 will magically increase the task force's reconnaissance effort. I do feel that a well-organized S2 and S3 that coordinate effectively, a disciplined scout platoon that finds the enemy but avoids being decisively engaged consistently, and a task force commander who directs his scout platoon cautiously, will substantially increase the task force's reconnaissance gathering efforts.

CPT Irvin pointed out that commanders who personally direct their scout platoons cause S2s to be excluded from the intelligence cycle. I believe that an S2 will only be excluded from the intelligence cycle if he does not monitor the command net. Irvin states that when the scout platoon operates directly for the commander, the S2 is not able to anticipate properly the enemy's future actions, causing the commander to lose initiative on the battlefield. If the S2 monitors all radio transmissions from the scout platoon to the commander, analyzes the situation, and reports likely enemy actions, then the commander may actually gain the initiative by directing a decisive blow against the enemy's weaknesses.

Irvin suggests a plan on how the task force's intelligence gathering elements could communicate entirely on the scout platoon's internal frequency. The scout platoon's frequency is very busy with the separate scout elements sending vital information to the platoon leader before and during battle. The added GSR transmissions would cause unnecessary confusion and the greater opportunity for the enemy to jam two reconnaissance units for the price of one. Also, if the scout platoon leader used his internal net to

report to the S2, he would be tying up the opportunity for current spot reports from the forward scout sections, who would be competing for radio transmission time on the same frequency, thus causing loss of vital reaction time for the task force. I do not believe there are any, "obvious advantages of using the scout internal net for reporting to the task force," as stated by CPT Irvin.

CPT Irvin's final point concerns the S2's controlling the scout platoon's mission-related training in garrison. The scout platoon leader's position is not called a specialty platoon leader's position for nothing. I am confident that if a scout platoon leader cannot read a map, distinguish one vehicle from another, send accurate reports, and ensure that proper MOS-related training is conducted to standard by his platoon members, then the commander will find someone else who can. I believe the responsibility for ensuring proper platoon training rests at the platoon leader's and company commander's level, not the S2's.

RUSSELL H. WILLIAMS  
1LT(P), INF

Scout Platoon Leader at NTC

## Improving the J-Series HHC

Dear Sir,

The plan was a good one. When Army planners drew up the Division 86 Table of Organization and Equipment, they eliminated the old Combat Support Company and consolidated all combat support, combat service support, and staff in the Headquarters and Headquarters Company. The revised HHC TO&E called for a major to serve as company commander, a captain as executive officer, and a first lieutenant as company motor officer. Operationally, the addition of a fourth field-grader to the battalion allowed for the "fighting XO" concept to come to fruition. The HHC commander would manage the battalion's logistics, the S3 would be forward helping the battalion commander control the battle, and the battalion XO would operate from the Tactical Operations Center where he could supervise planning for subsequent missions and monitor operations.

Unfortunately, something was lost in the translation to reality.

The final TO&E called for the HHC commander to be a captain, the XO a first lieutenant, and the motor officer position was axed.

As a serving HHC commander, I'm here to tell all who will listen that a change is needed. The problems encountered in command and control, maintenance, and supply accountability make taking com-

mand of a HHC about as desirable as contracting Herpes Simplex II.

To help make life simpler for future HHC commanders (and reduce the number of cases of premature baldness) I'd like to make the following proposals:

- Eliminate the current HHC TO&E. In its place, create two separate companies. The first would be made up of the battalion's maintenance assets, the mess teams, the Support Platoon, Medical Platoon, and Communications Platoon. The company headquarters would operate from the field trains and the company commander would be responsible for honchoing the battalion's maintenance and logistical operations. The second company would include the primary staff sections and the Scout and Mortar Platoons. When operating as a balanced task force, the battalion commander might opt to pull the ITVs and form an Antitank Platoon which could be attached to this company. The company headquarters would be in the battalion TOC area and the commander (preferably a captain with prior experience as a line company commander) would be responsible for TOC security and would assist in operational planning. The XO would operate from the combat trains and assist in its operation.

The benefits of this TO&E change include a reduction in the administrative workload for the HHC commander and a reduced span of control. As it stands now, his forces are scattered across the battlefield from the field trains to the Scout Platoon screen forward of the line companies.

- Consider changing the existing HHC TO&E to include a first lieutenant motor officer. This would allow the XO to focus on supply operations and provide continuous officer supervision of the company's maintenance and supply accountability problems.

- Finally, consider eliminating the battalion XO position and use the battalion's majors the way Major General Manton Eddy used his assistant division commanders in the 9th Infantry Division in World War II: The S3 would become the Deputy Commander (Operations and Training), and the XO would become the Deputy Commander (Support).

The DC(OT) would position himself forward to help the battalion commander control the battle. He would exercise staff supervision over the S2 and S3, and be first in line in the succession of command. The S3 Air would assume responsibility for operation of the S3 section in the TOC, assisted by the HHC commander as needed.

The DC(S) would operate from the Combat Trains, exercising staff supervision over the S1 and S4. He would be responsible for managing the battalion's maintenance and logistical operations, assisted

by the Combat Service Support Company commander (if my first proposal is adopted).

I realize that creation of two companies from the existing HHC would require additional slots to form the new company headquarters. But, we're only talking in terms of seven (CO, XO, 1SG, Supply Sergeant, supply clerk, armorer and driver). These could easily be made up by eliminating the NBC NCO and field radio mechanic slots in the four line companies. These positions are rarely filled now, and would not be sorely missed.

Whatever the case, however, it's time to change the J-Series HHC.

DALE E. WILSON  
CPT, Armor  
Fort Carson, CO

---

## Ground Cav "Lost in Shuffle"?

Dear Sir,

The July-August 1985 issue of *ARMOR* Magazine contained a letter by Brigadier General Zeller concerning the subordination of the division cavalry squadron to the Air Cavalry Attack Brigade (ACAB) under the Division 86 plan.

The general pointed out the very distinct possibility of the cavalry squadron being 'lost in the shuffle' in the ACAB, and ceasing to be an effective reconnaissance force.

I could not agree more. As an intelligence specialist with the 2d Armored Division, I came to greatly appreciate and rely upon the reporting of 2d Sq, 1st Dragoons. It was invariably accurate and timely.

While I am not enthusiastic about a divisional ACAB in general, the subordination of the only division-level ground recon asset to it is one of my major complaints. I fear this could result in the squadron being absorbed into the ACAB's operations to the detriment of its vital cavalry role.

I also have considerable reservations about the deletion of a ground troop and its replacement by a second aertroop in the Division 86 plan. Light infantry, infantry, airborne, and air assault divisions might indeed be better served by a two-aero, two-ground-troop squadron organization, although I doubt the ACAB subordination will be any better for their purposes. The heavy divisions, however, need a great deal of detailed ground reconnaissance and it is doubtful whether two ground troops, no matter how well-trained and willing, will be able to accomplish this for a heavy division. For its part, aero cavalry cannot provide this type of recon to any significant degree. While the

capability and versatility of aero cavalry is undisputed, its effectiveness can be severely reduced or totally eliminated by darkness, poor weather, or poor visibility. While these factors impact on ground recon, they do so far less drastically.

For these reasons, I believe that the three-ground, one-aero troop configuration is the optimum, at least for the heavy divisions. The cavalry squadrons of the other types of divisions could and should be organized to best suit these units' needs, although I believe that the three-ground, one-aero organization will prove to be best suited for them as well. I do not believe, however, that any division will be best suited by the cavalry's subordination to the division ACAB.

The old system of organization and subordination served us well in the past, and with the new equipment available, should serve us just as well today and in the future.

JUNIUS B. HAMMER, III  
SSG, INSCOM  
Ft. Bragg, NC

---

## CORRECTION

An editing error may have left the impression that POMCUS warehouses in USAREUR are temperature-controlled (See "Getting Ready to Draw POMCUS Stocks" in the July-August issue of *ARMOR*). Those who work in these warehouses winter and summer remind us that while humidity is controlled in these buildings, temperature is not.

---

## Is the Command Tank a Non-Fighter?

Dear Sir,

I have just finished reviewing "Battalion Command and Control," by Major Richard Geier (September-October *ARMOR*). Although I understand the difficulty of commanding from a highly mobile, fast-moving, and somewhat cramped command tank, and also appreciate the need to improve upon existing doctrine, I believe that Major Geier has overlooked some important points.

Two of his comments lead me to believe that the battalion commander's tank is a non-firing vehicle. First, the turret ammunition rack was removed to create an additional storage area and space for a map board. Second, a desk was placed over the ready rack. As stated in the article, it is necessary for today's combat arms leaders to lead from the front. But, if they are going to lead from the front, they must be able to fight their tank.

I may have misinterpreted the article, and the commander's tank really is a combat-capable vehicle. If so, the tank is certainly degraded in its fighting ability.

My battalion commander (5-73d Armor), has set a simple policy with reference to what goes inside each tank's turret, including his own: people and bullets.

To me, the most frustrating comment in the article was: "Externally, the tank looks no different from any other tank in the battalion." What, in fact, has happened, is that the commander has disguised his command vehicle as a tank.

The responsibilities of the S3 are another area that bothered me. As stated in the article, the S3 rides in the loader's position so the battalion commander can have someone to "bounce ideas off of; someone to read the fragmentary order before it is transmitted; and someone to be awake while the other sleeps."

This seems to be a gross underutilization of one of the three most important officers in the battalion. As doctrine states, the commander needs to be located at the most critical place on the battlefield, watching the battle develop, and controlling the fight. As an extension of this, 5-73d's S3 is positioned as the commander's wingman, often being sent to the second most critical point on the battlefield, adding that much more experience and command and control at that point.

Finally, Major Geier states that "A highly thought-of tank battalion commander tried it (commanding a battalion from a tank), and declared it unsuitable." The word 'unsuitable' probably should be replaced with 'difficult.'

In discussing this with my battalion commander, his feeling was that although it is difficult and requires practice, it is quite manageable.

In the same light, much work on command vehicles is being completed at the Armor and Engineer Board at the Home of Armor at Fort Knox, facilitating optimal command and control, while still allowing the tank to be combat-effective.

During a recent 194th Armored Brigade deployment to Ft. Bliss, Texas, this equipment was field tested, and most was found to be extremely effective. While observing those commanders within this battalion who worked with this new equipment, I observed it to be a major improvement.

On the next battlefield, which may be extremely fluid, with few delineated boundaries, it is important that every commander lead his unit from a combat-capable, fighting vehicle.

CALVIN R. SAYLES  
CO, D Co, 5-73 Armor  
Fort Knox, KY

# COMMANDER'S WATCH

---

*MG Frederic J. Brown  
Commanding General  
U.S. Army Armor Center*



## Support to Mobilization and Reserve Components

In the event of a full or general mobilization, the Armor Force will be required to expand rapidly in order to satisfy its role in our maneuver heavy forces. Although the Armor Force comprises only about 4 percent of the Army's total end strength, it contributes more than one-third of its total ground combat power. Half of this capability is found in units of the Army National Guard and the Army Reserve, not counting the large manpower pool available from the Individual Ready Reserve and the Standby Reserve. Most of the Reserve Component (RC) units are scheduled to deploy within 60 days to meet world-wide contingencies. This heavy reliance on the National Guard and the Army Reserve makes it imperative that their level of readiness be commensurate with their missions.

As Chief of Armor, it's my responsibility not only to support the chain of command in equipping and maintaining the active Armor Force, but also to assist the chain of command (federal and state) to ensure that the Reserve Component Armor Forces are capable of fulfilling their role. The readiness of the Reserve Components to perform their wartime missions and their ability to mobilize rapidly and efficiently is of vital importance to our nation. For this reason, it is critical that the citizen soldiers and their units are maintained in a high state of readiness. Some of the initiatives being taken by the Armor Force to assist the RC in this vital mission are:

### **New Equipment Fielding**

We cannot afford to equip half of the Armor Force with obsolete equipment in outmoded organizations

that are untrained. For this reason, we are accelerating the plan for issue of the M60A3 tank (TTS) to the RC tank and cavalry units in order to complete the transition by FY 1990. Selected National Guard round-out battalions are receiving M1 tanks and Bradley Fighting Vehicles. The fielding of this new equipment — with stabilized guns, thermal sights, and laser rangefinders — allows units to train using the most current doctrine and tactics, and greatly improves their readiness to fight on the modern battlefield.

### **Training Initiatives**

The fielding of new equipment produces a requirement for transition training. At this time, a Reserve Component New Equipment Training Team (RCNETT) is being formed at Gowen Field, Idaho. This program, which will be run by the Army National Guard, is designed to transition-train RC Armor and Cavalry units from the M48A5 or M60 tank to the state-of-the-art M60A3. This training is scheduled to begin in January. The instruction will be covered in an intensive two-week period to correspond to the annual training schedule of the units involved. A similar site is planned at Camp Shelby, Mississippi, for FY 87, providing regional sites in both the eastern and western United States.

Other programs offered at Gowen Field include the recently developed Armor Commander Course (ACC) and the Reserve Component Tank Commander Course (RCTCC). The ACC is an intensive two-week training program intended to develop a high degree of technical and tactical proficiency among Armor officers now



**“...We are accelerating the plan for issue of the M60A3 (TTS) to the RC tank and cavalry units...”**

assigned or awaiting assignment as unit commanders.

Lessons learned from the first iteration this past summer resulted in a redesign of the POI in order to move all of the training into a field environment. Officers of the National Guard or Army Reserve with the rank of First Lieutenant or Captain who are, or who anticipate, appointment as Armor company commanders are encouraged to enroll in order to develop the skills and knowledge necessary to plan and execute company/team-level tactics. Student officers will study basic offensive and defensive tactics and conduct company drills in a CFX mode by participating in a sand table exercise, a walk-through, and drills A through J, M, O, and S (CFX). The exercises will be platoon instructor-driven, and leaders will rotate after each drill. Integrated training will include instruction in command and control, fire support, combined arms application, and engineer employment. A similar combat service support exercise (LOG STX) will also be conducted.

In order to develop proficiency with the total tank weapons system and its employment in the contemporary AirLand Battle environment, students will conduct the proper prepare-to-fire and armament accuracy checks for the tank and participate in tactical tables G and H under the supervision of the platoon instructor. Table G will be conducted, one engagement at a time, with crew positions changing after every engagement. Other areas covered in the ACC will include preventive maintenance, battalion staff functions, combat orders and plans, NBC, Threat organization and tactics, Army of Excellence, and many others. Officers successfully completing this course will be given credit for Phase Six of AOAC-USAR school under the present six-phase system or Phase Four under the newly established four-phase AOAC.

The RCTCC is now well established. It is a very professional “hands-on” practical course designed to develop competence and confidence in all tank crew

positions. At the present time, this training is conducted on the M48A5 and M60, but training will transition to the M60A3 as this tank becomes standard in the RC. The National Guard has made this course a prerequisite for soldiers programmed to attend the resident Master Gunner Course at Fort Knox because the success rate of RCTCC graduates is dramatically improved over those who have not had the benefit of that training. Students gain practical experience in maintenance, armament, crew positions and duties, conduct of fire, tactical crew drills, and tank gunnery training devices. RCTCC is offered year round. In FY 86, 17 iterations will be conducted. Student officers successfully completing RCTCC receive credit for Phase Two of AOAC-USAR. We are considering granting partial MOS qualification for enlisted soldiers, which brings us to our next area of concern.

### **MOS Qualifications**

At this time, DA policy prohibits the use of Supervised On-the-Job Training (SOJT) as the sole source of MOS qualification. This poses special concerns for Reserve Component soldiers, as they often come from different branches of the Army as well as other services. A sound, viable program of reclassification training is necessary in order to qualify these soldiers for the performance of their missions. Some of these soldiers are able to attend an AIT program in order to become qualified; however, this is not practical for many and it is not desirable to place an experienced NCO in a class of young recruits. We are looking hard at developing modular programs of not more than two weeks in length, designed to MOS-qualify or partially qualify those soldiers. If possible, these programs will be taught on a regional basis.

### **Training Devices**

Regrettably, initial Armor training or reclassification training at the institution does not produce a totally combat ready soldier or crew. A soldier must

first be qualified on the tank system, but then he must advance to section, platoon, or higher level training in his unit. Not only must he acquire the skills necessary to become qualified, but he must continually train in order to sustain these skills and improve them. Many training requirements can best be achieved through the use of simulation devices.

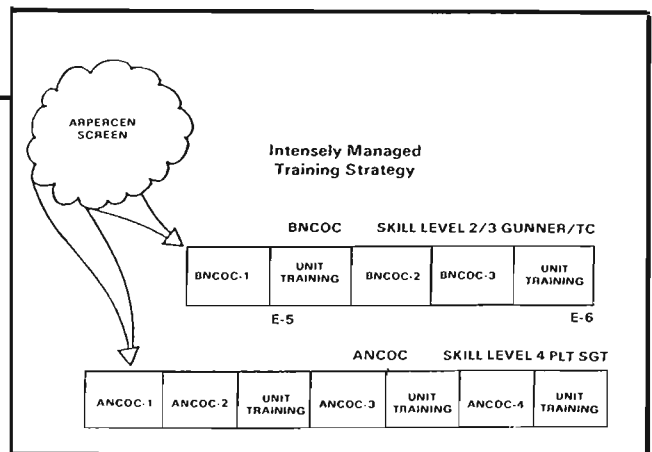
As simulation technology advances and simulators become more viable as training alternatives, we at Fort Knox will examine each device and evaluate its potential for use in RC training programs. Through the use of simulators, many of the training problems of the RC, such as time, space, facilities, transportation, and funds can be alleviated if not overcome. We believe that many of these devices show great promise. Some of the simulation devices which are or will become available to Reserve and National Guard units are the Videodisc Gunnery Simulator, the Unit Conduct of Fire Trainer, the Tank Gunnery Missile Tracking System, Guardfist, and SIMNET.

Initial training for Armor crewmen can be accomplished with the Videodisc Gunnery Simulator (VIGS), a table top trainer. One unit will be found in each company/troop. A soldier can train alone on the VIGS; a microprocessor and videodisc medium provide him with correct standardized fire commands. This feature can be suppressed, if desired, to allow training of gunners with their tank commanders. The M60A1 version will be available to the RC beginning in August 1986. Those units equipped with M1s will be issued that version by February 1987. By September 1987, the M60A3 version will be available to units which have completed transition to these tanks.

The Unit Conduct of Fire Trainer (U-COFT) is being reconfigured as a Mobile Conduct of Fire Trainer (M-COFT), to be issued one per battalion/squadron. These can be moved from one location to another, depending upon training requirements. The U-COFT keeps track of each team's proficiency and moves the team through progressively more difficult exercises. Priority for issue will be to the roundout battalions.

Those Reserve Component units not scheduled to receive the U-COFT in the near future may be issued the Tank Gunnery Missile Tracking System (TGMTS). This tank-appended device can be used to train TCs and gunners in sustainment exercises prior to live-fire exercises. TGMTS is available in M60A1 and M60A3 configurations. A similar device, but one which allows for more control of the tank in its simulated environment, is being developed by Knox for the National Guard. This system, known as Guardfist, looks promising but is still in the experimental/developmental stage. If adopted, Guardfist will allow integrated training for the entire crew using videodisc-microprocessor technology. Guardfist employs the tank's controls and creates the illusion of movement, allowing the tank to "maneuver" on the battlefield as well as to identify and engage targets. Further development of this system could allow platoon-sized exercises, fully integrated from tank to tank. We are also looking at the application of computer-generated imagery to do the same job with SIMNET, a development project with the Defense Advanced Project Research Agency.

Several other devices are in the inventory, including the Eye-Safe System Laser Rangefinder (ESSLR).



This device allows the use of laser rangefinders in all training situations, including gunnery exercises on ranges and force-on-force tactical training exercises without regard for laser safety.

### Individual Ready Reserve (IRR) Management

One of our major manpower resources is found in the Individual Ready Reserve. We are taking steps to ensure that IRR soldiers remain highly qualified to perform their mobilization mission. The Individual Mobilization Augmentee (IMA) program accomplishes this by assigning reservists to TOE positions in Active Component units. These soldiers conduct their annual training by performing their actual missions as members of the units they will join if mobilized, thus ensuring practical experience with the latest doctrine and organization along with direct interface with their mobilization units. Those not assigned in this manner can expect much more intensive management of their careers than in the past. We have already discussed some of the MOS courses available. We are developing programs to upgrade regularly the skills of our individual reservists, training them at level one the first year, level two the second, and so forth. The schematic above shows a possible training strategy which would allow the armor IRR soldier to enter the training program at several points, providing progressive training that continually challenges him while reinforcing previous training.

The majority of enlisted IRR soldiers to receive this training would be in the grades of E4 and E5, and experienced armor crewmen. They would progress through the training modules and be promoted based on the level of skill they achieve. At present, those beyond the grade of E7 must transfer into the Individual Mobilization Augmentee (IMA) Program. As the program matures, the possibility of providing additional promotion opportunities can be investigated.

We hope that the day never again comes that we will be forced to mobilize our nation. Our best insurance against this is a strong, combat ready Armor Force—Active and Reserve Component. By maintaining a high degree of readiness in both components, we present the greatest deterrence against hostile aggression. But if that day does come upon us, we must not be caught napping. As you can see, we're working hard on this challenge at the Home of Armor. But we need your thoughts and comments to ensure we're on the right track. Forge the Thunderbolt!



CSM John M. Stephens  
Command Sergeant Major  
U.S. Army Armor Center



## Can Armor Be All It Can Be?

"BE ALL YOU CAN BE!" Undoubtedly, that is the finest recruiting slogan the Army has had since "UNCLE SAM WANTS YOU!". There is even a song to back up the slogan. But has the slogan been a success?

The quality of soldiers enlisting in the Army today is better than at any other time in our Army's history. Armor is receiving its fair share of that quality. Over 91 percent of Armor enlistees are high school graduates. Armor trainee discharges are at the lowest level ever. Comments that I have received during my visits to the units in the field praise our young soldiers for both the training they have received in OSUT and, more importantly, for their ability to become part of a team in rapid fashion.

"BE ALL YOU CAN BE!" is not just a recruiting slogan. It is also a message to the young people of America, and it tells them that the challenge is in the Army. But are we presenting that challenge effectively?

The slogan is four years old. What have we done to make the challenge come true? Do we have the leadership tuned in to present that challenge? Do our training programs live up to the challenge? Do our school systems present a challenge? Can we retain the top quality of the Armor Force as the backbone of tomorrow's Army? Through messages to the field, you have heard about the Excellence Programs: Tank Commander Certification Tests I, II, and III, the Non-commissioned Officer Education System, PLDC, BNCOC, ANCOC, the Master Gunner Course, etc. Now, let me try to put it all together for you. Simply put, if the leadership of Armor will let it happen, Armor *can* be all it can be. Every wheel in our program is ready to turn, but only the commanders in the field can steer the program effectively.

The first soldiers selected for the Excellence Track Program are nearing their ETS; many more will follow. Those soldiers retained in the program by their commanders should be gunners/tank commanders, SP4(P) or SGT in rank, should have graduated from PLDC, and have attended, or be ready to attend, BNCOC. Most of the present secondary zone promotions to SGT are soldiers who have been in the Excellence Track Program. Some of them have attended PLDC and BNCOC. The information received

both here at Fort Knox and during my visits to the field indicates that the Excellence Program is alive and well. However, there are still units that need to develop an Excellence Track Program.

One existing shortfall is units failing to place deserving soldiers in the program who were not identified for the program in OSUT. We recognize that not all soldiers perform well in OSUT, but once assigned to a unit, many of these soldiers quickly become part of a team and then do excel. We should give them the opportunity to challenge the test and enter the program. The leadership of the unit can make it happen.

Consider the following examples. A SGT in 19K who has been in the Excellence Track Program, demonstrated proficiency as a tank commander, has graduated from PLDC and BNCOC, has passed the TCCT-II, and is recommended for promotion to SSG in the secondary zone is obviously a top quality soldier who we need to retain. He decides to reenlist for six years, and he receives a large, and well-deserved, bonus (essentially 4 x Base Pay x 6). Another soldier, a SGT(P) from another CMF, wants to be reclassified because he believes his upward mobility in his present MOS is limited. He reports to Fort Knox for OSUT, PLDC (if he hasn't previously attended), and Armor 19K BNCOC. When the SGT(P) completes the schools, he is *qualified* to be promoted to SSG in 19K the day after graduation. He then reenlists for 19K and receives *the same bonus* as the SGT from the Excellence Track who has spent his entire time in the Army devoted to bettering himself as an Armor Leader. We are receiving high quality soldiers through the reclassification program, but the perceived inequalities in retention are causing us to lose many of our top quality CMF 19 soldiers who are the core of the future excellence in the Armor Force.

The general system for retention of this excellence is in place. Making it work will often be a tough, uphill battle. Success at retaining top quality soldiers and making Excellence Track programs work to support that retention will require continuous synchronization between the proponent and the Armor leadership in the field. Most importantly, it will require that company/troop leadership make it all happen. We can't accomplish all of that overnight, but five years from now, Armor can BE ALL IT CAN BE!

# MASTER GUNNER'S CORNER

**HERMAN CROWDER**  
SSG, Armor  
Fort Knox, KY



## Degraded-Mode Gunnery: Training That Could Save Your Life

Just before dawn, under cover of a tremendous artillery barrage and preceded by airstrikes, Soviet armor began rolling across the international boundary. Tanks, BMPs, ZSUs, and BRDMs speed across the open terrain. Soviet airborne soldiers have already landed far to the rear. HINDs — with guns ablaze and launching ATGMs — support the massive Soviet attack. A juggernaut is sweeping toward the American company team waiting in its battle position.

In the middle of the battle position is an American tank commander and his crew. Their tank is well-camouflaged and dug in. The tank commander is monitoring the radio, but communications are poor. Jamming has been continuous for the last 15 minutes, and the crew is becoming nervous and tense. The young tank commander looks through his vision blocks in the cupola, but sees nothing to his right except bursting artillery and smoke. As he looks to his left, his eyes strain to see his platoon sergeant's tank, and he reassures his crew. The Soviet vehicles keep coming: they are now about 2,500 meters away.

The TOW vehicles attached to the company begin to fire. Missiles hit two or three Russian tanks, and the Soviet vehicles begin to burn. But for every one hit, it seems that three or four more appear.

Suddenly, near-misses from artillery rounds shake the tank in its position. Shell splinters shatter the M119 mount, and now the tank commander has only his vision blocks through which he can observe his sector of fire. Another artillery round nearly lands on the tank; the explosion rocks the right side of the vehicle, and the Gunner's Control Unit shuts down. The gunner attempts a quick computer self-test: NO-GO! The crosswind sensor is gone, and flying splinters have ripped the thermal gun shroud. The Russian tanks are now only 1,800 meters away and are beginning to fire....

Degraded-mode gunnery is survival gunnery! Tank commanders have avoided using the tank telescope (M105D) for years, yet we all know that it is our only alternative once our primary system becomes inoperative. We have heard all of the excuses: "I've got too much to train on already; the M105D isn't that good anyway." "My primary sight works just fine. Why

should I use the M105D?" "My gunner doesn't understand the reticle." (What is left unsaid by the tank commander who uses this last excuse is that *he* probably doesn't know how to use the M105D either!)

