

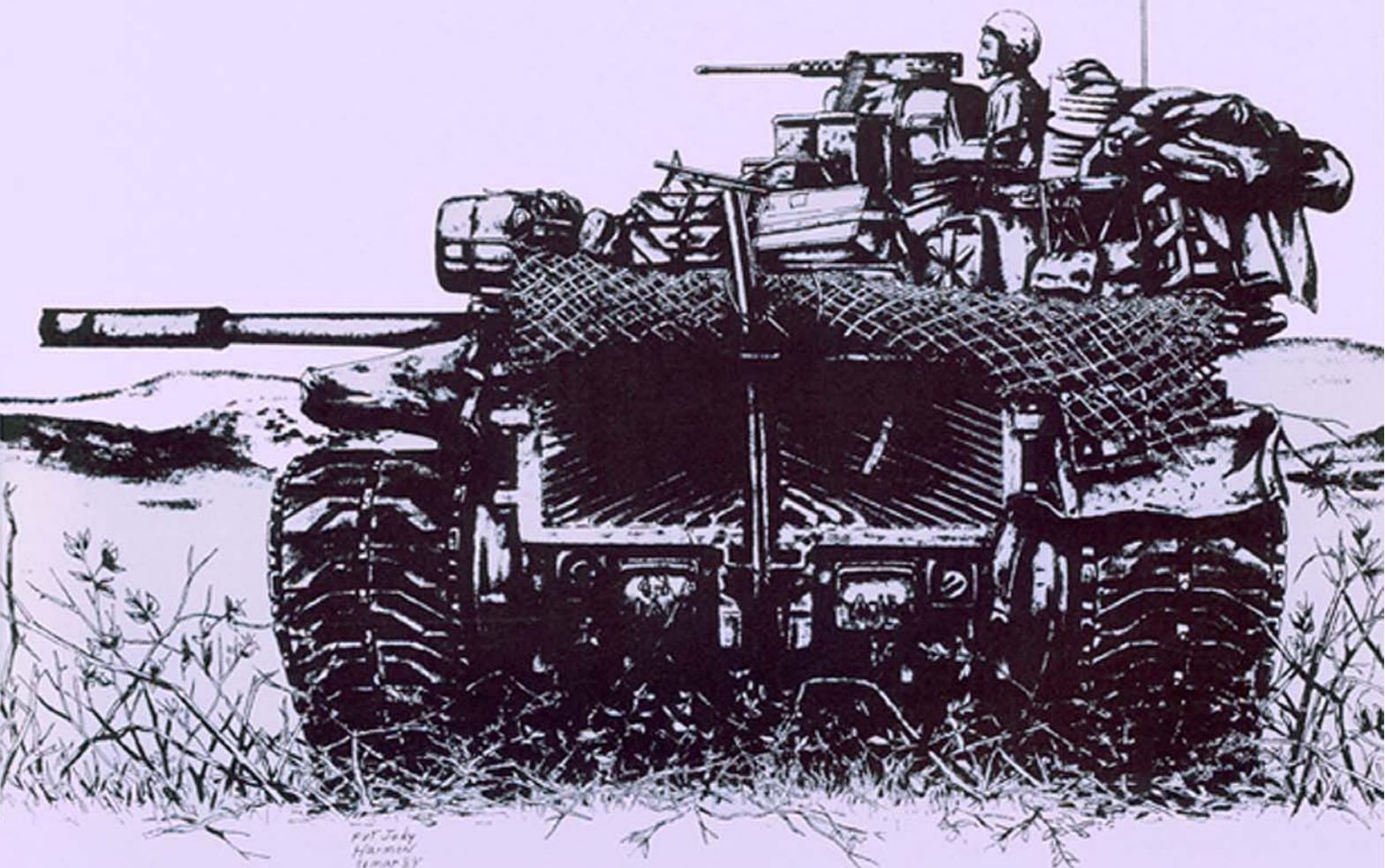
ARMOR

ARMOR'S ACHILLES HEEL

Resupplying scattered companies and sections

In "limited wars" like Vietnam

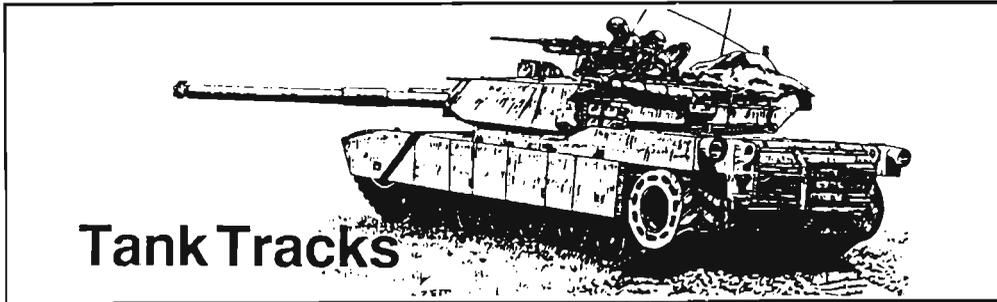
Can become a fight in itself *See Page 7*



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PB 17-89-3

May-June 1989



Tank Tracks

Most of us like to do the fun things that come with our business, like shooting and maneuvering. And guys in our sister branches get just as excited about shooting large bullets at targets they can't see and jumping from perfectly operational airplanes. But when it comes to tracking the ammo, fuel, and chow from supply point to consumer, we would rather let someone else handle the mundane, unglamorous details. We tend to the attitude illustrated by a remark that Admiral Ernest J. King made to a staff officer in 1942, "I don't know what the hell this 'logistics' is that Marshall is always talking about, but I want some of it."

Few would challenge the wisdom of a statement attributed to the Duke of Wellington during the Peninsular Campaign in 1811: "It is very necessary to attend to all this detail and to trace a biscuit from Lisbon into a man's mouth on the frontier and to provide for its removal from place to place by land or by water, or no military operations can be carried out."

Nevertheless, logistics continues to be a pain in the neck and it's getting lower all the time. To examine some facets of the problem, we offer a trilogy of articles. In **Armor's Achilles Heel, Tank Sergeant** author Ralph Zumbro throws the light of hindsight on the difficulties in trying to supply dispersed armor units in Vietnam. MAJ Martin E. Dempsey and CPT Alfred C. Tanner team up to offer solutions to