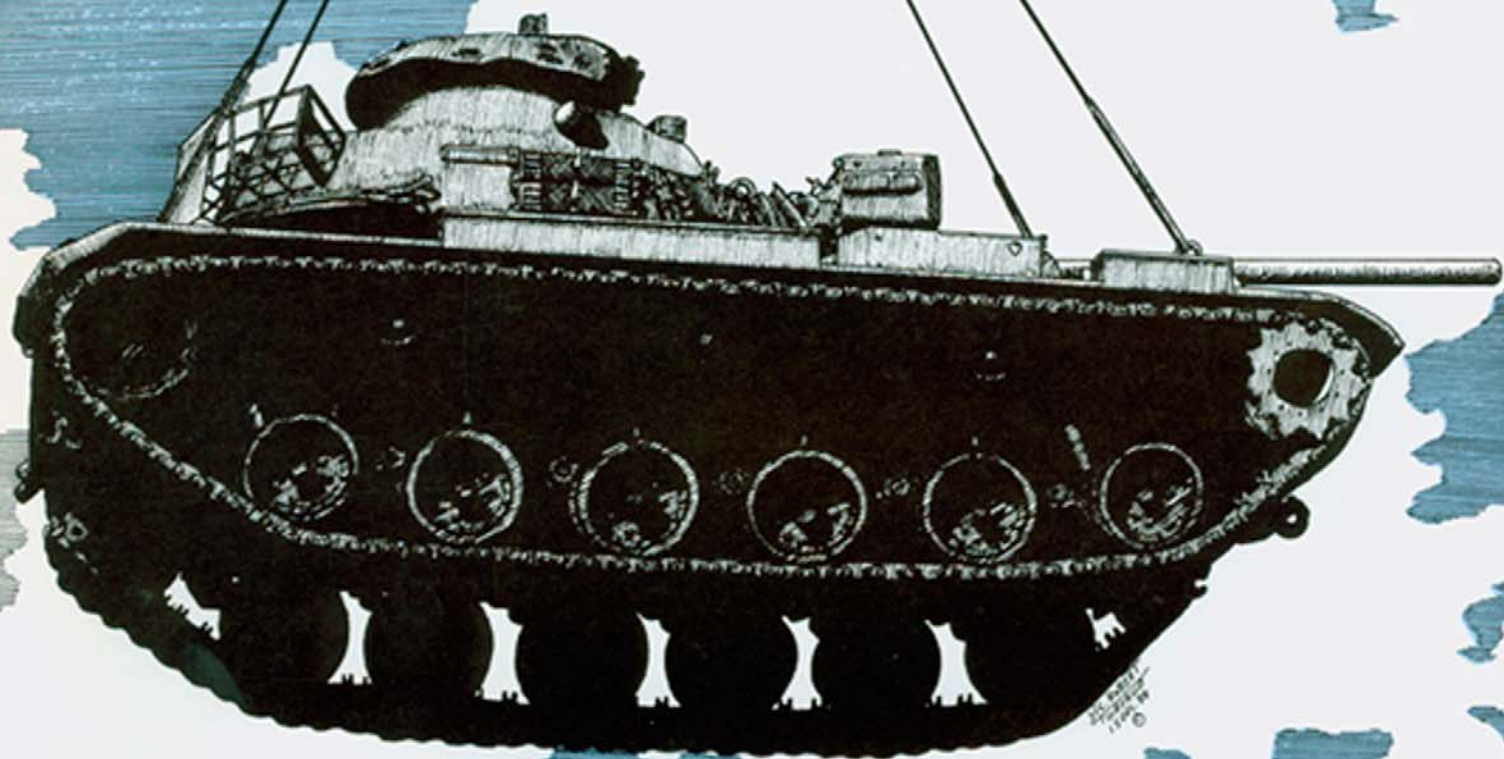


# ARMOR



**A Texas National Guard Unit  
Deploys to Central America see Page 8**



As we kick off 1989, the last year of this decade, it's fitting that we lead with a first-hand account of one of the only, if not the only, deployment of a U.S. armor unit to a real-world situation in the 1980s. 1LT Kevin J. Lilly describes his experience in taking his platoon from 6-112th Armor, 49th Armored Division, to the Honduran side of the Nicaraguan border in 1985. Read his story, "**A Texas National Guard Unit Deploys to Central America,**" with an ear toward all our discussions of a future "come-as-you-are war." This deployment, with M60 tanks, illustrates that theory better than any other scenario we have seen. These Texas guardsmen, who were surprised to find service ammunition loaded on their tanks, found themselves in potentially hot terrain, dominated by high ground, and devoid of friendly artillery or air support. As you read this eye opener, consider how far out on the limb this platoon really was.

1LT Kevin Keaveny stands atop his NTC observer/controller experience to provide a "how-to" lesson in preparation of platoon, tank, and individual defensive positions in "**Survivability and the Tank Platoon Defense.**" He shows how to apply knowledge of engineer capabilities against an evaluation of METT-T to get the highest degree of survivability for your engineering dollar. Lieutenant Keaveny wrote this article for the AOAC writing requirement.

The outbreak of World War II for the United States in the Far East came about two weeks after the Kentucky-grown 192nd Tank Battalion landed at Manila. Trained at Fort Knox in 1941, the battalion was the first tank unit to tangle with the Japanese. Fighting unsuitable tank terrain as well as the enemy, the 192nd participated and

distinguished itself in difficult rear guard and retrograde operations. Lew H. Wallace and James C. Claypool tell the story of the 192nd in "**Weaver's Warriors: The 192nd Tank Battalion in the Philippines.**"

In another response to the Soviet reactive armor bugaboo, author Richard K. Fickett suggests in "**Carrying the Torch for Soviet Reactive Armor**" that we go to a weapon perhaps as old as warfare itself — flame — as an inexpensive, time-tested solution to defeat this threat. Can we handle this new dog with an old trick?

Everyone knows that the Personnel Action Center is the place to take any form that needs to be completed or filed. But what about the wartime missions the PAC must perform? Do we train our PAC personnel like we train the rest? Captain Thomas D. Mayfield explains how to inject PAC wartime functions training into your training plan in "**Is Your Personnel Action Center Ready for War?**"

Synchronization, speed, and stealth were among the goals of the 1st Cavalry Division deployment and movement during "Certain Strike." In "**Moving a Heavy Division Under Radio Listening Silence,**" by Major Michael W. Everett, the author explains the challenges posed and met in moving the division more than 150 kilometers in darkness and under listening silence restrictions. This article is packed with lessons on refueling on the move, working with allies, organization, and teamwork. Both science and art are evident.

We at **Armor** wish all of you a prosperous and safe 1989. — PJC

By Order of the Secretary of the Army:  
CARL E. VUONO  
General, United States Army  
Chief of Staff

Official:  
WILLIAM J. MEEHAN II  
Brigadier General, United States Army  
The Adjutant General

# ARMOR

*The Professional Development Bulletin of the Armor Branch PB-17-89-1 (Test)*

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# LETTERS

## First VC Use of Armor

Dear Sir,  
Although the Battle of Ben Het, RVN, on 3 March 1969, was the first tank-vs-tank engagement of the Vietnam War, it was not the first use of enemy armor as noted in your Letters column in the Sept-Oct 1988 ARMOR, "An Unusual Book of Firsts..."

The first use of enemy armor occurred on 7 February 1968, at the Long Vei Special Forces camp near the USMC Khe

Sanh Combat Base in Quang Tri Province during the Tet Offensive. The North Vietnamese Army (NVA) attacked the camp with 11 Soviet-made PT-76 amphibious tanks and with approximately 400 dismounted infantrymen. Camp defenders killed an estimated 250 NVA soldiers and destroyed 9 tanks (7 confirmed and 2 probables) with LAWs, 106-mm recoilless rifles, USMC artillery, and USAF fighter-bombers in an impressive display of supporting arms fire.

Although the camp was overrun, the battle of Long Vei was probably the first use

of "combined arms warfare" in the truest sense of the phrase in that the NVA losses forced the enemy to change his strategic goals in midstream; instead of turning Khe Sanh into an American Dien Bien Phu (NVA attackers on the Khe Sanh plateau outnumbered defenders 7:1), NVA General Vo Nguyen Giap sidestepped Khe Sanh and attacked Hue in greater force than he had originally planned.

DAVID B. STOCKWELL  
Captain, Armor,  
Fort Knox, KY

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## Combat Essential

Dear Sir,

I read with interest Captain A.F. DeMario's article, "When Will We Ever Learn?" in the September-October 1988 ARMOR. I have been studying military operations on urbanized terrain (MOUT), for a number of years and have seldom read such a cogent analysis of the requirements for fighting on urbanized terrain in Europe.

Captain DeMario's arguments, if expanded, could be made to include combat in just about any portion of today's world. The rise in the number of megalopolises in the developing countries of the world ensures that urban combat would take place in all but the smallest countries. As these countries become more industrialized, their cities become an even more politico-military objective.

An analysis of the large building complexes in the newer portions of cities throughout the world makes Captain DeMario's complaint about the low number of dismountable infantry in our heavy divisions even more critical. This will severely impact their ability to survive in such an environment. As he pointed out, modern combat operations will be impossible without entering urban environments.

The counter-argument is that this is why we have formed the increased number of light divisions. Their mission profile is ideal for MOUT situations. Anyone who believes that this is the solution to fighting in cities should read Major House's article, "Armor Takes Cologne" in the same issue of ARMOR. Every combat arms unit should be able to conduct MOUT because it will be an integral part of any future battlefield.

One last comment. Captain DeMario compares MOUT training to NBC training as being difficult to conduct. The situation is even more complicated due to the increased risk of chemical warfare in an urban environment. The large number of toxic chemicals used in modern industry make accidental, or incidental, chemical warfare a very real threat as I have noted in my article "Modern Chemical Warfare" in the October 1988 "Army Chemical Journal." This is something that must also be considered.

PATRICK J. COYLE  
Columbus, GA

## Checklists: Evaluations or Statistical Scores?

Dear Sir,

I would like to comment on the "Commander's Hatch" in the July-August issue of ARMOR. Specifically, I want to address

the thoughts on innovation and flexibility as they relate to our use of checklist evaluations and statistical ratings of mission accomplishment.

The man has been removed from the evaluation loop. The subjective evaluation has often been argued about and has been moved to the side in favor of the "cut and dried" ease of the statistical approach. We now train to checklist standards, and therefore, missions are standardized and ratable.

Years of experience have taught us that a task or mission will generally require a number of actions for successful completion. Those with the experience set these actions down on paper and created checklists for the aid and guidance of the inexperienced. To ensure full coverage of a subject, the lists are generally very complete and allow for many variations of the situation.

These checklists provide a quick reference device to ensure adequate planning of required actions. The mission requirements drive the planning, not the checklist. This flexibility not only fosters innovation but allows, even encourages, independent thought.

Enter the statistical "bean counter" mentality with its associated zeal for quantifying even the unquantifiable. In the search to attach numerical ratings to everything, the once-helpful checklist has turned into a "GO, NO GO" gauntlet, statistically perfect in every way.

The resulting system now tells the young leader:

1. If you want to succeed, get good ratings.
2. If you want good ratings, do not receive any "NO GOs."
3. If you do not want any "NO GOs," you must follow the checklist.

There is no part of this scenario that encourages innovation. It would actually seem to stifle independent thought.

It is no wonder that Major General Tait has been told by our allies that "we are rigid" and lack our once famous flexibility.

Checklists are useful tools, and we need to use them as tools and not as goals. Mission accomplishment needs to regain its rightful place as the purpose of our actions.

Put the man back in the evaluation loop, create a positive environment for innovative thinking, and see if we can find those "dedicated, tough, smart, bold, audacious

risk-takers to carry us into the next century."

STEPHEN B. WHITE  
SFC, DCD,  
Fort Knox, KY

## "Five of Hearts" Battle Tank Memorialized

Dear Sir,

I thoroughly enjoyed "The Saga of the Five of Hearts," by MG William R. Kraft, Jr., in the July-August issue of ARMOR. The story of this remarkable tank and the equally remarkable men who manned it was carefully researched and well-written.

However, I would like to make one correction. The last paragraph begins, "This almost forgotten tank, sitting on a concrete pad adjacent to the Army Museum at Fort Meade, has no current armored unit sponsor to keep alive its history and significance."

The "Five of Hearts" is anything but forgotten. It has been a cherished part of this post since 1919, and was recently incorporated into the installation logo. The history and significance of the "Five of Hearts" is being kept alive at the Fort Meade Museum, and the tank is, in the truest sense of the word, "sponsored" by the entire installation.

ROBERT S. JOHNSON, Curator  
Fort George G. Meade Museum, MD

## Calibration vs Zeroing—Rebuttal

Dear Sir,

The article by CPT Mark Hefty on "Calibration-vs-Zeroing" (Sept-Oct '88 ARMOR) brought out some interesting points which I would like to comment on.

First of all, let me get a little nit-picky. When a doctrinal method of conducting an exercise, such as calibration, is quoted, the facts need to be correct or an explanation provided. The calibration ranges quoted by CPT Hefty are incorrect except the 1,500 meter range. The procedure of checking the fire control system after a miss at the first target is also incorrect. I suggest a review by the author of FM 17-12-3 to verify the current calibration policy.

I believe the captain could be quoting unit SOP procedures and actual ranges available at Fort Polk, not Army doctrine. I am also not familiar with an elevation actuating arm providing elevation readings. I'm sure the author meant to say the output unit.

Now let me comment on the main topic of the article. While it is generally thought that under certain conditions calibration may not be as accurate as zeroing, these certain conditions may not always exist.

Some of these conditions could be: Controlled lots of ammunition, accurate method of firing a zero exercise, accurate round plotting equipment or ability to physically measure round impacts, controlled firing environment, such as Table VIII, no concern for the performance of service ammunition, and no worry about war training as you will fight.

The calibration policy was to provide the unit with an overall assessment of the tank's fire control system (FCS). Because service ammunition cannot be fired in peacetime, passing the calibration policy with training ammunition implies to the unit that the service ammunition is also ready for war. By the same token, failure of the calibration policy by training ammunition could also imply a possible fault in the FCS which could affect the firing of service ammunition. The bottom line is zeroing out faults or shortcomings during the firing of training ammunition, which, by the way, may lead to a crew qualification and can hide errors in the FCS. The crew may not find these errors 'til they are facing the enemy. This would be a heck of a time to find out your FCS is not 100 percent and could possibly ruin your day.

My suggestion is: if crews are failing the calibration procedures, instead of zeroing, have the tank proofed to determine the status of their system. If crews are barely clipping the panels, time permitting, have them, along with the master gunners/maintenance support personnel, recheck their systems and the crew's actions.

The chances of being able to accurately zero before going to war and then zeroing periodically during war are very slim. The fact is, many of us may not make it through the first battle. We need to ensure that the posture of our FCS is 100 percent prior to going to war. This posture can be achieved by strict attention to detail and accurately executing the calibration policy. We need to train as we are going to fight.

WAKELAND K. KUAMOO  
SFC, US Army,  
Master Gunner

## Comments on Command Selection

Dear Sir,

The September-October 1988 issue of ARMOR is superb! That's no huge

surprise, since ARMOR has long been the pace-setter for professional journals.

Of special note are Major General Tait's comments on battalion command selection—notably his guidance in the last couple of paragraphs. Every aspiring major and lieutenant colonel should cut this out and put it under the glass top of his desk or in the back of his map case. MG Tait deserves a TARGET. TARGET sensing.

Experience had clearly shown that you have to want to serve with soldiers and often must fight to get there. There are too many "good," albeit easy, reasons to avoid that kind of duty because it's often high-stakes poker.

However, the real professional will want it and will aggressively seek it out. What we do as professionals isn't easy! Therefore, skills must be honed through continual exercise. I would dare say that those Armor majors who avoided the 1st Independent Cavalry Brigade of the 8th Imperial Division are on some high-level staff in the U.S. still trying to figure out why they weren't picked.

A.J. BERGERON  
Colonel, Armor  
Commanding, 3d Bde. 9th ID

## Team Battle Drills—"Hasty Breach"

Dear Sir,

Captain Ed Smith's examples of "Team Battle Drills" for translating doctrine into action as described in the September-October 1988 issue of ARMOR were very interesting and informative. Unfortunately, the "Hasty Breach" battle drill example raises serious issues with regard to the doctrine it supports, the materiel specified for implementation, and the time which would be consumed in effecting the breach.

The scenario described has the obstacle detected by the lead platoon, first and second vehicles turning right and left respectively to reconnoiter the obstacle, the dismounted infantry platoon leader clearing a footpath to establish far-side security and fire suppression, the remaining squad clearing and marking the lane to enable the assault platoon to advance and continue the mission. Sound good? Consider the following:

How does the lead platoon detect the obstacle? Since the breach is described in terms of clearing mines, I assume the obstacle encountered is a minefield. The

only minefield detector presently available to the armor team is the "smoking hull" technique. A standard 100-meter deep front will mean that approximately 1.2 mines will be expected to be encountered by the tracks of a tank traveling straight across the minefield. Unfortunately, the tank has about the same chance of encountering a mine in the last row of a minefield as in the first or second row. Therefore, when the lead tank detects a minefield by actuating (and becoming a casualty) a mine, the first and second following tanks may well be turning right and left respectively into and along the minefield. Not too good so far? Read on!

In the next step of this drill, the dismounted infantry platoon leader leads the far side security element through the obstacle by clearing a footpath using wire cutters and grappling hooks. While no discussion of what obstacle elements will be cleared by these tools, or how they will be employed ensued, the assumption is that the obstacle does not contain any buried antipersonnel (AP) mines, any area coverage, "bounding" frag AP mines, nor any antitank (AT) mines with a booby trap antisturbance device. Once on the far side, the security force must move up to two km in open terrain and under fire to achieve a position where enemy fire covering of the breach site can be effectively suppressed by the small arms and Dragons available.

The remaining squad-size force then performs a "hasty" breach. While the footpath breach provided by the far side security force could be as narrow as 0.75m wide (USMC criteria), a cleared lane for tank passage must be at least five meters wide (leaves approximately 1-1/2 feet on either side of the tank). Since there are no mine probes in the inventory, the breaching squad would presumably use the AN/PSS-11 Metallic Mine Detector for locating the mines.

Recent testing at Aberdeen Proving Ground, Md., has established a single lane (four-feet wide) sweep rate of advance for mine detection using the AN/PSS-11 as 0.299 km/hr (.18 mile/hr). At this rate of advance, the 100-meter minefield depth could be traversed (single pass) in approximately 21 minutes. To provide the minimal cleared path width of five meters, at least four sweeps are required. Add to this sweep time allocation the time required to explosively detonate or physically remove encountered mines (six may be expected to be found), and the total time of breach drastically increases.

Now, perform this task in an open area covered by enemy direct/indirect fire that

is hopefully being suppressed by a couple of infantry squads with small arms and a few Dragons. Again, presume that a simple minefield obstacle is being breached and the far edge is marked by a barbed wire boundary marker (no tank ditch or other obstacle). With this procedure, the concept of a hasty breach becomes an interesting notion.

Finally, the breaching force will mark the cleared lane with engineer tape, and the entrance with aircraft recognition panels on long pickets and let the assault platoon tanks and other surviving vehicles flow through the breached lane and continue the mission (until the next obstacle is encountered, which, by current Engineer School estimate, will occur within the next two km of advance).

This battle drill is not feasible. First, the built-in minimum time to execute, as described above, cannot be reasonably described as "hasty." By any definition, the elapsed time for the procedure described by this operation will render the encountered obstacle 100 percent effective. The kill of the first few vehicles detecting the obstacle, the stopping of the other assault vehicles, the advance delay imposed, the channelizing of surviving vehicles are all factors which shape the battlefield (friendly vehicles) target presentations in the manner desired by the enemy force. Beyond the inability of this battle drill to provide the "in stride" breach capability needed for effective AirLand Battle mobility requirements, the techniques described will not do the job. Wire cutters and grappling hooks cannot be reasonably employed to create a cleared footpath through a modern minefield covered by fire. Likewise, dismounted troops swinging handheld mine detectors for an hour or two in an open area covered by enemy fire, even though it is supposedly suppressed by small arms and a few Dragons, is not remotely realistic. It is indeed unfortunate that the armor/infantry assault team does not presently have the minimal equipment needed to conduct a reasonable obstacle breach operation.

Mine warfare training conducted at the NTC does not provide a realistic assessment of Threat mine-laying capability or the lethal capability of modern land mines. Current intelligence estimates project a Soviet organic capability to mechanically emplace from 1.7 to 14.0 million mines per day. In a typical company-level unit, a capability to emplace 4,224 AT mines in 12 minutes is provided. At the same time, AP mines are emplaced at a rate of three times the number of AT mines. Add to this the sizable rocket, artillery, and aircraft dispensing of scatterable mines by support elements. Not only are

there more mines than ever before to contend with, the mines are becoming increasingly lethal.

U.S. Army Foreign Service and Technology Center data shows 23.7 percent of all armor casualties in WWII were caused by mines as compared to 56 percent losses in Korea and 69 percent of vehicle losses in Vietnam. The Defense Science Board recently conducted a special Mine Warfare Study and reported an estimated mine overall kill effectiveness rate at nearly 100-fold increase over WWII mines.

The Armor Platoon Effectiveness Test (ARPET) conducted in October 1985, demonstrated that tanks, operating under ideal (daylight, clear weather) conditions with no combat distractions, could not avoid hitting mines even when the crew knew it was in a mined area.

Obstacles for which we do not have the equipment to deal with, or to train units to effectively counter — take away a key dynamic element of combat — maneuver. Countermine equipment and appropriate battle drills are needed to deal with the most prevalent obstacle to maneuver, the land mine. While no total solution is at hand, the best available capability is the armor battalion countermine set equipment (tank-mounted rollers, blades, and cleared lane marking sets). Battle drills for effective use of these items were developed during the Concept Evaluation Plan tests conducted by the Armor and Engineer Board in 1983.

Current plans are to initiate fielding of the armor battalion countermine set items in April 1989. While not representing a "final solution" to the in-stride breach problem, fielding of these items, and use of associated battle drills in NTC training, will provide a more realistic approach to this critical "maneuver" problem.

THOMAS C. BEVERIDGE,  
Deputy PM for Countermine  
Project Manager for Mines,  
Countermine, and Demolitions,  
Ft. Belvoir, VA

### "The Captains' Issue"

Dear Sir,

As a long-time reader of ARMOR and, indeed, one who had some hand in moving it to Fort Knox and the appointment of its first editor there, Major Gray, allow me to congratulate you on the September-October 1988 issue. In spite of a few articles by a major, I like to call it the captain's issue. Once again, the old proverb is proven that, to quote General Bradley, "The wellsprings of humanity lie toward

the front," but also that the wellsprings of original thought lie toward the sharp end. The "captains" have done some truly original and provocative thinking.

As you may or may not know, General Ridgway always said that his greatest achievement as Army Chief of Staff had been to "encourage the mavericks." It is a pleasure to see ARMOR doing the same thing. The Institute of Naval Proceedings has long done this for the Navy and that service has benefitted as a result.

ARTHUR T. HADLEY  
New York, N.Y.

### Vietnam Taught Its Lessons

Dear Sir:

General Tait, in his Commander's Hatch article about the battalion command selection process, stated that only eleven percent of the selectees had Vietnam combat experience, but that combat experience in Vietnam was not very important because we did a lot of dumb things there and that many of the lessons learned simply don't apply to today's high-speed, high-technology heavy combat.

It's a bad message to give to our company-grade combat officers. The lieutenant colonels and, perhaps, some majors in the zone of selection today were young enlisted soldiers, lieutenants, or captains during their combat tours in Vietnam - the same age as the main readership of ARMOR. The ones who did "dumb" things at the "fighter" level were - more often than not - killed, wounded, relieved for cause, or "riffed" after the war.

Consequently, few of those in the zone for battalion command were among those who did dumb things or they wouldn't have attained their present rank in the first place.

Furthermore, those in the zone today served later in the war, when the leadership challenges were the toughest. Officers were expected to execute their orders and lead their units of draftees in a climate in which drug use and racial tension were the greatest. The United States was disengaging from the war and the soldiers didn't want to die or get injured in what many saw was a "lost cause."

Vietnam was frequently a fast-paced, high-technology (for its time) mobile war. Air and ground cavalry units conducted many operations in the manner of today's AirLand Battle doctrine. As those, for example, who participated in Lam Son 719,

*Continued on Page 53*

# COMMANDER'S HATCH

## Guest Column

### Remembering Some Hard-Fought Lessons of WWII

*LTG (Ret.) James Hollingsworth, one of our great battalion commanders in World War II, recently responded to some questions we had about training, combat operations, and force design. The comments in italics are mine.*

#### Training

**How did units train during combat? How were lessons learned incorporated into operation?**

- During battle, those units engaged and those in reinforcing roles maintained vigilance, security, and conduct of local reconnaissance. When not engaged, maintenance and resupply took up 24 hours per day.