The M105D is mounted coaxially with the main gun. The telescope is articulated: the eyepiece remains in a fixed position while the forward portion, which is fixed to the gun mount, moves with the gun. Because the telescope is not linked to the computer, the tank commander — or gunner — must be able to determine range and announce it in the initial fire command. The gunner then uses that estimated range to place the proper range line of the reticle on the target.

If the rangefinder isn't working, or we are forced to use the telescope, we must be able to determine the range to the target. There are numerous methods to do this. They vary from "Kentucky windage" — sometimes called "guesstimating" — to the use of the WORM Formula. The flash-to-sound method is easy to learn, but when under fire and in a situation like that described above, most of us would find counting the seconds from the moment of observing the flash of a gun tube to the time we hear the crack of the shot very difficult. Doing a good recon of your sector of fire, *before the enemy gets into it*, will permit you to identify landmarks that are at known ranges. Indicating these ranges clearly on a range card/sector sketch is the next step. Whatever method you choose — and you ought to try each of them — you must train both yourself and your crew to use it.

Don't forget to lead the target. If the computer system is down, automatic lead won't be working. Does your crew know how to use the reticles (both ballistic and non-ballistic) to apply manual lead and hit a moving target? You can train them on this task very easily and without having to get inside the tank. Make up some 'flash cards' that have the reticles on them. (Draw the reticles on pieces of acetate in black ink.) Then draw some target silhouettes on a piece of paper. You announce the range; then have your students put the reticle in the correct position on the target to give the correct sight picture.

The point is that we will fight as we train. So, tank commanders, we owe our crews training in survival gunnery.

# 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 48)





# The Technology of Teamwork

by Captain Peter J. Schifferle

## Scenario One

The enemy motorized rifle regiment (MRR) attacked with over 100 armored vehicles at dawn. On the valley floor were two company teams; to the north, a mechanized infantry-heavy team; to the south, a tank-heavy team. The mech team began the fight with long-range artillery fires, and then hit the MRR with very effective tank and Dragon fires. The MRR continued to roll, despite losses to both tank fire and Dragons, and became embroiled in close combat with the mech infantry-heavy team. During this close fight, a mortar section dismounted, their mortars having been overrun, and attacked the enemy tanks with Vipers, destroying several. The mech team was effectively destroyed, but destroyed some 40 tanks and BMPs. The only tank in the team killed 25 tanks and BMPs before it was destroyed.

Across the valley, at a range of 2,500 meters, a tank-heavy team fired into the flanks of the MRR and destroyed another 60 armored vehicles. The remnants of the MRR continued into the task force defensive sector, and its destruction was completed by effective TOW fires from the antitank company, Dragon, small arms fires from a dug-in mechanized infantry company, and a counterattack into the MRR rear launched by the tank-heavy team from the valley floor. The tank-heavy team began the fight with 10 tanks and ended the fight with 11. A tank down for maintenance had come forward during the counterattack and joined in the fight.

## Scenario Two

The task force began its movement to contact with only the briefest of plans. The mech-pure team was to clear a particularly troublesome ridge; then the mech-heavy team would lead on the north and the tank-heavy team would follow to the south. The enemy forces consisted of a motorized rifle company in a defensive position. Within 15 minutes after the initial enemy contact, the task force was destroyed. Enemy losses: two vehicles.

## Teamwork

Teamwork is the critical factor that separates these two scenarios. This teamwork is not only that which comes from company commanders talking to each other on the task force command net, but it is also the teamwork of the individual infantry squad, tank crew, mortar squad, and the other small teams that make a task force a fighting body.

This is the conclusion of a study of tank crew effectiveness at the National Training Center (NTC) conducted by the 5th Battalion, 33d Armor, 194th Armored Brigade. The study was based on a comparative analysis of factors affecting crew performance during exercise PROUD LEGIONS '85 at the NTC in January 1985. Seven factors were analyzed: age, grade, civilian education level, SQT, GT, and CO test results, and time as a stable tank crew. Fourteen crews were analyzed under this study, and while this is an admittedly small and probably statistically insig-

---

**“...Tank commanders and gunners were the members of the crew who determined that crew’s performance...”**

---

ficant sample, some ideas very important to the chain of command at platoon, company, and battalion levels arose. Six of the crews were considered *killer* crews because of their superior performance at the NTC. Four crews were thought to represent the *norm* of performance, and four crews were *killed* crews, those crews that usually died during an operation without accomplishing the mission. These crews were from both the 5th Bn, 33d Armor Task Force, and 4th Bn, 54th Infantry Task Force.

After collecting information on the crewmen, it quickly became obvious that the tank commanders and gunners were the members of the crew who determined that crew’s performance. The data collected for the loaders and drivers were similar for all fourteen crews, with very few statistically significant differences. The data collected for the tank commanders and the gunners, on the other hand, showed some very interesting differences.

**Table 1  
Data for Tank Commanders and Gunners**

	Killer	Average	Killed
Age (years)	26.9	26.9	26.1
Pay grade	5.6	4.3	4.5
Education	12.9*	12.3**	11.9
SQT	81.9	79.6	76.0
GT	101.1	105.0	103.4
CO	111.6	111.0	106.8
Stabilization	12.5	2.8	3.3

\* One tank commander had 19 years, all others 12 years.

\*\* One tank commander had 12 years, all others at least 13.



**Table 2  
Comparison of CO Scores**

	Killer	Average	Killed
Tank Commander	107.8	116.7	109.0
Gunner	112.6	94.0	104.7
Total Crew	109.3	104.9	100.9
TC & Gunner	111.6	111.0	106.8

These data support several basic concepts about effective tank crews: for example, older, more experienced, and more proficient (better SQT scores) soldiers make better tank crewmen. Most important, however, is the direct correlation between the GT and CO scores and performance. All of the tank commanders and gunners averaged above 100 on their GT, a clear indication that intelligent crewmen are needed for a combat-ready force. Of value for future selection of tank crewmen is the clear relationship between CO scores and improved performance.

For the members of the armor force responsible for the training of the tank crews and not for the recruiting of new soldiers, the data that is most significant is the superior NTC performance of the stabilized tank crews. Without altering the education level, the age, or grade structure, or the SQT, GT, or CO test proficiency of our soldiers,

**Table 3  
Crew Stabilization  
in Months**

Killer	Average	Killed
A12 - 9	A14 - 6	A23 - 2
A34 - 17	A32 - 3	A65 - 2
B34 - 0*	B11 - 1	B12 - 2
B65 - 18	B23 - 1	C13 - 6
C21 - 7		
C23 - 27		

**Average**

12.5                      2.8                      3.3

\* This crew consisted of an E-6 tank commander and an E-6 gunner who had been the tank commander of another tank down for maintenance. The two staff sergeants had worked together in the same platoon for nearly 18 months before the NTC rotation, thereby resulting in a high degree of teamwork in the crew.

we can dramatically increase their combat effectiveness if we stabilize our tank crews.

The conclusions from the study of this admittedly small population are supported by some of the most respected writings on soldiers in combat and by the 194th Armored Brigade's most recent experience at the NTC. The clearest reference to the teamwork displayed by soldiers is in S.L.A. Marshall's *Men Against Fire*. In this book, Marshall states that soldiers fight not for a higher goal but to save the lives of friends and to keep their small group of closest comrades safe. The need to appear strong and competent when surrounded by your friends and comrades is also mentioned by Marshall. This sense of teamwork, a desire to protect your comrades and do well in their eyes, is essential to an effective military organization.<sup>1</sup>

Teamwork is what makes the tank commander able to overcome more numerous enemy tanks, heavy enemy artillery, and the use of chemical agents and make his tank a killer on the battlefield. He will come forward out of the smoke to bring the battle to the enemy; he will move quickly to save another tank from destruction, and he will maneuver within his battle position to bring his firepower to bear on the enemy force. The tank commander with a crew he has trained with, lived with, and shared his meager creature comforts with, will

be much more effective than the tank commander who does not know the crew he commands.

The NTC experience of the 194th Armored Brigade provides two excellent examples of the power of teamwork on the battlefield. The first is the case of tank B65 and its defense of a battle position overrun by an entire MRR. In this battle, the tank commander — with a gunner he had worked with for 18 months and a loader and driver he had worked with for more than 8 months — fought a hopeless fight, killing some twenty-five or thirty enemy vehicles before his tank was destroyed. When asked why they had fought so well, the driver replied, "When you have a tank commander like we do, you just think about satisfying the commander." A clearer instance of the power of teamwork and the desire to please one's comrades would be hard to find.

The second example is the killer tank A12. While defending a battle position, this tank — crewed by a tank commander-gunner combination that had trained together for over nine months, and with a driver and loader together for at least four months — fought against two battalions of a MRR and destroyed twenty-five enemy tanks and BMPs. Again, the effectiveness of the crew was due to the developed teamwork, the knowledge of what the commander wanted done, and the

desire to be competent in front of the other crew members who had trained together over the months.

### Lessons For Armor

This study has limited value for personnel acquisition in the Armor community because of the limited nature of the surveyed population. However, it may serve as a new point of departure for further studies into the personal characteristics of the *killer* tank crew of the future. For the members of the chain of command in the tank battalions and cavalry squadrons of today's Army, this study should be significant. Implications for both crew stabilization and the training of crew members are obvious.

Past articles and studies into the desirable characteristics of tankers have relied on data from tank gunnery tables, notably gunnery tables in use before the introduction of the current series of tactical tables and the use of MILES and multiple range scenarios. These studies are based on a crew performance in an environment that — while it is admittedly high stress — is not always combat realistic. With the new tables used as a data base for crew studies, it is possible that a result closer to the NTC experience, and realistic combat simulations, would be possible.

Some current research at the Armor School is proceeding with this type of data. Studies at the Weapons Department and at the Army Research Institute are in progress using both the NTC and the new tactical tables as the source for data on effective tank crews. This should be valuable research, for only with the study of crews in realistic combat situations can any forecasts for future combat effectiveness be made.<sup>2</sup>

An example of the earlier type of research is the article in *Parameters* — "Killers, Fillers, and Fodder" by Colonel Thomas A. Horner. This article emphasized the need for intelligence above all other characteristics for the modern tanker. Colonel Horner's data was drawn from a series of articles and studies of fighter aircraft pilots and tankers on gunnery ranges. His conclusions from the fighter pilot study — that most enemy losses are caused by a minority of pilots — is supported by the NTC experience; his conclusion from the gunnery studies, that intelligence is the sin-

gle most important criteria for tank commander selection, was not supported by the small sample in this study. While intelligence is extremely important, it *may* well be not the single most important factor in determining the effectiveness of a tank crew. This study points out that more important to the effectiveness of the crew is the teamwork developed by a stable crew and their desire to work together to destroy the enemy. At the NTC, and in combat, the man who has comrades and a developed sense of teamwork will be the killer of the enemy.<sup>3</sup>

The need for crew stabilization has recently fallen from favor in the armor community. The NTC experience shows that this — a key factor in developing *killer* crews — needs much more attention from every level of the chain of command. The most important level of control for developing teamwork through stabilization is the company commander-first sergeant team. These two men should develop their manning and training plans with the constant thought of keeping as many crews as possible as stable as possible.

In the 194th Armored Brigade, a brigade policy has been drafted to maximize stabilization. The policy states that the tank commander and his gunner will stay together whenever the tank commander moves within the unit. This includes movement within a company or outside the company, as long as the tank commander will continue to be a tank commander in his next assignment.

To minimize turbulence in the units due to promotion of gunners to fill vacant tank commander slots, each unit will maintain an order of merit list for all gunner designees. The list will be based on an analysis by the company chain of command of the selectees' duty performance, SQT scores, TCGST results and the scores achieved on a battalion-executed gunner's selection test. A new gunner must be chosen from the order of merit list in sequence unless an exception is approved by the battalion commander.

Another part of the policy is that an order of merit list be maintained at company level for all tank commanders, with the weakest tank commander listed first. This list will be used to select attendees at

the 1st Armor Training Brigade's Tank Commanders Course.

In this way, both stabilization and training are established as the basic building blocks for crew efficiency in the 194th Armored Brigade. The key personnel in executing this policy are company commanders and first sergeants, for without their active support, and their desire to minimize turbulence in their units, such a program will be doomed to fail.

Unfortunately, another reason this policy might fail in many Army units will be the high rate of personnel turbulence, especially in CONUS battalions. Department of the Army should implement a policy of stabilization of 19E/K personnel, to include increasing the length of tour for all personnel, especially for the junior noncommissioned officers. Without this policy, it will be very difficult to enforce stabilization, much less convince a soldier that the Army and his chain of command believe stabilization is important.

### Tactical Lessons From Killer Crews

The crews compared for this study were also given a short survey on tactics. This survey was based on the tactical principles stated by Lieutenant Colonel James Crowley in "Killer Tank Crews." (See *ARMOR* Magazine, September-October 1984). The crew members agreed with most of Lieutenant Colonel Crowley's comments, but some of the *killer* crews had a different emphasis than the *killed* crews.<sup>4</sup>

The *killer* crews valued rehearsals of all operations higher than the *killed* crews, as well as the need to rapidly move out of enemy engagement areas and the need for gunners to work with the wingman tanks for the rapid engagement of enemy vehicles. The *killer* crews also stressed the need for deliberate movement, with controlled aggression, where the *killed* crews stressed the need to move as rapidly as possible. The *killers* also desired to dig in, to spend more time selecting their primary positions, and to use turret stabilization more than the *killed* crews.

Unfortunately, since the survey was distributed upon return from the NTC and after the crews of all tanks in the battalion had attended numerous after-action reviews at

the NTC, it is difficult to determine if the crews were only repeating the tactical lessons they had learned, rather than the tactical techniques they used at the NTC. At any rate, all three levels of crews, *killer*, *average*, and *killed*, agreed to a surprising degree on many of the tactical techniques addressed by LTC Crowley.

This agreement on tactical lessons enhances the importance of teamwork as the key factor in crew effectiveness. It appears that training, in general, although it is very important, is not the great discriminator in performance that it is normally considered. Training together as a stabilized crew is. This may be overstating the case, however, as every crew in the battalion had been trained using a rigorous series of STXs, FCXs, LCXs, and FTXs, including critiques by the Armor School, and had passed a series of tests by battalion evaluators prior to deployment to the NTC. Therefore, every crew in the battalion had reached at least a certain degree of tactical proficiency before deployment to the NTC. However, among crews trained to similar levels, the stabilization or turbulence among the crews was the single most important factor. Stabilized crews were better able to take advantage of the intensive, stimulating, and arduous training to develop their teamwork to higher levels; the new crews were not able to do this.

### Conclusions

Although this study was based on a very small population, it has significance for the armor community because it is the first, to my knowledge, based on the NTC experience. If the NTC is the closest to war that the peacetime Army can achieve, further study of the effectiveness of tank crews based on data from the NTC is needed.

Studies should be concerned with all of the characteristics necessary for the killer tank crews of the future. This will be critically important to that part of the armor community concerned with the acquisition and training of new soldiers, and for tankers in the field concerned with the selection of the most qualified tank commanders and gunners in the M60A3 and M1 tanks.

For the present, this study has shown that crew stabilization is the



critical factor in crew performance after a standard in training has been achieved. This is important for the chain of command in that all armor battalions and armored cavalry squadrons can influence their crew stabilization today — and through crew stabilization, their readiness for combat — without the expenditure of either training time or funds.

For the trainer in the tank units, this study has shown that a certain plateau of training must be achieved for the tank crew to be effective. Currently, a very useful standard for training to this level exists in the Armor School manuals in print, especially the tank platoon and company/team STX manuals.

With the proper use of these manuals and the principles they contain, and with stabilization of tank crews, especially the tank commander and gunner combinations, the tank company and cavalry

troop commander and their first sergeants can drastically improve the combat readiness of their units.



**CAPTAIN PETER J. SCHIFFERLE** was commissioned in Armor as a distinguished military graduate of Canisius College in 1976. He served as an armored cavalry platoon leader and tank company executive officer with the 3d ACR, as battalion S4 of 5th Battalion, 33d Armor, and for the past two years as commander of B Company, 5th Battalion, 33d Armor, 194th Armored Brigade. He participated in two NTC rotations, most recently as commander of a cross-attached tank company to Task Force 4-54 Infantry (Mech) and is currently assigned as an instructor in the Department of History, USMA.

### Footnotes

<sup>1</sup>Marshall, S.L.A., *Men Against Fire*, Gloucester, Mass., Peter Smith, 1978.

<sup>2</sup>Conversation with Major Giles F. Bunn, of the USA Armor School Weapons Department on 18 April 1985.

<sup>3</sup>Crowley, LTC James, "Killer Tank Crews," *ARMOR*, September-October 1984, pp. 21-23.

<sup>4</sup>Horner, COL Thomas A., "Killers, Fillers, and Fodder," *Parameters*, Vol XII, No. 3, pp. 27-34.



## Barrier Planning

by Major David J. Ozolek

One way to win in spite of being greatly outnumbered is by defeating isolated portions of the enemy force one at a time at critical times and places during the battle. A superior enemy cannot be fought toe-to-toe across the entire front. Instead, his mass must be physically divided into manageable pieces that can be attacked individually with locally superior combat power. By first isolating and then destroying key pieces of the enemy's total force, an inferior force can defeat a significantly superior enemy by destroying key enemy elements such as his air defense or artillery support; by disrupting his command and control; or by frustrating his operational timetable, preventing him from committing the follow-on echelons needed to achieve his deep objectives.

Firepower itself will not defeat a vastly superior enemy. His advantage of mass allows him to return far more fire than he receives, and

in a battle of attrition, he can simply outlast his numerically inferior opponent. *Before* effective firepower can be employed, the enemy's advantage of mass must be taken away from him.

An effective barrier system can be used to disrupt the enemy's mass. But to be effective, a barrier system must be an integral part of the concept of the operation and complement both the scheme of maneuver and the fire support plan. The keys to establishing an effective barrier system are sound concept development, careful siting, suitability of construction, and adequate defense and maintenance of the barriers.

### Concept Development

An outnumbered commander must plan for a series of engagements against portions of the enemy's overall force, instead of trying to take on the entire force at once. He must carefully choose the best

times and places for his attacks and determine the size of the enemy force he can handle in each of these engagements. A barrier system complements the concept of the operation by ensuring the enemy force is channeled into the selected engagement areas. It complements the fire support plan by limiting the enemy to a size that can be successfully attacked and holding him in the engagement area until he is destroyed or until his attackers choose to break contact and move to their next selected engagement area.

In the operational sense, barriers serve two purposes: they divert the enemy from his planned route, or they delay the enemy on a route over which he is moving. However, one fundamental truth of barrier planning is that barriers cannot realistically be employed to stop an enemy, especially a considerably larger one. A unit that trades its ability to maneuver for false hopes

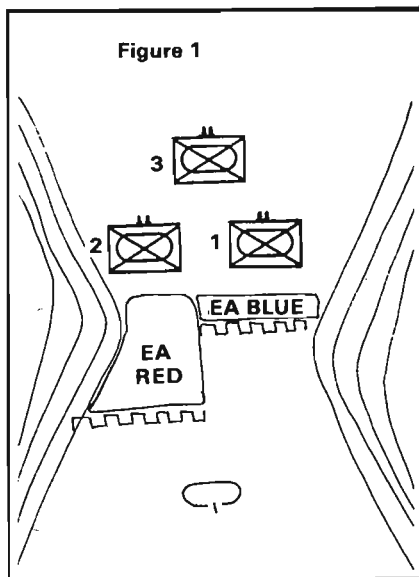


of being able to destroy a superior enemy through a firepower solution based on completely stopping the enemy at a barrier is doomed to destruction. Any barrier, man-made or natural, can eventually be overcome by an enemy determined to do so. Once its barrier is defeated, a unit without a viable maneuver plan will invariably be destroyed by the larger enemy force. The first rule of barrier planning is: *Never trade maneuver options for the hoped-for effectiveness of a barrier.*

An example of this principle is shown in Figure 1. A company team has been assigned the mission of interdicting an avenue of approach capable of supporting a motorized rifle regiment. Unobstructed, the enemy on this avenue can mass roughly a 9-to-1 combat power ratio against the company team. Even when the advantages of the defender are considered (advantages such as camouflaged and covered positions, pre-planned fires, stable firing platforms, etc.), the company can realistically expect to engage the enemy successfully and survive the encounter only if the enemy's combat power advantage can be reduced to a ratio of 3-to-1 or less.

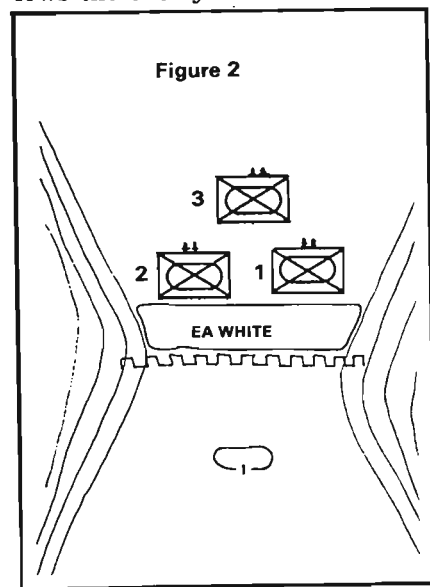
The team commander has emplaced two barriers, each only partially across the avenue of approach. The purpose of Barrier 1 is to delay the enemy's 1st Battalion by forcing it either to breach the obstacle (which the commander estimates will take the enemy X minutes to do), or to bypass it on the trafficable terrain to its right. However, before the 1st Battalion can shift right for its bypass, it must wait for the 2d Battalion to clear the chokepoint. While the 1st Battalion is delayed, the 2d Battalion will continue to move forward, advancing unobstructed into Engagement Area Red, where the concentrated fires of the entire company team can be directed against it. The enemy's initial 9-to-1 advantage has for a time been reduced to 3-to-1, a manageable size for the company team to handle.

At the near edge of EA Red, Barrier 2 will hold the enemy's 2d Battalion in the engagement area while it breaches under fire, or moves laterally to bypass the obstacle. Regardless of which option the enemy takes, the barrier will



give the team critical minutes either to complete the destruction of the lead battalion, or after inflicting the planned number of losses on the enemy for this engagement, the time necessary to move to the planned location for engaging the next enemy battalion to come down the avenue of approach.

A different approach to the same situation is shown in Figure 2. Here the team commander has elected to build a single barrier at what he has determined is the site that best supports the construction of an obstacle. At this location he plans to inflict as many casualties as possible on the enemy and then break contact before the enemy can breach. This scheme, however, allows the enemy's 1st and 2d Bat-



talions to reach the barrier simultaneously. Instead of being able to mass its fires against one enemy battalion at a time, the company team will be subjected to the return massed fires of two enemy battalions having a combined 6-to-1 combat power advantage, enough force to inflict more damage on the team than it can afford to accept. The enemy will have enough assets to allow it both to suppress the team and to conduct a breach of the obstacle.

The contrast between these two approaches to this situation illustrates the second rule of barrier planning: *Obstacles must be planned to support the best scheme of maneuver, and not the operational plan developed to fit the best location for obstacles.*

The family of scatterable mines (FASCAM) adds the dimensions of time and mobility to traditional barrier planning by giving the planner the flexibility to emplace a barrier quickly and remotely, virtually anywhere in the battle area. FASCAM can be used to place barriers between elements echeloned on the same route, reducing the enemy's ability to mass and making his lead element vulnerable to attack. It can provide a barrier in reserve, allowing limited conventional engineer assets to be concentrated on the most dangerous and most likely enemy avenues while FASCAM is planned on contingency routes. It can also be used to seal barriers breached by the enemy, isolating elements which have passed through the breach from reinforcement.

But FASCAM is not a barrier planner's panacea and has operational disadvantages that must be considered during concept development. It is a single-system barrier vulnerable to defeat by such devices as plows or minerollers. It is limited in size and can serve only as a point barrier, not a linear one. Vital fire support assets must be shut down for critical minutes while the rounds are fired. It is subject to the same responsiveness and accuracy problems that degrade all indirect fire aimed at rapidly moving targets. Finally, FASCAM assets will be extremely limited and will have to be carefully husbanded to ensure their employment at the most effective time and place.

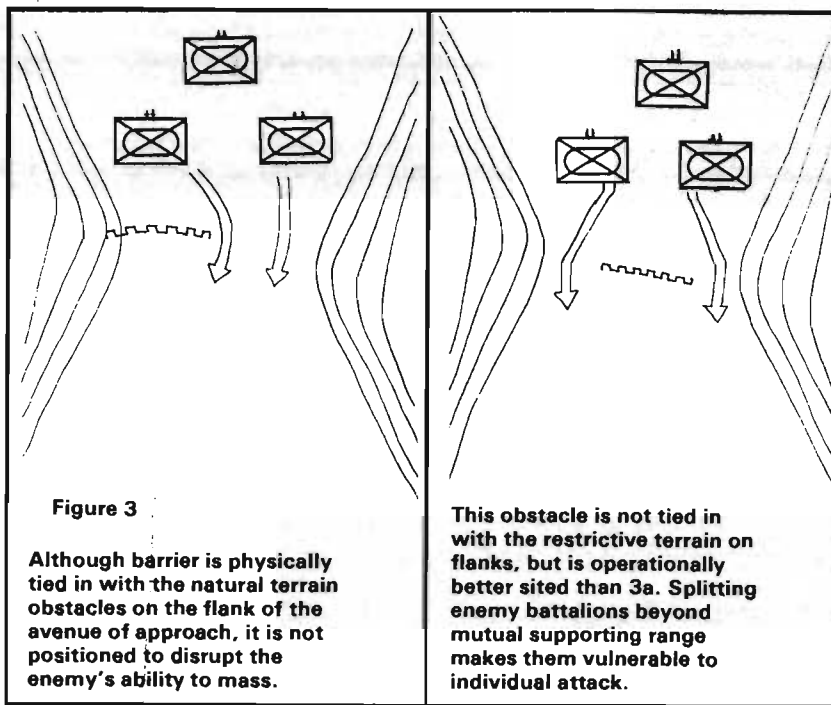


Figure 3

Although barrier is physically tied in with the natural terrain obstacles on the flank of the avenue of approach, it is not positioned to disrupt the enemy's ability to mass.

This obstacle is not tied in with the restrictive terrain on flanks, but is operationally better sited than 3a. Splitting enemy battalions beyond mutual supporting range makes them vulnerable to individual attack.

### Siting

The points to be considered in selecting the specific sites for the obstacles include the general terrain characteristics of the battle area (particularly the natural or man-made obstructions already there), the friendly scheme of maneuver, the range, rate of fire and probability of kill of the weapons that will be available for the engagement, and the equipment and doctrinal characteristics of the enemy to be engaged.

Obstacles become more effective when tied in with natural terrain features. However, while it is desirable to have them physically tied into natural terrain features, it is far more important that they be operationally tied in with them. This subtle but important distinction is illustrated by Figure 3. Here the wide avenue of approach could accommodate as many as four battalions abreast. (This is typical of desert terrain such as that found at the National Training Center (NTC)). The engineer assets available allow the obstruction of only two battalions' worth of frontage. By physically tying the obstacle into the restrictive terrain on the flank of the avenue (as in Figure 3a), the enemy can still mass two of his battalions at once. However, by placing the same two battalions' worth of barrier frontage in the center of the avenue (as in Figure 3b), the enemy's lead bat-

talions are dispersed laterally and can for a period of critical minutes no longer mutually support each other, making them vulnerable to separate attacks.