the dilemma of trying to refuel while providing the enemy a lucrative target, in **Hot Refuel: Part of the Agility Equation**. And finally, 1LT Michael P. Gilroy explains well how to use a support matrix to simplify and streamline the difficult support platoon mission in **The Battalion Support Platoon at the NTC**.

George A. Custer did many things well. For all we know, Generals Terry and Gibbon may have said, "You done good," to him on many occasions. But in June 1876, Custer's intelligence preparation of the battlefield could have used some work. 1LT Steven J. Martin takes a non-traditional look at the Little Bighorn debacle in **Defeat at the Greasy Grass**, and shows us how to reap lessons from pre-mechanized history applicable to the find art of IPB.

A pair of authors provides insight on how to magnify two combat multipliers. While we tend to think "defense" when we think mortars, CPT Richard F. Atkinson shows us the flip side in **Employing the Heavy Mortar Platoon in the Offensive**. And CPT Richard G. Cardillo Jr. explains how critical the commander's intent is to the FSO in **Commander's Intent and the Field Artillery**.

In a more lighthearted vein, MAJ Harold Coyle, author of the best-sellers, **Team Yankee** and **Sword Point**, gives us his tongue-in-cheek version of the origin of the NTC in **Book One: Genocide**.

In concluding, I would like to introduce to you PFC Jody Harmon, our new contributing artist. This issue marks his first cover, and you can find his work throughout the issue. He joins SFC Robert Torsrud in producing illustrations of a quality that we think is the best in the professional bulletin business.

There is more here. If you can't find something you can use, it's your fault.