- Between battles, where possible, we sand-tabled the next battle or engagement, made corrections on lessons learned, and indoctrinated new replacements. There was no rest for the weary.

- When you receive replacement tanks and gunners - and the gunners have been trained on 105-mm towed howitzers - and you are scheduled to reassume the attack in three days, it takes one hell of an effort on the part of all members of the tank battalion. You shift personnel from one platoon or company to another so that you have at least one tanker who has been in combat on each tank.

*(We have paid lip service to this for years. It usually falls in the "too hard" box during major exercises, e.g.,*

*REFORGER. There is a lot of talk, but not much action.)*

**Based on your combat experience, what peacetime training events were critical to subsequent success in combat? How were senior leaders (colonels and above) trained?**

- Discipline
- Weapons training. Each individual must become an expert in every weapon in the battalion. *(We need continued emphasis here. All soldiers, whether combat support or combat service support, must shoot, and shoot well.)*

- Combined live-fire exercises, fire and maneuver of mixed formations of tanks, infantry, and artillery. Tanks support infantry. Infantry supports tanks. Artillery is in direct support and guard support of both.

- Learn to change these formations of tanks and infantry daily, or hourly, if need arises - under live-fire artillery support.

- Company, battalion, and regimental-level CPXs, maneuvers, live-fire exercises, road march (most officers cannot conduct a timely, orderly mechanized road march of 300-500 miles, consisting of 1,000-plus track and 2,000 wheeled vehicles, including getting on and off the main axis and into and out of bivouac areas.) If armored formations can march well, shoot well, communicate, and have the respect of the soldiers, it will be successful in battle. Units are only as good as

the commander. A "sorry ass" division commander will have a sorry division. The same goes for battalion commanders and company commanders.

**What were the essential elements for large-unit movement and maneuver?**

- Discipline at all levels.
- Communications. Without outstanding communication, the commander, including the squad leader, is doomed to failure. A 30-second break in communications at any level from corps to squad requires immediate attention.

- Security
- Clear-cut orders down to the lowest level of command. Checks by battalion commanders to see that platoons know where, when, how, and why. Spot checks by brigade to division commanders to see that battalion commanders are well informed. Leave nothing to chance. *(Soldiers must know what is going on.)*

- Timeliness. To fail to make the line of departure or critical juncture on time is a red flag for disaster.

- Commanders (colonels and generals) must be present at critical points, junctures, and situations.

**LTG Hollingsworth's comments will conclude in the next issue.**



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

## The Hidden Key to the NCO-ER

"I just received the most outstanding Evaluation Report of my career. Every block was marked excellent. Great bullets that complement the excellent blocks in my present job as the assistant operations sergeant in the battalion. My rater has recommended me to be assigned as a battalion operations sergeant upon promotion to master sergeant. This NCO-ER solidifies my selection on the upcoming E8 promotion board, right?"

Wrong. But why?

First, let me address the quality of the force at the grade of sergeant first class. The average qualified E7 eligible for E8 has been a successful platoon sergeant in a TOE organization, where he has received two or more evaluation reports over a period of time. He has had previous assignments as a master gunner, drill sergeant, recruiter, or one of the many additional assignments that is advantageous to a soldier's career: instructor/writer, staff, ROTC, Reserve Component, IG, EO, etc., but most important, he has been a successful leader in a TOE unit in his present grade.

That is the *average* E7 who is competitive for promotion to E8. Broken down into numbers, it comes to about 75 percent of those eligible for promotion to E8.

When you have only 130-150 promotions annually, there have to be other qualifiers, and there are. Your photo, schooling, SQT score,

academic reports, awards, disciplinary records, and PQR tie it all together. But there are hidden discriminators that quickly push you toward promotion or quickly eliminate the file. They are part of the evaluation report, both old and new. The job description on the evaluation report is critical. Quite a few master gunners have been destroyed as a result of not ensuring their proper job descriptions were highlighted on the NCO-ER. An example is a platoon sergeant who is a master gunner. A lot of evaluation reports read simply "company/troop-level master gunner," with no comments about the soldier's platoon sergeant responsibility. Remember: leadership positions take priority. If you are assigned to a TDA organization, and have leadership responsibility within the organization and as an instructor (small group leader), ensure both positions are covered in the job description on the evaluation report.

Bullets on the NCO-ER can be good, but can also hurt you. To receive an excellent rating in training is outstanding; however, when a bullet reads, "supervised two men to qualify on the SQT," a squad leader's job, the integrity of the entire evaluation report is questionable.

Remember, success on the NCO-ER is equal to 125 on the old EER. Don't mark excellent if you can't back it up, or if you are receiving a report, talk to your rater if the bullet does not complement your rating.

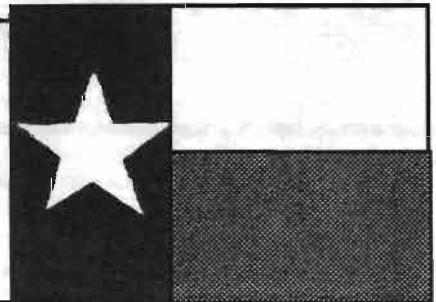
One area we are still weak on is physical fitness. Everyone seems to think only of physical training or APFT scores. Remember, mental capability ties into physical fitness and should be included. A score of 290 on the APFT from a weak platoon sergeant who can't retain, supervise under stress, or fight the platoon does not deserve an excellent report. Combine the two areas, physical and mental.

The "potential" block can be a killer. I had a master gunner visit me a couple of weeks ago to discuss his microfiche, and why he was not selected for promotion. It all came out in the "potential" block of the evaluation. He was a quality-plus soldier, with outstanding reports on the front and great assignments, but the "potential" block recommended him for an operations sergeant assignment. With minimal promotions available, the focus is on those who have served successfully in leadership positions, and who have the potential to serve in leadership positions of greater responsibility. In the "potential" portion of the report, a competitive NCO must receive a recommendation for first sergeant or command sergeant major.

It's not the rating that makes or breaks you. With the present promotions available annually, you can be an outstanding noncommissioned officer and still not be selected because the outstanding far outnumber the promotions available. If you are the rater, ensure you understand thoroughly the requirements on the evaluation report.

# A Texas National Guard Unit Deploys to Central America

by First Lieutenant Kevin J. Lilly



At left, an M60 is hoisted on board at the Beaumont, Texas terminal, bound for the port of San Lorenzo, on the Gulf of Fonseca in western Honduras. Troops flew in and mated with their equipment in-country.

In photo below, an M113 prepared to load at dockside.



## Introduction

In 1985, our unit was called up for deployment and training in Honduras. We could find little doctrinal guidance addressing the use of armor and mechanized infantry in low-intensity conflict or in difficult terrain, like jungle, and there remains a dearth of such material today. Therefore, I thought it fitting to share my brief experiences as a tank platoon leader in Central America, from naval deployment to maneuver in-country.

In January 1985, the officers of B Company, 6-112 Armor, 49th Armored Division, gathered with LTC Danny Kohler, commander of 6-112 "Rolling Thunder." In what was to become one of the most significant meetings of our military careers, he told us that, effective immediately, we were attached to 3-141 Infantry, 1st Cavalry Division (Roundout), for a special mission. Although details were sketchy, he told that the mission involved the unit's deployment, that it would last approximately six weeks, and it was classified until further notice. As tank platoon leader of 3rd Platoon, I found that we would be attached to A Company, 3-141 — designated Team Alpha.

After the briefing, we speculated on our destination. I was hoping that this was to be our shot at the National Training Center (NTC) at Ft. Irwin, California. But when we received jungle fatigues (before



*"We learned that 3-141 was to mobilize and deploy to Honduras in a region known as the Choluteca Gap. Located in the southernmost region of Honduras, adjacent to the Nicaraguan border, the region provided the most probable axis of advance for Nicaraguan armored forces."*

1985, hot weather or jungle uniforms were not standard issue; these were Vietnamese olive drab rip-stop cotton), along with boots and two-quart collapsible canteens — plus the emphasis placed on bilingual soldiers — we had more than a hint that our destination was not Stateside.

As we proceeded through the mobilization process, all personal and administrative matters were updated, including wills, vaccines (yellow fever shots as well as malaria pills), physicals, etc. We were rushed through an accelerated program of gunnery and tactical tables, and our training was augmented with as much fixed wing and rotor support (for transportation) as possible.

In the midst of our preparation, part of the plan was unveiled when we learned that 3-141 was to mobilize and deploy to Honduras in a region known as the Choluteca Gap. Located in the southernmost region of Honduras, adjacent to the Nicaraguan border, the region provided the most probable axis of advance for Nicaraguan armored forces. We learned that we would be no closer than 20 miles from



acronym OCOKA). Also, personnel experienced in low-intensity conflict provided valuable personal insights. The final briefing, however, proved to be the most important.

Every soldier received small yellow cards labeled "Rules of Engagement." Again, the loss of U.S. servicemen in Lebanon caused some anxiety as we were instructed not to fire unless fired upon. We were to use deadly force only as a last resort (an effective weapons hold

Nicaragua and that, while in-country, would advise and participate with the Honduran Army. This was to be the first deployment of U.S. armored forces to this region

Approximately 30 days before departure, we were briefed on the tragic bombing of the U.S. Marine Corps barracks in Beirut. That event preoccupied planning for most overseas missions and we received extensive anti-terrorist briefings. Army personnel who had experience in the region provided us valuable data on observation, fields of fire, cover and concealment, obstacles, key terrain, and avenues of approach (the Army

status). Each man was to have one full magazine for his personal weapon, to be carried in his ammo pouch. The exposed round of each clip was to be covered with tape, thus requiring a more deliberate action prior to engagement. This preventive measure was to preclude any accidents, because contact was unlikely 20 miles from the border. Our people (especially the combat veterans) did not receive this rationale well. As the last of the formal briefings ended, we began preparing the tanks and APCs.

The M60-series tanks and M113 armored personnel carriers (APCs) were transported by heavy equip-

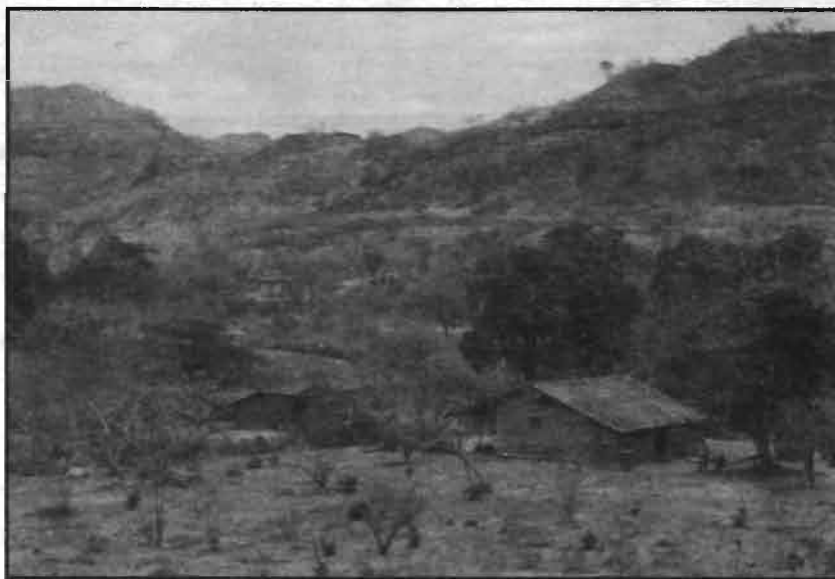
ment transport trucks (HETTs) from Ft. Hood, Texas, to the Beaumont Army Center, located on the Gulf of Mexico north of Houston, for oceanic movement.

On 5 March 1985, the vehicles began the administrative load onto the *Transcolumbia* (a WWII-era class C3 freighter). Under the supervision of PSG George Kitchen, 100 civilian longshoremen loaded the vehicles. The task took seven days to complete, and the *Transcolumbia* departed on 12 March for the week-long journey through the Panama Canal to the Gulf of Fonseca, at San Lorenzo, Honduras.

The Gulf of Fonseca, on the Pacific Ocean, is bordered by El Salvador, Honduras, and Nicaragua to the west, north, and south, respectively. According to PSG Kitchen (who had commanded a Navy assault boat unit in Vietnam), the admin status of the load, with weapons under U.S. Customs lock and key, prevented any substantive security for the 1-1/2 day unloading in Honduras. Although conventional threat was unlikely, terrorist action was a possibility, and even local pilferage was difficult to control.

Meanwhile, the main body of Task Force 3-141 prepared to deploy from its U.S. base. As news of our mission reached the press, the move was engulfed in media exposure. The political atmosphere of the day centered around President Reagan's initial Contra aid package. Also, the unwillingness of U.S. state governors (including Massachusetts Governor Michael Dukakis), to commit National Guard units to the area was noted.

A common thought was that while the Reagan Administration supported a U.S. show of force in the region, the implications of sending active duty units seemed politically unsound. Thus combat-ready National Guard units were requested.



Small farms, rocky hills, and areas of thick underbrush are typical in the Choluteca Gap area, a key armor approach into Honduras.

This theory was denied by official sources who intimated that the deployment was simply a training mission and involved no danger to the troops.

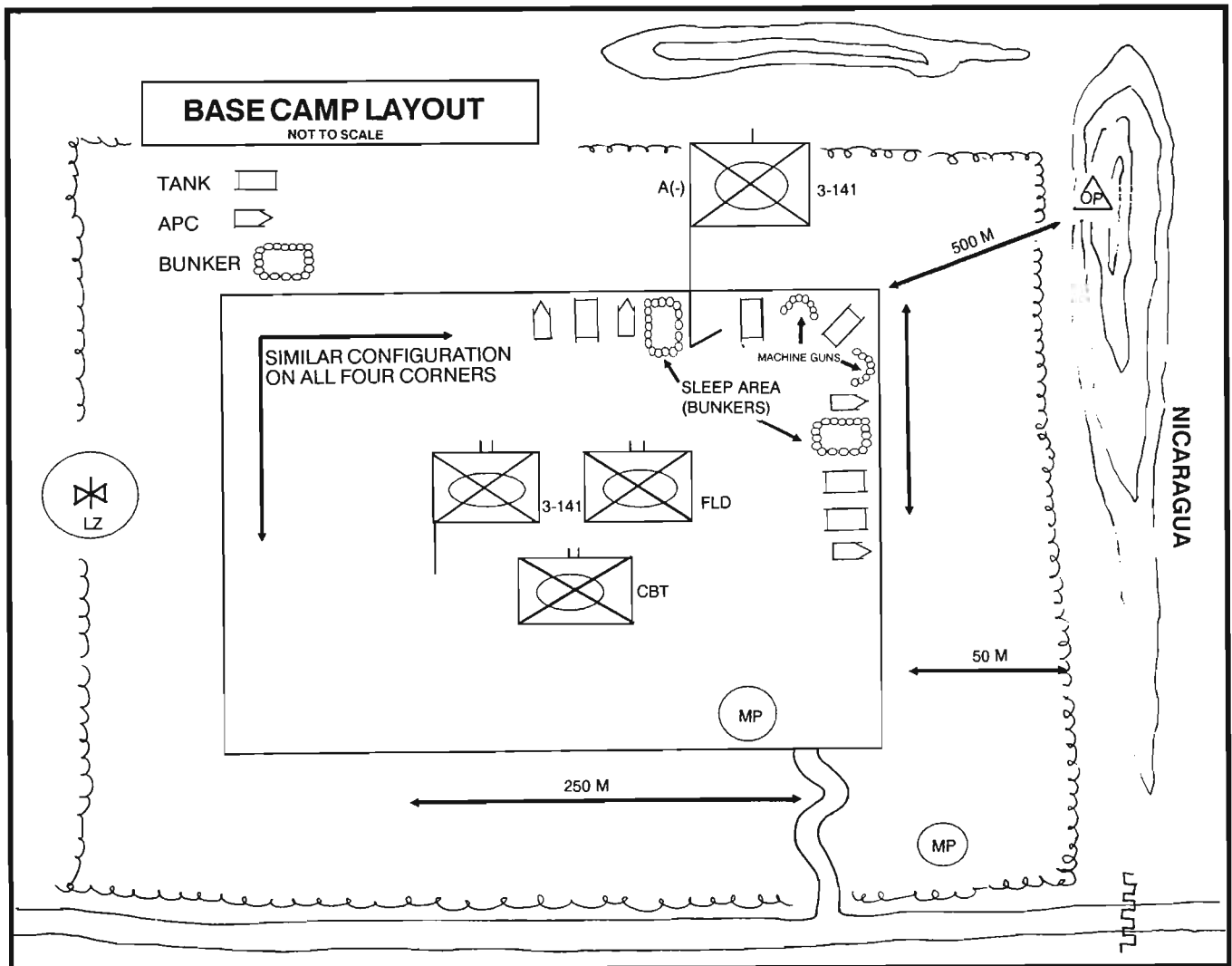
Such a response was ill-received by various civic leaders, who questioned the emphasis on the use of Hispanic soldiers. Some called the task force "cannon fodder" and fuel to fire an escalation of conflict with Nicaragua. The soldiers of TF 3-141 paid little mind to the media coverage and proceeded with business as usual.

With two duffle bags per man (one for LBE, the other for clothing and personal effects), as well as personal weapons, we loaded onto USAF C-141B transport aircraft at Kelly AFB, Texas. As the "Today Show" covered our departure on national television, the task force set out on its half-day journey to Palmerola Air Base in the mountains of Honduras. (Palmerola was the site of the 82nd Airborne Division's 1988 deployment during that year's infiltration of Nicaraguan forces into Honduras.)

The cool mountain air of Palmerola was a pleasant change from the unseasonably near-freezing temperatures at Kelly. But this was only our first stop, as C-130 transports awaited us for a flight further south to San Lorenzo (approximately 40 miles north of the Nicaraguan border and twenty miles east of El Salvador). Once again, we boarded and flew south.

I had thought that C-130s were typical of "heavy" aircraft, but the twisting and jerking of the plane during our low level, terrain following flight convinced me otherwise. Apparently, a recently-lost *Hercules* gave our pilot good reason to avoid being a target.

As we touched down on the dirt runway, the aircraft was awash in a blinding cloud of dust, and we anxiously waited for the ramp to drop. The C-130 finally came to a halt, and we shuffled down the ramp in our neatly pressed fatigues and polished jungle boots. As tankers, our pistols and .45-caliber "grease guns" presented hardly a formidable force, especially since we



were without ammunition. We moved clear of the aircraft and noticed that the apparent heat of the C-130 had not dissipated, as the surrounding air was more than 120 degrees.

Our welcome came in the form of an Air Force combat air controller, clad only in khaki shorts, jungle boots, and an M-16 rifle, who said, "Welcome to Honduras, sir." The airman led us to our 2-1/2-ton trucks, which transported us on the final ride to our base camp, ominously named "The Alamo." (The 141st Infantry regiment traces its lineage to the First Texas Infantry Volunteers, who fought under Col. William Barret Travis at the Alamo.)

### The Base Camp

The planning involved in conducting base camp operations was extensive, because it was a hybrid between a modern-day assembly area and a Vietnam-era fire base. All the support assets normally held in the brigade support area were within the facility. The uncertainty involved in low-intensity environment required maximum security for support personnel. As quoted by Major General Sir Ernest D. Swinton (father of British Armor) in his 1902 vignette on the Boer War, *The Defense of Duffers Drift*, "There is no flanks, no rear, or, stated otherwise, it is front all around."

As no doctrinal base camp design was available, much of the design

was from memory of officers and NCOs who had operated out of fire bases in the Vietnam War.

The facility was rectangular. The outer perimeter of three-strand concertina wire was 50 meters from the interior perimeter (a continuous berm, behind which tank, APC, and individual fighting positions were established providing 360-degree security.) The entrance roadway was designed in a circuitous manner to reduce risk of high-speed infiltration by bomb-laden trucks or cars. All support assets were inside the perimeter.

Logistically, the camp was well supported. Our own water supply came from a well, and all classes of supply were present, including attached MST and medical personnel.



## Inside "The Alamo"

Snapshots by the author show details of the base camp, a rectangular, bermed enclosure reminiscent of a Vietnam fire base.

Hills nearby limited fields of fire, and resources were slim to provide overhead cover.



The tactical situation, however, was less impressive.

The size of the internal perimeter was approximately 250 by 150 meters, providing only 25 meters between armored vehicles, and there were no alternate fighting positions. Thus, an entire task force, with support personnel, was in an area that allowed no dispersion or natural overhead cover. Additionally, we were at the base of two hills, which severely limited our fields of fire.

In spite of these limitations, our first task was to improve our fighting positions and the entire platoon area. Unfortunately, I had no engineer assets readily available and, rather than wait on the support, we borrowed the XO's blade tank to enhance our survivability. This pointed out an important lesson: Having an organic blade available at company/team level can be a tremendous asset. (Today's M1 units are not equipped with such assets, and tankers must rely on attached support — which may or may not be available when you need it). In addition, all hands began the tedious task of filling and distributing sand bags. I had the luxury of having tank commanders who had served with the 173rd Airborne and the 1st Cav in Vietnam, and under their watchful eyes the place began to take shape. We placed waist-high

sandbag walls around the sleep area, and enhanced infantry positions, but the total lack of overhead cover was still a problem.

In hindsight, the primitive use of trenches (still *de rigueur* in Soviet defensive doctrine), could have provided covered paths from the fortified sleeping areas and the CP to the tanks, as well as valuable communication channels or MEDEVAC paths in the event of an artillery attack. Also, overhead cover for sleep areas is, without exception, a must. The camp had enough plywood for the latrines, but none for my platoon; until the first shell hits, people have different priorities. Lesson learned: Be prepared to support yourself ("midnight requisition" may be your only choice.)

Another problem my NCOs pointed out was the absence of Claymore mines, the official justification being the potential dangers these weapons presented to civilians. Notwithstanding civil affairs, security in such an area requires 100-percent security and 100-percent effort.

The preparation of the fighting positions and settling in in the oppressive heat required leaders to force hydrate the men and ourselves. The initial acclimatization feeling — constant fever and burning

urine associated with temperatures that approached 130 degrees — reinforced our need to drink fluids (the two-quart collapsible canteen provides cool water if the fur-lined case is kept thoroughly saturated.)

In the midst of all this preparation, I found a number of surprises. Initially, while studying the terrain, I found that rather than being 20 miles from Nicaragua, we were less than one mile. One hill separated us from the border; it was well within 120-mm mortar range. The need for improved cover took on a new meaning for me.

Another rude awakening occurred when, shortly after arrival, my crew and I found my B-31 tank. Inside, Cadet (ROTC) Patrick Tibbetts, my loader, asked why the main gun rounds were colored black. (We had rarely seen live rounds which have a black warhead instead of the blue inert training rounds.) My gunner and I hurriedly climbed aboard and confirmed our initial doubts. The tank had been uploaded with 26 105-mm main gun rounds, consisting of (SABOT), (HEAT), and a round that I had only read about: the anti-personnel (APERS), or "Beehive" round. The APERS exploded at pre-programmed ranges, dispersing steel, dart-like flechettes. The APERS was an effective weapon, according to Vietnam



reports, yet it is not considered part of a standard load. Someone wisely considered the value of such a munition in low-intensity conflict. In addition, each tank had 800 rounds of 7.62-mm ammunition for the gunner's coaxial machine gun and 600 rounds of .50-caliber ammunition for the tank commander's M-85 machine gun.

#### **Base Camp Security**

Two men per tank, APC, and M-60 machine gun position provided night security. The remainder of the crews rested in the sleep area adjacent to the fighting positions. The infantrymen wore "flak" jackets, another item that I had never seen before. Night vision was a problem, because only one set of ANPVS-5 night vision goggles was available to the platoon. The remainder had to rely on passive sniper scopes, which were hand held. Needless to say, we relished any moonlight that was available. I had specifically requested two sets of night goggles per tank and was promised the same, but they never came. Military Police provided by SOUTHCOM were equipped with M-60 machine gun-armed jeeps. The MPs controlled the main entrance, as well as the main road outside the base camp, and augmented our security effort.

My platoon, as well that of Lieutenant J. D. Martinez (the

mech platoon leader in Team Alpha), oriented on the critical gap which afforded the most likely enemy avenue of approach. In the event of an attack, we were to hold until the support assets and, if necessary, the remainder of the task force, displaced. Rather than stay with the remainder of the officers in the center of the base camp, LT Martinez and I opted to sleep on the perimeter. Some argued against the omnipresence of the platoon leaders, yet we felt that our best bet was to be visible. A platoon leader's place is with his tank.