An outnumbered force must gain and maintain a maneuver advantage if it is going to be successful in conducting multiple engagements of the enemy. This requirement leads to the third rule of barrier planning: *Never place an obstacle where it can obstruct friendly maneuver.* Although this point sounds patently obvious, many after-action reviews of operations at the NTC have focused on units that were destroyed when trapped against their own obstacles deep in their sector. This can happen when planned passage points are closed too early by mistake or by the enemy. A corollary rule: *Unless absolutely no other choice of routes is possible, routes must be planned around, and never through obstacles.*

A considerable amount of battlefield arithmetic goes into choosing the exact site for an obstacle. The computations begin from the battle position the unit will occupy during the engagement. Maximum practical ranges of the unit's weapons systems must be plotted. Standoff distance is then computed by determining the maximum practical ranges of the weapons the enemy can use to return effective fire. Next, the enemy's probable speed

must be established so that the unit can determine how long the enemy will remain in the selected engagement area.<sup>1</sup>

Return to Figure 1 for an example. The commander's concept called for holding the enemy's 1st Battalion at maximum standoff range in EA Blue so that it could be engaged but could not return effective fire. TOWs were assigned to cover the barrier from a position 2,700 meters away, out of the estimated 1,500-meter effective range of the enemy tanks, and ideally out of the Sagger range of the accompanying BMPs that will trail the tanks. Concentrations of indirect fire were planned on the barrier to disrupt breaching attempts.

Barrier 2 was placed at 1,500 meters in order to hold the enemy just beyond the effective range of his tank main guns. The team commander determined that his own tank guns firing from stable, hull-down positions would be effective to 2,400 meters, giving the team a 900-meter engagement area. A rehearsal showed the enemy could cross the engagement area at 300 meters per minute, and that the team's 10 tanks could average three rounds per minute. Thus, the 10 tanks of the team can fire three rounds times three minutes times 10 tanks, or a total of 90 rounds for this engagement, which equals roughly two rounds for each target presented by a typical motorized rifle battalion.

Another siting consideration is whether the enemy can see the obstacle. Some obstacles, especially those meant to divert the enemy, can be more effective when visible at long ranges. The enemy's doctrine, much like ours, says that bypassing is preferable to breaching whenever possible. Sometimes he can be tricked into the selected engagement areas by clearly visible obstacles that he thinks he can rapidly bypass. Surface-laid mines or antitank ditches with high berms can be effective when such a role for the obstacle is desired.

The visibility of an obstacle can sometimes add to its strength. When assets are not available for building a strong obstacle, an *apparently* strong obstacle may serve as a substitute. According to his doctrine, the enemy will only breach an obstacle when he has no other choice. If the enemy thinks he is

going to encounter an obstacle and plans in advance to bypass it, a weak obstacle meant to divert the enemy can be successful without its strength ever being tested.

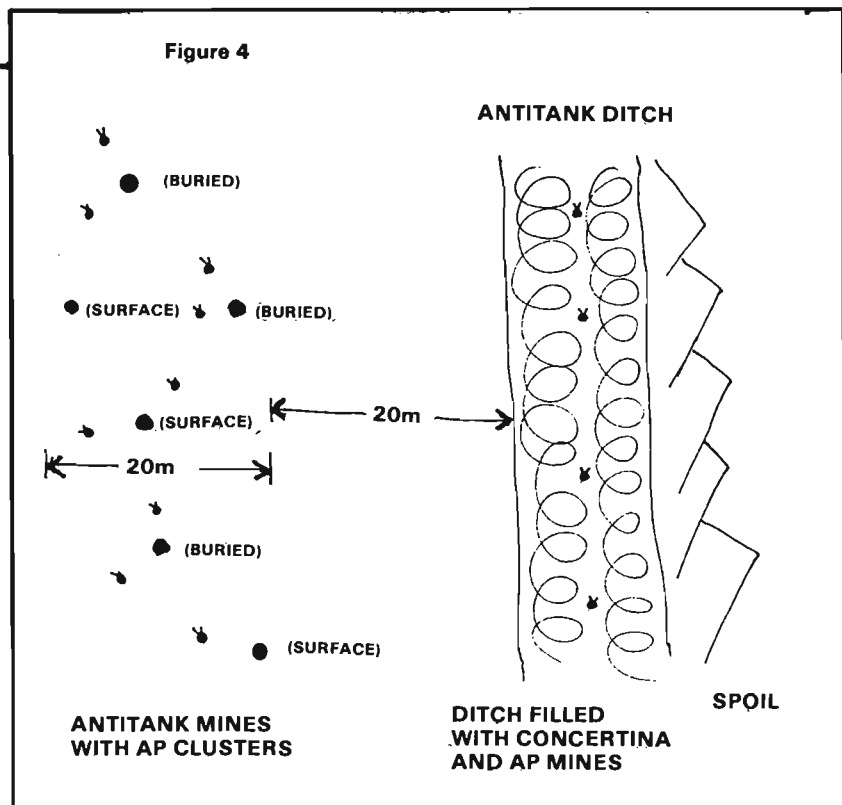
A phenomenon occasionally observed at the NTC is that at night or in heavy smoke, units will sometimes accidentally run right through obstacles that in better visibility would have stopped or diverted them. However, when the obstacles are clearly marked with orange engineer tape or chemical lights, they regain both their imagined strength and their actual effectiveness.

Other obstacles, particularly those intended to hold the enemy in an engagement area, are more effective when they surprise the enemy. For this purpose, concealed mines, antitank ditches with the spoil leveled out, or obstacles placed on the reverse slope of a terrain feature can be effective. If the obstacle cannot be concealed by the terrain or camouflage, smoke can be used to hide it. When smoke-screens are employed a few hundred meters forward of the obstacle, not only do they hide the barrier from advancing enemy elements, but they also provide an excellent white background for silhouetting enemy targets or marking the far edge of an engagement area.

### Construction

After the nature of the likely enemy threat has been determined, the right type of obstacle must be selected to meet it. There are two general categories of barrier material: antipersonnel and antitank. Barriers on infantry avenues of approach should consist primarily of antipersonnel resources such as barbed wire and antipersonnel mines. Barriers on armor avenues should be constructed mainly of antiarmor resources such as antitank mines and antitank ditches. Barbed wire generally won't stop tanks, and ditches generally won't stop infantry. However, in mounted, combined arms combat, seldom will infantry or armor operate pure, and effective barriers must consist of a mixture of the two types of resources.

Figure 4 shows the layout of a potentially effective barrier placed in anticipation of encountering an enemy combined arms threat. The primary obstacle is the antitank ditch, which will stop or divert the



tanks. However, the ditch is no barrier to dismounted infantry and can be used by the infantry for cover during breaching operations. To keep the infantry out of the ditch, it can be filled with concertina wire and antipersonnel mines placed on its floor.

The ditch itself can be defeated by an armored vehicle launched bridge (AVLB) or a bladed vehicle that can fill in trafficable lanes. To prevent such mounted breaching, antitank mines are placed on the enemy's side of the ditch. A combination of visible and hidden mines is most effective. However, the antitank mines are vulnerable to fast breaching by dismounted infantry and must be reinforced and protected by clusters of antipersonnel mines.

Two keys to the effective use of barrier devices are mix and depth. A mix of devices prevents the enemy from using any single breaching system to defeat the obstacle. In order to breach, he has to gather an assortment of equipment at the same place and time. Emplacing the devices in depth requires the enemy, in effect, to breach the same obstacle several times, multiplying the length of his delay.

Barrier material is often limited by logistical constraints, but there are never any limits placed on crea-

tivity. Natural substitutes such as boulders or trees can be used effectively. The enemy can sometimes be fooled by phony tilt rods used to thicken an otherwise thinly seeded minefield. Scrounging can be a lucrative source of barrier material, and old barriers can be stripped to provide additional assets. These construction pointers can be summed up in the fourth rule of barrier planning: *Almost anything can be used to build a barrier, so use everything available.*

A typical battle plan will call for multiple barriers, and a unit physically cannot simultaneously emplace them all. The planner must develop a prioritized work plan to ensure that all necessary barriers are constructed within the time and assets available.

The obvious priority of construction should be from most important obstacle to least important. There is a temptation, however, to want to work from front to rear. In many cases, the engagements to be fought deeper in the sector may be more important to overall success than those fought first. The planner must always expect the battle to be fought now, and must arrange for his most important barriers to be in place first.

And of course, barrier construction is only one priority among the

many battle preparations that must be conducted. Maintenance, resupply, security, rest, and hundreds of other tasks compete for the unit's limited personnel and equipment assets. The tendency is to assume the attached engineers or the infantry can do the work while the skilled specialists of the unit focus on their individual preparations; however, there are usually too few engineers for the job and too many competing tasks for the infantry. The rule for the division of barrier labor is: *Use whoever is available at the time, consistent with the unit's priorities.* This may have to be tank crews, medics, or cooks. The limited number of trained engineers are better used as special equipment operators and as advisers for work details selected from otherwise less critically occupied troops.

### Fighting the Barriers

After construction, the primary pre-battle task becomes securing the barriers. Before attacking, the enemy will conduct extensive reconnaissance of his planned routes to locate and, if possible, to clandestinely breach obstacles. The rule here is: *A barrier breached before the battle is no barrier at all.* All obstacles, even those deep in the sector must be under constant observation, especially during periods of limited visibility.

Additional security can be gained by constructing or maintaining surprise-essential obstacles during limited visibility conditions. Armed construction parties are in themselves security elements that can free combat elements that would otherwise be assigned dedicated obstacle security missions and diverted from other tasks. At a minimum, when dedicated security cannot be afforded, periodic patrolling of all obstacles to interdict enemy patrols and locate possible breaches must be conducted. This effort can be bolstered by ground surveillance radar support and interdicting fires placed on the obstacles.

A fundamental tactical principle is that barriers must be covered by fire. The type and amount of fire, however, is governed by the location and purpose of the barrier. In some situations, long-range indirect fire may suffice. In others, the entire concentrated fires of the unit may be required. The tactical intent



specified by the scheme of maneuver determines the degree to which the obstacle will be covered and the types of weapons used to do so.

Once the initial engagement is successfully completed, it may be necessary to restore the barrier to prepare for the engagement of the next enemy echelon. The barrier plan must assign specific repair responsibilities for each of the obstacles and provide for pre-positioned repair equipment and materials.

### Conclusion

To win outnumbered, a smaller force must seize the initiative from its larger enemy, disperse the enemy's mass, and defeat his elements piecemeal. Fires and maneuver must be combined with an effective barrier plan to gain local superiority of combat power. The successful barrier plan necessary for making all this possible does not develop accidentally. It is the result of detailed consideration of the terrain, combat power ratios, and objectives of the forces involved. The careful application of the principles of barrier planning discussed above can give an edge in ensuring

### Footnote

<sup>1</sup> For a more complete discussion of the battlefield arithmetic necessary, see "Establishing Disengagement Criteria" in *ARMOR*, November-December 1984.

success and survival on the battlefield, even in the face of overwhelming enemy strength.



**MAJOR DAVID OZOLEK** served at the NTC as the S3 of the OPFOR Motorized Rifle Regiment, a mechanized infantry battalion S3, and as an S3 observer-controller. His previous assignments include mechanized infantry platoon leader and company commander, adviser in RVN, and assistant professor of English at USMA. He is a graduate of the Infantry Officer Advanced Course and the Armed Forces Staff College. He received his BA and MA from John Carroll University and is presently assigned to the Supreme Headquarters Allied Powers Europe.

**“Troop E loaded up and marched for Pinto Canyon before daylight one day in early January, 1929.”**

## Random Recollections

by Lieutenant General Samuel L. Myers, Retired

In September of 1928, after my three-month graduation leave and a short sojourn at Fort Bliss, Texas, I was assigned to E Troop of the 1st Cavalry at Camp Marfa, Texas. My troop commander then, and for the next four years, was Captain Donald R. Dunkle. Unfortunately, like so many of my classmates, I at first looked down my nose at Captain Dunkle, for he was commissioned from the “90-day wonders” of World War I. In retrospect, I can see why West Pointers were often considered prissy prigs by the older WWI veterans.

Captain Dunkle was a rotund, jolly, easy-going person, who loved to crack jokes, who was always a hail-fellow well-met, and who had a complete disregard for regulations. Naturally, he and I were like oil and water. He didn't care much for me, and I cared less for him. So, for the first few months, I rode at the tail of the column and ate dust. There was no other officer in the troop.

In early January of 1929, rumblings from Mexico caused the colonel and the staff to dust off our border defense plans and hold Officers' Call. A fellow named Escobar was raising hell in Mexico and about to start one of their perennial revolutions. The colonel ordered squadron and troop commanders to get out of barracks, get on the trail, and get down to the border in proper sectors to see what was what.

I'll digress from my theme a mo-

ment and point out that, in those days, cavalry traveled rather light (except for Captain Dunkle). Each man had two saddlebags, a pommel roll and a cante roll in which were carried all the necessities of life, except food. Each man even had a feed of grain and a pair of spare horseshoes aboard. The kitchen, and at least one day's rations, were carried on two pack horses. The troop baggage, forage for two days, and ammunition were carried on two escort wagons drawn by four mules each. If the march was more than four days, a portion of the pack train loaded with forage also went along. But Captain Dunkle — and I emphasize this only because it is a prelude to a subsequent yarn — had a private 8x8 wall tent, a folding cot, two gasoline lanterns, a mattress, a folding table, two folding chairs, a portable bar, four blankets, a folding two-holer, and many other things too numerous to mention. Needless to say, more than the normal number of pack animals and wagons accompanied E Troop marches.

Troop E loaded up and marched for Pinto Canyon before daylight one day in early January, 1929. (I learned later that we left before daylight so the colonel could not see all our excess baggage.) The weather was balmy for West Texas at 5,000 feet, and we arrived in Pinto Canyon, a distance of 30-35 miles, before noon. We groomed, watered,



and fed the animals and soon had our favorite noontime meal on the march — S.O.S.

After dinner, I had planned to explore Pinto Canyon, but Captain Dunkle had other plans. He was a friend of Jim Watts, who owned the bottom of Pinto Canyon, and Mr. Watts had given the captain permission to let the troop hunt. The captain said, “Sergeant Weaver, bring out the ammo.” And, lo and behold, Sergeant Weaver had a whole case of 30-06 ball ammo, which was not part of the sealed and to-be-accounted-for basic load. Then the captain called for volunteers to go deer hunting. About three-fourths of the troop responded. Each trooper was given two clips of ammo, and the captain said, “You men may hunt both sides of the canyon all the way to the top and east as far as the Watts ranch house.” Almost as an afterthought, he said, “You, Myers, go along and maintain order.”

If you can imagine the pandemonium which ensued, you will understand why I say the situation was hairy. There were about 60 men, with M1903 Springfields,



with 10 rounds each, men who mostly knew how to shoot, but knew nothing of hunting. Needless to say, the valley rang with fusillades, as any animal which moved became a target. As hard as it is to believe, we all survived, and we ate venison and goat meat that night. The captain was very jolly; he invited me to sleep in his tent, and the thaw in our relations started. I rode with him at the head of the column the next day as we marched to Candelaria, another 35 miles.

Candelaria wasn't much of a town. At that time, it consisted of a store, post office, a cotton gin, and the remains of a crude factory in which wax was once rendered from the native Candelaria plant, which grows profusely in the valley. The whole shebang was owned by one Dawkins Kilpatrick, a real character. I soon found that he, too, was

a very close friend of Captain Dunkle. After stables and dinner, the captain told Lieutenant Myers and the First Sergeant to let the men and horses romp in the river. They did, and all hands had a great time.

Then the captain sprang the good news which, in truth, he had been planning for weeks: "We'll stay here two days and all men can go across the river to San Antonio del Bravo, fifty percent at a time." I learned later that the men knew of these stops and had been saving as much as possible from their \$21 per month pay.

The first contingent left before dark, and we all heard what a good time they had on 40-cents-per-bottle of Mescal and Sotol when they came staggering in at 2 A.M. The captain and I had enjoyed an outstanding game dinner with Dawkins, a dinner greatly complement-

ed with Jose Cuervo Anejo, a local specialty.

The next day was uneventful; aside from caring for the animals, the troopers nursed hangovers and rested.

As evening approached, the second contingent was raring to cross the river. It only required taking off boots and breeches, and wading a 10-inch deep stream. But this night's

---

**"When we saddled up and prepared to move out, Ramirez was still out cold..."**

---

crossing was a little bit different. In the troop, we had a Mexican who was very cocky and unpredictable. He had reason to be, for he had served with Chico Cano and was the top heavyweight boxer in the regiment. He had pulled a fast one on the captain and had crossed the river with the first contingent and had spent all his money. Not to be fazed, he arrived with his boots and breeches in hand. It turned out that these items were a very valuable commodity in San Antonio del Bravo, and he soon traded them for two bottles of tequila which he consumed before he crawled into his pup tent.

During the night, a light but cold rain had started to fall, and the wind switched to the north. The older hands, like the captain, knew that a blue norther was coming, and a blue norther in the high plateau in January is brutal. So the captain ordered reveille at 0400 and to march at 0530.

In the morning when the roll was called, Ramirez was missing. A quick check of his pup tent revealed him dead to the world. Neither the captain, beating on his feet with a riding crop, nor the bugler, blowing his loudest in his ear, could rouse him. So the first sergeant had Ramirez's tent struck, his roll made, and his saddle loaded, while leaving him in his long johns and



shirt to lie on the rocks in the rain.

We fed and watered the horses and ate breakfast. Breakfast that day was less than gourmet: warmed-over black coffee, S.O.S. mixed with rain water, and hardtack.

When we saddled up and prepared to move out, Ramirez was still out cold, so Platoon Sergeant Knapp had Ramirez's horse saddled and had Ramirez hoisted up on his saddle in his shirt, drawers, and campaign hat. He fell off. So, Captain Dunkle ordered, "Tie the ----- on!" We moved out and proceeded the 10 or 12 miles to the Brite Rim at a rather increased rate of march because we wanted to get up the rim before the norther hit full blast.

Upon arrival at the base of the rim, we halted for a brief rest before leading the horses up. Ramirez was showing blood on the inside of his legs, and the rope was chafing his wrists, so he was released. We were pleased to see that he could stand up — almost alone. The reason that we had to lead up the rim was that the trail was so steep, taking many switchbacks as it zig-zagged up the face of the cliff some 2,000 to 2,500 feet in less than three miles of road. The horses, loaded as they were, could not make it up the trail with men on their backs. So we started up, with Ramirez being helped, since he was in his socks and his feet were tender. We halted "to

blow" (give the men and horses a rest) about one-third of the way up, and at that time Ramirez's feet were pretty bloody, so he put on his extra pair of socks and a friend loaned Ramirez another pair. This padding helped to protect his feet. When we stopped to blow about two-thirds of the way up, he was alert but hurting plenty.

Then the rain changed to sleet. Since we were equipped with the G-1 raincoats of that era — coats noted for serving as a funnel to direct all drippings from the campaign hat down the back of the neck — we were all soon drenched, icing up, and miserable. The last one-third of that climb was rugged. But we made it to the top with alacrity, there to be met with a combination of sleet, snow and 40-mph winds, together with about 30-degree temperatures. The horses with their winter coats suffered less than the men. However, it was only 8 or 9 miles to the Brite ranch house, so all hands perked up, and we arrived there with no dropouts, man or beast, at about noon.

We were met by Oscar Wells, the foreman, who welcomed us with warmth and told us to use any facility in the ranch to protect ourselves from the storm. It is quite possible that the fact that Captain Dunkle was the son-in-law of Mr. Brite had some bearing on the warmth of our welcome.

We put the horses in corrals with high board fences which broke the wind, so the horses were well-cared for. We put the saddle gear and weapons in the hay barn where the men could work on them to prevent rust and deterioration. The men were spread out in the hay, in stalls, in the store, on the counters — everywhere a place big enough could be found. The kitchen was set up in the wagon shed and the captain's tent pitched as near the fire as it could be without fear of burning. We had a hot meal and a good, comfortable night, and Ramirez was acting like a real good soldier.

During the afternoon, the captain and I had quite a discussion about whether to stay over at the ranch until the storm had ended. (By now he was calling me Sam. I had passed his test.) Usually, these blue northers lasted, at most, three days.

But the decision was not ours. Just before dark, the wagons and the pack mules pulled in and a quick inventory revealed that we had but two meals of food, no hay, and only two feeds of grain left. He decided that we would march at 0800 the next day and then went to the house to see if Oscar could rustle up some clothes for Ramirez to wear. He returned in a short while with a pair of jeans and some old cowboy boots. This addition to his wardrobe had a very salutary effect on our hung over boxer.

The next morning we woke up to about five inches of snow on the ground, but the wind had died down. Hence, the 30 miles into Camp Marfa were relatively easy. More amazing was the fact that not one man or animal had even a cold.

I am very happy to report that from that day on, Ramirez lost his cockiness, worked like a dog, and became one of our best troopers. When I left for Fort Riley three years and five months later, *Corporal* Ramirez helped me off.

Now, I suppose there ought to be a moral to this tale. *Sure* there is. Don't ever underestimate a cherubic, fat, Pennsylvania Dutch captain.



**LIEUTENANT GENERAL SAMUEL L. MYERS**, retired in 1963 after serving as deputy CG, Eighth Army. He served as a cavalry officer in Texas and Kansas after commissioning from West Point in 1928, and with the 26th Cavalry in the Philippines in the late 1930s. During his long and distinguished career, he also commanded the Armor Training Center at Fort Knox.

# Keeping Count of Your Platoon

by First Lieutenant Mark E. Asbury

## Introduction

So, you are going to be a platoon leader. Soon, you will be signing for millions of dollars worth of equipment. Every so often, unconcerned platoon leaders generously contribute portions of their hard-earned income for the good of the service. If you consider yourself a philanthropist and are independently wealthy, then stop here.

On the other hand, if you enjoy your butter and want silver in eighteen months, then the following suggestions, which soon-to-be company commanders have compiled from lessons learned, will prove helpful. The information provided here is not necessarily inclusive, but is a condensation of the overall unit supply process as it encompasses platoon accountability procedures. Prior to arriving at your unit, you should take the time to assimilate the information provided below. And, if time permits, review all references made to the *Supply Update* and the *Maintenance Update*. You can find these publications in your company and also at the MOS library.

## Responsibility

Your commander is the primary hand receipt holder for all unit property and exercises command responsibility. His representative in maintaining the hand receipt is the supply sergeant. Most units also have the XO as the supply officer to assist the commander in more closely monitoring routine supply transactions. The commander's hand receipt consists of all nonexpendable property authorized to his unit under current MTOE, TDA, and CTA (for definition of acronyms see "Consolidated Glossary" in your latest *Supply Update*). You can identify all nonexpendable property by a line number, which is an alphanumeric code used by the computer to refer to a specific piece of property (e.g.

E94356). The PBO (Property Book Officer) updates the commander's hand receipt monthly. The hand receipt is a computer printout listing all assigned property alpha-numerically, by line number.

In order to maintain proper accountability, most commanders will attempt to sub-hand receipt all unit property down to the primary user level to delegate supervisory responsibility over sub-hand receipted property as an extra safeguard. Therefore, you are only indirectly responsible for all property sub-hand receipted to you from the commander, assuming that you, in turn, complete the process and ensure that all property is sub-hand receipted to the primary users, who of course, are your vehicle commanders. And that is the key: if you always ensure that you maintain accountability by conducting inventories prior to the old vehicle commander departing your unit, soon after returning from field problems, and before your semiannual updating of your sub-hand receipt, you will never have to forfeit any of your hard-earned income.

While that sounds so simple, one must remember that Murphy's Law is constantly in force, always providing the opportunity to gum up accountability. Furthermore, not everyone has concerned commanders who routinely do their 10 percent monthly inventory; supply sergeants who conscientiously do their review and posting; or platoon leaders who adhere to sound quality-control standards during inventories.

## Supply Forms

Form management plays an important role in property accountability. Therefore, let's discuss some forms used by supply that affect your sub-hand receipt. The supply

room normally keeps your sub-hand receipt on a DA Form 2062. The supply sergeant makes two copies of each sub-hand receipt, retains the original, and gives the carbon to the sub-hand receipt holder. It should look something like figures 5-1 and 5-2 of DA Pam 710-2-1 (see *Supply Update*). Other forms that affect your sub-hand receipt and that should be kept with it are in Figure 1.

Commonly co-located with your sub-hand receipt is the hand receipt annex (see figure 6-1 of DA Pam 710-2-1 for example). This form, often called a "shortage annex," shows all components that are missing from an end item in your sub-hand receipt and are currently on order. The initials at the end of column A-F will usually be those of the supply sergeant. Those initials are his verification that all items listed above it are on valid requisition. You can double-check this by looking at the Due-In listing for that item. When you find it, a good practice is to pencil in the Document Number (or Requisition Number) in column b following the item description. This will help you monitor the arrival of that item when you do your weekly review of the Due-In listing. When you no longer see the item listed there, it has arrived and will either be in the supply room or needs to be picked up by the supply sergeant at the supply yard or warehouse (Read para 6-1 of DA Pam 710-2-1).

Another form usually kept with your sub-hand receipt is a change document on a DA Form 3161 (see figure 5-3 of DA Pam 710-2-1 for example). The supply sergeant uses this form to record supply transactions that affect a hand or sub-hand receipt. He uses it to record issue and turn-in transactions between hand receipt holder and sub-hand receipt holder in lieu of posting changes to the sub-hand receipt on DA Form 2062. Most supply



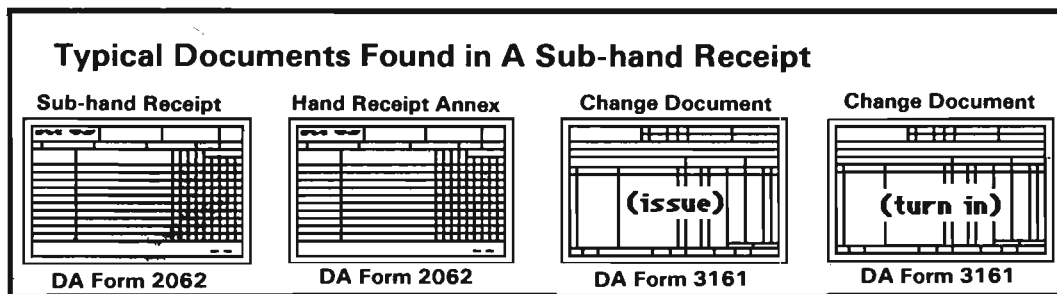


Figure 1

sergeants like to do this because sub-hand receipts are supposed to be typed and typing takes time that supply sergeants usually don't have.

The forms just discussed are basic forms used by the supply sergeant to maintain accountability. Other forms of which you need to have a working knowledge are:

1. DA Form 2062, Component Hand Receipt (see figure 6-1 and 6-2 of DA Pam 710-2-1). You will use this form as your sub-hand receipt to the primary user; it contains a listing of all basic issue items (BII), mandatory components, and any additional authorized items (AAL) described in the publication for that end item (Read para 6-2 of DA Pam 710-2-1).