— PJC

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ARMOR

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May-June 1989, Vol XCVIII No. 3

Features

- 7 **Armor's Achilles Heel**
by Ralph Zumbro
- 12 **Book One: Genocide (Or How the NTC Came to Be)**
by MAJ Harold W. Coyle
- 14 **Hot Refuel: Part of the Agility Equation**
by MAJ Martin E. Dempsey and CPT Alfred C. Tanner
- 18 **Tactical Weaknesses Seen at the NTC**
by LTC Peter F. Manza
- 21 **Team-COFT Training for the CAT '89 Competition**
- 25 **Defeat at the Greasy Grass: Intelligence Operations at the Battle of the Little Bighorn**
by 1LT Steven J. Martin
- 32 **Employing the Heavy Mortar Platoon in the Offensive**
by CPT Richard F. Atkinson
- 35 **The Battalion Support Platoon at the NTC**
by 1LT Michael P. Gilroy
- 37 **To Estimate the Situation**
by MAJ Michael W. Symanski
- 39 **Reinforcing Leadership in the AOBC Officer**
by CPT Mark E. Asbury and CPT Jesse White
- 42 **To Gain and Maintain**
by LTC Robert R. Ivany and CPT Michael D. Formica
- 45 **Commander's Intent and the Field Artillery**
by CPT Richard G. Cardillo, Jr.
- 48 **Leadership: Loving and Taking Care of Your Soldiers**
by MAJ Joseph N.G. LeBoeuf

Departments

2	Letters	6	Recognition Quiz
2	Contacts	20	Recognition Quiz Answers
4	Commander's Hatch	50	Bustle Rack
5	Driver's Seat	52	Books

LETTERS

Praise for Cav Story... And Some Fine Tuning

Dear Sir,

COL (P) Jarrett J. Robertson made many excellent suggestions in his article, "Cavalry Missions and Structure," in your November issue. I am happy that someone has finally taken the time to expound on the importance that 19Ds have on the modern battlefield.

Under the current battalion scout platoon make-up, I feel that certain additions to the TOE would make the scout platoon itself more self-sufficient and effective. I feel that the platoon sergeant

should be placed in a HMMWV in order to complete his support functions of issuing the "beans and bullets." The HMMWV would afford the platoon sergeant added mobility and effectiveness in resupplying his platoon. The platoon, in turn, could maintain sustained combat effectiveness and mission accomplishment by being allowed to remain on its mission, such as a screen line forward of the main body.

In addition, I feel that the platoon leader should command the platoon from a Bradley, separate from the platoon itself. This would entail adding another Bradley to the scout platoon MTOE. Thus, the scout platoon structure would include seven Bradleys (three pairs of Bradleys and the

platoon leader's track) and a HMMWV per section. The HMMWVs would accomplish the close-in recon missions, based on their speed and stealth. The HMMWV's combat effectiveness would further be enhanced by the addition of the MK19 grenade launcher.

I concur totally with COL (P) Robertson's inclusion of an infantry squad on an M2 Bradley, so that the battalion scout platoon's final make-up would be seven M3 Bradleys, one M2 Bradley, and four HMMWVs. I feel that the platoon sergeant should be in the grade of E8 and that his senior scout should be an E7. This leadership structure would be similar to the

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other special platoons' make-up, specifically the mortar platoon.

I also agree with COL (P) Robertson's suggested organization of the cavalry platoon, troop, squadron, and regiment, and would add the HMMWVs mentioned above. Their effectiveness can be witnessed at the NTC, as used by the OPFOR scouts in BRDM 2 VISMOD alterations.

In closing, I would like to thank the colonel for his article and his analysis in reference to the current poor capabilities of reconnaissance under the current TOE.

By the way, where are the Expert Armor Tests and badges that we were promised?

SCOUTS OUT!

MONTY A. MILLER
SSG, USA
FRG

SCUBA for Scouts Reconnoitering Rivers?

Dear Sir,

I was impressed by the article, "Red Army Tank Commander," by LTC Richard Armstrong, in the November-December issue. It was well written, and illustrates the difficulty involved in moving large formations, especially cross-country.

The hardships endured by the Red Army tankers as they searched for suitable river-crossing sites brought to mind a project that the Armor School worked on way back in 1965. We looked at the use of SCUBA equipment and techniques for use by scouts to find and mark crossing sites. I think it was a tasking from the old Combat Developments Command - Armor Agency, and the Command & Staff Department got the job. The conclusion, as I recall it, was that the scouts could be trained and the equipment procured off the shelf, but that the job could be done by engineers.