The first few nights found the platoon leaders in Team Alpha continuously checking our fighting positions, which eventually degraded our performance because of lack of sleep. Intensive heat and stress tends to degrade the performance of even the well-rested, and our savvy platoon sergeants eventually got us to develop a more efficient sleep plan.

The task force OPs were placed on the high ground overlooking the probable enemy axis of advance. Although the positions afforded good observation directly into Nicaragua, the steep grade prevented any vehicles from reaching the positions. Consequently, we used horses rented from the villagers to resupply/relieve the outpost. Goodwill

missions provided by task force medics, and cooperation with the indigenous population, were well received by the locals, most of whom were Mesquito Indians.

During our patrols through the villages, the people described incidents of terrorism that had taken place during Sandinista raids. There was frequent stealing of cattle, and occasionally, young women. A local man was dismembered with machetes for fishing in the Rio Negro (the bordering river) against the will of the Sandinistas. Although the U.S. media tends to blame such atrocities on the U.S.-supported Contras, we were assured that this was not the case. In fact, the villagers welcomed our presence. Hostile action was conspicuously halted when the American tanks appeared.

Naturally, we welcomed the local generosity, yet my tank commanders wisely lectured the men to deal cautiously with the civilians. People in war-torn areas are faced with conflicting loyalties. Understandably, for their safety, as well as your own, soldiers must keep to the mission at hand.

#### **Enemy Situation**

This area of Central America has been the site of many armed clashes. Prior to our arrival, Hon-

duran armored cavalry units, equipped with Israeli-built RBY armored cars, defeated an El Salvadoran guerrilla force of several hundred men who had assaulted the Amatillo International Bridge, which separates Honduras from El Salvador near San Lorenzo, north of our location. (See "Cavalry Action in Central America," Sept-Oct 1984 *ARMOR*). It was also reported that, prior to our arrival, two Honduran soldiers manning an outpost near our base camp location were found killed.

During our stay, Honduran infantry intercepted a truckload of armed Sandinistas, and in the time since our mission, two major Nicaraguan forays into Honduras have taken place, one of which, in 1986, was countered with support by U.S. Army *Blackhawk* transport helicopters; the other, in 1988, resulted in the mobilization of the 82nd Airborne Division.

Across the river in Nicaragua, the communists were making a show of force of their own. Each night, Radio Nicaragua warned locals of the coming invasion by the "Texas Mercenaries" and "American Butchers," and two motorized rifle battalions, equipped with BTR-60 armored personnel carriers and augmented with T-55 tanks, were located across the border. Our OPs could always see at least eight or nine BTRs patrolling the border.

### **Terrain and Weather**

Armored forces had never maneuvered in Task Force 3-141's area of operations. The terrain ranged from mountains and steep ridges to flat areas covered with thick, thorny brush resembling mesquite. Near the rivers, the topography was tropical, with sandy soil, banana trees, vines, and other jungle vegetation. The few cultivated areas were planted in sugar

cane, mangoes, and cashews. Aside from main roads and cultivated areas, much of the area was slow go or no go.

We had arrived during the hot dry season, so the marsh and salt flats were dry and maneuverable. Fire proved to be a major hazard, and smoke pots caused extensive brush fires, which were constantly burning in our area of operation.

### **Friendly Forces**

Base Camp Scorpion, located near San Lorenzo, housed combat engineers and some medical personnel. The engineers had received a counter-mobility mission throughout the Choluteca Gap region, and anti-tank ditches spanned over a mile in many locations.

Palmerola AB housed the Honduran Air Force, as well as U.S. Army medical personnel equipped with *Blackhawk* helicopters. MEDEVAC would be from Alamo to Scorpion, initially, and to Palmerola if necessary.

Combat support was less well-defined. A Honduran field artillery battery supposedly provided direct support, yet I never learned of its location, nor received knowledge of any priority of fires, or of priority targets. Nor did I ever see a fire support officer (FSO) or fire support team (FIST). Such information is vital to a platoon leader or team commander and, in hindsight, I should have been more insistent on obtaining such information. In fact, all my tank commanders should have had thorough knowledge of our support. To make matters worse, we were not even allowed to bring our own task force heavy mortar platoon.

A-10s supposedly provided close air support from Panama (approximately 600 miles away, certain-

ly not within a moment's notice), and there were rumors of the availability of naval gunfire. We would have settled for some Claymores and a few 4.2-inch mortars.

It is clear that our level of fire support was inadequate. Inefficient use, or total lack of fire support, has been a frequent lesson learned throughout military history. Absence of such assets is an inexcusable oversight.

### **Maneuver in Honduras**

Maneuver of a tank/mech infantry team in restrictive terrain provides the leader with many challenges. The initial problem faced was the proper integration of infantry and armor in such inconsistent topography — from thick brush to mountains, from jungles to farm land.

Due to the uncertainty of the enemy situation, as is the norm in a low-intensity area, 360-degree maneuver security is vital because the team's flanks and rear are as susceptible (if not more so) than the front. There was no "school solution" (e.g., always lead with tanks etc.), so we learned on the move.

Channelization is often unavoidable, and fields of fire are often limited. In the U.S., we trained to have dismounted infantry lead, if necessary, through jungle and other restrictive terrain. However, once in country, we found that the vegetation was too thick for dismounts to move effectively. Initially, our hesitancy to lead with tanks by crashing through the jungle caused us to skirt slow go areas, keeping to roads and trails, until we discovered the true meaning of channelization.

During our first week incountry, our operation consisted of team-

level patrols throughout the task force area of operation. Team Alpha's mission was to patrol east from the base camp, keeping parallel to the border. Unlike most operations, we task-organized down to platoon level, as I requested to have an APC move with my platoon to serve as my forward screen element. With my platoon in the lead, we came upon a very dense area. Rather than bull through the jungle, my APC found a route around to the south. While bypassing this apparent no go terrain, we found ourselves moving with a ridge line running east to west on our right, with the jungle to our left. While moving in an echelon-right formation (the tanks were oriented toward the ridge line), my APC commander reported that he had come upon a tank ditch.

After I pulled my tank into position, my gunner moved up to the tank commander's position while I dismounted to take a closer look at the obstacle. The tank ditch, prepared by Army engineers, was approximately five meters wide and three meters deep. It ran all the way to the ridge line on our right and around the jungle to our left. With



One of the unit's M60s passes through a typical Honduran village.

no apparent bypass available, I used the APC's radio to call up the armored vehicle-launched bridge (AVLB). While fumbling through my CEOI to find the AVLB's call sign, I heard over the platoon net: "RPG...2 o'clock," and simultaneously saw my tanks backing into the jungle, all oriented on the ridgeline. It was then that I realized that I had led my platoon into a classic ambush: effectively immobilized by an obstacle to our front and dense jungle and high ground to our

flanks, we must have looked like fish in a barrel.

I immediately ordered the squad leader to set up security along the tank ditch, orienting his .50 caliber machine gun east over the ditch, with his dismounts covering the north and south. I then ran to my tank, which had backed into the jungle, orienting on the suspected RPG position. I climbed into the tank commander's hatch to find that my crew had wasted no time in loading all the weapons.

Unable to visually acquire the RPG team on the ridge line, I called my wingman for a situation report while trying to find the suspected enemy on the map. My wingman had initially spotted the team and showed great initiative in maneuvering the platoon. He stated that he had seen three men, one with either a recoilless rifle or an RPG, and the other two with rifles. After initiating a contact-right move in place, the suspected enemy dropped back behind the ridge.

I called the spot report into my team commander, who had me stand by. Hearing the call, LT Martinez had his platoon locked and loaded and he obliged my request



Thick mesquite brush and rocky hills made maneuver difficult.

to cover our rear. Moving his platoon to my back right, he prepared to dismount as our tanks covered his move. It was at that time that our team commander came over the net ordering us to displace immediately.

Although we never learned the identities or nationalities of our apparent foes, the experience provided some valuable lessons learned. Initially, soldiers do, indeed, react the way they are trained: battlefield action is almost an instinctive response to scenarios practiced in training. Without much thought, our platoon seized the initiative and, having done so, probably precluded the opposing force from taking action. The platoon required no platoon leader's signal; it simply reacted. The competent and active NCO is an invaluable asset to the American military.

A second lesson was the importance of discipline, as the platoon adhered to the rules of engagement. Rather than blasting away at rocks, we developed the situation and responded accordingly.

Finally, avoid channelization, even if tanks crash through heavy brush, although at times the jungle was so thick that even the tanks could not penetrate. Of course, if speed is important and there is no bypass, the adherence to visual sectors of responsibility can prevent surprise. While a smoke screen on the ridge line would have successfully covered our breach, smoke was not available, and in a real world situation, a leader can't always rely on it.

Throughout our time incountry, we had many valuable experiences. The decision to lead with tanks through dense foliage was successful, yet the poor visibility required a

great deal of dismounted reconnaissance and a compass for proper orientation. One cannot depend on terrain association alone. In especially dense areas, I would stop my column every kilometer, dismount, and ensure that my compass heading was correct. Overall, our mission proved to be successful. Our lack of adherence to main roads or likely avenues of approach allowed us to effectively surprise our opponents during the war game portion of our mission.

### Conclusion

The experience of Honduras proved beneficial to all parties involved, yet our preparation and lessons learned had little to do with doctrinal guidance. We had to learn on the move and absorb what information could be gleaned from our NCOs who had served in low-intensity conflict. It seems that we paid too little attention (or chose to ignore) the lessons learned in Vietnam on the value and contribution of armored forces in low-intensity conflict. Unfortunately, not much has changed, because our doctrine still almost exclusively deals with desert or European scenarios. One is hard pressed to find any guidance or emphasis on anything else.

Operations in an area such as Central America present different tactical challenges. Command and control demands on leaders are great. The vagueness of the enemy situation requires one to be flexible and ever-conscious of vulnerability. In base camp operations, rules of dispersion and cover and concealment (especially overhead) must be applied, and adequate fire support must be available.

Finally, the age-old notion that "the way we train is the way we



A rented horse gave access to a hilly observation point near camp.

fight" is true. In the end, a soldier will do his job. Hopefully, some of the information provided here will help his leaders help him to do that job a little better.

First Lieutenant Kevin J. Lilly received his ROTC commission from the University of Texas at Austin and is a graduate of the Armor Officer Basic and Advance Courses. He received a masters degree in business administration from Southern Methodist University in Dallas. He has served as a tank platoon leader with 6-112 Armor, 49th AD, and 3-141 Infantry, 1st Cavalry Division (Roundout), and as a tank company XO and battalion maintenance officer with 6-112 Armor and 1-141 Infantry, 49th AD, TXARNG. He is assigned to the US Army Reserve (IRR).





## Survivability And the Tank Platoon Defense

by First Lieutenant Kevin Keaveny

Many tank platoons do not know how to prepare a defensive battle position. While the "book" states every tank platoon must correctly construct defensive fortifications, to find out just how to do this becomes a challenge. Worse, platoon leaders have difficulty understanding and integrating engineers into the defense.

In the year and a half I served as an armor platoon observer controller at the National Training Center, not one platoon in thirty-three ever did all defensive tasks correctly. It always seemed a platoon was good at one point or another, but not at everything. This article discusses ways to overcome these deficiencies by methods employed successfully

using tank platoons at the NTC. Points contained here address engineer organization, engineer equipment, fighting positions, listening and observation posts, and prestock ammunition sites.<sup>1</sup>

### Engineer Equipment

Platoon leaders seldom grasp where the engineers come from, or what a monumental task it is to dig in a battalion task force.<sup>2</sup> The brigade normally goes to the field with an attached engineer company of the divisional engineer battalion, with subordinate engineer platoons under the operational control of battalion task forces.<sup>3</sup> In all cases, the

engineers receive specialized logistic support from their parent unit, while the task force provides common class support. Additional engineers can come from division or corps on a direct or general, support basis. Many of these engineers do not normally dig in tanks, so platoon supervision must be exact.

D7s, D8s, ACEs, and CEVs are the four engineer vehicles associated with building survivability positions.<sup>4</sup> At the time of this article, D7s and D8s are the most numerous and provide most of the earth-moving power of the combat forces. The CEVs, found in the two CEV sections of the engineer company, are excellent for building posi-

## Meet the Movers and Scrapers...



One advantage of the D7 and D8 bulldozers is the ability to tilt the blade to focus earth-breaking power, as seen here.



The CEV's blade is wider than its hull, hence it can excavate a full-width tank position, suitable for both M60s and M1 tanks, in a single pass.



**The M9 Armored Combat Earthmover (ACE)**

The M9's blade, like that on the D7, is narrower than a tank, so leaders have to ensure that the positions it excavates are wide enough for the tanks being emplaced. Each engineer platoon has only two of these.

tions but are used more for mobility and counter-mobility tasks.

The blades on the tractors are hydraulically operated, and on D8s, and late-model D7s, are adjustable in the horizontal as well as the vertical plane. The ability to tilt the blade horizontally allows the operator to increase the surface pressure on either end, giving the tractor greater earth-breaking power. Supplementing the blade on some tractors are rippers, located at the rear of the vehicles, that act much like a backyard spading fork.

In an environment with extremely hard soil, a typical scene would show the tractor operator preparing the ground by dragging the rippers across first. Then, if required, he would tilt the blade to further break the soil. As a last step, the operator levels the blade and removes the remaining soil from the hole. The D7, though it looks like a D8, is actually smaller, as

is its dozer blade.<sup>5</sup> This point is moot until one considers that both the M60 and M1 tank hulls are wider than the D7 blade.<sup>6</sup> This puts added pressure on subordinate leaders to ensure positions are wide enough for tanks to enter and exit without throwing track. The same blade size problem exists with the ACE, which mounts a blade smaller than the D7. There is no problem for the CEV to dig positions, because its blade is wider than its own hull, providing a snug fit for both the M60 and M1.

The platoon leader needs to understand that a battalion task force may only have hours to prepare a defense, and such time will not be sufficient to complete its engineer work.<sup>7</sup> As a case in point, an armor battalion task force, with an engineer platoon OPCON and allotted twenty-four hours to defend, faces many sobering facts:

- The engineer platoon has only two ACEs, for a maximum of 48 construction hours (*See figure on facing page*).
- Forty-six combat vehicles require survivability positions.
- Position construction time will take from 46 hours for all-hull defilade to 119 hours for turret defilade positions.
- Mobility and countermobility tractor tasks, tractor down-time, operator availability, and travel time between positions will all subtract from survivability construction time.
- Each of the 12 platoons can only expect to see the tractors for up to four hours.

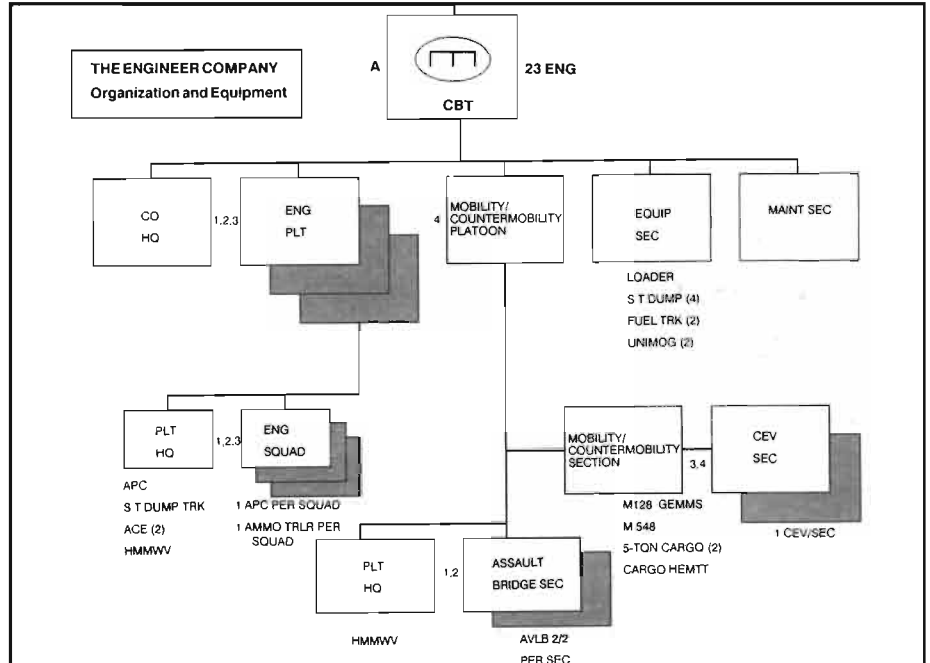
The platoon leader needs to decide beforehand what work the engineers will accomplish onsite. The platoon leader calculates how

much time will be required to dig each fighting position, adds that time up, and compares the total to the time the engineers are under his control.

If the time required to dig in exceeds the engineer time available, one of three courses of action is possible:

- Select new fighting positions requiring less construction time.
- Have more construction time allotted by the company commander or battalion headquarters.
- Request the assignment of additional engineer assets.

If extra time exists, use it to improve positions, dig in prestock ammunition, or loosen soil for listening and observation posts. As a backup to the first plan, leaders should also prepare a contingency plan, so if the engineers are able to return, they can improve the positions. Routinely, platoon leaders *underestimate* what the engineers can do the first time on the battle position.



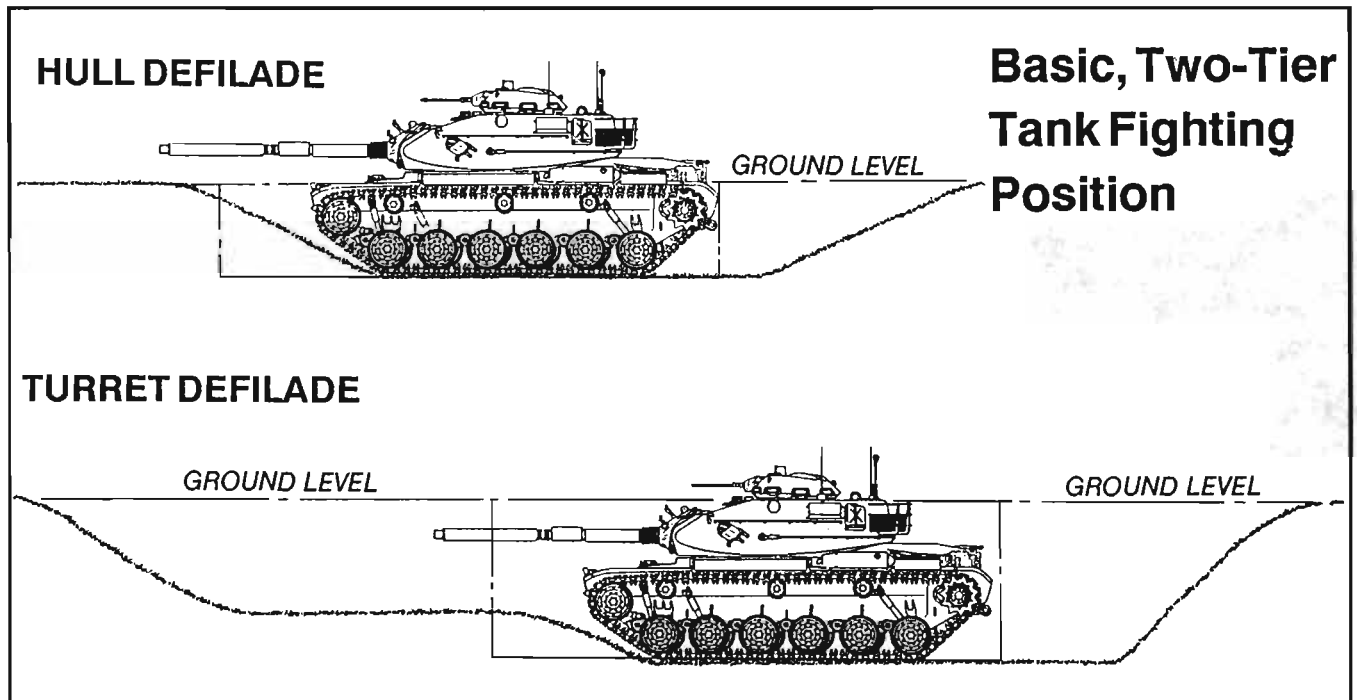
By not preparing for them the second time, platoon leaders cannot achieve the best possible defense.

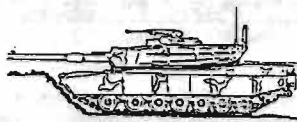
### Fighting Positions

Doctrinally, deliberate fighting positions consist of four elements constructed in this order: hull defilade, concealed access route,

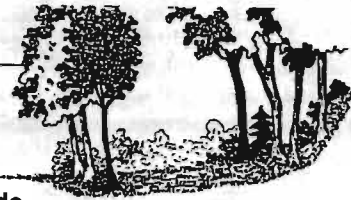
hide location, and turret defilade.<sup>8</sup> In the field, many platoons instead opt to build the positions in this order: hull, turret, access ramp (route), and hide. Experience shows that engineers seldom have enough time to improve hide positions.

Also, contrary to doctrine, many units dig positions from *back to front*, leaving spoil piled into berms.





ENEMY LINE OF SIGHT



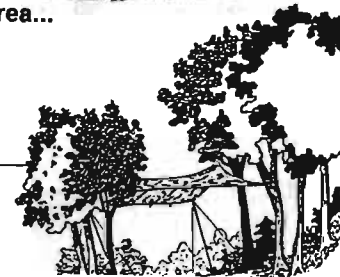
STEP 1. Establish hull defilade...

## Two-Tier Tank Fighting Position On a Hill



STEP 2. If time permits, develop hide area...

ENEMY LINE OF SIGHT



STEP 3. Then prepare turret defilade by improving ramp from hide area to hull defilade position.



The unfortunate side effect of this method is that the disturbed earth usually reveals the position and enables the enemy to target friendly tanks with artillery and maneuver forces. While some can argue that hasty positions are better than nothing, such arguments weaken when the unit understands how little protection it is really getting.<sup>9</sup>

Whenever possible, units need to camouflage or haul away spoil. In cases where spoil remains, the leader needs to go forward of the battle position and look back to

In this case, the access ramp was too steep, and the tank commander failed to raise gun tube high enough when moving into hull defilade. As a result, dirt entered gun tube, and the tube failed when it was fired.

evaluate what the spoilage reveals, and then adjust his defensive plan accordingly.

Desert operations present unique problems for position construction. The earth is usually either too soft or too hard to permit conventional positions, so the platoon leader must seek a balance between the use of natural terrain and engineer-prepared positions.<sup>10</sup> Ravines, wadis, and dunes can all provide a certain amount of ballistic protection if located effectively within the battle position. When using natural fighting positions, the related protection is greatest at or near the main gun's effective range, but diminishes as the enemy closes and is able to maneuver against specific targets.

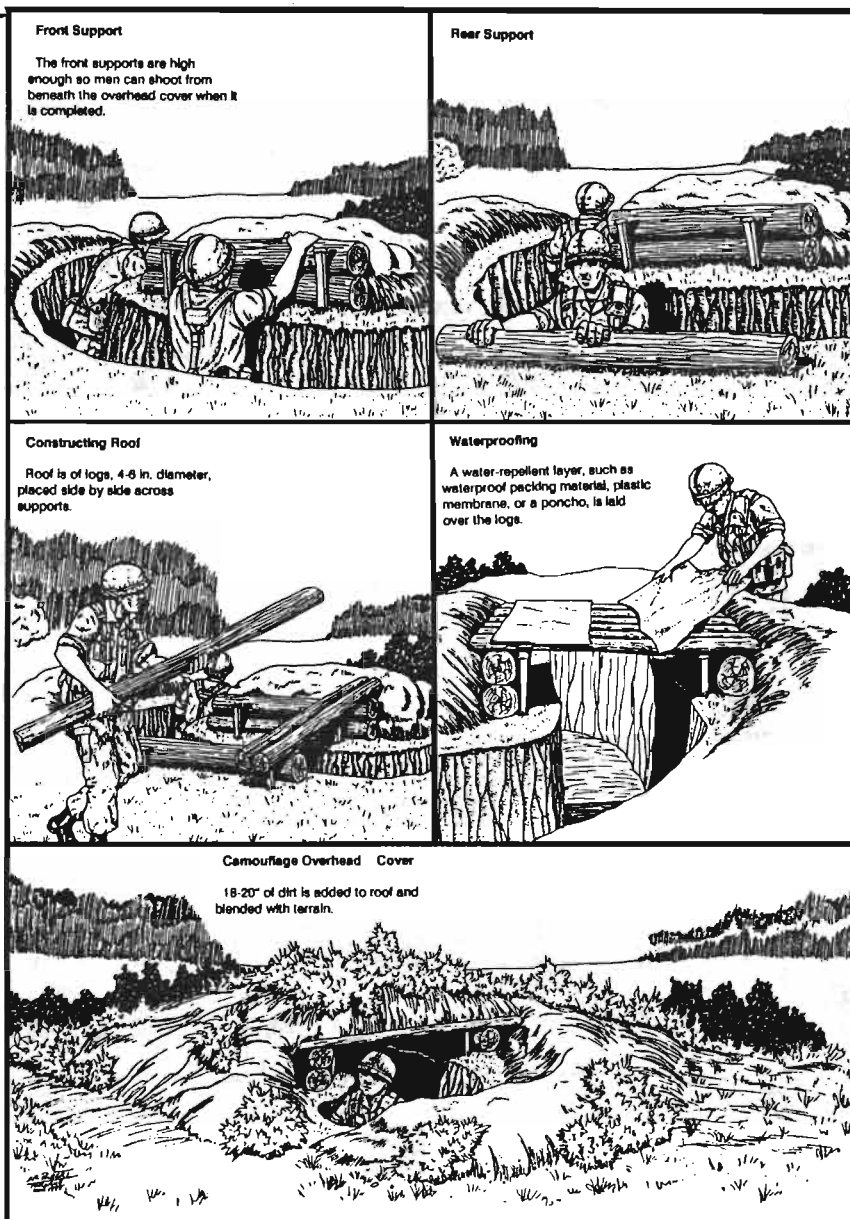
### Individual Fighting Positions

Listening and observation posts need to withstand indirect fire. Tank platoons tend to violate this principle and send out soldiers to man posts that have no protection at all. As doctrine now stands, the only fighting position applicable is the one-soldier deliberate, with eighteen inches of overhead cover — not a good choice because most tankers dislike digging.