2. DA Form 2402, Direct Exchange Tag (see figure 3-2 of DA Pam 738-750 in the *Maintenance Update*). This form has several different uses. You should attach it to all items turned in to supply or PLL. If you cannot get a one-for-one direct exchange, ask for a signature in block 14, and record the Julian date in block 13; retain Copy 1 for your records.

3. DA Form 1131, Cash Collec-

tion Voucher (see figure 2-1 of AR 735-11 in the *Supply Update*). We use this form when an individual admits pecuniary liability for an item that does not exceed \$100 in cost. This allows the soldier to go to the SSSC (Self Service Supply Center) and pick up the item, provided he has a DF authorization as described in AR 735-11, para 2-3, sub-para d(3). (This process is illustrated in Figure 3 by the arrow showing the supply sergeant going to the SSSC for a class 2 durable item.) This action provides faster acquisition of the item.

4. DA Form 362, Statement of Charges (see figure 2-2 of AR 735-11). If the item is not stocked or sold at the SSSC, then use this form for the person who has admitted pecuniary liability for an item.

5. DA Form 4697, Report of Survey (see figure 3-1 of AR 735-11). This form is used when you or the commander decide that property has been lost, damaged, or destroyed because of fault or neglect by one or more of the unit's personnel.

(NOTE: For those of you who are in units that are authorized stockage of a uniform basic load (UBL)

of ammunition, your support platoon leader and the S4 shop are the sources on how to use DA Form 2062 to maintain ammunition accountability. The most important point to remember is to make sure your ammunition's lot numbers are visible and that records are kept by round type and lot numbers.)

### Reviewing Supply Operations

Another important point to consider in preparing to sign for your platoon is, "How important is supply to my commander?" You can assess this by visiting the supply room and talking with the XO. When you visit the supply room look to see how well it is managed by considering these points:

- Is the supply room neat, clean, and functionally organized?
- How much interruption is the supply sergeant receiving?
- Is the supply sergeant constantly being interrupted?
- Has your sub-hand receipt been updated at least semiannually?
- Does your sub-hand receipt have the documents listed in figure 1?

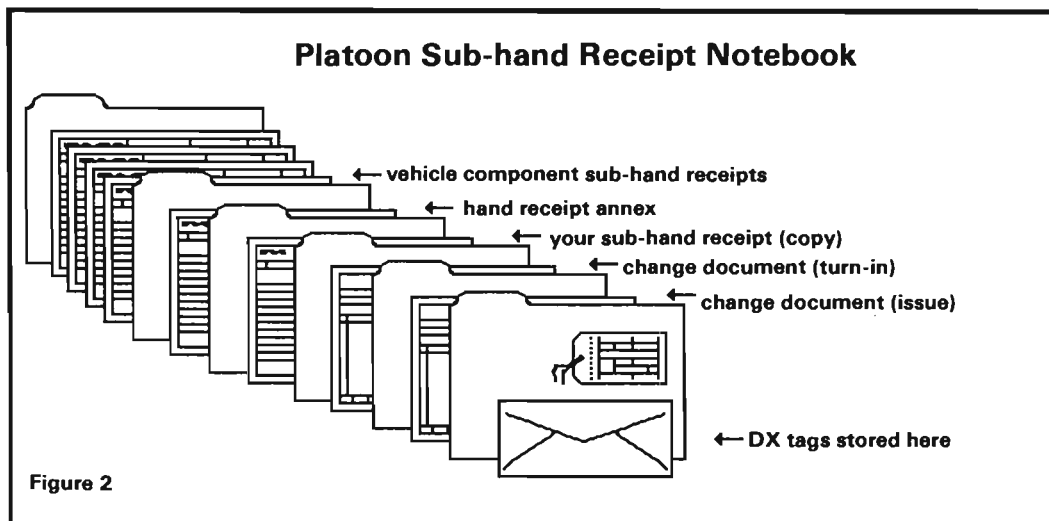


Figure 2

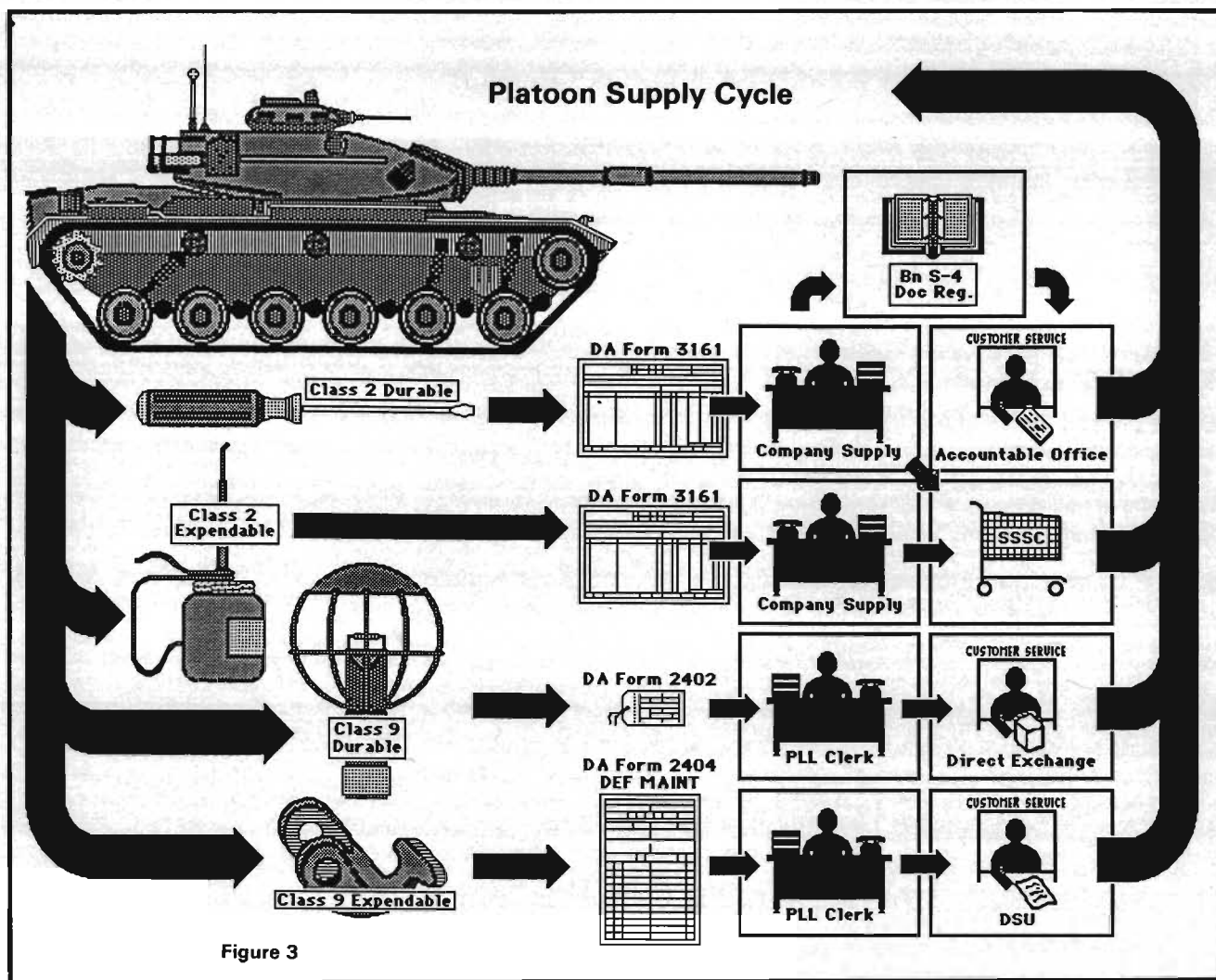


Figure 3

• Do your carbon copies match the original?

Note: See also Appendix C of AR 735-11.

If you can honestly answer yes to most of these questions, then you should be in fairly good shape. On the other hand, if you still have questions, it might be worthwhile to troubleshoot a little further, with the help of your XO.

### The Inventory Process

Once you feel satisfied that the paperwork appears in order, you need to review the component hand receipt against the most recent -10 and changes or HR of the end item that is listed in column b of your sub-hand receipt to ensure that it is complete and accurate. Then obtain enough copies of each component hand receipt so that there are at least two copies for each item on your sub-hand receipt.

Next, set a date with the previous platoon leader (or whoever is the sub-hand receipt holder of your pla-

toon) that allows ample time to inventory all components of the end items for which you will be signing. A good rule for tankers is to set aside half a work day. This will allow time for the crews to lay out neatly all the BII and AAL items on their tarps, as well as provide plenty of time for you to inventory each individual tank. Insist that all items are laid out the same for all like end items and that all items listed in the component listing are laid out prior to the inventory. Inform the sub-hand receipt holder that you will not accept any item which was not laid out, but was located during the inventory. Another good idea is also to request that the platoon sergeant have the crews line up in front of their vehicles at parade rest and snap to attention when you arrive to inventory. While this does not reflect heavily upon property accountability, it will show the soldiers and the commander that you take your job as a platoon leader

seriously.

There are many ways to inventory. Some officers read off each item and have each person hold that item up. Other platoon leaders go from individual end item to individual end item and inspect each item named off of the component hand receipt. For the first time, this is the preferred method because you will want to check to make sure that they have the right tools listed and for serviceability of the tools. You may see tools that are substituted for another tool (e.g., a 10-inch adjustable wrench for an 8-inch adjustable wrench). A good rule to follow with in-lieu-of issues is that "you can always go up, but you can't go down." Also, you cannot substitute some items for other items (e.g., open end for Allen wrenches). Again, your XO is a good source for this information, as is the supply sergeant. Have the platoon sergeant gather up any items that you find to be unacceptable or unserviceable. Upon

completion of your inventory of each vehicle, stop and have the commander of that vehicle sign the hand receipt and give him a copy.

Once you have inventoried all items listed on the sub-hand receipt, visit the supply sergeant and sign your sub-hand receipt. There you will also rectify any discrepancies noted. Also, you should adjust any change documents and turn-in all unserviceable items for direct exchange.

### Records Management

Now you should at least have a basic concept of how to check your records and how to do an inventory. This is the first step in good records management. Another thing to consider is keeping your records organized. One good way is to get a notebook, some light green dividers that are three-hole punched, some tabs, an envelope that is large enough to secure your DX slips, and some document protectors; then set up a platoon sub-hand receipt notebook (see Figure 2). Including an 8-by-10 photo of the lay-out for each end item to help visually organize the sub-hand receipt is also a good idea both for you and your vehicle commanders.

Continue to do routine inventories prior to the departure of a vehicle commander from your unit, following returning from field problems, and before your semi-annual updating of your sub-hand receipt (If you do the first two, you usually will not have to spend much time doing the latter.) Once you have established your inventory standards, you can speed up the inventory process by having the platoon hold up all items as you read them off. Then you can use one component hand receipt replacing columns A-F with the bumper number of each vehicle. When you have finished, you can have each vehicle commander sign under their bump-

er number; then each vehicle commander and you can transcribe the inventory to each component hand receipt while the rest of the platoon stores the equipment.

Along with routine inventories, you should review the component hand receipt and identify what items are classified as durable and expendable. As illustrated in Figure 3, your end items are composed of many items that vary in class code and are listed on component hand receipts for various reasons (Figure 3 also shows the overall supply process as it relates to the platoon.). Therefore, to best serve your soldiers and help maintain proper accountability, you should identify the class status and accounting requirement code (ARC) of each item.

To do this, you need to look up the items by the NSNs on the AMDF for the ARC code. You will see either a "D" for durable or "X" for expendable. Mark this in pencil in column e of your component hand receipt. Also use the AMDF to identify whether the item is Class II or Class IX, which is found by looking at the SCMC code. This will help to know where to take the item when it is unserviceable.

I know of an incident when an item was not ordered for over a year because the supply sergeant, who deals mainly with Class 2 requisitions, had a Class 9 item sitting in his storage room because someone turned it in to him and it was too heavy to pick up and take to the PLL office. A good thing to do, once you have identified broken or missing Class 9 expendable items, is to order these items and list them on your DEF MAINT to keep track of them.

Finally, you need to review routinely the Due-In listing to keep track of items on order for your platoon. There has been many a time when tools have come in and gone elsewhere due to the lack of follow-through by a platoon leader.

By routinely visiting supply, you can also discover when the supply sergeant is going to SSSC to pick up supplies. Then you can refresh his memory about the Class 2 expendable items he needs to pick up for you. Always remember that your supply sergeant plays an important part in the supply process, and you need to maintain a good working relationship with him. So, as you show interest in your supply problems, also show consideration for his.

### Conclusion

The purpose of this article has been to help you avoid some of the mistakes that others before you have made. Errors occur as a result of incompetence and ignorance. Therefore, it is your responsibility to be the watchdog and maintain accountability over your property and sub-hand receipt.



**FIRST LIEUTENANT MARK E. ASBURY** entered the service in 1981 from ROTC at Brigham Young University. He received his MA in Counseling and Guidance from BYU in 1983 and is a graduate of the AOBC and the JOMC. He has served in the Reserve component as an adjutant, and on active duty as a platoon leader and XO. Currently, he is liaison officer, HHC, 2-34 Armor, Fort Carson, CO.



It is 0500 hours on a damp, foggy morning at the Hohenfels Training Area, NATO's largest maneuver area in Germany. A 72-hour battalion ARTEP has just begun. The Blue Force commander has sent an armored scout platoon to reconnoiter into "enemy" territory. As the platoon leader surveys the horizon through his thermal sights, he spots a tank platoon unlike any he has seen before: the tanks are too small to be M1s and the thermal signatures are much fainter. There is no doubt he has found the enemy.

The "enemy" is the USAREUR Opposing Force (OPFOR) whose primary mission is to support maneuver exercises with its Warsaw Pact vehicles. The OPFOR objective: realistic and interesting training.

Thirty-two U.S. soldiers and 13 Warsaw Pact tracked and wheeled combat vehicles make up

the OPFOR, which is organized into two "combined arms" teams made up of infantry, armor, and artillery soldiers and a small, active maintenance team of U.S. soldiers and German civilians. The Warsaw Pact vehicles, which include the only BMP Infantry Fighting Vehicle in active use in the Army's OPFOR program, are all operational and kept running through a great deal of hard work, creativity, and — sometimes — luck.

In its infancy, the OPFOR used the vehicles as static training aids. Today, because of an intensive maintenance program, which includes an extensive engine replacement effort, the OPFOR is able to play an active role in USAREUR maneuver training.

Exposing soldiers to actual Warsaw Pact equipment, as opposed to visually-modified U.S. vehicles (VISMODs), significantly enhances training realism and, therefore, combat readiness. The OPFOR uses its equipment to support training in a variety of ways:

- To augment a unit's "enemy" force during offensive and defensive maneuvers. Because the OPFOR's vehicles are not as mobile or as fast as modern U.S. combat vehicles, the augmentation usually occurs near and just prior to an offensive or defensive operation.

- To conduct reconnaissance or probe missions (making intentional contact with scouts or

At T-62A M...  
as it rumbles...  
the Hohenfels...  
The Hohenfels...  
includes th...  
ous light ta...  
At lower...  
communica...  
ports OPFOR...  
a rear area...  
At left, ...  
OPFOR's B...  
Blue Forces...



# The Ultimate VISMODS?

Thirteen of the Opposing Force vehicles at the Hohenfels Training Area are the real things, actually manufactured behind the Iron Curtain. The fleet includes the only operating BMP in the Army's OPFOR Program.

By First Lieutenant William P. Veillette  
Photos by Specialist Fourth Class Rex Burger

reconnaissance teams to test their immediate actions).

- To serve as objectives in ground and aerial reconnaissance (i.e., to test SALUTE reporting).
- To provide realistic audio signals for ground surveillance radar operator training.
- To serve as realistic visual aids in training gunners to identify "friend" and "foe" vehicles through thermal imaging systems.

USAREUR units have been taking full advantage of the training the OPFOR has to offer. The OPFOR assists in the training of approximately 35,000 soldiers each year. Because of the limited number of Warsaw Pact vehicles and a full schedule, many requests for OPFOR training either cannot be satisfied or can only be partially supported.

Commanders are encouraged to expose as many soldiers as possible to the Warsaw Pact vehicles during field exercises and to arrange for post-exercise static displays to give soldiers an opportunity to examine the vehicles closely and receive briefings by OPFOR cadre.

*1LT WILLIAM P. VEILLETTE, a 1982 graduate of Cornell University and a graduate of the Officer Basic Tactical Intelligence Course is currently assigned to HQ Seventh Army Training Command, Grafenwoehr, FRG, as the Chief, Opposing Force Branch.*

T kicks up dust across a field at s Training Area.

ls OPFOR also PT-76 amphibious tank, seen at right.

ft, a BTR-152 amphibious vehicle supports maneuvers in

e Hohenfels Training Area. OP closes in on





## The Soviet Reaction to a Flank Threat

by Sergeant First Class Peter L. Bunce

Since publication of the 1982 edition of *FM 100-5, Operations*, the military press has discussed, at some length, the proposition of deep attack and counterattack.<sup>1</sup> A common tactic examined has been the counterattack aimed at exploiting the Soviets' "open" flanks. Yet, almost without exception, these same writers have avoided discussing the Soviet reaction to such a threat; indeed, with one or two notable exceptions, the press has not presented what elements the Soviets have behind their lines, or between their echelons, that can significantly affect the progress and success of such deep attacks and counterattacks.

That the Soviets are aware of the danger of threats to their flanks should not come as any great surprise; after all, their own preferred manner of attack is the flank attack or envelopment.<sup>2</sup> The Soviets have long recognized the danger that their style of warfare poses to the flanks of their forces:

The presence of open flanks of *podrazdeleniya* will be an ordinary phenomenon in the conduct of an attack along axes under contemporary conditions. The flanks of the com-

bat formation are most vulnerable because the main effort of troops in the attack is directed toward the front. In case the enemy moves to the flank of attacking *podrazdeleniya*, he immediately receives serious advantages and can force them to a hasty regrouping to the flank....<sup>3</sup>

In addition to the use of chemical agents to protect flanks<sup>4</sup> — a threat which would require any counter-attack force to conduct its operation in a high MOPP level — the Soviets have a number of dedicated units which figure quite significantly in their reaction to a counter-attack:

The mobile obstacle detachment, POZ, (*podvizhnyyotryadzagrazhdeniy*) appeared in the Great Patriotic War and retains its significance at the present time. It is chiefly designed to set up minefields on identified axes of counterattacks by enemy tanks, to destroy objectives (bridges, road junctions, defiles, etc.) to the front and on the flanks of the deployed antitank reserve within range of its fire.<sup>5</sup>

Both the Soviet regiment and the division have a POZ. At regiment, the POZ is formed around the regimental engineer company's minelayer platoon of three PMR-3 mine-

layers towed by trucks or APCs.<sup>6</sup> There have been some reports that the PMRs are being replaced in maneuver regiments, though, by the self-propelled GMZ minelayer.<sup>7</sup> At the division level, the Soviets build the POZ around the minelayer platoon (three GMZs of the combat engineer company of the division's engineer battalion).<sup>8</sup>

The PMR-3 towed mechanical minelayer has a capacity of 120 antitank mines and can lay them to a depth of six to eight inches at 4- to 5.5-meter intervals and at a rate of 10 to 12 mines per minute. Reloading time is 12 to 15 minutes. This piece of equipment has a crew of four or five soldiers. The Soviets also have a newer minelayer, the PMZ-4, that has an increased capacity of 200 mines.

The vehicle that the Soviets usually use to tow these minelayers is the BTR-152, although BTR-60 APCs or trucks such as the ZIL-157 and URAL-375 are also suitable. The GMZ minelayer, however, is self-propelled.

The GMZ minelayer is built on a chassis similar to that of the SA-4 GANEF air defense missile system and weighs about 25 tons. The GMZ has a capacity of 208 mines and can bury them at a rate of four per minute or can surface-lay them at a rate of eight a minute at intervals of 4 to 5.5 meters. Its four-man crew can reload it in 12 to 15 minutes.<sup>9</sup>

\**Podrazdeleniya*: A subordinate subunit of a unit (*Chast'*), (e.g. a subordinate battalion of a regiment).

## The Antitank Reserve

Like the POZ, the antitank reserve is a force found at both the divisional and regimental levels. It normally deploys behind the first echelon of its parent unit, and its mission is to delay or channelize enemy advances in order for its parent unit to deploy forces for counterattacks. In the motorized rifle regiment, the antitank reserve is built around the regimental antitank missile battery; at the motorized rifle division level, this reserve is organized around the antitank battalion.<sup>10</sup>

The regimental antitank battery consists of nine BRDM missile carriers armed with the AT-3 SAGER, although the newer AT-5 SPANDREL appears to be replacing the AT-3 in forward-deployed Soviet forces. Additionally, SAGGERS still in service reportedly have been modified with semi-automatic guidance and are somewhat faster than the earlier models. The missile-carrying BRDM is quite mobile, for it is basically a scout car and is not overloaded like the SA-9 GASKIN. The carrier can emplace and elevate its missiles, ready for firing, in one minute.<sup>11</sup>

The divisional antitank battalion, found in Soviet and most Warsaw Pact motorized rifle divisions, consists of three batteries of T-12 100-mm antitank guns. Each battery has six guns, towed by MT-LBs, a light, tracked armored vehicle. The division commander almost never parcels out the antitank battalion to his subordinate regiments. When deployed, the guns are spaced 200 to 500 meters apart and often on reverse slopes. The guns are usually about 1,500 to 2,000 meters from the minefields that they are assigned to cover.

We have very little information about how long it takes to emplace a T-12 battalion, but a battalion of 122-mm D-30 howitzers, that are about the same weight as the T-12, can be prepared to move in 11 minutes (14 at night), march a kilometer in three minutes, and emplace in 23 minutes (32 at night).<sup>12</sup> This implies that the T-12 battalion can displace over a distance of twenty kilometers (the distance between the first and second echelons of the division) and be set up to fire in about an hour and a half.

In addition to the antitank units

available to the Soviet commander, he can use his maneuver reserve:

The reserve is usually created when deploying the combat formation in one echelon. It is designed to accomplish missions which arise unexpectedly in the course of an attack (repulse of *counterattacks* (my emphasis)....) The combat mission is assigned to the reserve as it is committed.<sup>13</sup>

Ideal for the reserve in the Soviet motorized rifle division is the Independent Tank Battalion. It has five tank companies and a total of 51 tanks. (These are British figures; American estimates are of 41 tanks in four companies.) Normal Soviet practice is for a reinforced tank battalion to be used as a reserve and as a counterattack force deployed behind the second echelon. This "spare" unit, the independent tank battalion, is already larger than normal Soviet tank battalions and would be a natural candidate for that mission.<sup>14</sup>

## The Operational Level

The use of POZs and antitank reserves at the operational level (armies and fronts) is less clear than at the tactical level. There is some question as to whether Soviet combined arms armies still have antitank gun regiments, a legacy of WW II.<sup>15</sup> However, the Soviets have been showing a great deal of interest in the "operational-level interchangeability between helicopters and tanks," and have been discussing "the replacing of antitank reserves in which there are tank units with regiments or brigades of combat helicopters."<sup>16</sup> The Soviets have had the capability, for some time, to surface-lay antitank mines from HIP helicopters,<sup>17</sup> and the Soviets may be placing both the POZ and antitank reserve functions with army aviation at the operational level. In addition, Soviet armies may have available a remote mining capability in the new BM-27 220-mm multiple rocket launcher which is "reported to have minelets similar to the US 155-mm Area Denial Artillery Munition." BM-27 battalions are found in brigades subordinate to front-level artillery divisions<sup>18</sup> and, therefore, could be made available to subordinate armies.



## Planning Considerations

If we assume that a POZ or regimental antitank battery can be prepared to move in under half an hour and that an antitank battalion can do the same, their controlling headquarters still need some warning time if they are to be able to react effectively to a counterattack. The Soviet planning figure for marching is 35 kilometers an hour.<sup>19</sup> Add to that time the time for movement preparation, and it would still take nearly an hour for the reaction forces to arrive at the location from which they desire to defend against a counterattack. The POZ would require at least another 30 minutes to lay its first 500-meter strip of mines.

## Guards and Recon Elements

Those readers familiar with Soviet march formations will remember "flank guards" of roughly platoon size. These are hardly a "guard" in the US/NATO sense of the word "guard." What they must be is a form of "tripwire." As an entire battalion is on the same command net, any transmission made by the flank guard platoon can be (theoretically, at least) monitored by the battalion commander, and this transmission would give him a few kilometers' warning. Because the Soviets practice a "two echelons down" command and control system, the battalion commander could (theoretically, again) be able to pass the warning on to division quite easily.<sup>20</sup>

More important than the role played by the flank guard is that played by regimental and divisional reconnaissance. The regimental reconnaissance company is organized into a number of small patrols of scout cars, BMPs, and motorcycles that operate up to half a day's advance (15 to 20 kilometers) in front of the regiment. Divisional reconnaissance is organized in a similar manner and operates up to a day's march (35 to 40 kilometers) ahead of the division. Soviet tac-



tical reconnaissance depends on infiltration, and its patrols and groups operate purely as scouts. They are trained to do no more than observe and report.<sup>21</sup> The Division Chief of Reconnaissance and Intelligence controls *all* reconnaissance patrols in the division. What the regiment sees, division headquarters learns quickly through channels independent of normal command channels.<sup>22</sup>

### A Scenario

In a counterattack scenario, where a US task force is attacking the flank of a Soviet regiment that has pulled ahead of one of its neighbors by about 15 kilometers, the counterattacking task force is sweeping through the area covered by a neighboring regiment's reconnaissance company, even if the task force is moving behind friendly lines. If the neighboring regiment is from the same division as

the attacked regiment, the reconnaissance information need only be passed to division to get back down to the concerned regiment. If the neighboring regiment is from a different division, the information must be passed to army headquarters to be passed down to division.

This sounds time-consuming and cumbersome, but the Soviets are expressing great interest in the use of automatic data processing equipment and computers in their centralized command and control structure down to division and perhaps regimental levels. With this sort of equipment, commanders would be able to pass warning information very quickly.<sup>23</sup>

If we pursue our counterattack scenario, the counterattacking task force will first know something has gone wrong when the lead platoons encounter neat furrows in the ground across their intended axes of advance. If the

lead platoons fail to notice those furrows, the platoons will soon realize the danger as the lead vehicles begin to detonate mines.

As the lead platoons begin to take actions to avoid or clear the mines, the Soviet antitank elements should then begin to fire their 100-mm APFSDS rounds. With the task force slowed or stalled, the regimental reserve, perhaps a reinforced tank company, will attempt to counter-counterattack on the task force's flank. Should the task force fight its way through into the divisional area of responsibility — or attack behind the lead regiments — the entire response pattern could begin all over again but against larger forces with more advanced systems (ATGMs).

### Summary

The purpose of this article is not to discourage counterattacking a Soviet enemy on his flank, but rather





to inform the reader as to what to expect should he launch such a counterattack. We have seen that an elaborate tactical mechanism exists within Soviet units for pursuing their doctrine of deep attack and fast advances with "open" flanks, while retaining an acceptable degree of protection for those flanks. What should be also obvious is that to put that mechanism into effect takes time. If we can "turn inside" that time cycle, we can be successful in our counterattacks.