I'll bet those Red Army tankers would have enjoyed having a wet sult in that cold weather! But they probably just built a fire to dry out and then went on their way...

CALVIN HOSMER III
COL, Armor (Ret'd.)
Durham, N.H.

Helping Engineers To Help You

Dear Sir,

I read with interest 1LT Keaveny's article, (Jan-Feb issue), on use of the engineers in preparation of the defense and would like to add some lessons that I have learned from six years of directly supporting armor units.

Although the article addressed mainly technical aspects, I would like to address two major problem areas that are very common, and severe enough that they can ruin any chance of properly digging in an armor unit. They are: handoff between armor units (sections, platoons, and companies) of heavy equipment and warning or notification of NBC or enemy attack.

The first problem is an easy one to solve if the proper attention is given in unit SOPs and operation orders, and if the chain of command stresses the importance of not losing any blade hours. The SOP or order must set procedures for the transfer of equipment and place the responsibility on the armor units. For example, the order states that "E Troop will have two dozers for six hours and then they transfer to F Troop, and F Troop will keep the dozers until all tanks are dug in to F Troop CDR's satisfaction; if time remains, they will then dig in all ADA assets under SDN control." This is where most orders stop, and this is where the confusion starts. Most digging is done at night, and most dozer operators are privates or specialists. Even the most conscientious private runs a good risk of getting lost between tank positions or units. Either the SOP or the order needs to contain something similar to the following: "The unit receiving the digging assets has the responsibility to pick up that asset from the losing unit. Under NO circumstance will the losing unit allow the engineer equipment to depart his location without an escort from the gaining unit. This applies from company level down to section level, with the TCs picking up and escorting equipment within platoons." (If this is in the SOP, a reminder needs to be included in the order.)

If this sounds like I am degrading the engineers (my own branch) let me explain. The heavy equipment platoon is lucky if it has a platoon leader, most likely only a platoon or section sergeant who is busy trying to coordinate maintenance support from his parent unit in another sector or

fuel support. The operators have probably been digging for days (no exaggeration at the NTC), are bone tired, and are lucky if they have a map and compass. Chances are, if they are told to head "that-a-way for 300 meters until you run into F Troop," they will be found the next morning after the battle is over.

The second problem is more difficult to solve. The only radios authorized in the platoon are for the platoon leader's and platoon sergeant's vehicles; none for the equipment. Several solutions are immediately apparent: (1) keep the equipment together and one of the above vehicles with the equipment at all times, or (2) rely on the armor units for warning. The first option hinders flexibility in deploying equipment, and in reality it is the second option that must be used most of the time. This places the burden on the armor platoon leader to warn the equipment operators and ensure that they are in the proper MOPP posture. This not only applies to NBC attacks, but also to enemy attack. Too often the dozer operators are only aware of the enemy attack when the enemy tanks roll past their positions, and the evaluator tells them they are dead. The operators must be stopped and told face-to-face, (remember they are wearing a dust mask, goggles, and hearing protection). This is something that is easily overlooked on FTXs because the commander wants the dozers to dig for the next battle and will often "bring them back to life," rather than have the equipment sit idle, or "dead" for hours. In real life the failure to warn the operators will cost their lives, and at the NTC will result in lost blade time.

Proper training on these areas during home base FTXs, and a review of SOPs and orders, will help ensure maximum use of heavy equipment and save lives.

ERIC C. SIMPSON
CPT, Resident Engineer
Athens, Greece

Some Comments on Observers, Crew Size, and Autoloaders

Dear Sir,

I've recently started receiving your journal again after almost 10 years, and it's great to see that your professional forum is still going strong.

Continued on Page 51

Leadership: Often Studied But Seldom Understood

MG Thomas H. Tait

Commanding General

U.S. Army Armor Center

The Army has been studying leadership since WWII. In fact, there has been a major leadership study approximately every 18 months for the past 44 years. The Command and General Staff College and the Army War College have been studying the subject. Everyone has an opinion about what constitutes successful leadership. Evidently, we seldom reach consensus, otherwise the subject wouldn't require so much study.

We have all kinds of leaders in our Army. Some units have informal leaders who take charge, fill a vacuum, even though it is beyond their normal responsibility. They are the so-called natural leaders; however, they may also be individuals who have learned, over time, how to motivate soldiers.