An alternative is to modify another position, the one-man hasty prone, into a deliberate with the same eighteen inches of overhead cover. Such a position lends itself to prefabrication.

To store the structure, a bracket mounted on the tank's bustle rack holds the folded roof.<sup>11</sup> Displaced tactical signs, formerly on the bustle rack, can either attach to the outside of the roof or appear directly on it. The design concept of the "deliberate" prone position has four key features:

- It is foldable for storage.
- A pop-up sand box on top holds the eighteen inches of overhead fill.



### One- or Two-Soldier Position with Overhead Cover

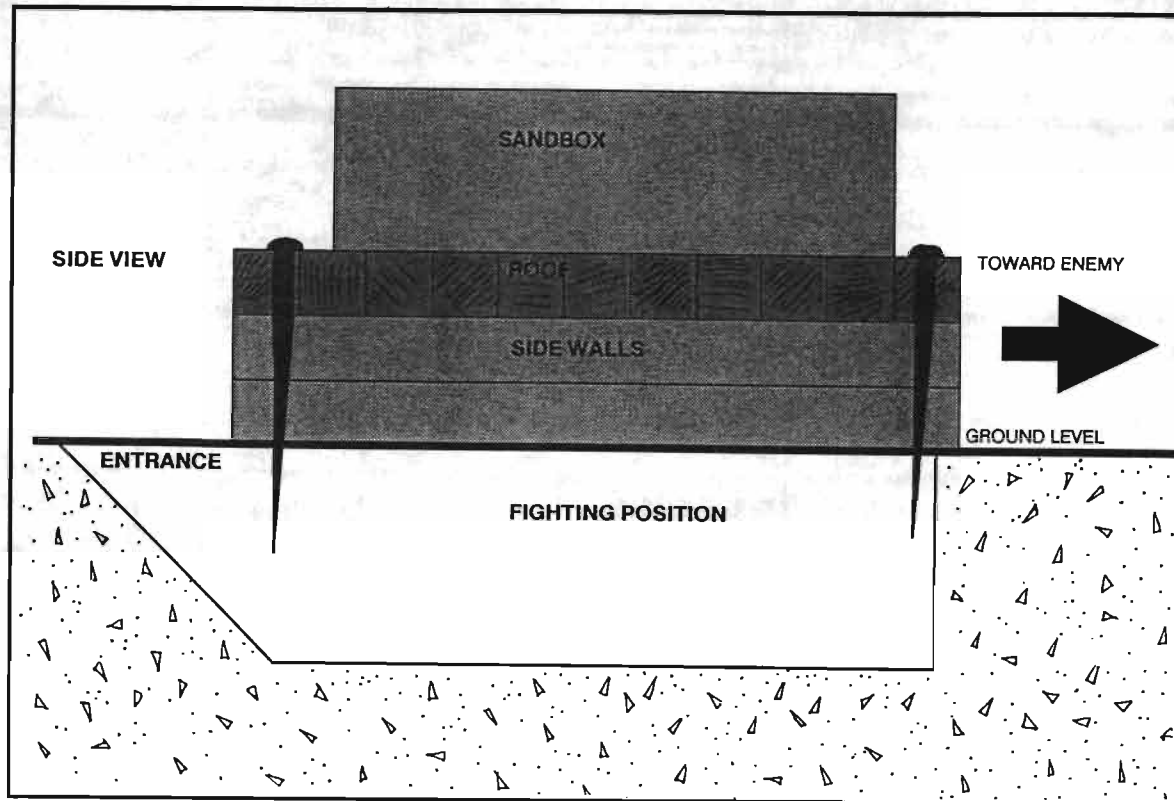
While providing ideal protection for soldiers in listening posts and OPs, there is seldom enough time to prepare such a complex position. Prefabricated version on the following page protects as well with less digging.

- Four-by-four construction lends sturdiness.
- Spikes firmly anchor the roof into the ground.

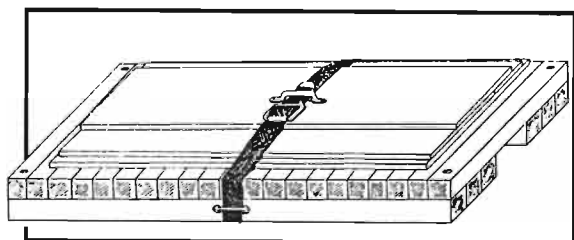
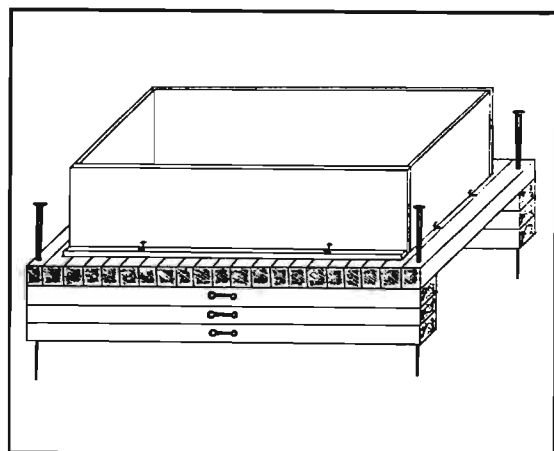
Of the two positions, the "deliberate" prone has three principal advantages:

- The position requires the removal of 12 cubic feet less of dirt.
- The majority of the dirt is composed of loosely compacted top soil.
- A tractor can take a swipe of soil to eliminate much of the necessary digging.<sup>12</sup>

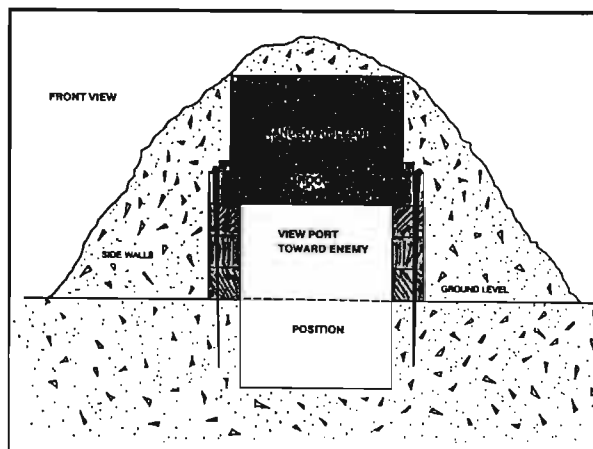




### A Semi-portable, Modified Hasty One-Man Fighting Position With Overhead Cover



"Sandbox," roof beams, and side beams fold up and store on tank turret. When assembled and filled with earth, box adds 18 inches of overhead cover to roof.



At top and above, drawings illustrate how semi-portable overhead cover is assembled and buttressed with earth, both for camouflage and additional ballistic protection. "Sandbox" folds and stores on turret bustle brackets; spikes are stored in sponsons.



Excavators can loosen soil, even if there's not enough time to finish the job by machine.

Another survivability project is the task of fortifying prestock ammunition against indirect fire. More than any other task, some tankers view the job of hardening prestock sites as a distraction from other responsibilities. Two methods are available to cut down the time dedicated to hardening the sites. The first is to carry on the tanks – or in the trains – enough Class IV to support the required eighteen inches of overhead cover.

The second method, shown by field experience to be the best, is to use the wooden ammunition packaging crates filled with sand and soil. The crates are easy to stack, provide a handy method for building, and come with handles for easy access to the rounds beneath. Again, the engineers can assist by digging a slit trench, which places the rounds below ground level and provides loose soil for filling the crates.

Usable fighting positions, listening and observation posts, and prestock

ammunition sites are critical to an armor platoon's defense. Platoon leaders must use engineers to help make the best possible defensive battle position. To do that, the platoon leader must define what tasks the platoon can do itself and what tasks the engineers can help with. As a minimum, the platoon leader is responsible for all site selection and post-construction evaluation. Subordinate leaders are accountable for supervision and doctrinal soundness of construction. With the right supervision from the tankers, and productive work from the engineers, the platoon will gain steady firing platforms, and a chance to dominate the battle.

#### Notes

1. FM 71-1, Final Draft, Section Four, June 1983.

2. Divisional Engineer Company TOE 5-145J, Divisional Engineer Battalion TOE 5-

145J, Command Relationships FM 5-103, 2-29.

3. Vehicular composition of a TOE 5-145J Divisional Engineer Company is six tractors, two combat engineer vehicles, and two small emplacement excavators.

4. D8s are not common to divisional engineer battalions, but are used by other engineer elements which may appear in the forward battle areas.

5. The D7 blade is 11 feet wide; the D8 is 13 feet, 1.5 inches; and the width of the M9 ACE blade is 10 feet, 6 inches.

6. The M60 is 11.91 feet wide, the M1 11.98 feet wide.

7. FM 71-1, Final Draft, Section Four, June 1983, and FM 5-100, May 1984.

8. No matter what any manual states as construction times, such numbers are only estimates. In many cases, there are differences between manuals.

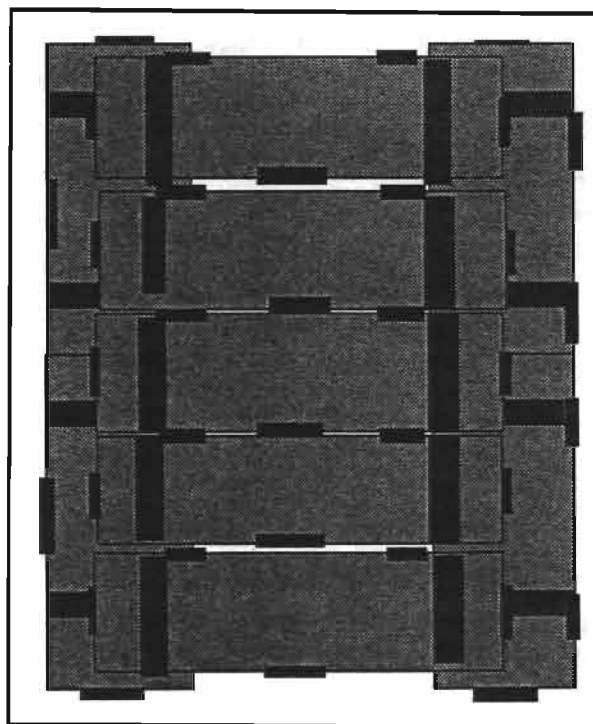
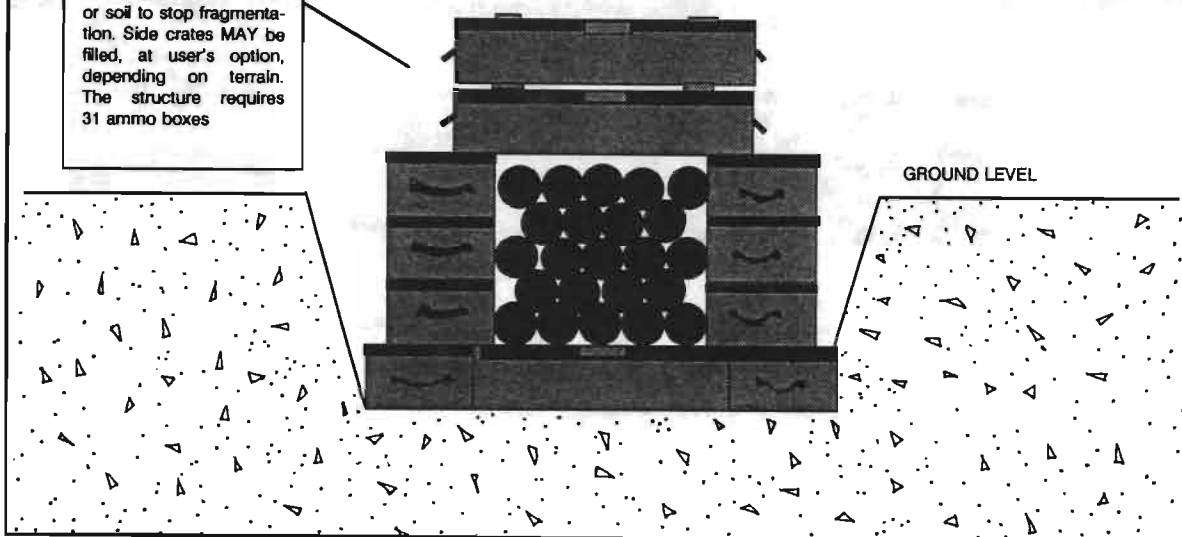
9. Hasty positions are often referred to as MILES berms, parapets, or berms. FM 5-103, 4-13, states such positions are

### Hardened Prestock Ammunition Site

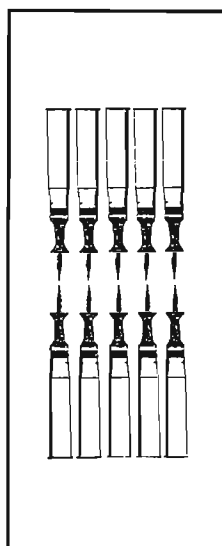
Constructed of ammo crates filled with sand, this ammunition shelter holds 54 tank rounds. A few dozer swipes prepare the hole. Spoil is used to fill crates.

The 10 overhead boxes MUST be filled with sand or soil to stop fragmentation. Side crates MAY be filled, at user's option, depending on terrain. The structure requires 31 ammo boxes

END VIEW



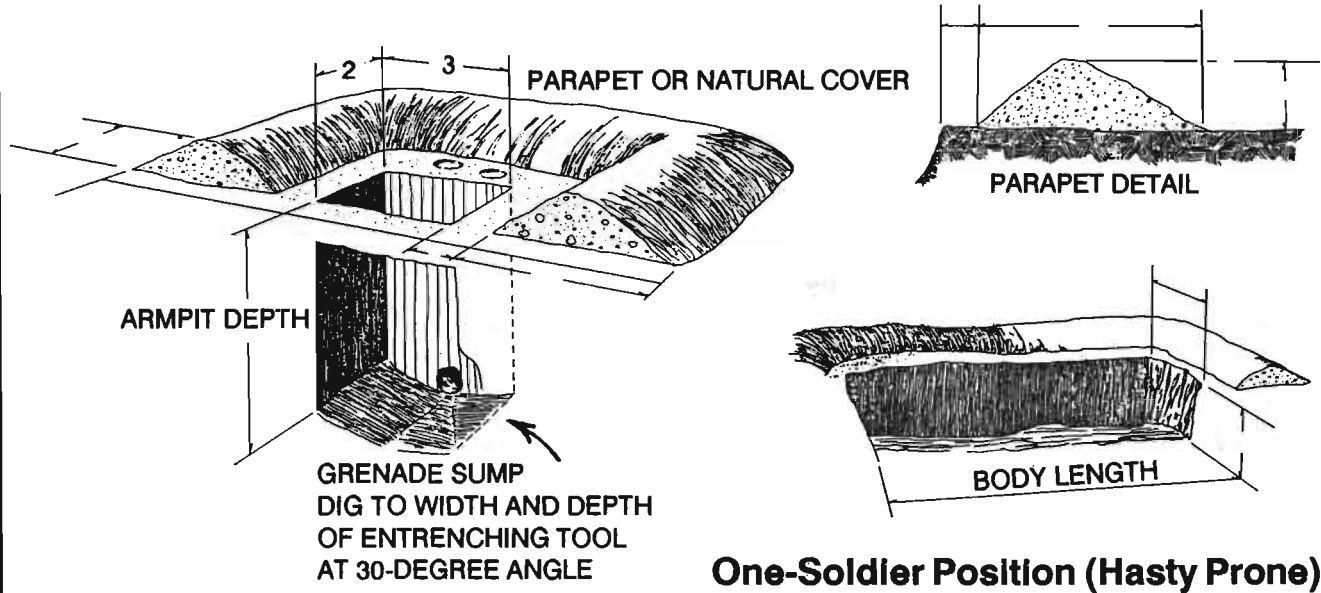
### Increased Survivability For Prestocked Ammo



This field-expedient method protects main gun ammunition from indirect fire. The basic building block is the empty ammo crate, filled with soil taken from the slit trench excavation that allows the rounds to be stored below ground level.

At left, schematic shows how rounds should be stacked in the enclosure.

## One-Soldier Position (Deliberate)



"usually for APCs and CEVs and are not recommended for tanks because of their false sense of security."

<sup>10</sup> FM 90-3, 4-6, elaborates on desert fighting positions, which consist of irregularly-shaped scoops approximately

two meters deep in the center and three times the vehicle width.

<sup>11</sup> The mount would be similar, but not as complicated as the mounting developed in the late 1970s for the tank-mounted reconnaissance motorcycle.

<sup>12</sup> The one-soldier deliberate fighting position requires removal of 30 cubic feet of soil (3 ft. x 2 ft. x 5 ft.), compared with 18 cubic feet for the hasty prone position (6 ft. x 2 ft. x 1.5 ft.)

## Battalion Task Force Emplacement Time

Chart illustrates how to calculate the time needed to emplace a heavy division battalion task force with a mix of M1 and M2 vehicles. (In an M60/M113-equipped force, there would be more dozer time available per tank because many units do not dig in hasty fighting positions for the APCs in the hide. But in either case, estimates do not include scout or mortar vehicles.)

TF ELEMENT	HULL POSITION		TURRET POSITION		TOTAL TIME
	Per	Total	Per	Total	
Co. A (M1)	.9	12.6	1.5	21.0	33.6
Co. B (M1)	.9	12.6	1.5	21.0	33.6
Co. C (M2)	.8	10.4	1.2	15.6	26.0
Co. D (M2)	.8	10.4	1.2	15.6	26.0
<b>TOTALS</b>		<b>46.0</b>		<b>73.2</b>	<b>119.2</b>

Note: Total time would be greater if the TF had more infantry and Co. E (i.e., more vehicles). Chart assumes emplacement of 12 platoons and availability of two ACEs for 48 hours.

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**"Weaver's Warriors":**

## **The 192nd Tank Battalion In the Philippines**

by Dr. Lew H. Wallace,  
(edited by James C. Claypool)

An M3 light tank crushes the barriers at a Japanese roadblock on the way to Bataan. The painting is from the National Guard Heritage Series

° 1989 by Northern Kentucky State University

The men had just finished lunch. It was about 12:30 p.m. They were in a wooded area near Clark Field. Above them, American Army Air Force planes had been active all morning, but at noon, the planes landed for refueling and further orders. Suddenly, there was the roar of a large number of planes coming from the northeast. The men in the woods decided that the aircraft approaching must be American naval planes. They ran from under the trees to watch the navy in flight.

There were a few tank crews around the air field, and some of the tank men had field glasses.

The planes came in waves, in groups of twenty-seven each, flying in perfect formation. The planes were bombers.

"They are Japanese!" shouted the tank men. There was, for the men on the ground, what seemed to be an unbelievable, time-frozen moment. But then all hell broke loose.

Maintaining formation, the aircraft dropped their payloads. As the bombers, including dive bombers, passed over Clark Field, Japanese fighters moved in, circling the airfield continuously, strafing anything and anyone that moved. On the ground, there was motion, most of it futile. Men looked for hiding places. There were few, if any. Some anti-aircraft crews reached their weapons and began firing what few shells there were, all of which exploded harmlessly far below their



targets. The P-40 pilots ran for their planes, but only four managed to take off from the rapidly disintegrating runway.

The Japanese fighters - which did perhaps more damage than the bombers - stayed over Clark for 30 minutes or so, then flew in unmolested by gun or American aircraft, leaving the Americans and Filipinos to cope with the damage, death, and horror of war up close. Wrecked planes (which had been most tidily bunched up, much to the pleased surprise of the Japanese), irreparably damaged, including 18 B-17s, were strewn all around the field. Hangars and quarters were in shambles. Explosions and fires from fuel tanks continued for several hours after the bombing. Amid the wreckage and the fires and the exploding caches of ammunition were the dead - 29 officers, 63 enlisted men, and approximately 135 employees.

Doctors and nurses at Clark, themselves stunned by a reality that few could emotionally grasp, nonetheless coped rather magnificently with the large number of casualties in a station hospital strained nearly beyond its capacity. And so it was that war, long talked about, but an abstraction to most Americans, became a reality of blown-off backs, sheared arms and legs, dangling intestines, and cooked or decapitated bodies at Clark Field, the Philippines, on December 8, 1941.

To say that the United States was unprepared for WWII is to dramatically understate the situation. In the weeks and months following Pearl Harbor, the American public reeled from shock to shock as it learned that its Army, Navy, and Army Air Force were falling short in every en-



Men of the 192nd train at Fort Knox in 1941. Four of the six men who trained on this tank, the "Mae West," died in POW camps. Another was killed in action on Bataan.

counter with enemy forces. What the public did not realize was that American firepower was even more fragile and tenuous than news stories ever revealed. The Philippines campaign was just one striking example. When Japanese ground forces landed in the Philippines in December, 1941, they did so knowing that the first line of defense, airpower, had been decimated. The Japanese could not quite believe their good fortune. Why the planes were, as it seemed, arranged for mass destruction so long after Pearl Harbor - and so long after General MacArthur and his aides knew about Pearl Harbor - and why MacArthur did not bomb Formosa, from whence the Japanese bombers flew, are still matters of contention these long years after. But so it was. What even the Japanese did not know was how fragile and paper-thin was the second line of defense, American armor. The only tank units in the Philippines were National Guard units, the 192nd and the 194th Tank Battalions.

A bit of history of the evolution of the Guard tank units is perhaps in order. The genesis of these tank units can be traced to the period following WWI. In 1920, the War Department decided to form tank battalions. Twelve states were chosen for tank companies, these to merge into four battalions. The decision of the War Department was not, however, followed through with vigor, forethought, or planning. Instead of 12 states, 18 states formed divisional tank companies, with no effort to coordinate them into battalions or to equip, recruit, and train such battalions in any large-scale, systematic way. It was not until the 1940-41 period that the four-battalion plan became a reality.

On September 15, 1940, just before the beginning of the Selective Service System, the country's first peacetime draft, the Army began moving National Guard units into the Regular Army. The tank units became part of the incremental mobilization, forming as the 191st, 192nd, 193rd, and 194th.

The 192nd, the "Kentucky" battalion, was the first to organize, reporting to Ft. Knox, Kentucky. Captain Bacon R. Moore, from Company D, (which had been organized July 5, 1932, at Harrodsburg, Kentucky), himself a native Kentuckian, was selected as commander of the 192nd. Captain Theodore F. Wickord, from Illinois, became the executive officer. Organizing the medical detachment was First Lieutenant Alvin C. Poweleit, a reserve officer from Ft. Thomas, Kentucky. Poweleit, who would later become a battalion surgeon, would remain with the battalion from inception to end in the Philippines, sharing the battles, the Bataan death march, and Japanese prison camps. His remembrances, diaries, insights, and later writings would contribute much as to the historical record of the 192nd, as well as the general history of the Philippines campaign and its aftermath.