Therefore, speed and initiative, combined with planning to counter probable Soviet reactions, become necessary allies in any counterattack against a Soviet flank. Once the commander identifies the counterattack axis, for example, he should then reexamine it for bottlenecks or areas where a minefield could channelize the task force into a good killing ground. The commander should plan linear artillery targets in areas of potential enemy antitank weapons positions, and he should plan smoke targets between logical antitank positions and possible obstacle locations.

Task organization of the task force should permit retention of momentum. Attached engineers, for example, must accompany the

lead elements of the task force and be equipped to perform minefield breaching and to provide emergency bridging of antitank ditches or blown bridges. What will kill a counterattack quickest is the old "hang-on-the-edge-of-the-minefield-until-the-engineers-arrive" routine. Mine rollers, although cumbersome, are a good means of minefield reconnaissance, and a limited means of breaching. Once the lead elements of the task force encounter obstacles, the lead teams should execute drills to pop smoke and quickly take cover to avoid casualties from enemy missiles or antitank guns.

Aggressive action by breaching elements, combined with suppression of known or suspected enemy positions, are then a requirement to maintain the momentum of the counterattack. Hence, logistics planning should provide counterattacking forces with extra smoke grenade rounds for their launchers and an increased load of smoke rounds for the mortars and artillery supporting the counterattack.

Counter-reconnaissance is also crucial. All of the task force elements must be alert to the odd vehicle or vehicles attempting to avoid contact and bypass the task force. If neighboring task forces have eliminated all or most of the

enemy recon patrols in their sectors, the approach of the counterattacking task force behind friendly lines is more secure, and the enemy will be less likely to receive early warning. Once the counterattack jumps off, however, enemy recon patrols encountered by the counterattacking task force must be eliminated as quickly as possible to avoid radio transmissions which will give the enemy commander more time to prepare his flank defenses. An enemy flank guard, if encountered, should obviously suffer the same fate.

Soviet tactical organizations and doctrine provide Soviet tactical commanders with specialized units to afford a degree of protection to their flanks and enable these Soviet commanders to fulfill doctrinal expectations of deep thrusts with "open" flanks. NATO units seeking to take advantage of these open flanks, during the execution of counterattacks, must be aware of these specialized units and how they operate and interreact with each other. Then our units must practice countermeasures in order to succeed without excessive casualties on the AirLand Battlefield.

### Footnotes

<sup>1</sup> For example, see: Doerfel, John S., "The Operational Art of the AirLand Battle," *Military Review*, May 1982, pp. 3-10; Holder L. D., "Maneuver in the Deep Battle," *Military Review*, May 1982, pp. 55-61; Barbara, James C., and Brown, Robert F., "Deep Thrust on the Extended Battlefield," *Military Review*, October 1982, pp. 21-32; Lancaster, Michael S. and Clemens, Jon, "AirLand Battle Defeat Mechanisms," *Armor*, Jan-Feb 1983, pp. 35-37; Franz, Wallace P., "Maneuver: The Dynamic Element of Combat," *Military Review*, May 1983, pp. 3-12; Peters, Ralph, "Attacking the Attacker," *Armor*, May-June 1983, pp. 30-33; Hewitt, William D., "Thoughts on Counterattacks," *Armor*, Sep-Oct 1984, pp. 30-32.

<sup>2</sup> Franz, Wallace P., "Maneuver: The Dynamic Element of Combat," *Military Review*, May 1983, p. 7.

<sup>3</sup> Sidorenko, A. A., *The Offensive (A Soviet View)*, translated by the U.S. Air Force, Moscow: 1970, p. 93.

<sup>4</sup> Hemsley, John, *Soviet Troop Control*, London: Brassey's Publishers Limited, 1982, p. 139.

<sup>5</sup> Sidorenko, *op. cit.*, p. 107.

<sup>6</sup> Isby, David C., *Weapons and Tactics of the Soviet Army*, London: Jane's, 1981, pp. 327-331.

<sup>7</sup> "GMZ Tracked Minelayer," *Jane's Defence Weekly*, 11 August 1984, p. 187.

<sup>8</sup> Isby, *op. cit.*, p. 331.

<sup>9</sup> *Ibid.*, p. 336.

<sup>10</sup> *Ibid.*, p. 137.

<sup>11</sup> *Ibid.*, pp. 138, 145, 146, 153.

<sup>12</sup> *Ibid.*, pp. 138, 154, 185.

<sup>13</sup> Sidorenko, *op. cit.*, p. 99.

<sup>14</sup> Isby, *op. cit.*, pp. 72, 80; Hemsley, *op. cit.*, p. 124.

<sup>15</sup> For instance, when showing typical armies, Isby (p. 23) and Hemsley (p. 122) do not show any antitank units at the army level, while Richard Simpkin (*Red Armour*, London: Brassey's Defence Publishers, 1984, p. 237) shows an antitank regiment; however, Mark L. Urban (*Soviet Land Power*, London: Ian Allen, 1985, p. 46) shows a 36-gun antitank battalion as part of a front-level artillery division, while Isby (p. 24) has artillery divisions with 18 antitank guns.

<sup>16</sup> "Combat Helicopter Emerges as Major Battlefield System," *Jane's Defence Weekly*, 6 April 1985, p. 583.

<sup>17</sup> Pass, Arthur J., "Minelaying Helicopters," *Review of the Soviet Ground Forces*, May 1980, (RSGF 3-80) p. 4.

<sup>18</sup> "Soviet Counter to NATO's MRLS," *Jane's Defence Weekly*, 28 Jan 84, pp. 110-111.

<sup>19</sup> Simpkin, *op. cit.*, p. 128.

<sup>20</sup> *Ibid.*, p. 79.

<sup>21</sup> Isby, *op. cit.*, 274.

<sup>22</sup> Hemsley, *op. cit.*, p. 160.

<sup>23</sup> *Ibid.*, pp. 174-175.



**SERGEANT FIRST CLASS PETER L. BUNCE** is an intelligence analyst and Battlefield Information Coordination Center NCOIC for 4th Battalion, 69th Armor, having previously performed the same function for the now-inactivated 4th Brigade, 4th ID(M) in 1980-1984. Sergeant First Class Bunce previously served in Germany with the 7th Cavalry, 11th Armored Cavalry Regiment, and 10th Cavalry; and in Vietnam with the 11th Armored Cavalry Regiment.

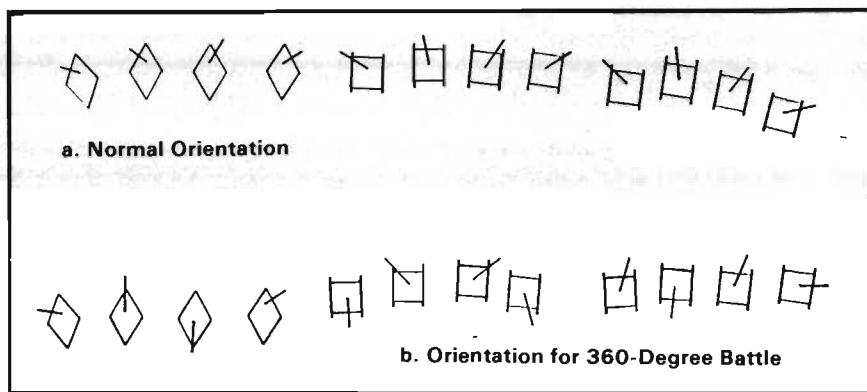


Figure 1. Orientation of weapon systems in an armor-heavy team's battle position, showing normal orientation, top, and reorientation when faced with the possibility of a 360-degree battle. Note that sectors of fire will be much wider in latter case. Figures assume all fighting positions are dug in.

## Fighting 360 Degrees

by Captain Michael A. Deaton

The war between NATO and the Warsaw Pact is five days old. Casualties have been high on both sides, and NATO lines have become critically thin. Dawn is now breaking over Central Europe. Cold rain has fallen all night, and the images in the thermal sights are little more than green blurs. Intelligence reports throughout the night have been limited to those of "sounds of tracked vehicles somewhere to the east."

The gray light of dawn slowly begins to illuminate the fog- and rain-shrouded company-team battle position. Stand-to is twenty minutes old; all weapons are manned, but with visibility limited to a half mile, the crews can't identify any targets. Yet the rumble of tanks and BMPs continues, and when they break through the mist, they are *behind* the friendly battle position!

The company-team has been bypassed by an attacking Soviet motorized rifle battalion, and a company of that battalion has broken off to fix the company-team until another force can get there to destroy the Americans. How well the bypassed company-team is prepared to fight in all directions will, within the next three to five minutes, determine the fate of nearly a quarter of its parent task force's firepower and the lives of nearly 100 American soldiers in the bypassed position.

Current Soviet battle doctrine calls for breaking through the thin, dispersed front lines of NATO forc-

es at numerous sites and making subsequent deep penetrations. With the numerical superiority that the Warsaw Pact enjoys, this situation is not an unlikely possibility. Such a penetration would result in the—at least initially—bypassing, isolation, and even encirclement of friendly units. The units would be forced to fight a 360-degree battle.

Our AirLand Battle doctrine touches on this scenario. Much of our current doctrine addresses the prevention of the bypass and the actions needed to regain and maintain friendly contact. Little is said, however, about how to fight effectively while encircled. It is axiomatic, though, that the bypassed force must simultaneously fight, reorganize, and consolidate in order to mass enough firepower to effect a breakout.

Present ARTEP scenarios and STXs designed for the company-team, however, do not adequately address the problem of how to prepare for and conduct this 360-degree battle. Like every other contingency, we must train for it through repetitive drill in order to handle it with any degree of proficiency. While it is not specifically addressed in company-level tactics, we can plan for the encirclement battle and execute it using extensions of existing doctrine.

Planning for the 360-degree battle begins with terrain analysis. Here the S2 can help a lot. A company-team positioned on dominant terrain between two potential avenues of approach that are defended

by other friendly forces is a candidate for being bypassed. A company-team defending with a task force boundary on its left or right also faces the possibility of being bypassed should the threat successfully "slide down the seam" or should the neighboring task force be forced to withdraw.

Mission analysis is also important when planning for the 360-degree fight. Units are much more likely to be bypassed when the task force is defending in sector than when it defends from a battle position. Defense in sector generally demands an in-depth defense on a relatively wide frontage, so there usually will be greater distances between companies than might ordinarily be desired. Especially in the desert, the layout of the defense, therefore, can create likely avenues for bypass and encirclement; these avenues and locations must be incorporated into task force and team-level planning.

First of all, the commander and S3 must adhere to some basic principles to prevent bypass. In the creation of elaborate obstacle plans and kill zones, tactical planners must never split responsibility for avenues of approach. The best way to accomplish this is to ensure that at least one team is astride the avenue and that it can engage targets on that avenue at maximum effective range. If the lack of defensible terrain makes this impossible, the responsible unit should not be in a position so far away from the avenue that the unit cannot engage the threat until he is parallel to the friendly battle position. At that point, engagement is often "too little and too late." All of this sounds like good common sense, but they are principles frequently violated, especially in the desert or in areas in Europe where long engagement ranges exist.

A corollary of not splitting responsibility for an avenue of approach is that no team should have responsibility for more than one primary approach. If this occurs, the task force commander, or his S3, should reallocate or reposition his forces or coordinate with the brigade commander for more forces or a change in task force boundaries in order to narrow the task force sector. These measures, and thorough coordination between neighboring units, should prevent

bypass and encirclement. However, textbook scenarios rarely present themselves on the battlefield, and the 360-degree battle remains a contingency for which the team commander must plan and be prepared to execute.

Part of the team commander's plan must include the team's combat trains. The team commander has a difficult choice to make when he positions these service support assets. He can keep them up close for fast, efficient support, or he can position them farther to the rear for security. In either event, the ISG should prepare the trains' position as a strongpoint. This should include a fairly elaborate obstacle plan because of the trains' limited firepower. Dug-in positions are essential. LP/OPs must be positioned, and direct fire weapons must be set up to cover likely avenues of approach from all directions. Because they lack tank-killing systems, the vehicles in the trains must have LAWs, in the event the trains are separated from the combat elements of the company-team.

The team commander must fight the 360-degree battle in two phases if the team is to be successful: the first phase is the stationary phase, and the second phase is the mobile phase. The team commander has two tactical options when fighting the stationary phase. The first option is that of reorienting gun tubes so that the unit resembles a herringbone formation (See Figure 1). However, platoon leaders must ensure that fighting positions are dug to provide adequate protection in all directions. The Y-shaped position should fulfill that requirement. When using this tactical option, the team commander must be sure that supplementary sectors of fire are assigned and that outboard positions assume responsibility for the flanks.

The second tactical option is that of supplementary platoon positions. Again, platoon leaders must ensure that the positions and the routes to them are prepared so that vehicles are not unduly exposed to enemy fires. Each crew must know the routes to the new position and should rehearse that movement. This second option is a less desirable way to establish a 360-degree defense because it may involve moving assets in the middle of a firefight. This movement reduces

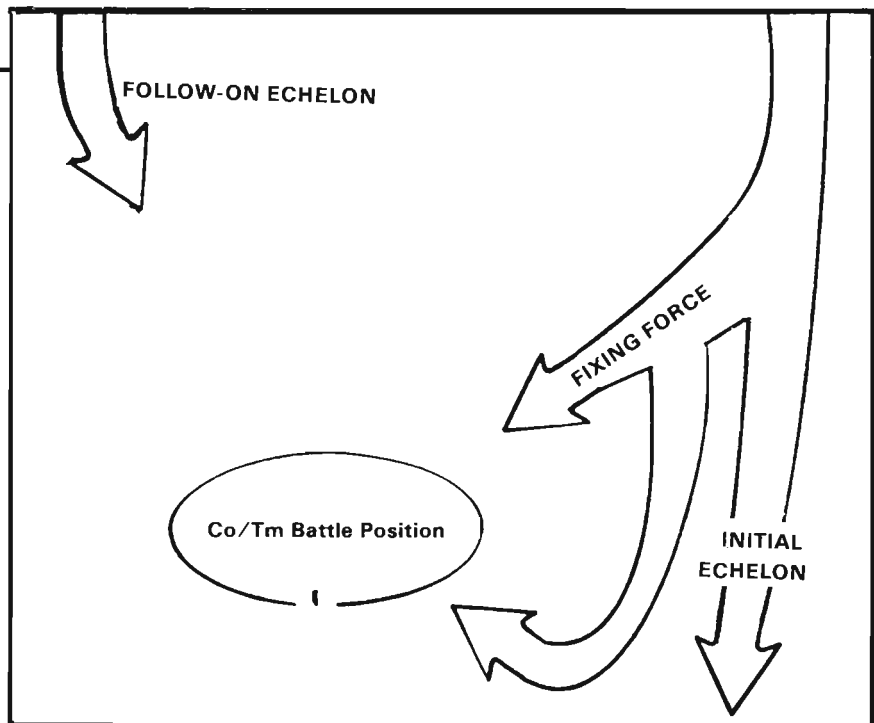


Figure 2. Initial echelon's fixing force breaks off to bypass and isolate a forward company/team until follow-on echelon can arrive to destroy defenders.

the volume and accuracy of critically needed firepower. As always though, METT-T will determine the option that the team commander decides is best for his unit in the particular situation that he faces.

During no other tactical event is the interplay between tank commanders, squad leaders, section leaders, and platoon leaders as critical as during the 360-degree defense. Every weapon's sector of fire must overlap with that of another weapon. These sectors will, by necessity, be wider than the primary sectors because of the 360-degree posture of the team. Combat vehicle commanders will have to know who is covering the sectors adjacent to their own sector and — in reaction to spot reports — keep a running status in their minds on the ability of those systems to accomplish their missions. These same vehicle commanders will also have to exercise initiative in reacting to losses of adjacent elements and be able to adjust to cover now-uncovered sectors of fire.

Gunners of crew-served weapons and squads will have to adhere to even stricter sector-of-fire discipline than under normal circumstances. The crew and squad must be confident that their flanks and rear are covered in order to prevent confusion in target acquisition and engagement. The best way to pre-

vent an uncovered sector is to build redundancy into the fire plan by assigning at least two weapon systems to each sector. While this may result in a slight amount of overkill, it reduces the possibility that the destruction of one system will leave an entire sector uncovered.

The unit fighting a 360-degree defense will have few advantages, so it must capitalize on all that it does have in order to be successful. It will have the standard advantages of the defender: camouflage, cover, precision gunnery, prepared positions, familiarity with the terrain and sectors of fire, and obstacles. Once the team commander identifies the possibility of being bypassed, he should plan for and emplace obstacles to the flanks and rear of his battle position to prevent enemy penetration of it. The passages through these obstacles must be known to every vehicle driver, and each crew should practice moving to and through them, both during daylight and at night, to ensure a rapid effective withdrawal when it is needed. These flank and rear obstacles will impede and confuse the threat forces during their advance. This confusion can be compounded by a few more factors also.

First, if the threat force elects to bypass, it will probably dedicate only a portion of the lead echelon to stay back and fix the bypassed unit

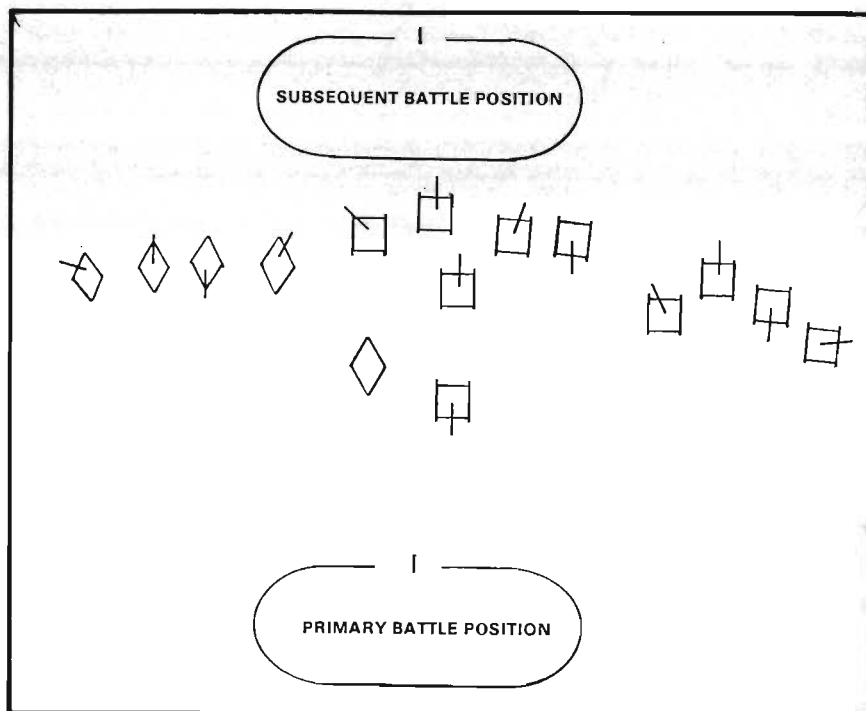


Figure 3. When attempting to displace from primary battle positions during the narrow time window between the advance of first and second threat echelons, gun tubes must be oriented to maintain 360-degree coverage.

(See Figure 2). The elimination of the bypassed force would become a mission for the second echelon. In addition to fires from the bypassed unit, the threat fixing force should have to contend with the long range fires of forces defending in the depth of the task force sector and indirect fires supporting the task force. Since attacking forces tend to orient frontally, this combination of fires should result in some confusion for the threat fixing force as to target acquisition, the location of the most dangerous targets, and just how the threat force should be oriented. If the task force commander has "laid out" the battlefield properly, and terrain has permitted it, the threat fixing force should find itself sandwiched between two or more friendly units and exposed, no matter which way it moves.

In order to add to this confusion, the bypassed team commander should do everything that he can to convince the threat fixing force commander that he has been given a task that is too big for the fixing force to handle. To do this, the bypassed team needs to conduct a battle of unparalleled violence.

The volume of fire coming from the bypassed unit should increase to the point that it rivals that of the remainder of the task force. Ammunition conservation need not be a

consideration in the 360-degree battle. For if the defending unit fails to bring the fight to a rapid and successful conclusion, ammunition which has been conserved will no longer be needed. (This, however, makes prestockings of Class V in subsequent battle positions essential.) The key term here is *rapid*. The best time for the bypassed unit to accomplish a breakout is during the window between threat echelons. For this reason, the fixing force must be decimated rapidly through the use of accurately-placed, high-volume fires, coupled with lethal obstacles and massed indirect fires. The mobile phase of the 360-degree battle can then begin.

The mobile phase of the 360-degree fight has as its objectives the breakout of the bypassed team, the movement of that team, and the occupation of a subsequent battle position. In some cases, this phase could also become a counterattack into the rear of the first echelon. The bypassed team commander should employ any and all means to mask his team's movement from the enemy. Indirect fires, smoke missions, smoke grenades, smoke pots, and the use of vehicle smoke generators can assist in this effort. During movement, 360-degree security is mandatory. Appropriate weapons and observation orienta-

tion must be maintained by the combat vehicle crews (See Figure 3). Executed quickly and coordinated with the fires of the other teams in the task force, this withdrawal/counterattack can effectively confuse the commander of the threat's first echelon, assist in his destruction, and thus allow the bypassed team to occupy its subsequent battle position and carry on the fight.

Some readers may think it defeatist even to consider the possibility that a U.S. unit would allow itself to become bypassed. However, real defeatism is failing to train for this possibility. By ignoring the possibility of bypass and encirclement, we imply that a unit which becomes bypassed and encircled will automatically be defeated. This is pessimism at its worst. The Threat enjoys a numerical superiority which enables him to isolate our teams, and the Threat's doctrine and training support that fact. If one of our units finds itself in that situation, it simply cannot quit. That team must keep on fighting in order to survive. However, in order to fight effectively in all directions on a fluid battlefield, we must train that team to do so.



**CAPTAIN MICHAEL A. DEATON** entered active duty after completing his PhD. at Vanderbilt University in 1983. He has served as a tank platoon leader and tank company executive officer while assigned to the 5/33 Armor and was later assigned to the 42d Field Hospital for cross-training in medical support operations. He is on orders to report to the U.S. Army Institute for Chemical Defense, Aberdeen Proving Ground. This article grew out of an experience last January at the National Training Center.

**"A mentor is a leader,  
but of a special type..."**



## Defining Mentorship

by Major James O. Patterson

What is a mentor? Webster's dictionary defines the term as a trusted friend or counselor. The archetype of the Greek mentor was a friend of the Greek king, Odysseus, who entrusted the education of his son, Telemachus, to this individual. Some people even confuse the term "mentor" with the mythical half-man, half-bull Minotaur. However, as one studies the term as a phenomenon within the United States Army, a "mentor" and "mentorship" emerged as none of these, yet a combination of them all.

A mentor is a *friend*, but he is also much more than this. While we should view the term "friendship" as a relationship which develops from a sharing of common experiences and stresses in the military environment, the mentorship relationship is stronger. The mentor and his associate (the individual receiving the mentoring) become comrades, much in the spirit of the German *blutenbruderschaft* or blood brotherhood. There is a bond formed between the two soldiers. The mentor cares for his associate and his professional and personal development.

A mentor is *trusted*. In the army of a democracy, trustworthiness and honesty must rank at the top of the ethical qualities sought by the organization, for not only the lives of soldiers are in the hands of the leaders; the life of the democracy is, itself, in their hands also. Soldiers look for such qualities as these in their leaders and their mentors because, as associates, they rely on their mentors for education and advice which affects them in far-reaching and significant ways. Additionally, there is a strong element of confidentiality in the relationship. Both the mentor and the associate must trust each other in the knowledge that what transpires in the relationship will be kept in confidence.

A mentor is a *counselor*. The giving of guidance or the sharing of a problem with another individual are experiences that most of us share and hold important as part of our role as soldier/leader. In fact, this giving of guidance is an inherent duty. Indeed, some leaders are better counselors than other leaders. A few are mere plastic automatons who use mechanical tech-

niques and gimmicks learned from a best-selling paperback. Other leaders perceive themselves as psychologists and attempt to employ such exotic "weapons" as neuro-linguistic programming. Other soldiers in leadership positions, unfortunately, just don't give a damn. Obviously, they should never become mentors, and probably won't; more importantly, they should not be leaders. However, many of us truly do try to talk to, to help, to communicate concern for those soldiers who seek our counsel, or even those who do not. From this group of counselors can emerge the individuals who can become mentors.

A mentor is a *leader*, but of a special type. Most of us have worked for, or with, that officer or non-commissioned officer who was certainly human in appearance, but whose aggressive style, word choice, and techniques left us looking for the bear, the lion that lived within him. Yet from this man or woman, we learned. We learned how to kill. We learned how to survive. We learned how to fix the unfixable. And some of us still learn from these leaders, because they become our mentors, and here is where leadership becomes mentorship. Mentorship is a specialized, advanced, *sustaining*, extra-legal form of leadership. Our learning from this mentor-soldier does not stop when we leave the unit; it



continues in the form of phone conversations, letters, even special study assignments from that mentor. The mentor may no longer be our legal, chain-of-command leader, but an educating part of that leadership continues to improve both our professional and personal lives.

Within the 194th Armored Brigade at Fort Knox, Kentucky, groups of soldiers have met to define "mentor" and "mentorship." No definition as simple as Mr. Webster's emerged. In fact, the participants all saw the dictionary version as incomplete because it did not address the emotional relationship which exists between mentor and associate. The discussion groups did see that teaching and counseling were the major functions of mentorship; however, the actual development of the mentor-associate relationship had escaped definition. Those soldiers of the discussion group who knew they had a mentor believed that "something had 'clicked' between the mentor and the associate," but they could not describe the process. Most soldiers of the discussion group indicated that the mentor usually initiated the relationship and drove the mentoring process. The associate usually realized *after the process began* that the relationship had commenced; the associate almost always desired to continue that relationship. But the discussion groups could not come to a consen-

sus as to what characteristics set the relationship into motion. While most of the group members described the initiation as a result of some vague "chemistry" between the mentor and the associate, no two formulas were alike.

A significant element of most mentor-associate relationships is that most associates are mentored for a period of from several months to several years, often without their own knowledge. The "chemistry" is often more elusive; the process may

---

**"Sorrowfully, in some of our own units, admission of ignorance is not even tolerated, and can even be seen as a sign of weakness."**

---

seem more of a "monitoring" than a mentoring, but the bottom line was that the mentor had chosen the associate, for whatever reason, as a soldier who was deserving of special attention or grooming. *This situation should in no way be confused* with a "good old boy" network, a form of favoritism which lacks the comradeship and the objectivity of the mentoring process. For this reason, most group members believed that the mentoring process usually occurred outside of the rating chain, although it may have had its roots in a past chain-of-command relationship. We must understand, however, that mentor-

ship can occur within the chain-of-command; but it is very rare for two people (superior and subordinate) to be able to establish the special relationship of trust required in mentoring and not cross the line of favoritism which would be detrimental to the organization.