Those who are good leaders understand the human dimension of leadership and don't have to intimidate in order to get things done. Intimidation is easy, especially if you are a senior officer or NCO. In fact, the more rank, the greater the opportunities to intimidate. If you are oversized and loud, your ability to frighten increases exponentially. If a leader must use scare tactics, he will lose the respect of his soldiers.

Good leaders thrive on interaction with soldiers of all grades. They instinctively, or through serious study, know what makes a human being tick. Soldiers know who these leaders are and will follow them anywhere, under the most difficult conditions.

The most interesting of our leaders are the natural ones. The example that comes to mind is MG Joe Lutz, chief of staff of Special Operations Command. Before values became a popular subject for discussion in our Army, he published a pamphlet, "Values in the 3d Armored Cavalry Regiment: A Commander's Perspective." I recently had the occasion to review it. His treatise was simple and straightforward, and I quote his philosophy:

"To recognize each individual as a singularly unique, dignified human being. This forms the basis for all other values and, as such, is the key to a people-oriented philosophy. All other values become suspect should this value be ignored."

As commander of the 3d Cavalry Regiment during the Operational Test II of the M1 tank in 1978, he led his soldiers through the most trying of times. He was able to motivate his soldiers to new heights through personal example, loyalty, and just plain human understanding. The soldiers of that regiment worshipped him.

Although he has gone on to greater achievements in increasingly difficult assignments, he will always be remembered as the 57th Colonel of the Regiment. He is a leader whom all officers should try to emulate, not because he is a great cavalryman and special operations soldier, but because he gets more out of people with less effort than

anyone I know. He is also technically proficient, and if we have to send our sons and daughters off to battle, we want them to be led by soldiers like him. He is an untapped natural resource for our Army and should always be assigned to leadership/command positions.

Those who believe that only the managerial skills of the corporate boardroom are necessary to lead and command American soldiers are out in left field, beyond the bleachers and in the parking lot. And there are senior soldiers who sincerely believe the Army can be run like a major corporation. They run unhappy ships because they do not, will not, understand the human dimension of leadership and, thus, do not understand soldiers. They believe intimidation is the answer. Some also attempt to hide behind what they perceive as a superior intellect, and arrogantly dismiss any attempt to treat soldiers with dignity.

The key ingredients to leadership success are understanding and listening. Those who are always in the "push to talk" mode should go on "listening silence;" they might learn something.

Soldiers are our most important asset. Take care of them, love them, and they will surprise you with their energy, loyalty, and their ability to accomplish any mission.

"Treat 'Em Rough!"

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



The "Year" of the NCO

The "Year" of the NCO is about 6 months old now, and many programs have been developed to strengthen the NCO Corps for several years to come. Let's take a look at Armor NCOs. Where are we and where do we need to go? Six years ago we had problems. The problems were brought on by Armor's continuous reclassification program, assignment policies, and commanders' and senior NCOs' willingness to allow incompetence to exist.

The Armor Force's major NCO problem was that Department of the Army promotion boards could not select for promotion the number needed. According to the records, to be a platoon sergeant or first sergeant was like having the plague, a number of NCOs were avoiding the positions. School (NCOES) attendance was weak, GT and SQT scores were low, evaluation reports indicated poor to mediocre duty performance and potential.

Today, the Armor NCO profile is strong. Through tough standards, assignments, policy changes, improved NCOER, outstanding SQT scores, much improved GT scores, and most of all, outstanding commander support, you have one of the strongest, if not the strongest, Career Management Fields in the

Army! The last three promotion boards have put a stamp of approval on 75 percent of the files they have screened. That's 75 percent of the eligibles for promotion to meet the minimum qualifications for promotion to the next higher grade.

A few years ago, nobody called me about their NCOs not being promoted. Today, I get phone calls from wherever Armor units are assigned about why their NCOs were not selected for promotion. The calls are not from individuals, but from the chains of command, which are concerned about their NCOs and soldiers.

Now, the problem lies in the numbers to be promoted, which have been reduced due to budget constraints, but certainly not due to the quality of the Armor NCO during the "Year of the NCO."