The 192nd trained at Ft. Knox from November 1940 to October 1941 under the watchful eyes of officers, including General George Patton, sent down from the War Department. Despite obvious problems, especially lack of equipment (most heavy equipment was "simulated" - marked-out areas stood for tanks and other heavy equipment; markers were used for guns), the 192nd performed well, and was as well-trained as possible under circumstances of too little time, too little equipment. The tankers were not, surprisingly and unfortunately as it turned out for many of them, given any formal instruction on survival in the Far East



At Camp Perry, Ohio, men of C Co., 192nd Tank Battalion, prepared to board buses for Fort Knox.

(for the 192nd, though unknown to the men, had already been selected for the Philippines). Such training was, however, given to some of the men through the efforts of Poweleit, who recalled: "I picked up a book, *White Dawn*, which told of a British army officer who was cashiered from the British Army. It spoke of some of his experiences on some of the islands in the Far East. This officer, no matter where he was, studied the fauna and flora of the area and tried to learn the dialect of the people. This struck me as an intelligent means of survival and I used his ideas well. All the officers, non-commissioned officers, and many of the enlisted men, including our medical detachment, read *White Dawn*."

In September 1941, the 192nd left Fort Knox for maneuvers at Camp Polk, Louisiana. Before proceeding to Louisiana, overage men were transferred. One "casualty" was the battalion commander, Bacon Moore. Theodore Wickord relieved him as commander.

It was Wickord who therefore received the secret orders in October 1941 that told him the 192nd would go from Louisiana to "the Pacific," via San Francisco, for extended maneuvers.

On board transport ships, the men learned that their specific destination was Fort Stansberg, Clark Field, the Philippines. One of the sailors aboard the transport Poweleit was sailing on was Japanese. Poweleit, who had purchased and was studying a Japanese grammar (book), striking up casual conversation with the sailor, found a teacher.

He taught Poweleit the fundamentals of Japanese. By the time he reached the Philippines, Poweleit had memorized dozens of words and phrases.

The 192nd arrived in Manila Bay on the morning of November 20, 1941. Tired from the long, monotonous sea voyage, the men were happy to be in the Philippines - even when they learned that the islands were under alert. In fact, few took the idea of alert seriously. Poweleit recalled conversations in the Officers Club where cocky officers talked about knocking off the Japanese in three or four months - if war were ever to come. In a diary note Poweleit wrote: "We had the usual morning routine. Colonel [James] Weaver had a meeting on German tank warfare," adding, "It seemed to me that we should be learning more about Japanese tanks and planes than about German ones." Illusions prevail in life - until reality pulls them apart. Such were the illusions by which Americans prepared for the defense of the Philippines.

Not all of them so prepared, of course. Poweleit himself was one of those who followed Cervantes' powerful piece of psychology:

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"forewarned, forearmed." He continued his study of the Japanese language. He bought a book, *The Flora and Fauna of the Philippines*, studied it, supplementing what he read by hiring a young native to teach him "field work." On November 28, 1941, he wrote, "...We went into the fields to check on some of the edible plants... He showed me the Cogon grass, the papaya seed, the Alibang-bang that could be eaten. Also, [he] told me about mudfish and certain types of earthworms that could be eaten." Poweleit's activities amused some of his fellow soldiers. So did some of his suggestions. On December 24, 1941, he noted: "Colonel Weaver issued orders for a complete alert for the Provisional Tank Groups. He appeared to be the only officer that was interested in protecting his unit and in being prepared. I suggested that since we were so near the [Clark Field] airport, we dig bomb shelters. This was greeted by loud laughter and glib remarks."

In the days between December 3rd and December 8th, there was less derision, more tension among the Army troops, but somehow illusion reigned to the very end. Even after hearing about the bombing of Pearl Harbor, and Camp John Hay in the Philippines, the men around Clark Field identified the incoming planes as "American Navy planes" before lamenting, however briefly, all the undug bomb shelters and foxholes, as illusions became shattered realities.

To measure the 192nd's deeds in the Philippine battles, it is necessary to measure them against the supreme strategy of the campaign. Specifically, one must measure them against the supreme strategy of War Plan Orange, a plan that stretched

back to 1922. The plan sketched a response to a sudden, hypothetical invasion of the islands by Japan. It was a plan that went through subsequent drafts. Simply stated, it had three phases. First, the defenders would try to stop the Japanese at landing points. That failing, phase two called for well-planned, strategic fallbacks, until, if necessary, the defenders would move onto Bataan Peninsula, with headquarters on the stronghold of Corregidor, there to hold out until reinforcements reached the islands.

The man who did the field work, the surveying of Bataan, was none other than General Douglas MacArthur, the recently married (to his first wife) and very recent superintendent of West Point. MacArthur, then a brigadier general, had reservations about Plan Orange when it became painfully obvious that the Japanese (landing first at northern Luzon, then on the eastern coast) were not going to be stopped at landing sites by the U.S.-Filipino troops.

The tanks were to perform the mission of assuring and covering the retrograde withdrawal of the armies of Bataan. It was a mission easy to assign, but difficult to execute. Part of the difficulty lay with the idea of command. The two tank battalions had been combined into a Provisional Tank Group. Colonel (later brigadier general) James R. N. Weaver, West Point graduate, a career infantryman until his transfer to the Philippines, was put in command of the group. But there were "turf" difficulties, leaving a clear-cut chain of command so much in doubt that, even after the Japanese joined the battle, Weaver often found that any general officer commandeered his tanks to use them as

he saw fit. (According to Weaver, General Jonathan Wainwright was one of those who claimed "immediate battle commander" rights, countermanding Weaver's orders.)

In odd sorts of ways, confusion, in company with its compatriots, luck, chance, and circumstance, can weave favorable designs in the fabric of war. The lack of a fixed command, the lack of a fixed position (tanks, units, even companies moved from one battalion to the other) makes it difficult to trace the actions of the 192nd into "history." And it made it difficult to coordinate the tank units in battle. But it also had the very favorable effect of confusing the Japanese. The random, sometimes patternless, movement of tanks led the Japanese to overestimate the number of tanks they were facing, made them more cautious than they had any reason to be, slowed them down, and caused them therefore to fall behind their Philippines timetable.

While a retrograde maneuver is a complicated feat at best, it was a particularly difficult one in the Philippines, for MacArthur was overseeing a double retrograde maneuver, moving at the same time two large forces, the Northern Luzon Force, under the command of Major General Jonathan M. Wainwright, and the Southern Luzon Force, under the command of Brigadier General Albert M. Jones.

Compounding the intricacies of the operation was the fact that the forces had large numbers of Filipino conscripts who spoke no English and were, in most cases, led by Americans who did not speak any of the various Filipino dialects. Americans relied on improvised



The crew of "Helen," a new M3 Stuart tank of B Co., 192nd Tank Battalion, in a snapshot taken on Bataan in early 1942.

men and tanks, spreading them out on an east-west bias farther than they should have been spread. But they fought well.

Even the medical units fought. In defiance of MacArthur's orders that they should not carry arms, the medics kept their guns. Dr. Poweleit joined one firefight, and the noncombatant medical doctor shot to kill. He recalled that, "On the road back to our bivouac area, we ran into Major Wickord. We told him what had happened, but he said not to mention it, as we were not supposed to have weapons; but (Poweleit added wryly) he commended us for what we did." It was a lapse in orders, but a calculatedly overlooked one.

There were other lapses, some not calculated. One lieutenant simply forgot to relay orders to the tankers (with whom Poweleit was traveling) to relocate on the "safe" side of the Pampanga River. A captain from another unit reached them, filled in the order, and the tank unit went hurtling off to try to make up lost time. The unit reached the bridge on the river that the Japanese had just blown.

There was a confusing mill of men and equipment at the site. Someone told Poweleit that one of the M3 tanks had been on the bridge when it was blown, and that the tank had gone over into the water. Poweleit and others rushed to the water, there to see, just below the surface, a track of a Bren gun carrier. Recalled Poweleit, "I then dropped from the bridge into the water and swam over the gun carrier to climb on top... I thought I heard muffled voices, so I dove down in the water and came up under the carrier. I felt a body, which I pulled out and brought to shore, then went back to

sign language to convey orders. MacArthur later wrote that the operation was basically simple: "Again and again, these tactics would be repeated. Stand and fight; slip back and dynamite. It was savage and bloody, but it won time." It was not simple. It was quite complex. And it was brilliant.

It was also pure MacArthur. He had clearly missed a crucial move by failing to bomb Formosa. He waffled and vacillated over initiating War Plan Orange. But once he did initiate it, he executed it with genius. MacArthur was the walking embodiment of the double helix, the pretty and the magnificent, the attractive and the unattractive, overlooked opportunities and grand, unified strategies, combining in such ways that it was sometimes difficult to separate them and truly assess him in any given situation.

But the most obvious trait he exhibited in the "defense-fallback" campaign was brilliance. General Masahara Homma, commander of the Japanese forces, believed that MacArthur intended to make his stand at Manila. He discounted the mass movement of his enemy's forces toward the Bataan Peninsula as either diversion or disorganized

movements of shocked forces. The Japanese had obviously never heard of the Orange Plan. They had no counter-plan for Bataan whatsoever.

The key to the retrograde maneuver was Calumpit Bridge, a twin-spanned structure (one for a railroad, the other for a two-lane highway) which crossed the swift, unfordable Pampanga River. The bridge was the funnel through which all troops and equipment needed for prepared positions in Bataan would have to pass. The key to a successful run of the Calumpit funnel was the tanks. They had to guard both the Northern and Southern Luzon Forces across the bridge, then cross it themselves before blowing the bridge.

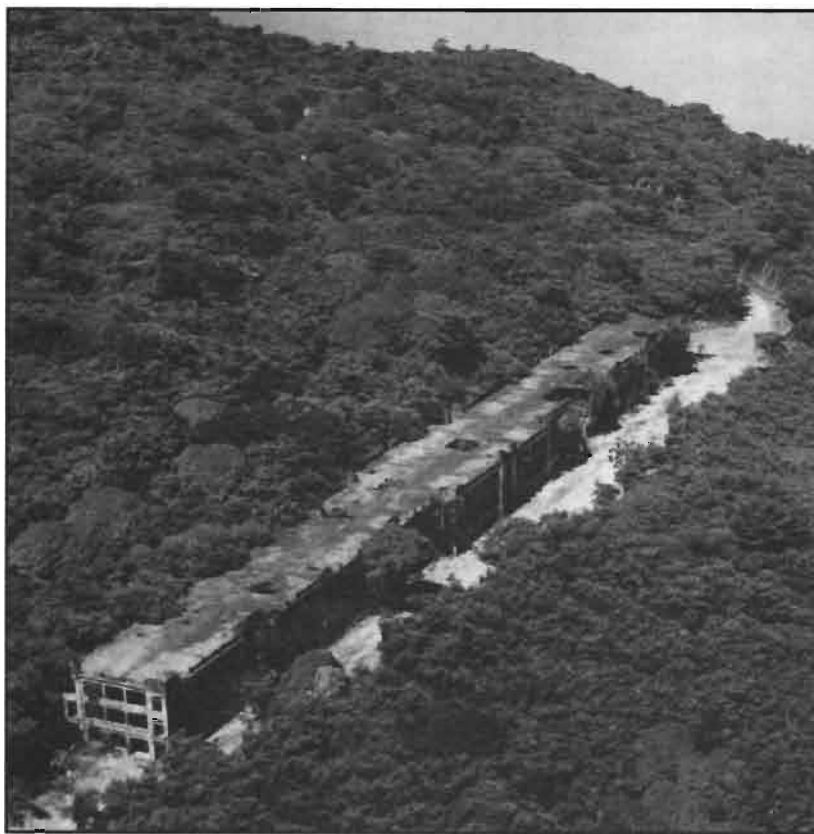
The tank units performed superbly, though not without equal parts of courage and chaos, clever tactics, and utter confusion. Grand strategy is bloodless and abstract and theoretical in conception, but it is always played out in the human arena of men and arms, in blood, sweat and tears. The tankers, as was true with almost all troops, were in poor physical condition. Lack of sleep, short rations, and constant alertness took their toll. Dive bombers and strafers persistently harassed the

get the other man. The tank was still hot and I burned my arms and the side of my face while getting the last man out."

One of the men survived his ordeal of fire and water. Poweleit recognized him as a sergeant of communications, attached to the 192nd Tank Battalion. Grand strategy and global war had indeed become personal. (General Weaver recommended Dr. Poweleit for the Distinguished Service Cross for his exploits. For some reason, unknown to either Weaver or Poweleit, the award he did receive was the Legion of Merit, rarely awarded to medical officers. He was also the first medical officer in the Armored Force to be decorated in WWII.)

Other moments of confusion and error prevailed. The tankers of the 192nd worked their way to San Fernando. Alongside the city were rail lines, on which were parked boxcars, some filled with ammunition. Japanese planes suddenly attacked, setting off the munitions. From Poweleit's diary, one reads, "The explosions that followed were terrific. The men who heard the explosions thought it was enemy artillery and moved out. When Major (now Lieutenant Colonel) Wickord came over, he found only the medical detachment and equipment, since the rest of the 192nd Tank Battalion had moved to the rear.

Lieutenant Colonel Wickord was very angry when he caught up with the tank outfit. He excoriated them for leaving their positions without an order." (I add here that Lieutenant Colonel Wickord always tried to see that the order of withdrawal was given to all men, no matter where their unit was located.)



Barracks on the island of Corregidor are a burned-out ruin following the intensive Japanese bombardment. Note shell holes in the roof.

But in spite of lapses of judgment, in spite of the chaos and confusion, and the hundreds and thousands of personal, human dramas that piece together war, Plan Orange was working. The light tanks, M3s, virtually useless in jungles and rice paddy country, were invaluable to MacArthur's double retrograde maneuver. The tanks held when it was absolutely necessary to hold. As the retreating forces converged on the bridge, the Calumpit (in all, some 184 vital bridges had to be held and blown at the last moment), the Japanese - perhaps just then sensing that the retreat was a plan, not a rout - began massing troops at strategic locations. One such place was Baliuag, in an area near the bridge. Ten light tanks of Co. C of the 192nd were rushed to the areas by

General Weaver with orders to "hold the area at all costs." The tanks ambushed a larger Japanese tank unit, scattered it, chased individual Japanese tanks through town, then regrouped near the Calumpit Bridge to engage Japanese infantry. At one point, the tankers were so low on machine gun ammo that tanks were firing at individual soldiers with single rounds of 37-mm ammunition. By the time the company withdrew onto Bataan, only two tanks were still operating; but the Japanese had been halted for a tactically long moment.

A platoon of Company B of the 192nd, temporarily switched to the 194th Tank Battalion, also held, and held perhaps under even more harrowing conditions. Reconnoitering for the Northern Luzon Force, five

tanks took a narrow road running in the direction of Japanese lines, staying in sight contact with each other. As they rounded the curve, the second tank lost the leader. The driver accelerated to close the gap. Just then a shell exploded behind the tank. The tankers realized they were trapped. There was no room to turn around. The tankers followed the old saw that if you are lost, or trapped, double your speed. The four tanks hurtled down the road, smashing gun units and road blocks. Finding a place to turn around, the tanks came back along the road, running through gun nests and over Japanese soldiers. Returning to the site of the original attack, they found the lead tank. It had been hit, the crew dead. Then the second, third, fourth, and fifth tanks were hit. A few men escaped, but most of the platoon was killed. The men of the second tank were trapped inside the tank. When Japanese soldiers inspected the damaged tank, the men inside pretended to be dead. They survived several Japanese inspections, intense heat, and an artillery attack by American-Filipino forces. After the Japanese, who had seen the tanks roaring up and down, and who again overestimated their number, finally moved out of the area, the men began a three-day trek toward friendly lines. They found two other survivors of the battle along the way. With luck, some timely help from Filipino citizens, they eventually reached Manila, where the wounded were turned over to the Philippine General Hospital. The rest eventually caught passage on a Red Cross boat going to Corregidor. After a brief rest, they went to Bataan, joined what was left of the tank group, and fought the Bataan battle until surrender. But the most important contribution

had been made, perhaps, had been made in the initial tank battle, for it was these kinds of skirmishes that held the Japanese at bay and away from the Calumpit Bridge for the last crucial hours.

Meanwhile, the Calumpit Bridge was a veritable madhouse. The Northern Luzon Force crossed first, the South Force following. Both created and were caught up in a two-day traffic jam, as wheeled vehicles of every variety, from trucks to taxis to oxcarts, brought troops and refugees to the bridge. At dawn on December 31st, the South Luzon Force started to cross. On the night of December 31st-January 1st, the bridge was blown. The North and South Luzon Forces became the Army of Bataan. There was one more river - the bridge at Layac - to cross. On January 6, 1942, the army was across. The Layac bridge was blown. Eighty-thousand troops - and 26,000 refugees - were now "safe" on Bataan.

The tank units were the last to reach Bataan. The 194th and 192nd crossed the Pampang on the night of January 6-7, at a smaller bridge at Culis. The 192nd covered the 194th, then crossed too, the last American forces into Bataan. The retrograde maneuver was now complete. From January 7th to April 3rd, when the Japanese began an all-out offensive against Bataan, the tank units, ranks and equipment greatly reduced, on half rations, ragged and worn down, continued fighting. The 192nd assumed beach defense of the east coast.

The area held by the Army of Bataan shrank dramatically. That the Philippines had been written off as a "lost cause," that there would be no reinforcement of the Philip-

ines, the Army understood. That "safe" was a relative word, the troops understood. Yet they fought on. The tank units resisted attacks to the bitter end, defending positions and fighting on narrow trails, just as fiercely as they had from the beginning. However they thought of it at the time, the tankers, years later, could take consolation from their despair. The Orange Plan worked, in large measure due to the shield of armor the tanks provided. The execution of the plan - and the continued resistance on the peninsula - altered the Japanese timetable (Tokyo had given General Homma February 8 for the conquest of the Philippines), and in so altering, probably saved Australia from invasion. Bataan was the only glimmer of organized resistance to the swift, spreading, and nearly all-encompassing conquests of Japan. The part the tank units played was - and is - little noted: "This unit contributed most vitally in all stages and under extraordinary handicaps to the protraction of the operations and withdrawal (to Bataan)." Inexperienced, hastily trained, rushed into battle with a vastly superior enemy, disorganized, and disoriented, the tank units did indeed have their brief moments of glory...

This article was written by Dr. Lew Wallace, faculty regent and professor in the Department of History and Geography, Northern Kentucky State University, for the Kentucky National Guard dedication ceremony of the 192nd Tank Battalion in May. James C. Claypool, archivist and curator at the University, edited the account. Photos are from the University archives.



Those reactive armor "bricks" on the turret and glacis of this Soviet tank threaten to neutralize our HEAT munitions, including most antitank missiles.

Could plain, old fire be the solution?



## Carrying the Torch for Soviet Reactive Armor

by Richard K. Fickett

A 105-mm incendiary projectile could be a near-term, low-tech, capability to help fill the HEAT vacuum.

A Vietnam-era infantryman might describe Soviet explosive reactive armor (ERA) as "a bunch of flattened-out Claymore mines." From a tanker's standpoint, however, that so-called "bunch of Claymore mines" has all but eliminated his high explosive antitank (HEAT) projectile as an effective round against the ERA-equipped Soviet T-64B and T-80 tanks.

The search for ERA countermeasures has been concentrated in several areas.

First, the TOW 2 missile has been redesigned. The tandem-charge, or "blocking-back" concept, incorporated in TOW 2A, uses a small

explosive charge in the probe to blow a hole through an ERA "brick," paving the way for the shaped charge to penetrate the hull or turret in the conventional manner. TOW 2A went into production in 1987.

A second modification, TOW 2B, is designed with a "fly over, shoot down" capability. Similar in concept to the Swedish BILL 2 missile, TOW 2B employs top-attack, using dual warheads canted 30 degrees down, and triggered by proximity fuzes. Instead of hitting the turret or hull broadside, the missile flies just *above* the target tank and the warheads detonate *downward* as it passes over the thinner top armor. TOW 2B, however, won't enter production until 1991.

Next, development continues on the Multiple Launch Rocket System

(MLRS) with Terminal Guidance Warhead. MLRS-TGW is a "fire-and-forget" antiarmor munition that employs a dual-mode, terminal-homing seeker to attack the top armor of tanks in dispersed formations. MLRS-TGW is not scheduled to enter its system demonstration phase until 1989.

Finally, the development and deployment of enhanced kinetic energy (KE) rounds has been accelerated. Current deployment of the M1A1 tank, equipped with its 120-mm smoothbore gun and APFSDS-T projectile, provides U.S. armor units with an assured-kill capability against any known Soviet tank, including those equipped with ERA. Unfortunately, only a relative handful of M1A1 tanks has been deployed.

A ground-launched hypervelocity missile weapon system (HVMWS)



The M202, a shoulder-fired, four-rocket flame weapon of the 1960s

has entered its concept definition phase. Preliminary test firings have sustained its viability as a TOW-replacement candidate in the Advanced Antiarmor Weapon System-Heavy (AAWS-H) Program. Production would not occur until the mid-1990s.

Electromagnetic gun technology shows promise in an armor-defeating role, with probable deployment in the next century.

Until significant quantities of other ERA-defeating weapon systems come on line, the M60- and M1-series tanks equipped with the M68 105-mm rifled gun and APFSDS-T projectile must bear a disproportionate share of the antitank burden.

### Background

In rushing to high-tech solutions, we may have overlooked other, less complex, but equally effective,

countermeasures, which could be fielded in less time. Tank-disabling incendiary munitions are an example.

The employment of incendiary munitions in the antitank role dates to the late 1930s, with the innovative Finnish "Molotov Cocktail." This was nothing more than a bottle of gasoline with a rag stuffed in the neck as a fuze. During World War II, napalm was perfected and employed with devastating results.

In the late 1950s and early 1960s, the 101st Airborne Division developed two expedient flame devices, the "Eagle Cocktail" and the "Eagle Fireball" (Figure 1). These devices were subsequently adopted as part of U. S. Army antitank doctrine.

During the 1960s, the U.S. Army fielded the four-tube, shoulder-fired M202 rocket launcher, a flame weapon capable of engaging targets

at a maximum range of 750 meters, using the M74 incendiary rocket. The M74 warhead contained about 1-1/2 pounds of thickened triethylaluminum, which provided a 20-meter bursting radius.

Incendiary munitions used in an antitank role have also demonstrated significant operational disadvantages. Napalm is an area weapon, and cannot be used when opposing forces are in close proximity. The engagement range of any hand-thrown expedient device is severely limited, and exposes the thrower to enemy fire.

Incendiary mixtures require engineer expertise in handling, and the availability of engineer support is not always assured. Troop safety, munition storage, and weather conditions are ever-present concerns.

### Proposal

Development of a 105-mm incendiary projectile could exploit the tank-disabling potential of splatter-type munitions and provide a new general-purpose partner for the APFSDS-T projectile.

The proposal has several advantages:

- **Tank-immaterial.** An incendiary projectile designed to defeat a tank without hull or turret penetration would provide an armor-immaterial capability to defeat not only current Soviet tanks equipped with ERA, but also emerging future Soviet tank (FST) variants.

- **Large presented area.** All tanks offer large external surface areas. However, an incendiary's splatter effect would be enhanced by the large, squared-off surfaces of the

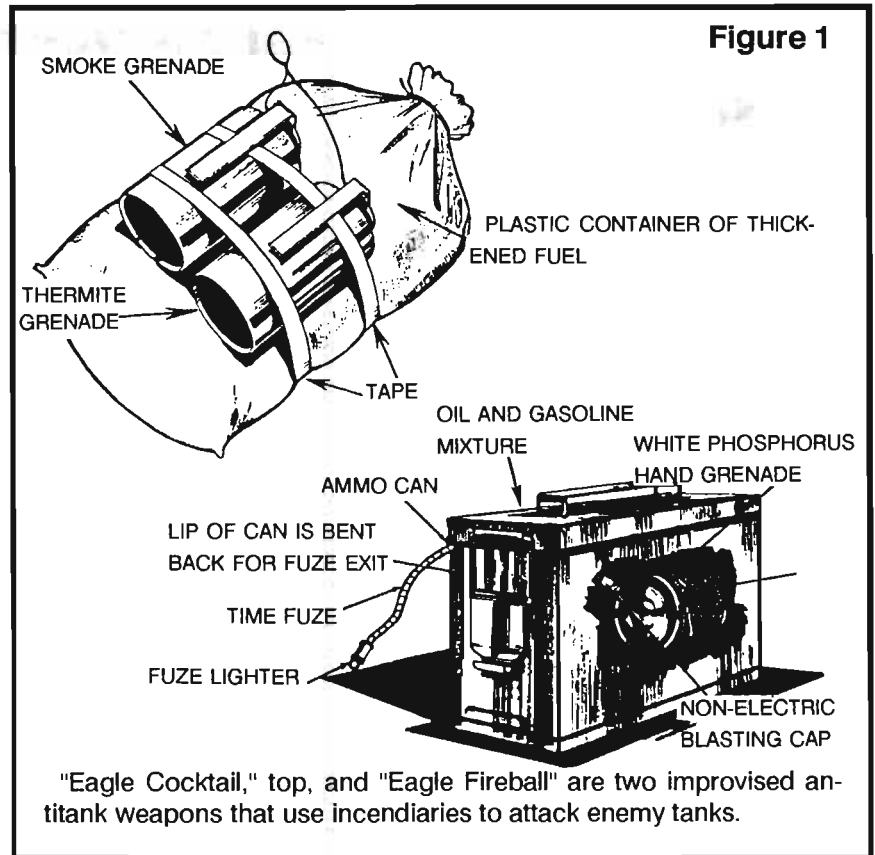
"bricked" tiers of an ERA-equipped tank. Projectile angle of attack is not critical.