Within the last context comes the idea that associates themselves can begin initiation of a mentorship process. Although most soldiers in the discussion group who participated in a mentoring process indicated that they were "selected," they thought that looking for a mentor makes good sense. The young officer or NCO encounters a myriad of questions and seemingly unsolvable problems when he or she enters the service or pins on corporal's stripes. Regardless of where one was schooled in preparation for the Army, to try to "go it alone" is courageously dumb. To admit ignorance within one's own unit is seldom done, particularly when one considers the values taught in our basically "macho" American society. Sorrowfully, in some of our own units, admission of ignorance is not even tolerated and can even be seen as a sign of weakness. The major who moves from several years in a MACOM staff back to the field may find himself or herself in the same situation as

the young lieutenant or corporal. In the same way, the Sergeant First Class wardmaster who moves to the combat support hospital after seven years in a MEDDAC may also be filled with feelings of insecurity and doubt. All of these soldiers in this sort of situation of self-doubt and intolerance or fear of embarrassment may be helped best outside of the chain-of-command.

Somewhere in their new military environment, they will meet an officer or NCO who can help. The chemistry develops. It may be at a softball game or at the club, but the phenomenon occurs. The potential associate asks a question and re-

ceives an answer. He gains insight. The secrets known only to someone who "has been there" pass to the associate. In time, more information passes. The bond grows. The associate learns without fear of embarrassment and becomes a better leader for the Army.

If one believes that mentoring is simply leadership, look again. The discussion groups discovered some key differences which may help hone the definition of mentor. These differences are listed in Figure 1.

One of the important roles of leadership is teaching. There is a common misperception, however, that mentoring is just teaching, and hence, all leaders are mentors. A platoon sergeant teaching his lieutenant "the ropes," or a battalion commander explaining to a company commander what could have been done better at the National Training Center, is certainly teaching. But is it mentoring? No! What these two examples illustrate is what leaders are supposed to do. The mission demands teaching. The safety and well-being of soldiers demand teaching. It is a requirement of leaders. Mentoring is different.

The difference between mentoring and teaching as a leader is one of focus. The mentor reinforces the teaching of trainers like the platoon sergeant and battalion commander. The mentor also goes beyond the trainer's teaching in terms of:

- Frank, bloodless, and unmenacing criticism, working toward a long-term change in the associate, a term far beyond that of the legal time limits of chain-of-command situations.

- Greater emphasis on the reasons for actions or reactions.

- More focus on the future and the professional development steps to get there.

- Greater complexity and tailoring to the associate as an individual's situation rather than to the leader's "realm of the possible."

As a result of this focus, a mentor often cannot meet the needs of several people; he or she must restrict the number of associates he deals with in order to permit that focus which differentiates good leadership from good mentorship. Not only is there a difference in focus;

## Key Differences — Leaders and Mentors

Leader	Mentor
1. Owes equal attention to all subordinates.	1. Devotes extra time to a single individual, yet is not bound to do so.
2. Often, if not always, is in the associate's chain of command.	2. Very seldom in the associate's chain of command, to preclude favoritism in duty performance.
3. Style and methods are fairly well-established and addressed in doctrinal literature.	3. Strength of style and methods rest in an idiosyncratic approach. Little or no doctrinal background or resource material.
4. Acting as a leader is a requirement for all persons in leadership positions.	4. Strictly voluntary.
5. Time-related due to chain of command dependency.	5. Time independent; can last until death of either associate or mentor.
6. Has a legal base in UCMJ, MTOEs, oath of commission, Constitution, etc.	6. Authority base is personal consent.

Figure 1.

there is also a difference in depth of the goal.

While both good leadership and good mentorship must be based upon ethics and commitments, the depth of the goal for leadership and mentorship is different. The essence of military mentorship is that what the mentor does for the associate is to improve the force in the

mission that takes place, both within the mentor and the associate, as they visualize what is evolving and this, in fact, stirs the "chemistry" even more. At this stage, both the mentor and the associate realize that their relationship has a goal even deeper and certainly much more important than the professional and personal improvement

**"The mentors, or potential mentors, are a select group because all soldiers are not capable of becoming mentors..."**

long term. There is deep ethical and professional commitment made by both the mentor and the associate that what happens during their relationship will result in the improvement not just of the associate, but of the military institution. Good leadership — while it, too, may lead to that — is usually more concerned with immediate goals such as success of the unit. As the ethical and professional commitment of the mentor and associate grows, so does this "chemistry" between them until their relationship becomes secondary to the commitment to the Nation, the Army, the unit, and the soldiers. There is an intertwining of self and

and development of the associate: their relationship serves to develop and improve the Army and, hence, the Nation.

The mentors, or potential mentors, are a select group because all soldiers are not capable of becoming mentors. Some soldiers do not have the nearly consuming love of service required. Some soldiers are so self-centered that any help offered would be only for their personal gratification or self-advancement, a smokescreen that the associate would soon penetrate. Other soldiers suffer from self-image problems: they see themselves incapable of offering benefits to others. Some soldiers are simply poor coun-

---

selors or teachers and lack the interpersonal skills so necessary for successful interaction with other soldiers. This leaves those soldiers who have the ability, the knowledge, and the inclination to help others: the potential mentors.

The associate, or potential associate, also comes from a select group. All enlisted soldiers, NCOs, and officers in the Army are guided and taught through the normal leadership channels within their chain-of-command. They are privy to classes, formal and informal counseling, and schools to help them do their jobs well. However, there are among these men and women select individuals whose attitudes, intelligence, savvy, and other attributes are so special that their potential to contribute to the

---

**“Not everyone can become a mentor, nor can everyone become an associate...”**

---

Army makes them deserving of special grooming. *This is not an elitist approach. This grooming is not to further their careers.* Rather, this process is to ensure that their potential is realized and beneficially used at all levels within the Army to make the Army better, more effective, more combat ready. It is from this group that associates come. While some realize their potential and seek out a mentor, many potential associates do not. The mentor must draw them out.

Not everyone can become a mentor, nor can everyone become an associate. In fact, not everyone needs to be an associate. But it is precisely because there are certain types of people who can more easily become mentors and because men-



toring involves deeper goals, is in a different relationship and setting, requires more focused techniques, and is of greater complexity that mentorship is not simply leadership. These characteristics also point to the fact that if mentorship were made into a formalized “program” for each unit, and required much as a good safety program is required, mentorship would fail. It is too idiosyncratic in its approach and far too select in its applicability. It is, however, an *activity* of leadership and an activity of such high value and of such great, but long-term result to both the Army and the Nation, that its existence within the Army should be publicized, encouraged, and to the extent possible, taught.

What, then, is military mentoring? Army mentorship is more than Webster’s trusted friend or counselor. It is more than the education of a king’s son. It is certainly more than simply leadership. Army mentorship is a service performed in an atmosphere of mutual trust, professional respect, and comradeship in which selected senior soldiers share experiences, knowledge, and challenges with selected junior soldiers, with the goal of improving the Army through increased individual maturity, higher and deeper levels of knowledge, and the full achievement of potential.



**MAJOR JAMES O. PATTERSON**, Medical Service Corps, is currently XO of 42d Field Hospital, 194th Armored Brigade, Ft. Knox, KY. He is a graduate of Clemson University and received his masters degree at Pepperdine University and later graduated from the Army Command and General Staff College, Ft. Leavenworth, KS. He has held numerous command and staff positions in CONUS, Korea and Germany from 1970 to 1977 and from 1977 to 1980 was Chief, General Military Subjects and Leadership Branch, Basic Division, U.S. Army Signal School. From 1980 to 1983 he served as organizational effectiveness officer, Madigan Army Medical Center and then assumed his present duties at Ft. Knox.





## Israel's Merkava Mark 2 Battle Tank

by Richard M. Ogorkiewicz

The appearance of any new battle tank is always an event of considerable professional interest. And it is of even greater interest when the new tank differs in many important respects from others. This applies very much to the Merkava Mark 2, the new version of Israel's unconventional battle tank which is coming into service with the Israel Defense Forces and which the writer had the privilege of examining recently.

The Mark 2 version of the Merkava, like the Mark 1, was developed by a team of Israel Defense Force (IDF) officers headed by Major General Israel Tal. General

Tal has, in fact, led the development of the Merkava from its inception in 1970 and has brought to this task considerable personal experience. He had been commander of the IDF Armored Corps and of one of the three Israeli columns on the Sinai Front during the Six Day War of 1967. He is also an accomplished tank gunner, having personally knocked out targets at a range of several kilometers with a 105-mm tank gun during some particularly critical clashes on Israel's borders.

The personal experience of General Tal and that of his team has been augmented by detailed analyses of the hits sustained by Israeli

and opposing tanks during the Arab-Israeli wars. These analyses now cover a total of several thousand cases and form a fund of knowledge of what happens to tanks under fire which is at once more extensive and more up-to-date than that possessed anywhere else in the world.

All the experience and analyses led General Tal to conclude that the Merkava could and should provide a high degree of survivability. In keeping with this, he also opted for a high degree of battlefield, rather than strategic, mobility. At the same time he redefined survivability in terms of the two most vulner-



With turret set back on front-engined hull, Merkava has little gun tube overhang.

able components of a tank: its crew and its ammunition. In other words, General Tal and his team recognized that a high degree of survivability could not be achieved for the whole of a tank but that a high degree of protection could be provided for its crew and ammunition.

To achieve this, General Tal decided to use as many of the other components of the tank as possible to protect the crew compartment and to adopt various unconventional design features.

### Front Engine Location

The most obvious of the various departures from convention in the design of the Merkava is the location of the engine compartment at the front of the hull. This was adopted so that the engine and the transmission could contribute to the protection of the crew from the most likely hits, that is, hits on the front of the tank.

The engine-transmission assembly is itself protected by a thick cast armor nose and, spaced behind it, an armor bulkhead. The space between the nose and the bulkhead is occupied by a fuel tank, which contributes to stopping shaped-charge jets, and the Mark 2 also carries in it special armor. There is also an armor plate bulkhead behind the

engine. This means that the crew is protected from the front by three spaced layers of steel armor, a layer of special armor, and the engine-transmission assembly, as well as a fuel tank. All of this adds up to give the crew of the Mark 2 a remarkably high level of frontal protection.

The top of the engine compartment is covered by a large steel casting which forms part of the well-sloped hull glacis and which can be lifted off for power pack replacement. The casting can only be lifted with a crane, but this does not create any additional maintenance problems since a crane is needed to lift the power pack. For routine maintenance, the engine can be reached by swinging open a small, hinged part of the glacis, which can be done manually.

A unique and very commendable feature of the glacis is that it extends up above the level of the turret ring. In consequence, it protects the joint between the turret and the hull, which is generally a vulnerable point in turreted tanks.

The concept of protecting the crew compartment by mechanical components as well as more than one layer of armor has been carried around to the sides of the tank. As part of it, the conventional torsion bar suspension was rejected in

favor of an externally-mounted coil spring suspension. The suspension has been compared with the bogie-type suspension of the British Centurion and Chieftain tanks, but in spite of a superficial resemblance, it is basically different. In fact, it is not a bogie-type suspension with interconnecting horizontal springs, but an independent suspension with vertical coil springs.

The springs, together with the suspension mountings of ballistic steel, form an almost continuous protective layer outside the hull side armor, any gaps being covered by additional armor plates. Further protection at the sides is provided by steel skirts, backed on the Merkava Mark 2 by special armor. In contrast to other contemporary tanks, the special armor-backed skirts cover the whole of the sides of the tank and not merely their front portions. As a result, the sides of the Mark 2 hull are better protected than those of any other tank.

In contrast to other tanks, the rear of the Merkava's hull is also well-protected. This is done with two layers of armor; the space between them is filled on one side with batteries and on the other with a collective NBC protection system.

There is also exceptionally good protection against mine blast. This is due not only to the bottom of the



**Major General Israel Tal, who led the team that designed Merkava.**

hull being relatively thick along the whole of its length but also to an inner layer of spaced armor, which forms the floor plate.

### **Rear Hull Compartment**

The location of the engine at the front made it possible to locate most of the ammunition at the rear of the hull, where it is least vulnerable to direct fire. To reduce the vulnerability of the ammunition to mine attack, one of the seven cells among which the fuel is distributed for greater safety has been located under the ammunition stowage area. From above, the ammunition is protected not only by the hull roof armor but also by a large tank of drinking water which is located under the roof. Under most circumstances, the ammunition is also shielded from top attack by the turret bustle and the large stowage basket attached to it.

All the ammunition is stowed in special containers of fiberglass lined with an insulating material which can protect it for relatively long periods of time from the heat of any fire. In addition, the containers act as spall shields if the armor of the tank is perforated.

Apart from reducing the vulnerability of the ammunition, the front engine location made it possible to provide a hatch in the rear of the

hull. This hatch, together with a passage left between the stacks of ammunition containers, provides the crew of the Merkava with a safer alternative to the traditional way of entering or leaving tanks through the top, which is particularly valuable if they ever have to evacuate the tank under fire. Another important benefit of the rear hatch is that the Merkava can be reloaded through it much more easily than more conventional tanks.

The ammunition containers are removable, and this makes it possible to use the ammunition stowage space for other purposes. For instance, if the ammunition containers are removed, the rear of the hull can be occupied by a command team. Alternatively, it can be used to carry four stretcher cases or up to 10 infantrymen.

The fact that the Merkava can carry infantrymen has been misinterpreted by many people, including several contributors to *ARMOR*, who have wrongly assumed it to be some kind of tank-cum-infantry carrier. What is more, a number of people have cited the Merkava in support of an argument for the development of hybrid tank-infantry vehicles.

Those who have done this not only misunderstand the design of the Merkava, but seem to have no

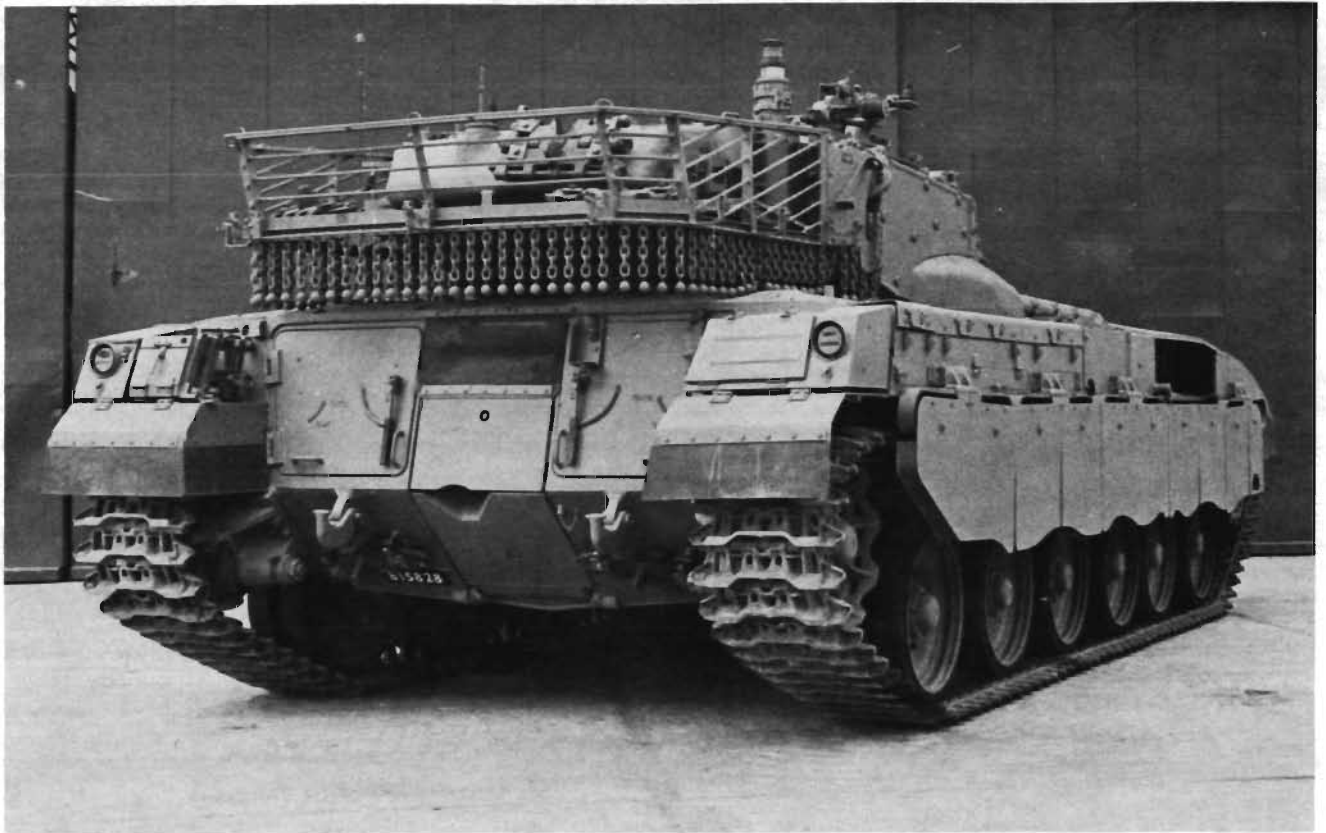
idea of the monstrous size of any tank which would carry not only a major caliber gun and a full load of ammunition, but also a squad of infantry. Moreover, they ignore the obvious fact that infantrymen, carried in any vehicle which fulfills its main purpose and engages in combat with its armament, can contribute nothing to the tank except casualties.

hybrid vehicle of any kind but a tank. It can only carry infantrymen at the expense of part or most of its ammunition, which is only justifiable and done in very special circumstances. Thus, under normal circumstances, the Merkava only carries its regular crew of four, and its rear compartment is filled with ammunition.

### **Low Frontal Area Turret**

Like the hull, the turret of the Merkava is unconventional. In particular, much of it consists of two spaced layers of cast steel armor. In addition, the turret of the Mark 2 has special armor at the front and sides.

The turret also has an unusually small frontal area, which reduces its chances of being hit. This is particularly true when the Merkava is in defilade, when the total exposed area of the turret is only one-half of that of other contem-



Rear-quarter view shows rear door, deep bustle rack, and chain link "curtain" designed to pre-ignite shaped charge warheads.

porary tanks' turrets. To achieve such a low frontal area, the gun trunnions have been moved closer to the breech. This made it possible to reduce the height of the turret without reducing the depression of the gun beyond 8 degrees, which has been found adequate even in the hilly terrain of southern Lebanon. It also made it possible to locate the loader toward the rear and center of the gun, which reduced the width of the turret on his side.

Another feature contributing to the low frontal area of the turret is the highly commendable absence of any projections above the turret roof, except for the heads of the periscopes and the mountings of the machine guns.

Because of the front engine compartment, the turret is set well back. As a result, the gun protrudes far less beyond the front of the hull than in other tanks, which reduces the risk of it digging in and being damaged during the crossing of ditches and similar obstacles. The protrusion of the gun is actually so small that the turret does not have to be traversed to the rear for ease of non-tactical movement but can remain in its natural position, with the gun pointing forward.

Except for its mounting, the 105-mm gun of the Merkava is virtually the same as the U.S. M68. But it is made entirely by Israel Military Industries and is fitted with a highly effective, Israeli-developed, thermal sleeve. In addition to the usual coaxial machine gun, there are two others, mounted externally above the commander's and loader's hatches. All three are 7.62-mm caliber, the IDF having very wisely rejected the use by tank commanders of caliber .50 machine guns, which are more powerful than necessary against personnel and not powerful enough against most other targets, and which unnecessarily complicate ammunition supply and stowage.

On the other hand, the experience of the Yom Kippur War of 1973 led the IDF to introduce another and very different weapon in its tanks, namely a 60-mm mortar. When first adopted for existing tanks, the 60-mm mortars had to be mounted externally, but the Merkava Mark 2 has its 60-mm mortar integrated into the turret.

The 60-mm mortar represents a very interesting and effective addition to tank armament. It can be used to engage soft targets with high explosive bombs or to fire

smoke or illuminating bombs. A major advantage of the mortar is that it makes more of the main armament ammunition available against hard targets. As it happens, the Merkava Mark 2 carries 62 rounds, which is more than most other tanks, and this, together with its 60-mm mortar, means that it can engage a significantly greater number of targets before it needs to be resupplied with ammunition.

#### Fire Control and Automotive Characteristics

To ensure the effectiveness of its main armament, the Mark 2 is fitted with an advanced fire control system. This has been developed in Israel, by the Elbit Company, and incorporates a neodymium-YAG laser range finder as well as a number of environmental sensors. The fire control system feeds the appropriate superlevation and lead information into the gunner's periscopic sight, which has a pivoted head mirror and 8x magnification. As in Soviet and French tanks, there is no auxiliary gunner's sight, but the gun can be laid by the commander using his periscopic sight. The latter is of the panoramic type and has zoom optics with a magnification which the command-

## **“Even when some of the Merkavas were set on fire, none was burnt-out beyond repair...”**

er can vary, by means of a foot pedal, from 4x to 20x. Panoramic periscopes are sometimes claimed to cause disorientation, but this does not appear to have been a problem for the commanders of the Merkavas.

The gun controls are electro-hydraulic and stabilized. To reduce the danger of fires associated with high pressure hydraulic systems, the hydraulic power pack of the Merkava is isolated behind the bulkhead in the turret bustle. In addition, the Merkava is fitted with a highly effective Halon fire and explosion suppression system, developed in Israel by the Spectronix Company.

As a temporary measure, Merkava Mark 2 is fitted with the same AVDS-1970-5A diesel as the Mark 1. This Teledyne Continental engine is a 900-hp development of the familiar 750-hp AVDS-1970 diesel used in U.S. M60 tanks. In the future, the Mark 2 is to be fitted with a further development of this engine with an output of 1,200 hp.

With its current engine, the Mark 2 has a power-to-weight ratio of 15 hp per metric ton. This is not high by the standard of the U.S. M1, but is higher than the power-to-weight ratio of the British Chieftain tank and is about the same as that of the M60A3 and of the Soviet T-62. Moreover, the same power-to-weight ratio did not prevent the original Mark 1 tanks from performing very successfully during the 1982 “Peace for Galilee” operations in the Lebanon.

Similarly, its weight did not prove a handicap to the Merkava. Because it is so well-armored, the Mark 2 is inevitably heavy. But at 60 metric (or 66 U.S.) tons it weighs no more than the new British Challenger and it is only a few tons heavier than the M1 or the German Leopard 2. In any case, Merkavas were better able to cope with the hilly terrain of the southern Lebanon than some of the lighter tanks

used there, and contrary to the insinuations of some commentators, their overall mobility proved more than adequate.

The new 1,200-hp engine will obviously make the Mark 2 more agile, but its automotive performance is already better than that of the Mark 1. This is due to its new, Israeli-built, transmission which is as advanced as any tank transmission currently in use and makes the Mark 2 not only easy, but also pleasant to drive.

### **Battlefield Experience**

In addition to all its commendable design features, the Merkava Mark 2 must also be credited with the successful experience under fire acquired with its predecessor, the Mark 1 Merkava. This experience was gained during the 1982 operation in the Lebanon, where the Merkavas were exposed to enemy weapons ranging from the RPG-7 to the 125-mm guns of Soviet-built tanks and HOT antitank guided missiles — the French-produced equivalent of the TOW.

Since no tank can ever be made invulnerable, the armor of some Merkavas was inevitably perforated. But the percentage of them which suffered this fate was considerably smaller than that of other tanks, showing the effectiveness of the Merkava’s protection. What is even more significant, the number of casualties per tank was only one half of that suffered in the other tanks which had been hit. This clearly proved the concept of using as much of the tank as possible to protect the crew.

The precautions taken against fire also paid big dividends, which was shown most dramatically by the fact that no Merkava crewman was burnt to death — something that has probably not happened before with any other type of tank engaged in major armored operations.

Even when some of the Merkavas

were set on fire, none was burnt-out beyond repair, and the writer saw for himself battle-damaged tanks being rebuilt at the IDF Tank Depot where the Merkavas are produced. Other Merkavas, which suffered less severe damage, were repaired in the field in less time and with less effort than other types of tanks. This applied, among others, to damage by mines, due largely to the adoption of the externally mounted and easily replaceable suspension components.

All reports indicate that the Merkavas were very successful at killing enemy tanks, which included not only the Soviet-built T-62, but also the T-72.

Thus, the Merkavas fully proved themselves in the field and became the first and, so far, the only tanks of the generation developed since the 1960s to be battle-proven.



**RICHARD M. OGORKIEWICZ** is a consulting engineer and lecturer at the Imperial College of Science and Technology in London. An advisor on armor to many nations, he participated in the U.S. Army’s Armored Combat Vehicle Technology Program and has performed studies for the Defense Advanced Research Projects Agency. Over the years, he has written 75 articles that have appeared in *Armor*.

# MG Robert W. Grow, Armor Pioneer and WWII Leader of the 6th AD, Dead at 90

*While it is not ARMOR Magazine's usual policy to publish obituaries, we note here the passage of Major General Robert W. Grow, a longtime contributor (more than 20 articles), a key figure in the early days of the Armored Force, and an enthusiastic supporter, in his retirement, of both the U.S. Armor Association and the Sixth Armored Division Association.*

-Ed.

Major General (Ret.) Robert W. Grow, wartime commander of 6th Armored Division, died on 3 November 1985 at the National Hospital for Orthopedics and Rehabilitation in Arlington, VA. He was born on 14 February 1895 at Sibley, Iowa, and was appointed a Second Lieutenant of Field Artillery in the Minnesota National Guard on 17 November 1915. The following year, upon his graduation from the University of Minnesota, he was commissioned as Second Lieutenant of Cavalry.

He retired in the rank of Major General in 1953.

His career followed that of many Cavalry officers who later became prominent in Armor. In 1922, Captain Grow was senior Cavalry instructor at the ROTC Detachment at the University of Illinois. In July 1940, he became G3 (Plans & Operations) of the 2d Armored Division, and in September, 1941, was named as Commanding Officer of the 34th Armored Regiment, 2d Armored Division, at Fort Knox, KY.

His wartime career was one of rapid advancement. In April 1942, he was named Commanding Officer of Combat Command B, 8th Armored Division and in June of that year he became CO of CC A, 10th Armored Division at Ft. Benning, GA.

In May 1943, he was named Commanding General, 6th Armored Division at Camp Cooke, CA. He led the Super Sixth throughout the campaign in Europe and in July 1945 was named Commanding General, 3d Armored Division, on occupation duty in Germany.

In February 1946, he became the commander of the Armored Replacement Training Center at Fort Knox, KY, and later served as Chief, U.S. Military Mission, Teheran, Iran. In October 1948, he was named Commanding General of Ft. Devens, MA, and in July 1950 became the Army Attache to the U.S. Embassy in Moscow.

Following his retirement, General Grow served in many civic positions including that of executive director of the Fairfax County, VA, Chamber of Commerce and as president of the American Cancer Society and chairman of the Northern Virginia Community College board of directors.

His many contributions to *ARMOR Magazine* and its predecessor, *THE CAVALRY JOURNAL*, spanned 29 years and reflected his intimate concerns with both Cavalry and Armor.

## "Thunder and Lightning": Integrated Cavalry Fire Support

In regimental armored cavalry units, the effective coordination of fire support presents special challenges. In armor or mechanized infantry units, the fire support team (FIST) acts as the principal agent for calling for and adjusting fire. The coordination of mortars with artillery and the setting of priorities for fire support are the battalion-level problems of the battalion fire support officer.