From 1978 to 1982, enlistments were below average. During 1983 and after, we started receiving very talented enlistees. The Excellence in Armor Program was developed and approved in 1985 as a sound excellence program that had the potential to develop and retain outstanding soldiers in the Army. Outstanding soldiers could rapidly become noncommissioned officers,

with a few going to OCS for commissioned service. The program is not working well in the hands of the chain of command. With almost 3,000 soldiers selected for the program, only a few have been organizational selected. Those who are eligible for attendance to NCOES are not being allowed or selected to attend. Sergeants are not being allowed to take Certification Test II for an extra 50 promotion points. Some quality sergeants are attending Master Gunners School, but are not members of the EIA Program.

Why is it so important that the EIA Program for Armor succeed? What does it have to do with the Year of the NCO?

If the quality of the Noncommissioned Officer Corps in Armor is to remain sound and improve, then the EIA Program must succeed. We must make every effort to retain quality soldiers in the Army. The EIA Program is designed to speed the quality soldier up the ladder of proficiency in order to sustain and/or improve the quality of the Armor noncommissioned officer.

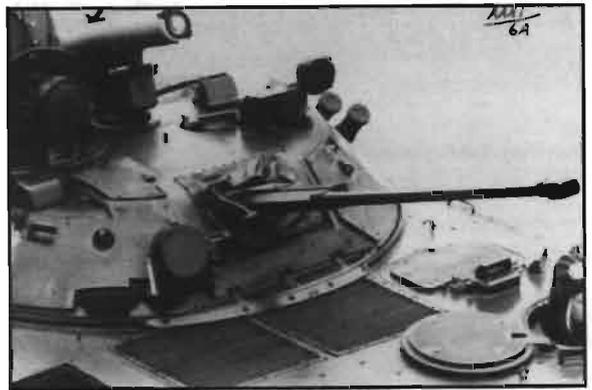
The "Year of the NCO" focuses on programs to sustain and/or improve the quality of the NCO. The EIA Program will ensure that future quality of the Armor noncommissioned officer.