- **Targets the tank driver.** The incendiary projectile employs a "counter-driver" strategy. The tank driver is a soft target. His escape hatch is part of the tank's frontal presented area. Egress has been complicated by the addition of reactive armor. Disabling the driver temporarily immobilizes the tank, increasing its vulnerability to a second shot. Driver incapacitation would reduce a Soviet three-man crew by 33 percent, degrading its overall combat effectiveness and round-the-clock capability.

- **Potential crew exposure.** When buttoned-up, the impact of an incendiary projectile could produce sufficient flame and smoke to force the crew to abandon the tank. The crew would then be exposed to automatic weapon fire.

- **Uses off-the-shelf technology.** The M416 105-mm white phosphorus (WP) projectile could be converted into an incendiary projectile by replacing its 6-pound WP filler with an incendiary agent. Thickened triethylaluminum, the filler used with the M74 incendiary rocket, is an option. The use of existing components and materials should minimize development time and accelerate fielding.

- **R&D "Psywar."** A highly-visible, media-oriented demonstration of the antitank effectiveness of an incendiary projectile might deter Soviet proliferation of reactive armor. If nothing else, a demonstration open to foreign media could begin to erode newly-acquired confidence among T-64B and T-80 tank crews of the GSFG.



### Disadvantages

The proposal also has some limitations:

- **Increased competition for limited funds.** Development of a 105-mm incendiary projectile would probably qualify as a "new start," with the accompanying paperwork and staffing requirement. Development funding would compete with other approved requirements in the overall tank program.

- **Difference in effective range.** A comparison of muzzle velocities for the M416 WP (736 m/sec) and the M774 APFSDS-T (1,508 m/sec) projectiles suggests a gap in effective range between an incendiary projectile designed around the M416 and the M774.

- **Stowed load complexity.** The availability of a new incendiary projectile could complicate a tank commander's options regarding his stowed projectile mix.

The early operational advantage achieved by Soviet ERA could be nullified by an equally simplistic countermeasure — fire. An incendiary capability for the 105-mm tank gun would enable a T-64B or T-80 tank to be knocked out the old-fashioned way — by burning it.

Richard K. Fickett is a retired infantryman now employed as an independent consultant in Virginia. While on active duty, he supervised the preparation of all conventional ammunition and missile war reserve studies for the Department of the Army. Recently, he has served as consultant to the Joint U.S. Army - U.S. Marine Corps Hypervelocity Missile Weapon System Concept Definition Analysis.

# Is Your Personnel Action Center Ready for War?

by Captain Thomas D. Mayfield

*As the company commanders and staff are gathered around the conference table attentively listening to a briefing for an upcoming exercise, a curious company commander raises his hand and asks the S-3, "Sir, how long do we have to stay dead when our MILES light goes off?"*

*The S-3 fumbles through his copy of the brigade's LOI and says, "The controllers will reconstitute your tanks four hours after they're killed."*

*The S-1 breathes a silent sigh and decides that the Personnel Administration Center (PAC) personnel, except for one clerk, will stay back as the battalion's rear detachment for this exercise. He has also decided that he'll need to stop by the Stars and Stripes Bookstore on his way home to pick up a good novel to read during the exercise. The S-1 knows that, once again, the maneuver planners have decided that personnel operations are too time-consuming and cumbersome to fit into the tight time schedule of the exercise.*

How often has this happened in your battalion? Probably, with the exception of your battalion ARTEP evaluation or a rotation to the National Training Center, nearly every exercise. And therein lies the problem. Are we training our PAC personnel and our company-level logistics personnel the way we would fight a war? Are we going to be able to keep up with the high rate of casualties in the next war? Will we be able to keep track of the continuous attachments and detachments of our combined-arms task forces and company teams? Is the

highly mobile armored atmosphere of the next war going to outrun our ability to evacuate casualties and send replacements to front-line units?

With the present state of our personnel systems, I am afraid that in most units, the answer to all these questions is not very pleasant. We have done a good job of creating PACs that can type EERs, fill-out leave forms, process personnel transactions, and perform all the other peacetime garrison functions, but we have neglected the tactical wartime missions of the PAC. The introduction of the Tactical Army Combat Service Support Computer System (TACCS) is a step in the right direction, but we have a long way to go before we can feel comfortable about our ability to support the maneuver elements during a high-intensity war.

The problem is to train our PAC personnel in their many wartime missions without degrading the very important peacetime functions of the day-to-day activities. As any first sergeant will tell you, we can't simply close the doors of the PAC for a week of tactical personnel training.

The business of taking care of soldiers' personal and professional needs is an ongoing process with constant demands of time and skilled personnel. This problem is one that we must solve in order to ensure that the next war does not turn our personnel systems into chaos at the first sight of mass casualties. The solution to this problem is in our leadership. Commanders, S-1s, PAC supervisors,

and company first sergeants must exercise the personnel system whenever possible.

*The Adjutant and S-1 Handbook* identifies five critical wartime personnel functions. They are: strength accounting, casualty reporting, enemy prisoner of war (EPW) operations, medical support, and replacement operations.<sup>1</sup> Each of these tasks, in itself, is critical to the operation of a combat unit. Together, these tasks can make or break a unit in extended operations.

During the Lorraine Campaign in WW II, General Patton's Third Army suffered a total of 55,182 killed, wounded, and missing soldiers from 1 September to 18 December 1944. In addition the number of non-battle casualties — those evacuated because of fatigue, exposure, and disease — is officially reported as 42,088 officers and men.<sup>2</sup> The bitterly contested advance in November 1944, made under difficult conditions of weather and terrain, resulted in a high casualty rate that could not be offset by the number of replacements available.

In that month, the Third Army received only 26,981 replacements, although its casualty list numbered 38,510. By 30 November 1944, there was a shortage of 10,184 officers and men — mostly infantry, tankers, and medical aidmen — in the divisions.

Although these figures represent the losses of an entire army, they can give an idea of the massive number of casualties we can expect in

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the next war. The following points address the three combat-critical tasks which the PAC performs: wartime strength and personnel accounting, casualty reporting, and replacement operations. They will also suggest some ways you can train your PAC personnel to be ready to handle the heavy burden of personnel operations in combat.

### **Strength Accounting**

Strength accounting is the combat critical task that provides the commander with personnel information about the capability of his units. During tactical operations, accurate strength data will help the commander and the S-3 decide which units are best suited for a particular combat mission. In the confusion of battle, the TOC often may receive inaccurate or incomplete reports of battle losses. The S-1 must be able to paint the personnel picture for the commander at any given time in the battle.

Strength accounting is very difficult and is made even more difficult when the task organization of the unit changes. When a company becomes attached to, or detached from, the task force in preparation for the battle, the S-1 must coordinate with the gaining or losing unit to ensure he transfers the proper strength data.

The problem becomes more difficult when units from outside the brigade, such as ADA or engineer units, are attached to the task force. The brigade S-1's TACCS does not contain data on units outside the brigade, and the S-1 must make face-to-face coordination to receive the strength and personnel data he needs.

Wartime personnel accounting, part of strength accounting, is the process whereby the PAC identifies, by name, grade, MOS, and skill level, every soldier in the task force. Personnel accounting is a critical personnel and accounting task in wartime; it must be 100-percent accurate. Task organization changes and inaccurate or misunderstood reports can make personnel accounting very difficult to manage.

The keys to successful strength and personnel accounting are: good SOPs within the battalion and brigade, proper use of the TACCS system, and lots of practice. The clerks who receive the casualty reports in the admin/log center (ALC) must be able to react to changes in the task organization, receive and accurately record reports from subordinate units, and properly process the information through the brigade S-1. The S-1 and his clerks in the ALC must also be able to keep a running total of casualties, evacuations, and soldiers returned to the units, and be able to report the information to the commander at any time.

Training your PAC in wartime strength and personnel accounting is not an easy task, but you can do it with minimal disruption of the PAC's daily activities. Prior to your training, you'll need to print a copy of your unit's battle roster from your TACCS computer. Get a copy of the battle roster from one of your sister units which normally cross-attaches with your battalion during tactical exercises, and get a copy of the battle roster or unit manning report (UMR) from a non-brigade unit (FA, ADA, or engineer). You'll also need to coordinate the use of the S-4's command post

vehicle (M-577) and two additional vehicles (probably 1/4-ton) with radios. On the training schedule, set aside about four hours one afternoon to conduct your exercise. Finally, in preparation, coordinate with the company first sergeants to ensure they don't schedule any PAC business during your training.

On the day of your training, split the PAC as it would be in the field. Put the S-1 and two clerks in the M577 to act as the PAC forward, and put the remainder of the PAC in a separate location with one of the 1/4-ton vehicles to act as the PAC rear. Ensure the TACCS is located near the PAC rear. You can even locate your PAC rear just outside your battalion headquarters to avoid having to move your TACCS for the training.

When you're ready to begin your exercise, brief the S-1 and the PAC supervisor on the task organization you've created and on the tactical situation. Give them a little time to consolidate the battle rosters before you begin the exercise. In the second 1/4-ton vehicle, have a reader with a prepared script to act as the company first sergeants. The reader will send reports of KIAs, MIAs, and WIAs to the S-1 over the radio, using your battalion's reporting SOP. Make the PAC forward receive the reports, consolidate the information, and send the data via radio or courier to the PAC rear. Make the rear process the information, prepare the proper transactions, and send the appropriate reports to the brigade S-1.

At the end of the exercise, compare the information from the prepared script with the information at the PAC forward and at the

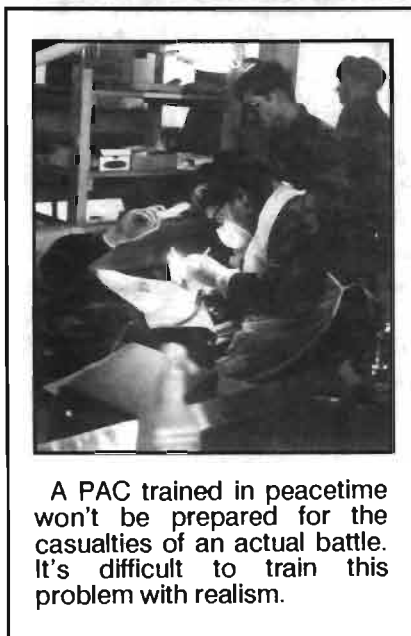
PAC rear. Conduct an after-action review and point out the mistakes. Then discuss ways to change the process to make it work better for your unit. Use the crawl-walk-run method in your training. The results of the exercise may not be perfect, but with enough training, your PAC can become proficient in strength accounting.

### Casualty Reporting

When your PAC becomes proficient in wartime strength accounting, the next step is to train casualty reporting. A casualty is a soldier who is lost to the unit by being declared dead, missing, wounded, or detained. Casualty reports are critical to wartime personnel and administration; they must be transmitted quickly with 100-percent accuracy. Your soldiers are bound by oath and honor to give their lives, if need be, in the accomplishment of their mission. Our responsibility to the families and next of kin must be approached with the same commitment and professionalism.

The problems that affect wartime strength accounting also affect casualty reporting. If your personnel accounting is not straight, then you can expect your casualty reporting to be incorrect as well. The lack of good SOPs, inaccurate or untimely reports, and frequent changes in task organization can lead to serious problems in your casualty reporting.

The PAC must log each casualty, assign a control number to the casualty, and cross-check the data with the casualty feeder reports (DA Form 1156) and the witness statements (DA Form 1155), as well as with the patient logs at the bat-



A PAC trained in peacetime won't be prepared for the casualties of an actual battle. It's difficult to train this problem with realism.

talion aid station. The PAC must then report the losses to the brigade S-1 for proper notification. In the case of a dead or missing soldier, the commander must prepare a letter of sympathy to the next-of-kin and send it through the casualty reporting channels. The TACCS clerk must also prepare the proper personnel transactions, process them through the TACCS system, and update the unit's battle roster.

To train your PAC in casualty reporting procedures, set up your PAC the same way you did for your strength accounting exercise. The conduct of the casualty exercise will be similar to the strength accounting exercise. Require the PAC to prepare the casualty transactions as well as maintain the strength data.

For this exercise, you will need a player from the battalion aid station, and you will also need some prepared casualty feeder reports (DA Form 1156) and witness statements (DA Form 1155).

Make the exercise reader send casualty reports, by battle roster number, to the S-1. Give casualty feeder reports to the aid station corresponding to the reported casualties. Make the PAC cross-check the information as it comes in. You can include mistakes in the reports to help exercise your PAC's cross-checking system. Ensure the PAC initiates the sympathy letters and makes the proper transactions with the TACCS computer.

Mass casualties and inaccurate or incomplete reports are realities the PAC may have to deal with in the next war. You'll do no one any favors if you make the exercise too easy.

Upon completion of the exercise, conduct an AAR. Compare the information sent initially to the S-1 and the aid station's records with the reports the PAC prepared to send to the brigade S-1. Point out the errors and make suggestions that will help the S-1 section improve next time.

Repetition is the key to proficiency in casualty reporting. As your clerks become more comfortable with their duties, their performance will improve. Ensure that every member of the PAC can perform all the functions in the PAC forward and the PAC rear. Each member of the PAC should be able to assume any of the PAC's functions at any time in combat.

### Replacement Operations

The lethality of the modern battlefield demands that we be able to keep a continuous flow of replacement personnel and equipment moving to our front-line units. Accurate and effective strength ac-



counting and casualty reporting will result in the generation of replacements for your unit. When replacements arrive, your PAC must be ready to receive and in-process the soldiers and determine where the battalion can best use them. Finally, the PAC must get them to their new unit.

The PAC must establish a replacement receiving point (RRP) in the battalion field trains. The RRP must have sufficient space and equipment to hold the replacements until you can transport them to their units on resupply vehicles. As replacements arrive at the RRP, the PAC must perform several administrative functions. The PAC must welcome the soldiers to the unit, orient them to the current tactical situation, inspect the clothing and equipment of the replacements, and make corrections as necessary. The PAC must inspect the replacement's personnel records and make the proper TACCS transactions to add the soldier to the unit's battle roster. The S-1 must confer with the S-3 and commander to determine which unit should have priority of replacements based on the tactical situation. Finally, the PAC supervisor must coordinate with the support platoon leader for movement of the replacements to the front-line units.

In garrison, you can train your PAC to set-up the RRP (maybe in your unit motor pool) and you can train your TACCS operator to make the proper strength transactions, but you can do the best replacement training when your unit is deployed in the field. The best replacement training I have seen was conducted during a battalion ARTEP evaluation in Hohenfels

Training Area in Germany. In this exercise, the brigade staff tasked a unit not involved in the exercise to provide 30 soldiers to act as replacement personnel. The brigade S-1 gave them all fictitious names and assignment orders to the battalion. The PAC had to in-process the soldiers through the battalion RRP and transport them to their gaining units, which were involved in the actual ARTEP maneuvers.

When the replacements reached their companies, they each immediately became casualties, some KIA and some WIA. The companies then had to report and evacuate the casualties through the battalion aid station or the battalion graves registration point, and eventually back to the brigade BSA.

During the exercise, both the replacement system and the casualty reporting and evacuation system were exercised. The units actually participating in the maneuver did not have to take soldiers away from their valuable training, and the soldiers used as replacements were returned to their units in less than 24 hours. The training was interesting and very beneficial to the units involved. The training was also low-cost in terms of affecting the maneuver companies' ability to conduct their ARTEP maneuvers.

### Conclusion

With a little initiative and innovation, you can train your unit to do well in personnel operations. The key to proficiency is simply practice. Set aside time on your training schedule on a weekly basis to exercise your PAC's ability to conduct tactical operations. Involve everyone

in the PAC, as well as the company-level logistics operators.

The long-standing perception, that the PAC is a garrison-oriented organization, is wrong. The next war is likely to prove that wartime personnel functions are imperative for the continued operations of the combat units. With the proper training and emphasis from commanders, our units will not have to relearn the lessons of the past.

### Notes

<sup>1</sup> U.S. Department of the Army, The Adjutant and S1 Handbook, Coordinating Draft, 1986, p. 7-1.

<sup>2</sup> Cole, Hugh M. The Lorraine Campaign. U.S. Government Printing Office, 1950.

<sup>3</sup> Cole, p. 594

<sup>4</sup> Handbook, p. 7-5

<sup>5</sup> Handbook, p. 7-6

<sup>6</sup> Handbook, p. 7-9

<sup>7</sup> Handbook, p. 7-9.

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# Soviet Tank Training

by Captain Michael T. Pierson

## Introduction

Soviet history credits its massive tank armies with the expulsion of the German Army in WWII. Reflecting lessons learned during WWII, Soviet doctrine still identifies tank troops as the primary striking arm of the Soviet Ground Forces. The introduction of nuclear weapons has not significantly reduced the Soviet regard for tanks, but crews now prepare to fight under NBC conditions.

There are approximately 50 tank divisions in the Soviet Ground Forces with an inventory of over 45,000 tanks. To defeat this massive army, it is necessary to understand how it trains and plans to fight in the next war.

The Soviet tank training program is an intensive system that reflects recent constraints of increasing cost, greater complexity of weapons, the 1967 reduction of Soviet military service to two years, and the semiannual troop rotation. The objective of the system is to achieve total

crew proficiency within six months. In pursuing this goal, the Soviet system of tank training differs somewhat from the American system.

The semiannual troop rotation in the Soviet military results in an influx of new tank crew members every six months. The Soviet system does not replace entire tank crews but, under most conditions, will replace one member of the crew at a time. A crew member eligible for discharge is not allowed to leave the unit until his replacement has arrived and has achieved a specified level of competency in training.

High-performance and highly-destructive modern weapon and equipment systems require rapid reaction, very accurate aiming, and a thorough knowledge of the system's effectiveness and limitations. Soviet doctrine emphasizes that the best training involves continual repetition, with a gradual increase in the difficulty of each task. Each training cycle begins with the emphasis on individual skills, and progresses to crew, small unit (platoon and company), and finally

to larger unit (battalion and above) training exercises. Each cycle ends in a major field training exercise; all combat tanks of the units are tested for proficiency at crew, platoon, company, and battalion level before the cycle begins again.

## Basic Armor Training

After the required pre-military training, induction, and unit basic training, the Soviets divide tank crew members into their designated specialty areas (commander, gunner, driver, loader), and for specialized training. Extensive classroom study, manuals, regulations, and teaching aids are used for basic problems.

The next period of instruction emphasizes hands-on training, with training devices ranging from a very simple gunner's sight on a tripod to highly sophisticated simulators, which accurately reflect the characteristics of Soviet tanks.

Soviet driver-mechanics receive training in both driving and vehicle maintenance. The Soviet driver-

*"Soviet tank commanders and their drivers train together extensively in the belief that if the driver knows how his commander wants the vehicle operated, the commander will be free to deal with other requirements during combat."*

---

mechanic must be able to negotiate an obstacle course within a given amount of time (with a qualification time for night driving as well as for day). The obstacle course will generally include navigating a cleared strip through a minefield, unimpeded advance over damaged terrain (broken trees, deep holes, etc.), crossing an antitank ditch, maintaining an even speed on a downhill grade, crossing a railroad bridge, and crossing a lake filled with one-meter-deep mud, without getting stuck.

Additionally, the driver-mechanic must be able to perform crew-level maintenance on his vehicle.

Soviet gunners learn proper gunnery techniques and qualify with their weapons on a live-fire gunnery range. Soviet doctrine calls for firing from the halt, the short halt, and while on the move. Recent doctrine provides greater emphasis on firing on the move. The Soviet gunner will generally fire once a week at his regimental training area, using a subcaliber insert. As training progresses, targets are exposed for shorter periods, demanding increased concentration and speed in the gunner's calculations and actions. The gunner will generally fire the main gun once each training cycle. Additionally, gunners must be familiar with the operation and crew-level maintenance of all weapon systems on their assigned vehicle.

The Soviet tank commander is the only crew member with any amount of cross-training. The training is a combination of driver and gunner training (without the requirements of qualification on the obstacle course and range). Additional training for the tank commander in-

cludes map reading, communication procedures, basic tactics, and other skills necessary to his role. Soviet tank commanders and their drivers train together extensively in the belief that if the driver knows how his commander wants the vehicle operated, the commander will be free to deal with other requirements during combat.

### **Crew Training**

New tankers are only trained in the requirements of their specific duty positions until they are assigned to a line unit. (Although some units require crews to fire the qualification course even if a crew member is missing, they do not cross-train). After assignment to the line unit, the integration of the different functions of the crew begins. The Soviets teach combat coordination of the crew with emphasis on gunnery training. The training program in the line unit is when the tank crewman gradually learns to work with the rest of the crew and the unit. Once he is assigned to a unit, the conscript will spend the remainder of his time in service with the same tank.

Soviet line unit training is divided into three distinct phases. In the first phase, the unit familiarizes the new member with his specific model of tank, and with the routines established by his crew and his unit. Most of the training, including that for more experienced crew members, is done on simulators, and the goal is to achieve crew cohesion. The second and third phases further develop cohesion and proficiency under stress in the following areas: obstacle course driver training, gunnery, cross-country maintenance, night training, and crossing water obstacles.

### **Platoon and Company Training**

The second phase of Soviet line unit tank training integrates the various crews into their respective platoons and teaches them to function using platoon tactics. This is rapidly followed by the platoons coordinating at company level. At this level, training is conducted using both simulators and training tanks. Throughout these phases, the tank crew member spends about a third of his day in tactical training using training aids and simulators, or with the regimental training tanks (about one day a week).

The Soviets see an advantage in the use of dedicated training tanks. Training tanks are assigned to each regiment and are maintained by mechanics specifically assigned to this task. Training tanks allow the tank crews to practice company-size training exercises and field firing exercises while maintaining the combat readiness of the unit's organic main battle tanks. Daily work for the tank crews on their main battle tanks will generally consist of checking and making minor repairs. They generally use these tanks only during major field training exercises (FTXs).

Once or twice a month, a platoon will conduct an FTX designed to train the platoon to work as a unit. The company will conduct an exercise approximately every two months. Platoon and company exercises usually last less than 24 hours and are conducted in the regimental training area. During these exercises, the small unit commander can physically maneuver his troops through various formations, using training tanks, and can critique their performance. Soviet tank

crews may conduct live fire up to company level, with all platoons firing simultaneously. A major benefit of field training is that it allows Soviet unit commanders to practice command and control in a somewhat realistic setting.

The Soviet Army has an abundance of training areas close to regimental garrisons. These areas are designed to provide Soviet tank crews with the means to conduct maneuver and live-fire training. A sample tank course consists of several parallel firing lanes, a variety of targets (pop-up, moving, and stationary), a control tower, an ammunition supply point, a sub-caliber range, complete with tank "rocking frames" and other devices to sharpen gunner skills, and a variety of other simulators and training aids.

### Advanced Unit Training

The third phase of the training cycle involves advanced unit training at battalion-level and above. This phase allows for further coordination of command and staff actions in a variety of scenarios.

### Strengths and Weaknesses

The Soviet tank training system has a number of advantages:

- The use of training tanks and simulators provides maximum training time with minimum negative effect on the combat readiness of the unit's main battle tanks.

- The repetitiveness of the Soviet system allows a crew member to master his task in a short time and be integrated into the unit.

- The system of platoon and company maneuver on regimental training areas allows for practical experience for small unit commanders in the command and control of their

unit under somewhat real conditions. Crews become familiar with actions to be taken under a variety of conditions.

The Soviet system also has its drawbacks:

- The boredom produced by repetitive training is a major problem. Motivation of the seasoned tank crew member becomes harder and harder with each repetitive cycle.

- The Soviet's extensive use of training tanks, while creating a high level of "combat readiness," also prevents the Soviet crew member from getting accustomed to his individual combat vehicle.