Cavalry is different. First, because cavalry units frequently operate over wide fronts, the FIST can seldom count on being in the right place to personally adjust fires. The guy who is more likely to spot the enemy first and to be the one who initiates the call for fire is the scout — that jack-of-all-trades whose skills include FO procedures, but who is *not* primarily an artillery type. The second difference in cavalry lies in the necessity of coordinating mortars and field artillery at the troop level. Each regimental squadron has its own howitzer battery. Each cavalry troop has an organic mortar section. Using both to maximum effect imposes requirements on the troop to coordinate fires and to set priorities in fire support. In effect, cavalry operations cast the FIST in a new role. No longer the primary deliverer of fires, he becomes the cavalry troop commander's expert in deciding which weapon should hit which target and which platoon should have first call for support. The FIST also ensures that the troop gets the additional fires it needs from the howitzer battery or reinforcing artillery.

Accomplishing all this with the limited communications assets available in the troop is no easy trick. One answer to the problem is a system that we call "Thunder and Lightning." It works like this.

Picture the scout in the 1st Platoon, F Troop, as he initially encounters the enemy. Being a good scout, he immediately submits a spot report. It sounds like this:

"Red, this is Two. Spot report. Eight enemy trucks, grid 743962, moving east in convoy. Request fire."

The platoon leader receives this report and flashes it on the secure troop command net to the XO in his CP:

"Fox X-ray, this is Red. Spot report. Eight enemy trucks, grid 743962, moving east in convoy. Request fire."

Sending this spot report energizes the F Troop FIST. He monitors the report because he eavesdrops on the troop command net on one of his four radios.

The FIST now must make a decision. Is the target worth engaging? Of available systems, which can range the target? What type of weapon, shell, and fuse will have the greatest target effect? Reduced to simple terms, his decision comes down to engaging the target with "Thunder" — the troop's own mortars — or "Lightning" — the squadron's organic battery.

If he wants the mortars to shoot the mission, he announces on the command net "Thunder Down." The 1st Platoon leader acknowledges this directive. The mortar section — eavesdropping on troop com-

mand — also monitors it. The mortar fire direction center (FDC) drops down to the 1st Platoon's internal frequency where Red Two submits his fire mission directly to "Thunder" and makes his own corrections. The FDC remains on the 1st Platoon's net as long as is necessary to complete the mission and then returns to the troop command net. (The other mortar tracks maintain contact on the troop command net throughout the mission).

If the FIST wants the howitzer battery to shoot the mission, he announces "Lightning Up" on the command net. The 1st Platoon leader acknowledges and tells Red Two "Lightning Up." At this, Red Two switches from his platoon net to the troop FDC net. (The FIST always maintains the second of his radios on troop FDC.) Red Two sends his call for fire directly to the troop FIST, who passes it digitally to the battery. (The FIST's third radio is on battery FDC.) Corrections are made the same way: by voice from Red Two as the observer to his FIST, digitally from the FIST to the battery. Red Two remains on the troop FDC net until he has completed his mission. At that time he switches back to his platoon frequency.

What if more than a single platoon requests fire at the same time? The "Thunder and Lightning" system can easily handle multiple calls for fire. As one mem-

ber of the FIST assigns a mission to "Thunder," another member of the team relays another scout's call for fire to "Lightning."

The system also allows the flexibility to shoot complex missions, such as "Thunder" shooting mortar illumination on the platoon net while another scout on the "Lightning" net adjusts artillery under the illumination. In especially heavy fighting, the FISTs use their fourth radio — kept on the squadron fire support net — to request the assignment of additional fires beyond those immediately available within the squadron.

The "Thunder and Lightning" system provides a realistic solution to a perplexing cavalry problem. It enables scouts to adjust their own calls for fire. It allows the battery FD net to operate purely in a digital mode, averting the problems of mixing digital and voice radio traffic. Finally and most importantly, it puts the cavalry troop FIST in a position to function as a unit fire support coordinator, able to plan for and integrate the multiple fire support assets available to cavalry units.

LTC A. J. BACEVICH and  
MAJ J. WINN NOYES  
2/3 ACR, Fort Bliss, TX.

## Are We Neglecting Our Mortars?

Don't wait until the war starts to discover that you have not trained your heavy mortar platoon. It's too

late then to discover that your S3 has the mortars in the wrong place. You will need your mortars to suppress an antitank team on a flank, to lay down smoke, or put indirect fire on a target of opportunity. The Division 86 heavy mortar platoon is the armor battalion's *only* organic, guaranteed source of indirect fire support — that is, *if* you have trained it. The heavy mortar platoon's *only* battle mission is to provide timely and accurate high-angle indirect fire.

You must place heavy emphasis on the training, testing, and evaluation of the heavy mortar platoon if it is to be the battalion's key fire support element.

The Division 86 heavy mortar platoon, with its precise balance of mobility, flexibility and firepower, is a significant combat multiplier. The platoon has two sections of five vehicles each. Each section has three 107-mm guns mounted on M106A1/2 tracks, a fire direction control M577A1/2, and a jeep. On the battlefield, the platoon becomes two 3-gun sections, often operating independently, but both always under control of the S3. The mortars can influence the battle out to 6,900 meters with the new M329A2 bomb. The platoon's fighting flexibility is enhanced by its two-section breakdown, and its eight tracked vehicles give it mobility.

Mobility, flexibility, and firepower, combined with accurate intelligence and forward observer techniques, add up to a potent battle asset.

All this is lost, however, if you don't properly train the heavy mortar platoon. Proper training is demanding and complex, involving a lot of work from the battalion commander to the S3, from the fire support officer (FSO) down to the newest private in the platoon. All must understand the importance of their mission.

In prior wars, and particularly in Vietnam, we regarded mortars as static (dug-in) assets that could influence the battle as it raveled around them. All

U.S. Postal Service STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION (Required by 39 U.S.C. 3685)			
1A. TITLE OF PUBLICATION	1B. PUBLICATION NO.	2. DATE OF FILING	
ARMOR	0 0 0 4 2 4 2 0	16 September 85	
3. FREQUENCY OF ISSUE	3A. NO. OF ISSUES PUBLISHED ANNUALLY	3B. ANNUAL SUBSCRIPTION PRICE	
Bi-monthly	6 (six)	\$16.00	
4. COMPLETE MAILING ADDRESS OF KNOWN OFFICE OF PUBLICATION (Street, City, County, State and ZIP+4 Code) (Not printer)			
U.S. Army Armor School, Bldg 2369, Fort Knox, Kentucky 40121-5200 (Hardin County)			
5. COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OF GENERAL BUSINESS OFFICES OF THE PUBLISHER (Not printer)			
U.S. Army Armor School, Bldg 2369, Fort Knox, Kentucky 40121-5200			
6. FULL NAMES AND COMPLETE MAILING ADDRESS OF PUBLISHER, EDITOR, AND MANAGING EDITOR (This item MUST NOT be blank)			
PUBLISHER (Name and Complete Mailing Address)			
U.S. Army Armor School, Bldg 2369, Fort Knox, Kentucky 40121-5200			
EDITOR (Name and Complete Mailing Address)			
Major G. Patrick Ritter, USARMS, Bldg 4401, Fort Knox, Kentucky 40121-5210			
MANAGING EDITOR (Name and Complete Mailing Address)			
Jon T. Clemens, USARMS, Bldg 4401, Fort Knox, Kentucky 40121-5210			
7. OWNER (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (This item must be completed.)			
FULL NAME		COMPLETE MAILING ADDRESS	
Not Applicable			
8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BOND, MORTGAGES OR OTHER SECURITIES (If there are none, so state)			
FULL NAME		COMPLETE MAILING ADDRESS	
Not Applicable			
9. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES (Section 435.12 DMM only) The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)			
<input checked="" type="checkbox"/> (1) HAS NOT CHANGED DURING PRECEDING 12 MONTHS <input type="checkbox"/> (2) HAS CHANGED DURING PRECEDING 12 MONTHS (If changed, publisher must submit explanation of change with this statement.)			
10. EXTENT AND NATURE OF CIRCULATION (Give instructions on reverse side)		AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES (Net Press Run)		16,691	16,600
B. PAID AND/OR REQUESTED CIRCULATION			
1. Sales through dealers and carriers, street vendors and counter sales		100	100
2. Mail Subscriptions (Paid and/or requested)		7,500	7,476
C. TOTAL PAID AND/OR REQUESTED CIRCULATION (Sum of B1 and B2)		7,600	7,576
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES		8,701	8,562
E. TOTAL DISTRIBUTION (Sum of C and D)		16,301	16,138
F. COPIES NOT DISTRIBUTED			
1. Office use, left over, unreturned, unclaimed other printing		390	462
2. Returns from News Agents		—	—
G. TOTAL (Sum of E, F1 and F2—should equal net press run shown in A)		16,691	16,600
11. I certify that the statements made by me above are correct and complete		SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER G. Patrick Ritter MJG G. PATRICK RITTER, Editor-In-Chief	



that is changed. Mortars are now highly mobile and can move with the ebb and flow of battle. They can give fire support from right behind the FEBA to as far back as 6,000 meters and more — 6,900 meters with the new M329A2 mortar bomb. Train mortar crews to use their mobility, and make sure *you* understand this mobility factor. Then plan for it in your conduct of battle. Mobility is an important facet of the heavy mortar platoon's operations, so each man must understand armor mounted operations and the mortar's role in them. The platoon must be trained to understand the importance of movement controls, mounted drills, and how to use terrain for both cover and concealment. The mortar platoon must be drilled in attack fires, delaying fires, and covering fires. Movement — stopping only to fire — is the key to survival.

There are many training goals, besides accurate shooting, which enter into the picture. Hasty occupations, offset registrations, and hipshoots must be perfected, and FDC practices must be streamlined. NBC defense and decontamination practices must be finely honed. The mortar platoon must be able to move from A to B, occupy, shoot, *hit the target*, go out of action, move and protect themselves while mounted, and survive to reach the next location and repeat the whole process. It's a tall order, but it can be met on the battlefield if the unit has been thoroughly trained in garrison.

Good mortar platoon training is not restricted to the gun crews. The S3 and FSO are equally important, for they must understand the platoon's capabilities (and liabilities) and know how to site the platoon or its

sections properly. The S3/FSO must know how the fire of his six 107-mm guns can affect the battle.

For optimum fire efficiency, the mortar platoon must operate in two sections. This operation technique adds to its survivability and offers optimum fire coverage.

It's vital to the S3/FSO to maintain communications with each section of the mortar platoon. Without such contact, the S3/FSO cannot maneuver the mortars and will lose the effect of their fires.

The S3/FSO must also integrate his mortar platoon fires into the overall battalion fire support plan. The task force must develop an SOP that includes those who have authority to move the mortars. The mortar platoon leader must understand who will order him to move.

The flexibility of the mortar platoon in reacting to movement and firing orders comes from the platoon leader/sergeant's training. Can the FDC handle priority fires? Can the guns function effectively in an NBC environment? If they receive incoming artillery, can they move to an alternate preselected firing point, set up on the same azimuth, and continue to give support? Does the platoon leader know how to submit Class III, V, and IX reports to battalion? Can the platoon resupply effectively? Has the platoon trained in combat resupply?

If the answers to any of these questions is "no," then the mortar platoon needs more training in the deficient areas.

The platoon leader must understand that he *leads* a separate, independent unit of two self-supporting sections and must anticipate their needs and provide training to ensure that each section is equally knowledgeable and competent. Such training must occur at both the platoon and section levels and must cover all facets of the platoon's activities, from movement to set-up and firing, NBC operations, and resupply, to name a few.

All this places a burden on the platoon leader; his platoon will most likely fire as separate sections, and he must ensure that they are mutually supportive while knowing they are logistically separated. The platoon leader, then, must not only keep an accurate picture of his platoon's operational set-up, but he must also ensure that the task force administration/logistical center knows where his guns are and what they are doing.

Only after thorough training in all its diverse activities can the heavy mortar platoon be successfully maneuvered by the S3/FSO to influence the battle.

CLEMSON G. TUREGANO  
1LT, Armor  
XO, D Co, 3/63d Armor

## Imagination: The Ultimate Force Multiplier

The Persian king advanced with an enormous host against the unprepared Byzantines, who desperately dispatched a small force under the brilliant commander Belisarius. Preparing to receive a Persian negotiator, Belisarius scattered his tiny force out like the outposts of a mighty army. Jauntily he met the Persian to parley, putting on an outrageous display of confidence. Certain they faced a much larger force, the unnerved Persians retreated without hazarding the fortunes of battle....

Napoleon's marshals left their troops a short distance from the critical Danube bridge and rode boldly up to the defenses. Lying outrageously, they told the aged Austrian general that the Hapsburgs had made peace with Napoleon. An Austrian sergeant alerted his general to the French troops quietly maneuvering towards the bridge. The French expressed surprise that an Austrian general would allow a sergeant to advise him, and the old man rebuked his soldier.



Suddenly French troops swarmed over the bridge before the Austrians could react....

The Nez Percés war chief had an unenviable task. Outnumbered in hostile country, pursued by the white man's best troops, burdened by a slow-moving train of old men, women and children, he could not prevail in open battle. Now he must get his warriors past the white man's pickets. He lined up the warriors in the double column he had seen the white cavalry use and marched them right past the sentries. Unused to thinking of Indians as disciplined soldiers, the weary guards never imagined that the shadowy column slipping quietly past in the darkness was anything but a cavalry patrol....

The German commander knew his weak position would soon be hit by overwhelming Russian forces. Even retreat was impossible without some kind of diversion to slow the Soviet pursuit. He ordered his cooks to prepare huge cauldrons of soup from the limited rations in the village. He put his bewildered troops to wrapping up boxes with paper and string and scattering them around the town. Then he disposed his men for swift retreat. As the Russian troops — always poor and often hungry — burst into the village, they were distracted by the smell of soup and the sight of alluring packages. Their discipline collapsed. As they fell to eating and looting, the Germans used the brief distraction to escape....

The Chinese Communist battalion was fresh, well supplied and well-entrenched on a hilltop. Envisioning a bloody assault, the American commander called for loudspeakers instead. But instead of simply demanding surrender, he told the Chinese he would lay down smoke on the hilltop so that they could safely escape their comrades. The first smoke netted only a couple of takers. But continued broadcasts, combined perhaps with frantic threats from the Red commander, wore the Chinese morale down. The second smoke barrage brought more defectors. The Chinese were now so demoralized that the unit surrendered en masse, without a fight, before the next smoke barrage was fired....

What do all these true incidents have in common? The answer is "imagination."

Faced with a military crisis, somebody exercised extraordinary imagination — what experts call "break-out thinking" — to devise a solution lying totally outside the normal range of military procedures.

Most of these actions yielded a tremendous "return on investment." That is, they produced spectacular military results at a very low cost in military resources (including not only troops and equipment, but also the most precious military resource of all — time). It is also noteworthy that most minimized bloodshed on both sides.

For our purpose, the most important thing is that, in most cases, the application of imagination allowed small forces to achieve significant successes, even complete strategic victory, against overwhelming odds.

For an army facing the need to "fight outnumbered and win," these are intriguing precedents. And there are hundreds of other such precedents, from Alexander the Great's use of a big military parade to lure curious barbarians within range for a surprise assault, through Free French General LeClerc's replay of the Belisarius stunt against an Italian desert fort, up to Egypt's use of water hoses to penetrate the Suez Canal sand ramparts in 1973.

Such examples suggest that our outnumbered forces can, even without technological dominance or adequate equipment, achieve our objectives if we apply sufficient strategic and tactical imagination.

Unfortunately, despite Americans' traditional ingenuity and pride in individualistic innovation, we still do not develop and exploit the potential of our imagination as systematically and consciously as we should in the military.

As leaders, we too often treat doctrinal manuals as rigid rulebooks, despite official emphasis on flexibility and initiative. Subordinates who stray too far from prescribed doctrines are still more likely to receive criticism than medals.

As individuals, we are so overwhelmed with the administrative and technical demands of modern military life that we don't have the time or inclination for the independent reading that would expose us to the wider world of military imagination.

The price for failing to overcome these problems could be high.

---

### **"...We must not be afraid to pick thinkers, and even dreamers for key positions..."**

---

In interviews following World War II, German generals observed that it was easy to predict what the Americans would do, because we invariably used the "school solution."

We could afford that in World War II, because of German weakness and our stupendous numerical and industrial superiority. Against the Warsaw Pact, we cannot afford the luxury of being predictable.

We simply must find ways to foster, develop and exploit military imagination — the ultimate force multiplier, the only one that no misfortunes of circumstance, budget limits, etc., can take from us.

Imagination cannot be manufactured, but it is a fairly common natural resource which can be discovered, nurtured and used. We can select for it, encourage its development, foster it and exploit it.

As personnel administrators (and anyone who writes an officer or enlisted evaluation is an "administrator"), we must help the Army identify people with high levels of innovative, imaginative qualities so that these people can be selected for leadership training and key staff roles. We must look for imagination in our subordinates and consider that quality heavily in nominating individuals for promotion, troop leadership, staff planning posts, leadership schools, etc.

We must not be afraid to pick thinkers and even dreamers for key positions. There is a story about an efficiency expert who criticized a worker for having his feet on his desk and his eyes closed. The boss retorted that the man once came up with an idea that saved the company several million dollars and added, "If I'm not mistaken, he was sitting just like that when he did it."

IBM actually pays certain key innovators to do nothing but sit around and think. The company's success makes it clear that such is a far from foolish procedure. The military need not go quite that far, but we must start heading in that direction.

We must reward creativity. We must place a higher premium on imagination in evaluating, promoting,

assigning and conferring awards on our people.

As individuals, all of us must develop our own imaginative capacities by familiarizing ourselves with precedents, i.e., by wide and deep reading of military history. Such reading seems to be less common in the U.S. military than it once was, perhaps because of the new emphasis on technological expertise and the excruciating time demands of military service today.

The Army's new Military Qualification Standards program for officers includes some mandatory reading, and that is a step in the right direction. However, the reading list is short; the program does not affect enlisted soldiers, and, in any case, mandatory readings are no substitute for energetic, self-motivated study.

Individually, we must understand the need for such reading and simply force ourselves to do it. Leaders must encourage their subordinates by suggesting readings and even providing duty time for supervised study. Trainers must reorient their thinking and training plans to put more stress on historical experience. No rank is too low to benefit from such study.

Perhaps the military's formal schools can and should create new courses and/or modify existing ones to meet this need. But even if they don't, we can all do so ourselves within our own areas of authority.

There is already a treasure trove of imagination among military people. While we take the above steps to identify, expand, and encourage that resource, we can also reap vast benefits by better exploiting what we already have.

For example, we can make the suggestion program more useful by being more willing to use it (for combat-related as well as administrative ideas), by following up unjustified rejections more persistently and energetically, and by being more open to new ideas when we are selected as evaluators.

We can all exploit the imagination of our comrades and subordinates more eagerly and systematically. Ideas should be solicited from all ranks and sections of a unit, without regard to specialty. We may be shocked to find the cook has one of the best tactical minds in the outfit.

Staff agencies and units should use the "brainstorming" method more, (i.e., sitting down in informal settings to hash out problems without rules or limits on

how wild an idea can be). Only by considering the wild ideas can one come up with true "break-out thinking." As Hitler once noted in one of his shrewd moments: "I promise you, gentlemen, that the impossible is always successful; the most unlikely thing is the surest."

That is hyperbole, of course. But there is an important core of truth in that remark. History abounds with the evidence.

Certainly no conservative thinker would have dreamed of using soup to thwart a Soviet attack! Brainstorming can be used even on the battlefield. Even a five-minute lull in a foxhole or jeep can provide an opportunity for thought and discussion in a unit that is accustomed to using thought and discussion to win battles.

In conclusion, whatever methods we use to assure a steady supply of military imagination (and that is itself open to imaginative development), imagination is clearly a priceless commodity that can vastly enhance our combat effectiveness. The American is well positioned to use that commodity, but we are not yet taking full advantage of it.

Our strategy and tactics must not be limited to textbook solutions. We must summon up restless imaginations, scan the whole spectrum of human nature, and discover novel ways to exploit our foes' vulnerabilities — without undue regard to precedent, tradition, or doctrine. We must not blindly butt our heads against unyielding realities just because that's the traditional way.

Managing war should be a creative process, a studio for artists rather than a workshop for mere technicians. Like building bridges, fighting wars is an individualized challenge. Each situation presents unique problems and requires unique solutions, even though the underlying principles are universal. There are no cookie-cutters, no doctrinaire solutions from subcourse booklets or *oplan* binders.

Once the bullets fly, as the elder von Moltke noted, the plans of attacker and defender alike almost always go by the boards. The winner then is the side that cuts its imagination loose, dreams the impossible dream, and has the nerve to pursue it to reality.

HARRY F. NOYES, III  
Captain, USAR  
FRG

### Recognition Quiz Answers

1. **AH-64A Apache (U.S.).** Crew, 2; maximum takeoff weight, 8,006 kg (17,650 lb); maximum speed, 162 knots; maximum range (no external tanks) 689km; armament, 1 x M230A1 Hughes 30-mm Chain Gun, 16 Hellfire AT missiles or 76 x 2.75-inch rockets.

2. **M48A1 MBT (U.S.).** Crew, 4; combat weight, 47,173 kg (52 tons); maximum road speed, 41.8 km/h; maximum range (w/o external tanks) 113 km; armament, 1 x 90-mm main gun, 1 x 7.62-mm coaxial machinegun, 1 x 12.7-mm AA machinegun; maximum armor, 101/120-mm.

3. **A-10 Thunderbolt II (Warthog) (U.S.).** Crew, 1; maximum takeoff weight, 22,680 kg (50,000 lbs); maximum speed, 381 knots; operational radius (in deep strike configuration) 1,000 km; armament, 1 x GE GAU-8/A 30-mm 7-barrel cannon, wide range of missiles and bombs.

4. **T-62 MBT (U.S.S.R.).** Crew, 4; combat weight, 40,000 kg (45 tons); maximum road speed, 50 km/h; maximum road range, 450 km; armament, 1 x 115-mm main gun, 1 x 7.62-mm coaxial machinegun, 1 x 12.7-mm AA machinegun; maximum armor, 100-mm at 60 degree slope.

5. **UH-60A Blackhawk (U.S.).** Crew, 3, plus 11 troops or cargo; cargo lift capacity (external sling) 3,630 kg (8,000 lbs); air transportable in C5, C-130 or C-141 aircraft; external armament, stores, and/or fuel pods; maximum range, 2,220 km; power, 2 x 1,560 shp GE turboshaft engines; maximum takeoff weight, 7,375 kg (16,260 lbs); maximum speed, 160 knots.

6. **152-mm SP Gun Howitzer (U.S.S.R.).** Crew, 6; combat weight, 23,000 kg (25 tons); maximum road speed, 55 km/h; maximum range, 300 km; armament, 1 x 152.4-mm main gun, 1 x 7.62-mm AA machinegun.

# NOMINAL REVIEW

## Regimental System Expanded

Armor and cavalry soldiers can now become affiliated with one of the 27 armor and cavalry regiments of the Army's Regimental System, said Brigadier General Leslie E. Beavers, Director of Personnel Plans and Systems, Office of the Deputy Chief of Staff, Personnel, Department of the Army.

"The Regimental System will benefit both soldiers and the Army," General Beavers said. "Soldiers will have the opportunity for long-term identification with a unit. They will have the potential for recurring assignments. They can also more directly participate in the history, customs, and traditions of the U.S. Army," he added.

At present, the Regimental System includes only the combat arms regiments within the Army. General Beavers said, however, that "Phase II of the system will affect every soldier in the Army, whether he is combat arms, combat support, or combat service support." Plans to identify regiments for the combat support and service support soldiers are expected to be finalized by the end of fiscal year 1986, the general noted.

Combat arms soldiers can sign up now for their regiment of choice even though only 27 of the more than 160 regiments will be implemented by the end of fiscal year 1986. Soldiers can change their affiliation at any time, and there will be no limitation on the number of soldiers who can sign up for a specific regiment, said General John A. Wickham, Jr., Chief of Staff. However, warned General Beavers, signing up for a particular regiment does not guarantee an assignment to that regiment. In addition to soldier morale, the Regimental System will enhance unit readiness while allowing the Army to stabilize force structure and modernization changes.

The Regimental System was introduced in 1983 to enhance combat effectiveness and strengthen a unit's cohesion and *esprit de corps*. Teams from the U.S. Army Military Personnel Center will be visiting major installations soon with instructions and information explaining the program.

Following is the list of armor and cavalry regiments scheduled to be included in the Regimental System along with their U.S. and overseas locations:

8th Armored Cav	Ft Hood, TX	Germany
32d Armored	Ft Hood, TX	Germany
33d Armored	Ft Irwin, CA	None
34th Armored	Ft Riley, KS	Germany
35th Armored	Ft Carson, CO	Germany
	Ft Polk, LA	
37th Armored	Ft Riley, KS	Germany
40th Armored	None	Berlin
63d Armored	Ft Irwin, CA	None
64th Armored	Ft Stewart, GA	Germany
66th Armored	Ft Hood, TX	Germany
67th Armored	Ft Hood, TX	Germany
68th Armored	Ft Carson, CO	Germany
69th Armored	Ft Benning, GA	Germany
	Ft Stewart, GA	
70th Armored	Ft Polk, LA	Germany
72d Armored	None	Korea
73d Armored	Ft Bragg, NC	None



## Non-Smoking May Be Harmful to Your Health

The Army's newest smoke generating unit, the M1059, is shown during final tests pouring out its obscuring smoke. Based on the M113A2 armored personnel carrier, the new vehicle is scheduled for fielding in late 1986, according to the Chemical Research and Development Center, Aberdeen Proving Ground, MD. The three-man crew operates the smoke-generating equipment while under armor protection and can lay down a continuous screen for an hour without refueling. A total of 195 of the new vehicles will be produced.

77th Armored	Ft Carson, CO	Germany
5th Cavalry	Ft Hood, TX	Germany
6th Cavalry (Avn)	Ft Hood, TX	Germany
9th Cavalry (Avn)	Ft Lewis, WA	Hawaii, Alaska
	Ft Ord, CA	
17th Cavalry (Avn)	Ft Bragg, NC	Korea
	Ft Campbell, KY	
	Ft Drum, NY	
1st Cavalry	Ft Hood, TX	Germany
	Ft Polk, LA	
10th Cav/2d ACR	Ft Knox, KY	Germany
3d/11th ACR	Ft Bliss, TX	Germany
4th Cavalry	Ft Riley, KS	Germany
	Ft Stewart, GA	
	Ft Benning, GA	
7th Cavalry	Ft Hood, TX	Germany
	Ft Carson, CO	
12th Cavalry	Ft Knox, KY	None

Futher details on existing and planned Regimental units and their locations can be obtained from local military personnel offices.

## Georgia Guard Gets M1s

The first 11 of 60 M1 main battle tanks to replace the M60A3 tanks now being used by the 1st Battalion, 108th Armor, Georgia Army National Guard, were delivered recently. The Georgia Guard unit is one of four reserve component units scheduled to receive the M1 Abrams tanks. The other units are the 2d Battalion, 252d Armor of North Carolina, the first unit to receive the M1s, and the 1st and 2d Battalions, 198th Armor of Mississippi.