Soviet Vehicle Recognition Quiz

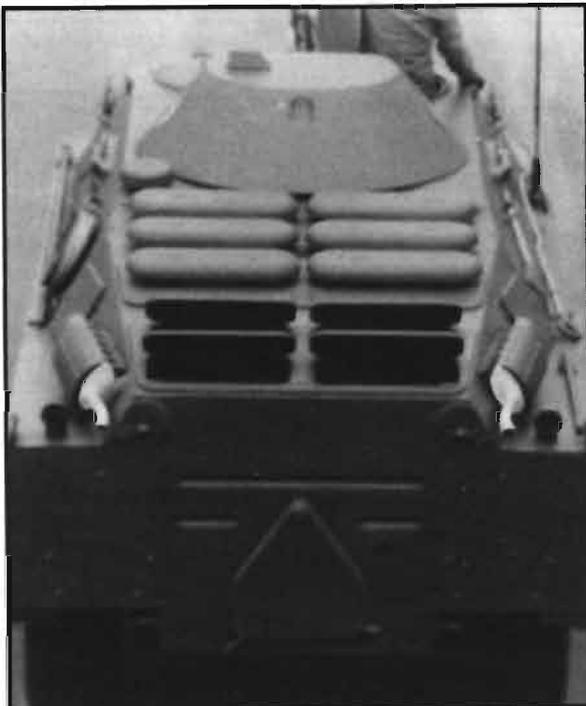
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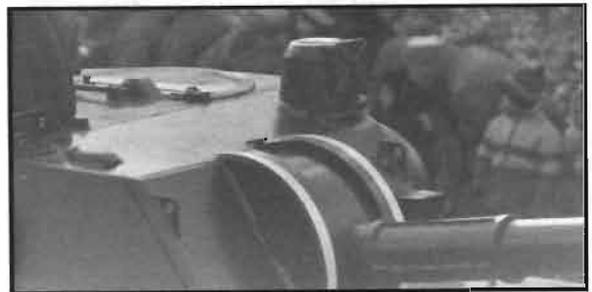
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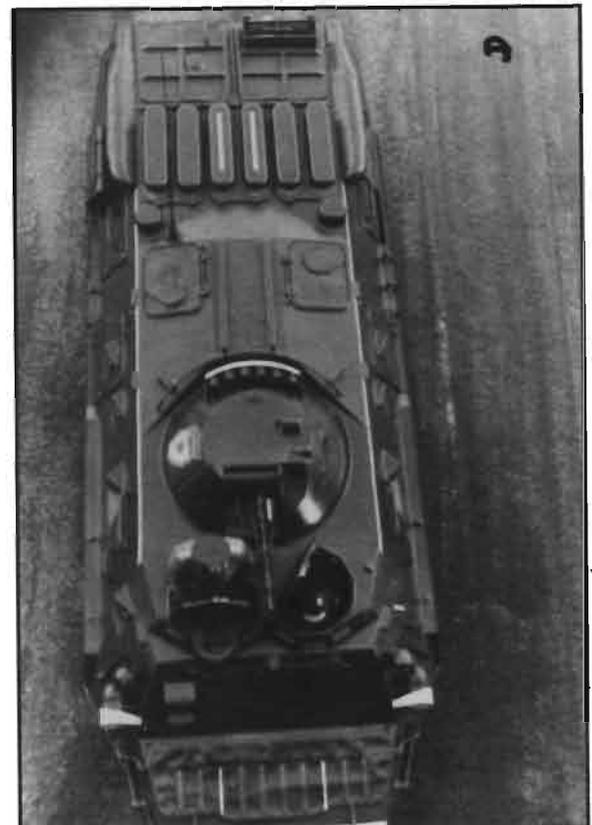
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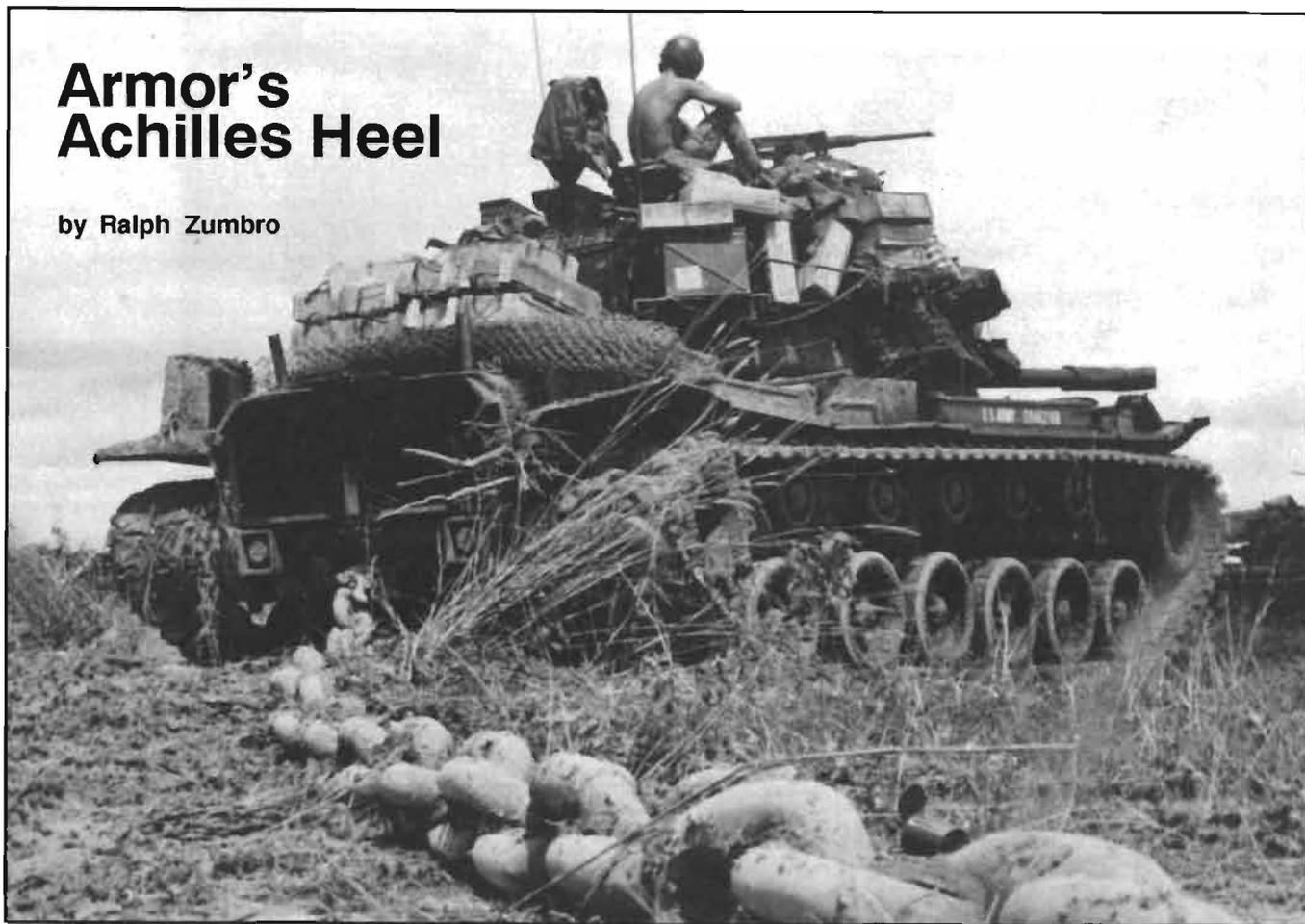
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See Answers on Page 20