- A final potential problem for the Soviets is the emphasis on a concentration of fire by several tanks on one target. Soviet training emphasizes target selection and ammunition selection, not first-round hits based on crew initiative. The Soviet expects to be able to compensate for a first-round miss with a second-round hit or by the overwhelming firepower provided by the larger number of Soviet tanks. Therefore, as overwhelming numerical superiority drops, or availability of ammunition drops, the Soviet unit's effectiveness must also drop.

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# Moving a Heavy Division Under Radio Listening Silence

by Major Michael W. Everett

REFORGER exercises continually teach divisions many lessons. Too often these lessons are discussed and debated in after-action reviews, then subsequently filed as after-action reports on the shelves of secured safes and vaults. Some of those lessons learned by the 1st Cavalry Division during Certain Strike relate to the execution of moving a heavy division through the NATO Northern Army Group (NORTHAG) area.

The challenge was to conduct movement and refuel-on-the-move (ROM) operations during darkness and limited visibility, while under radio listening silence. Within 60 hours, the entire division demonstrated its capability to move rapidly in excess of 150 kilometers, then posture and focus the majority of its combat power for future operations. Feelings of satisfaction and accomplishment were immeasurable within the division. An exuberant aura of confidence permeated from the division command group through the staff and subordinate units. The most gratifying bonus was the establishment of an assertive framework for success in successive operations.

Within the NATO defensive power scheme, the ability of divisions to move rapidly manifests

the reincarnation of the defensive techniques Guderian espoused in the early 1930s: "He knew that the best way that Germany could defend herself at the time was by moving units about at high speed to crush the enemy's blows and keep him [the enemy] from making deep penetration."<sup>1</sup>

To move a heavy division about at high speed to achieve the maximum synergistic effects from its weapons systems requires the synchronization of six processes — planning, training, organization, protection, sustainment, and movement. The underlying reasons for the success of the 1st Cavalry Division involved the meticulous implementation of these processes.

The purpose of this article is to share a staff officer's view of these processes, some lessons learned, and the intricacies involved in moving a heavy division successfully under radio listening silence.

Since war is both a science and an art, the fine line between the two is well defined in a movement operation. The scientific side involves the planning process. The other five processes transform the science into art. The division prepared for road movement by planning and training simultaneously. The division staffs

planned, while the commanders trained their units. A division movement control team, composed of G3 and the Division Transportation Office (DTO) personnel, made the plan.

This team designs the formula of organization, protection, sustainment, and movement in the form of the movement order, while commanders train the ingredients (march units and serials) to accomplish a successful movement operation.

The division deployed with two maneuver brigades and a host of combat support and service support elements. The movement control team planned the movement of 2,672 wheeled vehicles with 955 trailers, 94 heavy engineer vehicles, and 813 tracked vehicles. Ordinarily, a full division would have approximately 5,125 vehicles.<sup>2</sup>

The movement of 4,534 vehicles was painstakingly coordinated with the German Territory Northern Command (GTNC) through the III Corps Assistant Chief of Staff, Transportation (ACofS, TRANS) and 49th Movement Control Center (MCC). The process began with the identification and reconnaissance of the division staging area (SA), tactical assembly areas (TAA), attack



positions, and prospective routes among those positions. Four months prior to deployment, the division submitted estimates of the total number of vehicles to GTNC through the MCC. GTNC identified three routes for the division – one Class 100, one Class 60, and one Class 30. The III Corps Maneuver Booklet recommends four routes per maneuver division.<sup>3</sup>

The constraint of three routes had a significant impact on planning. The ACoS, TRANS planned and coordinated two technical halts per route. These technical halts were for the periodic maintenance of vehicles, especially the track vehicles.

*"Great wear and tear on ones's own forces, therefore, must be expected if one intends to wage a mobile war.*

*All other plans must be adjusted to that fact...<sup>4</sup>*

The division movement control team prepared movement matrices depicting micro portrayals of each route, based on these data, task organization, and priority of movement. The division movement team went through an exhaustive and somewhat frustrating planning process with GTNC, ACoS, TRANS, and the MCC. The first two iterations of movement tables produced by the German computer system did not meet the intent of the division commander. However, a solid foundation to adjust times, convoy configurations, and movement around established restrictions resulted. By the end of July, we revised the original matrices to include SA locations, critical points and times from the SA through the TAA to the Line of Departure

(LD), and emergency routes around restricted areas and choke points (Figure 1). The executive summary shows a macro portrayal of the entire division move on a timeline, with critical information in the left margin (Figure 2). Times were coordinated with the MCC to meet the division commander's guidance, and subsequently coordinated with members of GTNC. GTNC originally mandated these provisions for the movement: 100-meter intervals between vehicles, 24-kph maximum speed, 30-minute gaps between serials, 10 minutes between march units, and no more than six march units per serial. These provisions would have been sufficient had the division received four routes.

Because there were three routes, the planners eventually negotiated for 50-meter intervals between vehicles, 24-kph maximum speed, 15-

ROUTE NAME UNIT	SERIAL #	MU #	UNIT VEH	TOTAL VEHICLES	SA CONT SITE	SA RALLY LOCATION	NLT TIME	ROUTE SP LOCATION	TIME	TAA RP	TIME	TAA LOCATION	SP TAA	TIME	RP LD	TIME	ATK POS LOCATION
ROM 13 SIG QP	1	3		69													
AVLB GRP ENGR	2	1		24													
CEW BN	3	5	44	118													
MI Co.			36														
DTAC	4	2		45													

Fig. 1. Movement matrix



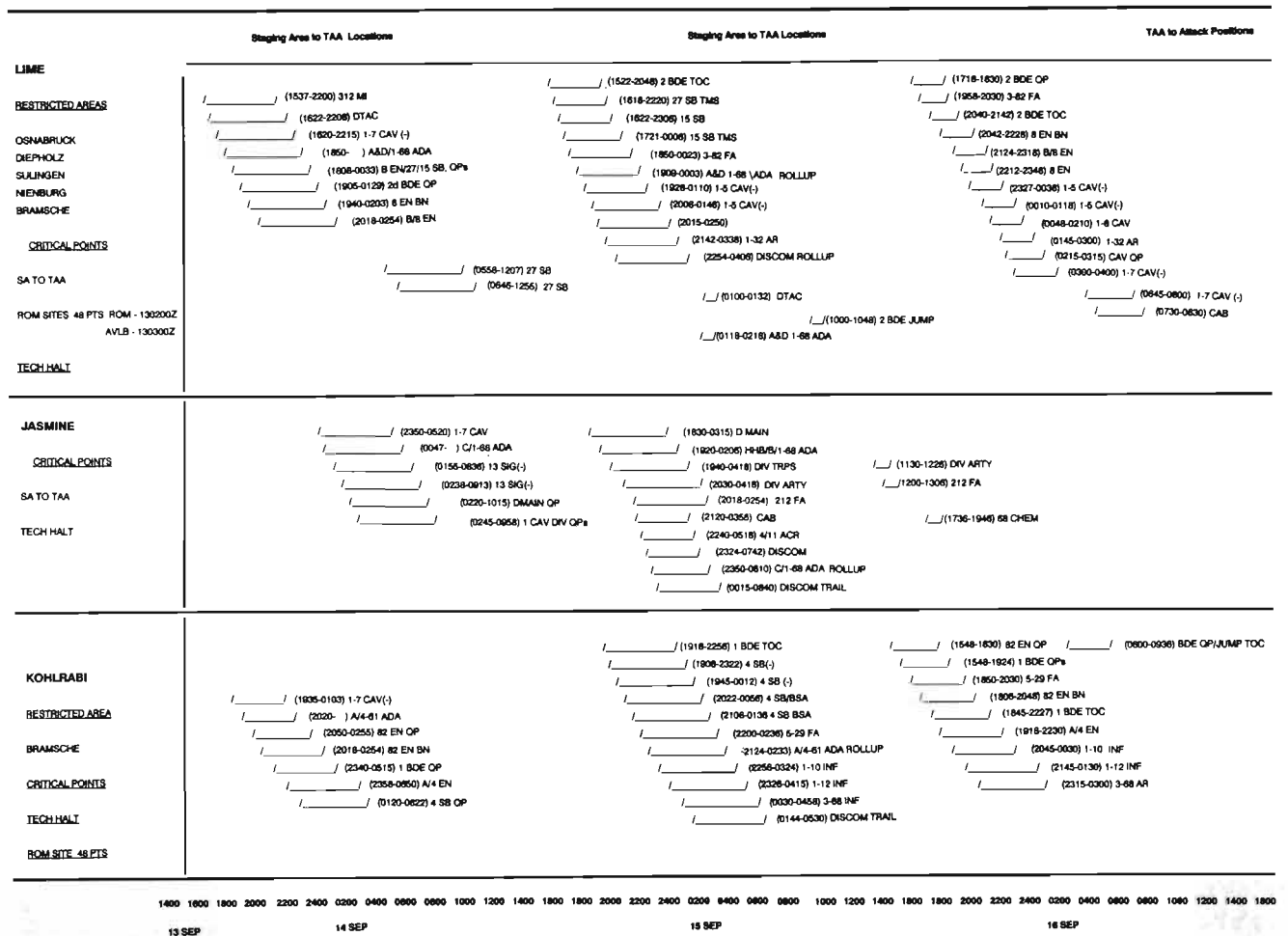


Figure 2. Division Movement Timeline

Figure 2. Timeline for Division Movement

minute intervals between serials, five minutes between march units, and six march units per serial. This interaction provided all participants with an appreciation for the problems and concerns of both countries. The staff planners were constantly confronted challenges to make the smartest recommendations for the division. Knowing and understanding the commander's intent reduced these dilemmas and helped sell the resolutions to the commander.

In the meantime, training for road movement and ROM operations were continuing. The main support battalion conducted several rehears-

als establishing ROM sites and testing traffic patterns to optimize safety and protection. Reinforcement training practices continued after the brigades completed rotations to the National Training Center. By the end of July, the Corps ROM SOP procedures were well rehearsed and tested. The organization of the division into serials and march units was complete. The organization for movement considered the protection and sustainment of the move. Reconnaissance, intelligence collection, air defense, heavy engineer, and ROM assets deployed first. An example of the organization for movement is depicted in Figure 1. To graphically

depict the entire movement, from the SA to the LD, was the next challenge. Somehow the big picture had to be conveyed to all commanders and staffs from division through company level. The division movement team designed a division movement exercise (MOVEX) to accomplish this task. Terrain boards of northern Germany were acquired by mid-August. These boards were extremely beneficial because they allowed march unit commanders the opportunity to see the magnitude of the division march and understand their respective roles. The greatest benefit derived from the MOVEX is the face-to-face interaction among the various units, staffs, and

agencies involved with the move. The result is immediate coordination and resolution of problems that are readily apparent from exercising the terrain boards. Those problems would not have been as evident on maps alone.

ROM site operations and procedures were also addressed. Although the location and operation of the Corps Support Command (SUPCOM) ROM site were questionable, by the end of the exercise, practically every commander was confident he would arrive at the LD on time.

The third iteration of German march tables was still unacceptable. The division movement control team received valuable information from discussions at the MOVEX which also affected the movement matrices. ACoS, TRANS and the MCC decided to work with GTNC until satisfactory march tables were produced. Knowing this situation, the movement team agreed with the MCC that no further changes would be made to the march tables after 20 August. Fortunately, the knowledge gained from the MOVEX and the changes submitted on 20 August gave the division the needed flexibility to execute the eventual movement plans published by III Corps.

The deployment of the division to Europe, the equipment draw, and subsequent movement to the staging area were achieved in fine fashion. Problems associated with linkup in the staging area were resolved at the brigade and separate battalion level. Polizei and Feldjaeger support were instrumental in supporting this function. The "First Team"

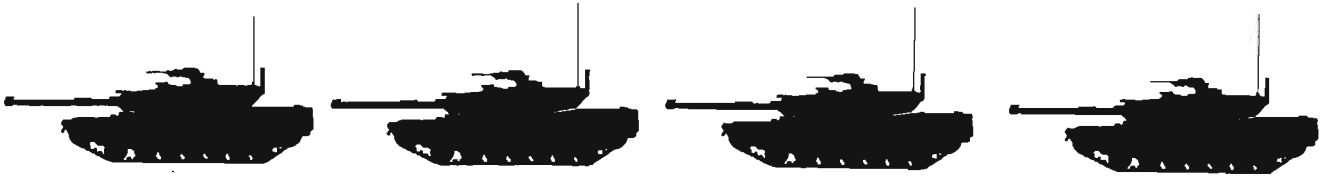
**Figure 3**  
**Organization for Movement**

CLASS 100 Route	CLASS 60 Route	CLASS 30 Route
<b>First night</b>		
Division ROM Unit	Corps ROM Unit	Division CAV
AVLB Group/SIG QP	Division CAV	ADA Btry
CEWI Bn & CAB(-)	Engr QP	Signal Bn
Division CAV	Engr Group	DMAIN QP
ADA Btry	BDE QP5	Div Troops QPs
Engr, MSB, SB QPs	Engr TF	
BDE QPs	Sup Bn QPs	
Engr Bn	BDE TOC	
BDE TOC		
Main Sup Bn		
<b>Second night</b>		
DISCOM(-)	Sup Bn	DMAIN
Sup Bn	BDE BSA	HHB/ADA Btry
BDE BSA	FA Bn	DIVARTY
FA Bn	ADA Rollup	FA BDE HQ
ADA Rollup	Mech TF	CAB (-)
Combined Arms TF	Mech TF	DISCOM (-)
Combined Arms TF	Armor TF	ADA Rollup
Armor TF	DISCOM Trail	DISCOM Trail
DISCOM Trail		

soldiers were anxious to continue the move and demonstrate mobile armored warfare to our European allies. The division had a good idea where and when it had to move. Corps made the decision that the actual movement tables for the 150-kilometer march from the SA to TAA would be released to the division 24 hours prior to movement. On 11 September, the only

certainty known by the division was the early displacement of ROM, heavy engineer, and Forward Area Refuel Rearm Point (FARRP) assets on 12 September.

The remainder of the division was scheduled to move on the nights of 13 and 14 September. The division received movement tables at 1300 hours on 12 September. The tables



provided the routes and times for each division serial and march unit.

At this point, the factors of friction and chance began to play a role. The division received some poor copies of the march tables. Some tables were difficult to read. The movement team had to recompute several tables. To further simplify the march tables, the movement team was tasked to convert the information into the formatted program existing in the division. This became a time consuming and tedious process. The two systems were incompatible. Time errors were in the final product. The team also attempted to input recommendations from the G3, but the program was inflexible. The two-thirds/one-third rule had lapsed. Fortunately, the times on the matrices used at the MOVEX were within plus or minus 30-60 minutes of the actual march times. Corps eventually disseminated the movement tables with the matrices, with minutes to spare in some instances.

The SUPCOM ROM site issue prevailed until 12 September. Following the MOVEX, concerns for safety, location, and impact on road

movement were discussed among the division, corps, and SUPCOM Supply and Service (S&S) Battalion staffs. On 11 September, the ADC(S), DISCOM commander, movement team representatives, and the S&S battalion staff met at the ROM location to decide where to place the refuel points and to determine the safest method to conduct the refuel operation. The refuel site was located on the route of march. A secondary road ran parallel to the route of march, across which ran the hoses from the fuel trucks to the refuel points. Consequently, both roads were blocked during refuel operations, leaving no bypass routes in the area. Extensive Polizei and Feldjaeger support was necessary to reroute and control civilian traffic around the ROM site. This support had not been finalized by 11 September. The group decided the division would make the final decision based on safety, Polizei support, and the least hindrance to movement on the route.

The S&S Battalion staff agreed it could perform either alternative but needed a decision not later than

0800 on 12 September. On 12 September, we received the decision to refuel on the secondary road and leave the main route of march open for traffic flow. This was also the safest method. At 1000 hours, we received a reversal of the decision. The ROM was conducted on the route of march as originally planned.

As the day of the march grew closer, the chief concern of the command group and staff was control of the movement. After all the training, rehearsals, conferences, meetings, and long agonizing hours of planning, it is natural to have concerns for a move of this scope under radio listening silence. A commander's trust and confidence in his subordinates are tested. Even though tactical movement is a G3 function, a small control cell, supervised by the G4, located with the Civil Military Operations Center (CMOC). This proved to be an immeasurable assistance to the G3 because it allowed him to move forward and prepare for future movement and operations beyond the TAA. Deutsches Bundespost phones were available, along with one FM secure net for emergency

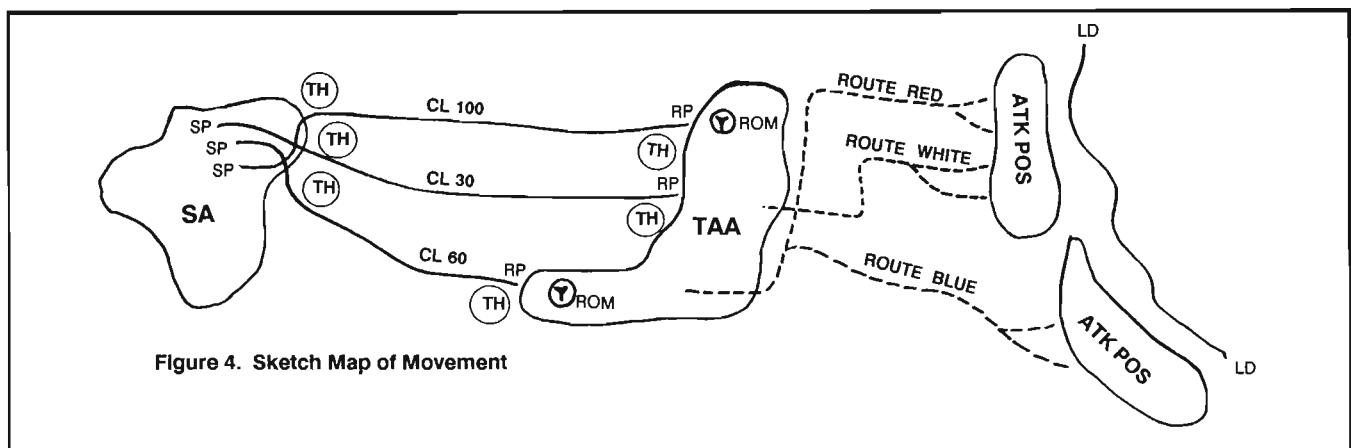
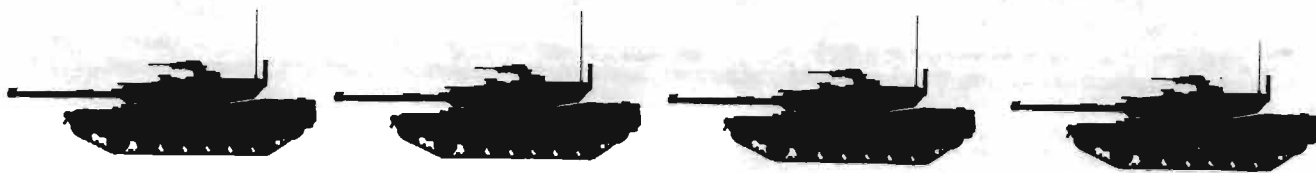


Figure 4. Sketch Map of Movement



use only, but the terrain and distance of the march inhibited point-to-point transmissions. A RETRANS and a relay station provided an emergency communication FM link between the Staging Area and TAA. To expect an expeditious response through this system is wishful thinking. We soon realized that once units began to move from the SA, control was in the hands of the serial and march unit commanders.

Several "directed telescopes" deployed along the routes to report information and possibly solve problems with the march unit commanders. The personnel investments paid by the PMO, G3, and G4 staffs reaped big dividends for the division. Ghost cavalry teams from the PMO were placed at each technical halt and ROM site.<sup>5</sup>

G3/G4 teams were also at each ROM site. In the daytime, one helicopter was dedicated to each route to monitor disabled vehicles. The refueling and flow of traffic through the ROM sites dictated the overall success of the movement to the TAA. To help, the division also placed G3/G4 teams at each technical halt on the route to the ROM sites. This served two purposes: knowledgeable persons were on the ground and could monitor the times for serials and march units; and the approach of serials and march units toward the ROM sites could be controlled to prevent serious backlogs at the sites. This was especially beneficial on the route where the SUPCOM ROM operation sat on the route of march.

Once movement commenced the night of 13 September, subordinate leaders implemented the movement plan with the anticipation of reaching the LD on time. Rain began to fall as units started their movement toward the staging area rally points and start points. To the casual observer, it appeared as if there was mass confusion. Maneuver brigade elements included tanks in some quartering parties, which gave the illusion that maneuver units were moving before the scheduled time. New guidance excluded tanks from quartering parties, and units responded exceptionally well to reconfigure convoys.

By 1000 hours on 15 September, the division closed the TAA completely refueled and ready to begin movement toward the LD at dusk. A short movement order gave the MSCs and separate battalions certain block times to move into attack positions. Units received priority of movement on designated routes. By doing so, the division was able to posture its combat forces in the attack positions within one hour of the LD time.

The success of subsequent operations was attributable to the division's capability to organize, move, and posture its forces rapidly. It required the synchronization of the six processes — planning, training, organization, protection, sustainment, and movement. Planning by the division staff, in conjunction with corps, GTNC, and subordinate staffs, created the formula for success. Leaders trained their units to move and refuel with precision. The

task organization provided the synergism to posture and focus combat power at the decisive moment. The early deployment of ADA assets along the routes, night movement, and radio listening silence gave the division the necessary protection to move with little interference or detection. ROM operations provide sustainment if adequate protection and dispersion are afforded these sites. The movement, itself, becomes the art which sets mobile armored warfare in motion.

If all six processes function well, any division-size unit can overcome most friction. On the modern battlefield these processes will become more and more complex due to the introduction of precision guided munitions (PGM) or smart munitions. Night time offers some security and protection from these weapons. Prior to the turn of the century, however, technology will eliminate the security and protection darkness offers.

*"Within a few years if you can see a target, you can kill it; if it has iron on it, you can kill it; and if it emits, you can kill it."*<sup>6</sup> Still, divisions have to maneuver to achieve the initiative and design new tactics to overcome the effects of new weapons. To move rapidly without the use of electronic emissions is a small step in that direction.

If moving under radio listening silence becomes a normal practice for all movement, then it is time commanders must understand and use the concept of *auftragstaktik*. It works! This quasi-decentralized style of command and control



enables a commander of a large unit to issue mission-type orders with his intent clearly stated and understood by subordinate commanders. Subordinate commanders and staffs must have the latitude and freedom of action to exercise their initiatives to accomplish the mission.

Friction will occur. Commanders must learn to anticipate, accept, and overcome mistakes by subordinates and staffs. Mistakes did occur during the movement. Some units were operating on Alpha time rather than the exercise Zulu time. At least one march unit commander chose to exceed the designated speed and bypassed other march units. Another march unit arrived at a ROM site too early and did not get fuel. Its follow-on mission was almost jeopardized because of the lack of fuel. Other march units moved prior to their designated start times. One commander reorganized serials and march units prior to moving. These faults may appear to be small, isolated, and insignificant, but collectively could have disrupted the entire movement. Since these incidents were not disruptive, per se, the success of the move is indicative of the overall discipline and training of the division. Faults can be corrected in training and reinforced with discipline.

A final thought on moving a heavy division under radio listening silence concerns the optimal number of units and vehicles that can be adequately controlled under these

circumstances. If the control of 4,534 vehicles was sufficient on three routes, then one must consider whether it is prudent to use four routes simultaneously. If a fourth route is available, then that route should be considered as an alternate to either of the three primary routes. The other consideration concerns the number of brigades a division can control. A division can control at least two brigades given the ideal command climate and minimum friction. To attempt to accomplish the same task with three brigades or with an attached Allied brigade is the challenge for the future. As the U.S. Army trains to become less dependent on emitter systems, new maneuver doctrine must be tested and adapted to AirLand Battle doctrine. The experience gained from moving a heavy division under radio listening silence is a step in the right direction.

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5. Ghost Cavalry teams are peculiar to the 1st Cavalry Division. These are MP teams deployed to perform the functions normally conducted by the division cavalry squadron. Because of the scope of the reconnaissance mission given to the squadron in the Tactical Assembly Area and the limited number of assets available, the MP teams performed the dual function of traffic control and monitored the movement of march units and serials along the routes.

6. Arthur T. Hadley, A Report from the Field. The Straw Giant, Triumph and Failure in America's Armed Forces, (New York: Random House, 1986), p. 189.