### Civil War Era Books Presented to 68th Armor

Several boxes of Civil War-era books, once the property of the late Brevet Brigadier General John P.S. Gobin, a Union Army officer, were recently presented to the 3d Battalion, 68th Armor by the general's great-grandson, retired judge William Gobin.

Members of the 3d Battalion and dignitaries from Rocky Ford, Colorado, were present at the ceremony. The 3d Battalion is Rocky Ford's 'adopted' unit.

Captain Jay Morrison, adjutant, has contacted book historians and the Air Force Academy to have them evaluate the books from a historical standpoint. Eventually, the books will be preserved at the Military History Institute at Carlisle Barracks, PA.

---

### M1A1's NBC Equipment Under Test

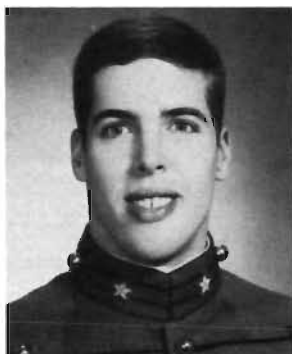
National Technical Systems (NTS) of Calabasas, CA, has been awarded a contract by the Land Systems Division of General Dynamics of Detroit, MI, to perform initial production testing of the M1A1's NBC systems that are designed to protect the crew against possible nuclear, biological, and chemical contaminants, according to Jack Lin, president and chief executive officer of NTS.

The company is currently completing a separate contract for the testing of the new tank's circuit board system, Lin said.

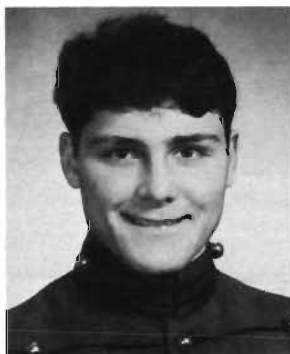
"The NBC system serves as a ventilation system for the tank crew," he said, "recirculating the ambient air and protecting the crew against contaminants."

"Our testing program calls for subjecting the system to a variety of environmental, climatic and dynamic tests, including humidity, salt/fog, steam, shock, vibration and a number of fluids and chemicals," Lin added.

The tests are scheduled to run for several months.



2LT GRAMMEL



2LT TURNS

### Two Cadets Wins Cavalry Sabers

Cadet (2LT) Calvin Turns and Cadet (2LT) Timothy Grammel, commissioned in armor this year on graduation from the United States Military Academy, have been awarded the U.S. Armor Association's cavalry sabers.

Turns excelled in academics, graduating fifth in his class from the USMA. Following Armor Officer Basic, LT Turns will join the 2d Infantry Division in Korea.

Grammel, who won the saber for demonstrated excellence in leadership, graduated 23d in his class and was a distinguished cadet, placing in the top 5 percent of his class for four years. Following Armor Officer Basic, he will join the 1st Squadron, 10th Cavalry, 4th Infantry Division.

The Association's saber award has been a tradition for 53 years.

### Armor Rotations Set for 1986

Two armor battalions from Fort Hood, TX, will rotate to Germany in June and July, 1986, and will be replaced by two battalions now stationed in that country.

The 2d Battalion, 5th Cavalry, 1st Cavalry Division and the 1st Battalion, 41st Infantry Battalion, 2d Armored Division will leave Texas for Germany as part of the Army's battalion rotation program under the COHORT concept.

Two battalions now in Germany, the 3d Battalion, 41st Infantry, 2d Armored Division-Forward and the 2d Battalion, 33d Armor, 3d Armored Division, will return to Fort Hood.

Each move will involve about 1,150 soldiers and 900 family members with advance parties arriving and departing in April.

In addition to the Fort Hood unit moves, two other U.S.-based units will also rotate to Europe to replace battalions returning to the U.S. This will be the largest movement of units between the U.S. and Europe since 1975-76 when the Army deployed two brigades to Germany from Fort Hood and Fort Carson, CO.

---

### Israeli Reactive Armor Studied

Reactive armor, the newest and most innovative system in tank armor and developed by the Israeli forces, is under study in the U.S., according to the Army's Automotive and Tank Command at Warren, MI.

The specialized add-on armor comes in various shapes and sizes. It is attached to the normal tank armor and provides a greater protection against antitank rockets such as the Soviet RPG-7. The reactive armor contains an explosive charge that bursts outward when struck by an AT missile, disrupting the missile's shaped-charge jet designed to penetrate the armor.

Reactive armor was tested under fire during Israeli's invasion of Lebanon and was said to be a big success. The U.S. Marine Corps began a series of tests on an Israeli-made reactive armor named Blazer as an add-on armor for its current tanks.

After a briefing on the reactive armor, U.S. Army officials have decided to develop their own reactive armor. Frank Gault, a spokesman for the Automotive and Tank Command, said, "We are familiar with it, and aware of its potential applications."

---

### M1A1 Abrams Rolling Off the Line

The up-armored and up-gunned M1A1 Abrams main battle tank is now under full production at the Detroit Arsenal Tank Plant at Warren, Michigan.

With more turret armor, the German Rheinmetall M-256 120-mm smoothbore cannon, and an NBC crew protection system, the M1A1 weighs in at 63 tons. The main gun, made at the Watervliet Arsenal, N.Y., is the same as used on the German Leopard II. Both guns will fire the same ammunition made with a combustible case.

An upgraded final drive and transmission, a wrap-around stowage rack on the turret, and a new ammunition storage and feed system for the coaxial machinegun are also on the new tank.

The initial run of production tanks will go to Aberdeen Proving Ground, MD, the Armor School at Fort Knox, KY, and the Ordnance School at Aberdeen for extensive testing. Combat units in Germany and the U.S. won't receive the new tank until early next year.

## A Study Guide on the Arab-Israeli Wars

One of the most exasperating problems of studying military history is that of *finding sources*. Even when books, manuscripts, and articles are available, it is difficult to determine *which ones* will serve your needs. This search is important, however, if we, as officers, are to prepare ourselves effectively to lead soldiers in combat.

The Arab-Israeli conflicts of this century are a fascinating study in modern warfare, replete with lessons waiting to be learned. Inasmuch as I have not located a satisfactory general bibliography to use as a start point for studying the subject, I have compiled one which follows, based on my research and the generous assistance of a few others. Hopefully, it will aid you in your efforts to win the next war.

### Surveys

In general, the Israelis are much easier to study, in terms of sources available, than the Arabs, particularly with regard to their military institutions. Edward Luttwak and Dan Horowitz have produced a very insightful analysis of the Israeli Defense Forces in *The Israeli Army* (New York: Harper and Row, 1975). Yigal Allon's *The Making of Israel's Army* (New York: Universe Books, 1970) is less objective, but it reveals some interesting aspects of the

dramatic transformation of an *ad hoc* militia into a powerful Israeli army. Gunther Rothenburg, in *The Anatomy of the Israeli Army* (New York: Hippocrene Books, 1979), does a good job of summarizing the evolution of the IDF, but he does so at the expense of detailed analysis. Zeev Schiff's *A History of the Israeli Army, 1874-1974* (New York: Simon and Schuster, 1974) is a well-written account which adequately supplements any of the previously mentioned works.

A good account of the Jordanian Army, circa 1948-1956, is General Sir John Glubb's memoir *A Soldier with the Arabs* (London: Hodder and Stoughton, 1957), and he has produced an interesting overview of earlier Arab military activities in *War in the Desert* (New York: W.W. Norton and Co., 1960).

Studies of the Arab-Israeli Wars tend to be grouped within periods of specific conflicts; however, these are some good surveys available. Chaim Herzog's *The Arab-Israeli Wars* (New York: Vintage Books, 1982) is an excellent operations study of the wars from 1947-1982, despite the author's Israeli citizenship. J. Bowyer Bell covers the wars up to and including the 1967 war with clarity and an impressive list of sources in *The Long War: Israel and the Arabs Since 1946* (Englewood Cliffs:

Prentice-Hall, 1969). A.J. Barker devotes more attention to politics than Bell or Herzog in his *Arab-Israeli Wars* (London: Ian Allen, Ltd., 1980). *Evasive Victory* (New York: Harper and Row, 1978) is an action-packed account of the wars, particularly since 1956, by Colonel Trevor Dupuy.

### The 1948 War

The War for Independence (as the Israelis call it) is the war with the fewest sources; yet, it is a fascinating conflict with an amazing outcome. For the most part, it is covered in the surveys listed above or in chapters of biographies written about some of the major participants. Glubb's *A Soldier with the Arabs* describes the role played by the Arab Legion in the '48 War. Menachim Begin's *Revolt: The Story of the Irgun* (London: Weidenfeld and Nicolson, 1951), is a passionate history of one of the important forerunners of the IDF and the role the Irgun played in the war. The best work available is *The Edge of the Sword: Israel's War of Independence, 1947-1949* (New York: Putnam, 1961) by Netanel Lorch, but Edgar O'Ballance has also written an excellent book (among his many fine works in this field), *The Arab-Israeli War: 1948* (London: Faber & Faber, 1956). One of the finest soldiers to serve in the Middle East for any army was Colonel Richard Meinertzhagen, British Army, and his *Middle East Diary, 1917-1956* (New York: Norton, 1960) is an outstanding memoir (although the book may be hard to find). The most famous American to serve in the 1948 war has been remembered by Ted Berkman in *Cast a Giant Shadow: The Story of Mickey Marcus, Who Died to Save Jerusalem* (New York: Doubleday Company, 1962).

The Palestinian experience in the 1948 War is covered in several sources, most notably I.A. Lughod (ed.), *The Transformation of Palestine* (Evanston: University of Illinois Press, 1971) and David Hirst's *The Gun and the Olive Branch* (London: Faber and Faber, 1984). R. Sayigh's *The Palestinians: From Peasants to Revolutionaries* (London: Zed Publications, 1979) has a good discussion of tactics and logistics, as well as excellent critiques of other studies on this conflict.

### The Sinai Campaign of 1956

Despite the enduring political controversy that has existed since the Sevres Agreement fostered war in 1956, several operational histories have been written that avoid being excessively slanted. Moshe Dayan is remarkably candid in his *Diary of the Sinai Campaign* (New York: Harper and Row, 1966), and O'Ballance has produced another good history with his *The Sinai Campaign 1956* (London:

### THE RED ARMY ORDER OF BATTLE IN THE GREAT PATRIOTIC WAR, by Robert G. Poirier and Albert Z. Conner. Presidio Press, CA, 1985. 408 pages. \$22.50.

Based on historical archives of Nazi Germany, the U.S., Great Britain, and the Soviet Union, this book fills a long-standing need for readers and students of Soviet military history and WW II. It provides a wealth of information on the organization and composition of the Soviet Army during its struggle against the German invaders, a period known in the Soviet Union as the Great Patriotic War. Here, for the first time, the student or researcher has available, in a single volume, numerical references describing the combat and historical trace of armies, corps, and divisions of the Red Army. The authors provide data dealing with the awards and honors, battle records, composition, origin, and subordination for each unit. Particularly interesting are the chapters dealing with rifle division activations and the formation of Guards divisions. The reader realizes the immensity of the Soviet Army during the war as he encounters tables illustrating the activation of 724 divisions raised from 1941 to 1945. Of these, 215 were designated Guards Divisions.

The authors intended this work to be the first of a series which would be updated every three to five years to incorporate new information. They recognize that errors in a work of this nature are unavoidable, considering the large number of sources used and the difficulties of verifying and resolving conflicting information, and they solicit assistance from all readers.

Already eagerly looking forward to the first update, this reader was disheartened to note that neither footnotes nor a comprehensive bibliography were included in this work. While true that some entries have source abbreviations annotated in a general sense, this is simply not enough information for the researcher to verify or expand upon information provided about a particular unit, leaving him at the mercy of the authors. We hope this deficiency is corrected prior to the publication of the next volume.

Nonetheless, *Red Army Order of Battle* is a superb work of historical research that will be highly valued for its usefulness by students of military history and the Soviet Union. It is well worth the investment of its price.

GILBERTO VILLAHERMOSA  
Captain, Armor  
HQ, XVIII Airborne Corps



Faber & Faber, 1959). S.L.A. Marshall's *Sinai Victory* (New York: W. Morrow and Company, 1958) highlights the small unit actions that took place in very colorful fashion. One of the better chronicles is the narrative by General A. Beaufre, *The Suez Expedition 1956* (New York: Praeger, 1969), wherein the French commander during Operation *Musketeer* describes the problems he faced in performing a very limited operation.

K. Love, in *Suez: The Twice Fought War* (New York: McGraw-Hill, 1969) covers the diplomatic maneuvering as well as the combat operations with balance and clarity. A similar discussion, though not as extensive, is that provided by J. Khouri in *The Arab-Israeli Dilemma* (Ithaca: Syracuse University Press, 1968). An updated version of the Khouri book, to include the recent wars, should be published in September, 1985.

### The Six Day War, 1967

Standing as one of the most stunning military victories in history, the IDF triumph in the Six Day War has been analyzed by both soldiers and historians, with the results being the writing of several outstanding books. *The Six Day War* (Boston: Houghton Mifflin, 1967) is a very readable account, written by Randolph and Winston Churchill. Teveth's *The Tanks of Tammuz* (New York: Viking Press, 1969) vividly describes the great tank battles in the desert. General Uzi Narkiss tells his story of the bitter fight for Jerusalem in *The Liberation of Jerusalem* (Totowa: Valantine, Mitchell and Co. 1983), and Robert Moskin's *Among Lions* (New York: Ballantine Books, 1983) is an exciting account as well. King Hussein's version of the conflict has been translated into English by J.P. Wilson and W.B. Michaels, thus *My 'War' With Israel* (New York: Morrow, 1969) is a valuable insight into the Arab confusion and deception that existed in the "Alliance" of June, 1967. Walter Laquer's *The Road to Jerusalem* (New York: Macmillan, 1968) is an interesting account written by a keen historian, but it is not as comprehensive or balanced as Kimche and Bawley's fine book, *The Sandstorm* (New York: Stein and Day, 1968). One of the best features of *The Sandstorm* is its reliance on both Arab and Israeli sources, as the authors develop the thesis that *El Fatah* bears much of the responsibility for that war. A final area of interest in the 1967 War is the still mysterious attack on the U.S.S. *Liberty* by the IDF on 8 June. James Ennes' *Assault on the Liberty* (New York: Random House, 1979) is a powerful story, written by an officer on duty that fateful day.

The War of Attrition, 1968-1970, is adequately covered by Yaacov Bar-Simon-Tov's *The Israeli-Egyptian War of Attrition, 1969-1970* (New York: Columbia, 1970). This is a very balanced version of a bloody period in Israeli-Arab relations. The survey works mentioned earlier also cover this conflict to a reasonable extent.

### The 1973 War

The October War pitted sophisticated armies against one another in a conventional environment, thus being an extremely important case study for all officers. United States Army doctrine was revised in 1976, in no small part due to the lessons we perceived to be evident in the fall of 1973. Fortunately, there are both Arab and Israeli accounts of the war, principally because both sides claim victory. Scholars in Europe and the United States have produced some excellent books as well. From the soldier accounts, Adan's *On the Banks of the Suez* (San Francisco: Presidio Press, 1980) is a moving story of courage and confusion, along with an only barely veiled indictment of IDF generals Gonen and Sharon. Similarly, General Saad Shazly casts some ominous shadows over the performance of General Ismail, and even President Sadat, while telling of Egyptian triumph and failure in *The Crossing of the Suez* (San Francisco: American Mideast Research, 1980). A more conventional view of the Egyptian performance is provided by Hassan el Badri and two other generals in *The Ramadan War* (New York: Hippocrene Books, 1977). One other notable work by a participant is General Avigdor Kahalani's *The Heights of Courage: A Tank Leader's War on the Golan* (Westport: Greenwood Press, 1984). Unlike the other books, Kahalani sticks to the fighting in a vivid portrayal of the desperate battles between Israel and Syria on the Golan Heights. He is one of the very few Israeli soldiers to win their equivalent of the Congressional Medal of Honor.

Books from other writers include some valuable works, such as *No Victor, No Vanquished* (San Rafael: Presidio Press, 1978) by Edgar O'Ballance, and *War of Atonement* by Chaim Herzog (Boston: Little, Brown, 1974). A view highly critical of Israeli preparedness and response in the London *Sunday Times* Insight Team's *The Yom Kippur War* (Garden City: Doubleday and Company, 1974). Martin Van Creveld's book, *Military Lessons of the Yom Kippur War* (London: Sage Publications, 1975) is a very scholarly work by the same author whose *Supplying War* revolutionized many historical notions about logistics in war.

### The PLO and Lebanon

The Palestine Liberation Organization has been an acknowledged threat to Israel's security since its early days as a loosely organized terrorist group operating out of the Gaza Strip in the 1950s. Unfortunately, there have been few books which deal with Israel's war against the

PLO that are not biased beyond reach of the truth. Edgar O'Ballance, in *Arab Guerrilla Power* (Hamden: Shoestring Press, 1973), and Raphael Rothstein and Zeev Schiff in *Fedayeen: Guerrillas Against Israel* (New York: McKay Company, 1972) accuse the Arabs of fighting unethically against Israel; however, O'Ballance's work is an excellent historical overview of the problem.

### War in Lebanon

The Lebanon War of 1982-1985 has been the object of several books, but few of them have merit. Lack of information is a major drawback, yet Peter Gabriel's *Operation Peace for Galilee* (New York: Hill and Wang, 1984) provides officers with an operational study of substance. A broader scope of analysis is that provided by Itmar Rabinovitch in *The War for Lebanon 1970-1983* (Ithaca: Cornell University Press, 1984). Rabinovitch is relatively objective, and he describes the background of the 1982 invasion in clear fashion. Ariel Sharon's role in Lebanon is analyzed by E. Ya'ari and L. Schiff in *Israel's Lebanon War* (New York: Simon and Schuster, 1984). Michael Jansen's *The Battle of Beirut* (London: Zed Press, 1982) focuses on urban warfare, and thus provides us with a valuable study on an aspect of modern warfare we do not study enough.

An interesting paper which describes the 1958 operations of U.S. forces in Lebanon is "Not War But Like War: The American Intervention in Lebanon," by Roger J. Spiller in *The Leavenworth Papers*, No. 3 (Fort Leavenworth, KS, January 1981). W. Khalidi also provides a solid analysis of pre-1978 conflict in Lebanon with his *Conflict and Violence in Lebanon* (Cambridge: Cambridge Press, 1978).

### Israeli Special Operations

In a related area of study, fighting terrorism beyond the confines of Palestine, the Entebbe operation is worth attention. Max Hastings, author of a wide range of military books, gives an exciting account of the raid in *Yoni: Hero of Entebbe* (London: Weidenfeld and Nicolson, 1979). E. Weizman's *On Eagle's Wings* (London: Weidenfeld and Nicolson, 1979) is another interesting narrative which describes the rescue that startled the world.

As most other authors of bibliographical essays have done, I will invoke the "escape clause" by stating that this is not a definitive bibliography. That was never my intention. I do stand by the books cited in the preceding paragraphs as works which have value for officers to study. They are relatively objective (which is no slight accomplishment in this field) and almost all of them are operational in focus. Good Hunting!

ROBERT W. MIXON  
Captain, Armor

# *Cav Esprit*

by CW3 E. Daniel Kingsley

*I am The Cav. I am the Division's eyes and the Corps' shield. I am on the cutting edge of the battlefield. Mine are not just soldiers; they are Cavalrymen.*

*My Cavalrymen are the embodiment of that which has made our nation great. They are black, brown, white, red, or some other variation of our ethnic heritage. They are well-educated or marginally literate. They are bachelors or married and may have a number of kids, dogs, cats, horses, or other assorted critters. They are crack shots and stealthy hunters or they can't tell the difference between a Holstein and a trophy buck. They drive shiny, new sports cars or old clunkers. The Cavalrymen are either wealthy or broke, depending on the mood they are in and the day you ask. But they are mine, and I'm proud of them. Ask them where they are from, and their quiet answer will be "the Cav."*

*The one thing all Cavalrymen have in common is Cavalry Spirit, and that spirit comes from sacrifice. In time of peace, that sacrifice takes the form of time away from family, training long hours in the cold, wet rain or in the hot, dry sand, and the frustration of many requirements but few resources. In time of war, that sacrifice is measured in the lives of my troopers who have paid the ultimate price for the information needed to obtain victory on the battlefield. From that sacrifice and selfless service comes my spirit and love.*

*"Love?" you must ask. Yes, love. When a young trooper's wife discovers that her husband has invited two or three buddies home for supper at the last minute, and she just smiles and says, "I'll throw another bone in the soup..." that's love. When the squadron's away, and a young, lonely, and very pregnant wife (who's away from her parents for the first time) awakes Christmas morning to find a tiny, toy blimp along with sweet-rolls and coffee on her doorstep (left there by another, but not-so-young, Cavalry wife), that's love. The love in the Cavalry Spirit is that which drives my troopers and their families to take care of each other. It is a love born on the western prairies and deserts of the 1800s and the love that is living today in the hearts of Cavalrymen and their loved ones all over the world.*

*Ask one of my troopers what he thinks of the Cav, and he will give you a dozen reasons to be in any other unit. Ask him where he wants to go, and he will say, "The Cav." He, and his family, have earned the right to complain and the right to prefer me, — for he and his family have paid the prices and made the sacrifices that have made me great. The Cavalryman and his family are my Spirit... They are The Cav.*

*Christmas especially bonds the hearts of Cavalrymen together with the subtle strings which only mutual sacrifice can weave. For many of my Cavalrymen, Christmas is the keystone of the year. It is a time to take a break, to exercise their faith, to take some time with the CAV Kids and to give thanks for all they are privileged to protect. They are mine.....and they are proud to be CAV!*

*Merry Christmas to Cavalrymen everywhere!*

**CW3 E. DANIEL KINGSLEY** graduated from flight school at the U.S. Army Aviation Center, Fort Rucker, AL, in 1975 and has served in units in CONUS and Germany. A graduate of the Warrant Officer Advanced Course and of the Aviation Safety Officer Course, he is now assigned as the assistant safety officer of 3d Squadron, 5th U.S. Cavalry, at Fort Lewis, WA. A past contributor to *ARMOR*, he has also written for other journals, including selection in 1983 for the *Aviation Digest* Article of the Year.

## **A Call for Articles**

*ARMOR: The Magazine of Mobile Warfare* began as *The Journal of the U.S. Cavalry Association* in 1888. Not forgetting our roots, the staff of *ARMOR* is calling for articles from the field on all aspects of Cavalry. If the response is strong enough to warrant it, we will dedicate a special issue in the coming year to Cavalry. So send your manuscripts to *ARMOR Magazine*, ATTN: ATSB-MAG, Fort Knox, Kentucky 40121-5210.



### Symbolism

The red and white divided shield represents the old cavalry guidon. Hard fighting in the Philippines is indicated by the crossed kris and kampilan of the Moro and Lake Lanao campaigns. In World War I, the regiment was in France in the vicinity of Bordeaux, and the golden lion is taken from the arms of that city.

The birthplace of the regiment is indicated by the crest. The Golden Gate as used here portrays "through the portals of the past." It was one of the few structures left standing after the fire of 1906 and was removed and re-erected in Golden Gate Park, San Francisco. The translation of the motto *All for One, One for All* is indicative of the spirit of the regiment.

### Distinctive Insignia

The distinctive insignia is the shield and motto of the coat of arms.

# 15th Cavalry

All for One, One for All

## Lineage and Honors

Constituted 2 February 1901 in the Regular Army as 15th Cavalry. Organized 12 February 1901 at Presidio of San Francisco, California. Assigned to 15th Cavalry Division December 1917 - 11 May 1918. Inactivated 18 October 1921 at Fort D. A. Russell, Wyoming. Activated 22 March 1942 at Fort Riley, Kansas, and redesignated as 15th Cavalry, Mechanized.

Regiment broken up 12 March 1944 and its elements reorganized and redesignated as Headquarters and Headquarters Troop, 15th Cavalry Group, Mechanized, and 15th and 17th Cavalry Reconnaissance Squadrons, Mechanized.

Headquarters and Headquarters Troop, 15th Cavalry Group, Mechanized, converted and redesignated 1 May 1946 as Headquarters and Headquarters Troop, 15th Constabulary Regiment, and assigned to the United States Constabulary. Reorganized and redesignated 2 February 1948 as Headquarters and Headquarters and Service Troop, 15th Constabulary Regiment. Inactivated 20 December 1948 at Fussen, Germany, and relieved from assignment to the United States Constabulary. Redesignated 23 October 1950 as Headquarters and Headquarters Company, 15th Armored Cavalry Group. Activated 15 November 1950 at Camp Polk, Louisiana. Redesignated 25 September 1953 as Headquarters and Headquarters Company, 15th Armor Group. Inactivated 1 December 1955 at Fort Knox, Kentucky.

15th Cavalry Reconnaissance Squadron, Mechanized (less Troop E) converted and redesignated 1 May 1946 as 15th Constabulary Squadron and assigned to 15th Constabulary Regiment. Inactivated 20 December 1948 at Fussen, Germany, and relieved from assignment to 15th Constabulary Regiment. Activated 20 May 1949 at Weiden, Germany, and assigned to the United States Constabulary. Inactivated 15 December 1952 at Weiden, Germany, and relieved from assignment to the United States Constabulary. Redesignated 13 August 1954 as 15th Reconnaissance Battalion.

Troop E, 15th Cavalry Reconnaissance Squadron, Mechanized, converted and redesignated 1 May 1946 as Light Tank Troop, 15th Constabulary Regiment. Inactivated 28 February 1947 in Germany. Disbanded 25 February 1953. Reconstituted and redesignated 14 August 1954 as Troop L, 15th Cavalry.

17th Cavalry Reconnaissance Squadron, Mechanized, inactivated 20 January 1947 in Germany. Squadron (less Company F) redesignated 1 September 1948 as 501st Reconnaissance Battalion. Activated 25 September 1948 at Fort Sill, Oklahoma. Inactivated 25 January 1949 at Fort Sill, Oklahoma.

Company F, 17th Cavalry Reconnaissance Squadron, Mechanized, redesignated 1 September 1948 as 550th Light Tank Company. Redesignated 19 March 1951 as 550th Tank Company. Activated 6 April 1951 at Fort Benning, Georgia. Inactivated 25 June 1958 at Fort Campbell, Kentucky. Redesignated 1 October 1958 as Troop F, 15th Cavalry.

Headquarters and Headquarters Company, 15th Armor Group; 15th and 501st Reconnaissance Battalions; and Troops F and L, 15th Cavalry, consolidated and redesignated 1 April 1957 - 1 May 1959 as elements of the 15th Cavalry, a parent regiment under the Combat Arms Regimental System (Headquarters and Headquarters Company, 15th Armor Group, redesignated 1 May 1959 as Headquarters and Headquarters Troop, 15th Cavalry). Redesignated 1 July 1963 as 15th Armor.

## Campaign Participation Credit

*Phillippine Insurrection*  
Mindanao  
Luzon 1902  
*World War I*  
Without inscription

*Vietnam*  
Consolidation II  
(Troop G)  
*World War II*  
Normandy  
Northern France  
Rhineland  
Central Europe

## Decorations

None