Major Michael W. Everett is an ROTC graduate of Howard University who holds an MMAS, Ft. Leavenworth, and an MA degree in urban studies from Trinity University in San Antonio. He is also a graduate of the Logistics Executive Development Course, C&GSC. He has commanded companies at Ft. Knox and in the 1st AD, and served in battalion, brigade, and division staff positions in CONUS, Germany, and Korea. He has recently served as Logistics Plans Officer, G3 Plans Officer, and XO of Task Force 1-8. and is currently assigned as S3, 2d Brigade, 1st Cavalry Division.

# THE BUSTLE RACK

## Colonel James R. Spurrier (Ret.) Is Honorary Colonel of 12th Cav

Retired Army Colonel James R. Spurrier was installed as honorary colonel of the 12th Cavalry Regiment in ceremonies at Fort Knox in November.

Spurrier was born in Bighart, Okla., in 1918, and went on active duty as a cavalry officer in 1940, at Fort Ringgold, Texas, after graduating from Pennsylvania Military College. Serving with the 12th Cavalry for the next six years, he participated in all of the regiment's major WWII operations, serving in positions from platoon leader to battalion commander.

After WWII, Spurrier became an armor officer and served in a variety of command and staff assignments in CONUS and overseas.

Now a resident of El Paso, Texas, he is president and founder of the U.S. Horse Cavalry Association, which is dedicated to preserving the traditions, history, and heritage of the horse cavalry. This organization sponsors the U.S. Cavalry Museum at Fort Riley, Kan.

## Thunderbolt Program

The U.S. Army Armor Center wants your ideas to improve the equipment, training, and effectiveness of our combat forces!

The specific nature of your idea is not important - what is important is its potential benefit, possible Army-wide. Your idea may be a field expedient, a modification to equipment or procedures, a new piece of equipment, a change to a unit's structure or equipment, an innovative training experience, or an effective use of tactics. Whatever the idea, let us have it. Fort Knox combat development, test and evaluation personnel and facilities can readily access your idea.

The Armor Center initiated the Thunderbolt Program in October 1988 to assess the application and potential benefit of such ideas. It established a process to gather, test, disseminate, and possibly implement ideas focusing on low-cost, easily-applied fixes to existing problems. But, DCD will consider all proposals.

Should your proposal exceed the scope of the Thunderbolt Program, DCD will not ignore it, but will forward it to the office or agency having action authority. Also, submitting your idea to the Thunderbolt Program will not prevent you from being eligible for an incentive award through the Army Suggestion Program or the Model In-

stallation Program. It may, in fact, increase your chance of reward.

Send your ideas, suggestions, or proposals to: Commander, U.S. Army Armor Center & Fort Knox, ATTN: ATSB-CD-TE (Thunderbolt), Fort Knox, KY 40121-5215, or contact the Thunderbolt Program Officer, 624-2107/2180. Use any format to submit your idea - just submit it, and be sure to include any pictures, sketches, or examples you have.

## 2-37th Tankers Qualify All 58 M1A1s On First Run at Graf

Setting a "first time" record, tank crews of 2-37 Armor qualified all 58 of their new M1A1 tanks on their first run through Range 117 at Grafenwoehr, Germany. Steve Arrington, acting chief, training analysis section, 7th Army Training Command, confirmed the feat.

Three battalion tanks scored perfect 1,000s on Tank Table VIII. Of the 58 crews who fired, 26 earned a Distinguished rating for shooting between 900 and 1,000. Another 20 tanks shot Superior for blasting out between 800 and 899 points. The battalion's overall average was 878 points. TT VIII involves both day and night firing while stationary and on the move.

Prior training on the UCOFT and use of the battalion's Tank Crew Proficiency Course were vital in the battalion's success, said Major Robert Shaffer, battalion XO. MILES-equipped HMMWVs were used for realism on the moving target range.

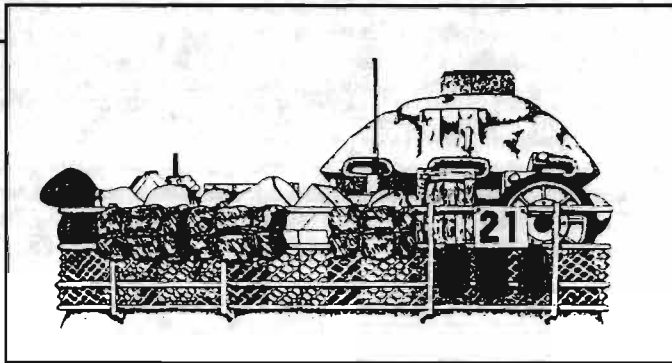
Well done, 2-37!

## AAWS-M AT Missile Under Test

Contractors in the Army's Advanced Antitank Weapon System-Medium (AAWS-M) competition have demonstrated their systems during flight tests and are now proceeding to full-scale development.

AAWS-M is a one-man-portable, medium-range, antitank weapon to replace the Dragon and will give the soldier substantially greater capabilities than the Dragon provides.

The competitive missiles have successfully engaged six of ten mandatory targets in their flight tests, and the Army is expected to select a final version early in 1989 for full-scale development.



## Big Red One Reunion

The Society of the First Division (Big Red One), will hold its 71st Annual Reunion from 2-6 August 1989, at Colorado Springs, Colo. Contact Arthur L. Chait, Executive Director, 5 Montgomery Avenue, Philadelphia, Pa. 19118.

## Seeking Information About OCS at Fort Knox

Officials at Fort Knox are establishing an OCS hall of fame and are seeking information and photographs from the periods when Fort Knox had OCS courses.

The post produced 11,852 lieutenants from 1940-45; 1,169 from September 1951 to January 1953; and about 4,000 from September 1965 to February 1968.

Those with information are asked to get in touch with Dr. John W. Cranston, USAARMC historian, or call 502-624-3235 (AUTOVON: 464-3235)

## BRANCH NOTES

### Homebase Advance Assignment: How It Works

This Department of the Army program is designed for all soldiers E5-E8 who are selected for a short tour, dependent restricted, overseas assignment. If you are in this category, you can request one of the following choices for DA consideration.

- Homebase Assignment - The NCO is projected to return to his prior duty station when selected for a dependent-restricted short tour.

- Advanced Assignment - The NCO is projected to be assigned to a duty station other than his prior permanent duty station upon completion of the short tour. The following factors are considered to determine approval of the homebase or the advanced assignment.



- Needs of the Army - Where the NCO is needed most for installation strength.
- Professional development considerations.
- Least cost to the government.
- Soldier's assignment preference.
- Regimental affiliation.

### Appealing an Evaluation Report

When an evaluation report is forwarded and accepted for inclusion in the soldier's Official Military Personnel File (OMPF), it is presumed to be correct administratively, prepared by the proper rating officials, and an objective judgment and considered opinion of the rated soldier. The appeals system exists to protect the interests of the Army, and ensures fairness to the soldier whenever administrative errors occur or the soldier's potential and/or manner in which he or she has performed his or her duties is inaccurate. At the same time, it avoids casting doubt on the integrity and judgment of the rating officials unless sufficient cause exists.

Soldiers contemplating appeal of an evaluation report should read Chapter 4 of AR 623-205, in its entirety, prior to preparation of a packet. A complete understanding of the appeals system can save time, effort, and the anxiety created by having an appeal returned without action.

Submit the appeal in a timely manner, because preparation of a successful appeal packet becomes increasingly difficult as time passes. A complete appeal packet is a must and will not be forwarded nor considered until all supporting documentation is enclosed. Remember, it is your career and therefore your responsibility to monitor what is included in your OMPF. If you disagree with an evaluation and can support a valid appeal with legitimate and substantiating evidence, refer to Chapter 4 of AR 623-205 for preparation and submission of an appeal.

### Don't Call Us...

Often, soldiers call branch to ask about their pinpoint assignments. Currently, pinpoints are given only for E8s and E9s before they are placed on assignment instructions overseas. E1 through E7 are requisitioned against a valid overseas requirement. The overseas command is responsible for coordinating the unit of assignment.

So, if you are in the grade of E1 through E7 and placed on assignment instructions to an overseas command, it is not necessary to call your branch; it can't help you! You must make coordination through your local PSC to your gaining replacement detachment to request a specific unit or regimental unit of choice.

### Certification Training

Currently, CMF 19 soldiers working outside of their Primary Military Occupation Specialty (PMOS) for a period of 12 months or longer must attend a two-week refresher course at Ft Knox, KY, upon PCS assignment. These courses are primarily available for detailed recruiters, drill sergeants, and soldiers coming off special assignments, such as ROTC and FTM positions.

The courses are designed to reacquaint the NCO with the vehicle before he is thrown back out into a line unit and is expected to perform. Presently, certification courses exist for both the M1 and M60A3 tanks and the M3 Bradley Fighting Vehicle. These courses are also used to train soldiers who were unable to complete NETT with their units. Very often, soldiers are not able to train with their units because of selection for ANCOC and other TDY courses.

### ROTC/Reserve Component Duty

Reserve Officer Training Corps (ROTC) and Reserve Component Duty assignments are high priority and highly selective positions.

ROTC positions are primarily instructor-type assignments at colleges, universities, military academies, and high schools that have an ROTC program.

Assignments to ROTC positions incur a three-year stabilization. Reserve Component assignments are primarily as enlisted advisors to Reserve and National Guard units in a designated area. These positions involve quite a bit of TDY travel and weekend duty.

The basic qualifications for these assignments are outstanding performance of duty, high moral standards and character, recent troop-leading experience, total MOS qualification, and no financial problems.

Military installations are usually not readily accessible, so the vast majority of these positions require living on the civilian economy without any additional pay or allowances.

Most infantry and armor positions are in grade E7 and E8, with some requirements for grade E6 in the junior ROTC program at high school level. Soldiers interested in these assignments should submit applications through channels IAW Section VI, Chapter 8, of AR 614-200.

### Tactical Air Operations

The Joint Firepower Course is designed to prepare NCOs in tactical air operations for assignment to staff operations positions at all levels. The course of instruction focuses on joint approved concepts, procedures, techniques of combat operations, and the coordination and control systems involved in the AirLand Battle. Army students attend two weeks of the three-week course at Hurlburt Field, Florida. The third week is designed for Air Force personnel assigned to tactical air control parties (TACPs). The first two weeks concentrate on planning and coordination within the tactical air control system/army ground system (TACS/AAGS) at brigade and battalion level. The course is for sergeants and above.

Eligible NCOs interested in attending either course are encouraged to submit a request on DA Form 4187. If you have any questions regarding the courses please feel free to contact the Armor Branch, U.S. Total Army Personnel Agency (USTAPA) at AUTOVON 221-9080 or Commercial (202) 325-9080.

### Scouts Rotating Back to Stateside Assignments Urged to Go Airborne

The Army is urging cavalry scouts (MOS 19D) who are nearing the end of their overseas tour to volunteer for airborne training and assignment.

The Armor Branch has a continuing need for airborne-qualified cavalry scouts in the 82d Airborne Division at Fort Bragg, N.C., and also at the Joint Readiness Training Center at Fort Chaffee, Ark. (See "Cavalry Scouts at the Joint Readiness Training Center," November-December 1988 ARMOR.)

Interested cavalry scouts should apply for the option through their local personnel office at least six months before their return to the United States. Criteria for airborne training applicants are outlined in AR 614-200.

### SL 1 Soldiers Sought For Overseas Assignments

Armor Branch is looking for Skill Level One soldiers who have completed 18 months or more at their first permanent duty station and desire an overseas assignment. Soldiers cannot move before termination of any stabilization and must be willing to extend or reenlist to meet the minimum tour length of the overseas location of their choice. See your PSC to submit your DA Form 4187.

## The Aussies Make a Stand at Tobruk

### Stubborn Infantry, Backed by Artillery, Debunked the Blitzkreig

A German 88-mm gun, dug into the desert, fires on Allied positions in North Africa.



**The 9th Australian Division Versus the Africa Corps**, by COL Ward A. Miller, Combat Studies Institute, U.S. Army Command & General Staff College, Ft. Leavenworth, KS., 1986. 63 pages. Softback.

Certain battles of WWII are deemed so significant to today's AirLand Battle doctrine that the Combat Studies Institute of the USAC&GSC has published a series of monographs on these actions for today's combat leaders. One such battle was the first siege of Tobruk, a North African port. The Germans attacked the city for 242 days before they gave up in the face of rock-solid Australian infantry, armor, and artillery defenses.

The Germans assaulted the fortress with superior weapons, armor, and numbers, but the rigid battle discipline of the infantry, the massed effectiveness of their artillery and antitank guns, and the character of the in-depth defenses defeated every German thrust.

Colonel Miller gives full credit to the Australian infantry, adding that their characteristic battle ferocity was backed up by excellent artillery and antitank gunnery. The monograph is a neat distillation of one major battle at Tobruk and the appendices will be of interest to compare the make-up of a combined arms force of 44 years ago with that of today.

As in all battles, there are lessons to be learned, and the most persistent lesson reiterated by Colonel Miller is that tenacious defending infantry can prevail in the

face of combined arms assaults. The Aussies' ability to hang on in the face of overwhelming odds not only deranged the Germans' tactics, but also destroyed the myth of the blitzkrieg's omnipotence in battle.

"...the German's combined arms attack featured tanks, infantry, engineers, artillery, and close air support. Their armaments were superior to Australian weapons in all categories except artillery, where the Australians possessed a marked advantage. Because of their edge in arms, the Germans were stunned by their defeat at the hands of the Australians. The Germans had rarely failed before, never encountered such defensive tactics, nor faced such a determined opponent. The accuracy and efficiency of the British artillery and antitank gunners and the discipline of the Australian infantry — who held their ground and fire until the German infantry and gunners advanced into a killing zone — had defeated the German blitzkrieg tactics."

This is good, solid, basic reading for the battle leader of today, regardless of his rank. Lessons learned have long been an important facet of our military teachings, and the lessons of this one battle in the siege of Tobruk are as valid today as they were in the desert sands 44 years ago. If you consider yourself a professional in the profession of arms, get a copy of this monograph — and study it.

R.E. Rogge  
ARMOR Staff

**Roll Again Second Armored: The Prelude To Fame, 1940-43**, by Major Norris H. Perkins (Ret.) and Michael E. Rogers. Kristall Productions, Surrey, England, 1988. \$21.95. 128 pages. (Available in the U.S. from Sky Books International, Inc., 48 E. 50th St., New York, NY 10022.)

A quick glance through this unique book gives the impression that it was a labor of love for one of its co-authors. Indeed it was for Dr. Norris H. Perkins, who was commissioned as an Army Reserve officer in 1935. Joining the Second Armored Division shortly after its birth in 1940, Perkins commanded H Company, 3d Battalion, 66th Armored Regiment in the invasions of North Africa and Sicily, until he was severely wounded (See "Lessons Learned in the Attack on Canicatti, May-June 1987 ARMOR).

But this book is not about generalship or battles. It is a photo essay on the birth and evolution of the men and machines composing one of our armored divisions at the start of WWII. Accompanied by light narrative, the book's 158 black-and-white previously unpublished photographs and seven drawings (by ARMOR's artist, SFC Robert J. Torsrud) form a chronological look at a division preparing for war. We watch as the 66th Armor progresses from M2A4 light tanks to M4 medium Shermans. The photographs and anecdotes take the reader through an introduction to what a tank is and what they do; through the Tennessee, Louisiana, and Carolina maneuvers of 1941 and 1942, to the invasion of North Africa.

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Roll Again Second Armored provides a window into the early days of our Armored Force that other books have not provided. This photographic record of the men, their uniforms, and their vehicles is bound to serve as a valuable record for histories, or anyone interested in those early days.

MAJ Patrick J. Cooney  
Editor-in-Chief, ARMOR

**The Dictionary of Battles**, edited by David Chandler. Henry Holt & Co., Inc., New York, 1988. 249 pages. \$24.95.

A dictionary is a "reference book containing an explanatory alphabetical list of words." So says The American Heritage Dictionary of the English Language.

The Dictionary of Battles is much more than that. It is an authoritatively written account of battles from Salamis, in 480 B.C., to Port Stanley in the Falklands in 1982. Spanning 25 centuries, the book covers key topics relating to war in addition to specific battles. The development of military technology and how it affected battles receives a brief, but in-depth review. Changes in military formations and tactics, and the rise of weaponry that dictated these changes, are also viewed in an academic but readable manner. Battle site maps as well as general location maps abound, providing the reader with sufficient material to understand the tactical and/or strategic importance of each battle.

The editor is head of the Department of War Studies at the Royal Military Academy, Sandhurst, and is eminently qualified.

As a dictionary, this volume is superb, but like all such reference tomes, its study must be backed up by additional reading to give one the complete picture surrounding the whys and wherefores of a particular battle.

Individual battles are often more significant on the strategic and global plane that one might suspect. Backup and exploratory readings on the described battles will illustrate that point. Though titled a "dictionary," this is not the classical embodiment of such a reference. It traces the history of battles from ancient to modern times with no thought of alphabetization: the major continuity is chronological. But this is a fine reference volume as well as one filled with concise and highly-interesting accounts of past battles.

R.E. Rogge  
ARMOR Staff

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## LETTERS (Cont'd. from Page 5)

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toward the end of the war will attest to, the enemy threat from sophisticated anti-aircraft weapons, artillery, antitank and mechanized/motorized and dismounted infantry formations was not to be scoffed at. It took the same kind of technical and tactical leadership skills, on the ground or in the air, to function in that hostile environment as it would take to execute AirLand Battle doctrine today. And it was accomplished in the absence of today's user-friendly technology.

As for the value of combat experience, General MacArthur said, "...In time of peace, the measure of the capacity of an officer - the yardstick by which you measure his capacity - is not of such scope as to really define the officer's combat capability. Some of the most astonishing reverses have been found under actual field conditions.

"Officers who everybody thought were of extraordinary merit, under the tremendous pressure of nervous strain, of the physical contacts - the blood, the disaster of the battlefield - have collapsed. Whereas, those men who, in time of peace, would apparently have a much lower general efficiency rating, have exhibited traits of character which have brought them to the front at once."

The unanswered question is what percentage of those in the zone of consideration had Vietnam combat experience, and of that number, what percentage was selected for battalion command? If the percentage was high, then the board placed greater merit on the value of combat experience than General Tait apparently has. If, on the other hand, the percentage was low, it calls into question how serious our dedication really is to the warrior ethic.

It seems to me that, all other things being equal, the soldier with combat experience is more valuable for the reasons stated by General MacArthur. The combat veteran has experienced the reality of his own mortality, has persevered despite the fear and danger, and possesses an insight about war which can't be replicated in training, no matter how sophisticated the training environment. Last but not least, the combat veteran knows what works and what doesn't in real battle.

We are faced today with "measuring the capacity of an officer" more often based solely on success in peacetime command, staff, and training situations. It is a situation we haven't fully experienced since before World War II. For some com-

bat veterans with vivid memories of our weaknesses at the beginnings of past wars, it is an unsettling thought.

The bottom line for today's non-combat veteran leaders is that combat experience is important and should be sought out if the situation presents itself. It should not be sought out for narrow career motives, however, but because professionals seek the insight that only those who have "fired for record" possess.

CHARLES R. STEINER, JR.  
LTC, Armor  
U.S. Department of State  
Washington, D.C.

### 11th ACR's Dates in Error

Dear Sir,

As a former member of the 11th ACR involved in its deployment and initial operations in the Republic of Vietnam, I read Major Michael R. Matheny's article, "Armor in Low-Intensity Conflict: The U.S. Experience in Vietnam," in the July-August issue of ARMOR with keen interest.

However, I do not agree with his in-country date for the 11th ACR, page 11, or the date of Operation Junction City, page 13. The 11th ACR's advance party left Fort Meade, MD. for the Republic of Vietnam approximately 15 August 1966, by aircraft, with the main body departing approximately 19 August 1966 for Oakland Army Terminal and movement by troop transport.

The main body, minus vehicles and support equipment, arrived in Vung Tau, RVN, nineteen days later with its equipment arriving at Saigon in early October. The unit was not fully functional until the latter part of October, 1966.

THOMAS M. PACZAK  
MAJ. TC, USAR  
Jackson, Miss.

EDITOR'S NOTE: MAJ Paczak is correct, and so was MAJ Matheny in his original manuscript. We apparently made the errors in transcribing the article. The 11th ACR served in Vietnam from 8 Sep 1966 to 5 Mar 1971. (The 3d Squadron arrived on 12 August 1966, and the 2d Squadron departed on 6 April 1972.)

"Operation Junction City" began on 22 February 1967. We apologize to MAJ Matheny and our readers for the error. -Ed.

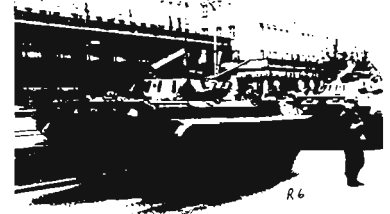


# BMP-2

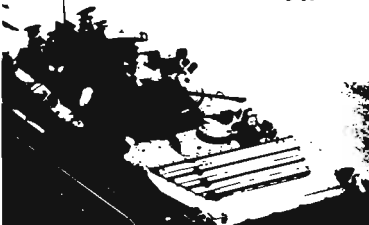
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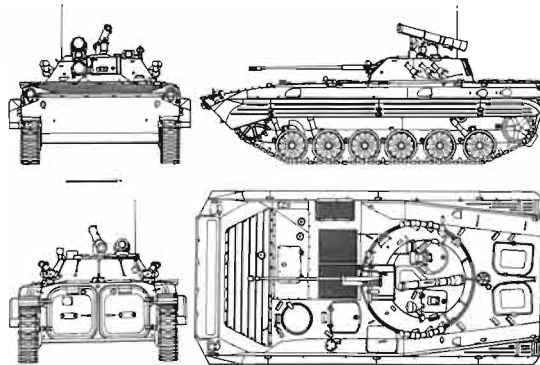
D3A2



R6



AV



© Soviet Union



AV

### BMP-2 CHARACTERISTICS

**ARMOR (Maximum)**  
 Hull (mm) 19'  
 Turret (mm) 23'  
**CREW** 3 (Cdr, Driver, Gunner)  
**PASSENGERS (CAPACITY)** 7  
**WEIGHT (mt)** 14.3  
**LENGTH** 6.86 (m)  
**WIDTH, Overall (m)** 3.13  
**HEIGHT, Overall (m)** 2.08 (To Top Of Turret)  
**ENGINE** V-6, 300 HP, DIESEL  
**SPEED (Maximum)** 65  
**Road (km/hr)** 7  
**WATER (km/hr)** 600  
**ROAD RANGE (km)** 2.50  
**TRENCH CROSSING (m)** 0.77  
**VERTICAL STEP (m)** 30  
**CRADABILITY (°)** 30  
**FORDING** AMPHIBIOUS

**INFRARED**  
 Driver Yes, passive IR  
 Gunner Yes, BPK-1-42, Day/Night II  
**Commander** Yes, IP-3 Day  
**NBC PROTECTION** Filtration and Overpressure System  
**CALIBER (mm)** 30mm  
**TYPE** Automatic Gun 2A42  
**TRAVERSE (°)** 360  
**ELEVATION (°)** -5 to +74  
**RATE OF FIRE (rd/min)** 550  
**SUSTAINED** 200-300  
**MAXIMUM EFF RANGE (m)** 2,000-4,000  
**GROUND TARGETS** 3,000  
**ANTI-AIRCRAFT**

**FIRE CONTROL**  
**AMMUNITION (TYPES)** AP-T, FRAG-T, HEI  
**LAUNCH RAILS/TUBES** 1  
**BASIC LOAD (rd)** 4  
**ARMOR PENETRATION OF OBLIQUITY** 500mm at 1000m/55mm at 500m  
**BASIC LOAD (rd)** 500  
**SECONDARY ARMAMENT** PKT  
**MODEL** 7.62  
**CALIBER (mm)** 1/COAXIAL  
**NUMBER/TYPE** 2,000-3,000 (TOTAL)  
**BASIC LOAD (rd)**  
**AUXILIARY ARMAMENT**  
**CHARACTERISTICS**  
**TYPE** ATGM  
**MODEL** AT-4/SPIGOT OR AT-5/SPANDREL

\*NOTE: Armor protection levels increased with armor option package to turret front, sides, and forward hullside.

ARMOR: Paper 38-1-1 (Rev. 88)

ARMOR: Paper 38-1-1 (Rev. 88)

This 24-by-27-inch poster of the Soviet BMP-2 Infantry Fighting Vehicle is the second in a series on Soviet tanks, armored vehicles, helicopters, and ATGMs to be produced by Threat Division, Directorate of Combat Developments, Fort Knox. Units may request copies by phoning AV 464-5764 or 502-624-5764.

PIN: 063513-000  
 U.S. Government Printing Office 1989  
 748-050/89-1