Armor's Achilles Heel

by Ralph Zumbro



Armor is rightfully called the Combat Arm of Decision. Absolutely nothing alters the course of an infantry battle as radically as the arrival of a thundering behemoth that is spewing high explosives, dripping grenades, and crushing buildings.

In Vietnam, once the decision was made to try heavy armor, the tanks were an instantaneous success wherever they were applied. Unfortunately, several problems developed, all of which stemmed from two basic facts.

First, there were too few of us to go around. For instance, in mid-1967, my company, A-1/69, was the entire armor support for the 1st Air Cav, seventeen worn, battered M-48A3s spread out to three full brigades of airmobile infantrymen - and they had no other ground support. Second, the supply

When armor units are broken up, As they are likely to be in "limited wars," Resupply becomes a fight in itself

mechanisms of a normal armor unit are designed for a conventional European/North African conflict. There is no way that a line company's abbreviated logistic tail can handle fractioned operations.

Sometimes the company was split into six, or even eight, sections, spread over 250 miles of mountains, paddies, and jungles. Our only "reserve" was the six tank! As you may suspect, controlling and supplying these scattered sections was a nightmare.

Armor's Achilles heel is its insatiable appetite for combustibles and

spare parts. An M48-60-series tank is supposed to be turned in for rebuild at 4,500 odometer miles, but we ran ours for 15-20,000 miles. The lessons we learned are directly applicable to the two most likely scenarios for a modern war, the Air-Land Battle and the so-called Low-Intensity Conflict (LIC).

As far as the tank and its crew are concerned, LIC is a misnomer. The politicians may classify a given fracas as "low-intensity," but down in the jungles, the crews will be fighting like wildcats in heat.



I have been in firefights so close that we had to button up and machine-gun the VC off each other's hulls. One TC popped up too soon and got a canister pellet in the jaw. Our exec once got into a knife fight with an NVA officer *in his own turret!* When you have to club hostiles off your hull with the gun tube, that is high intensity - for *that crew.*

Tanks that are fighting that hard have to be resupplied, and quickly.

in such demand that infantry COs were loath to admit that they had tanks with them for fear that someone else would ask for the armor, claiming imminent contact. In that instance, the air cav units could reach their own HQs, but ours was out of range. Eventually, we evolved a split supply system that used the resources of the host unit for such day-to-day items as fuel, rations, and small arms ammo. When things got hot, though, we had to have

"Unfortunately, even mechanized infantry isn't set up to support heavy armor. The ammunition and spare parts aren't in their supply line. One time, a TC called in for a resupply of 90mm and got a slingload of 90-mm recoilless rifle ammo."

In one village battle, we had to pull out and re-ammo three times in one day. Unfortunately, even mechanized infantry isn't set up to support heavy armor. The ammunition and spare parts aren't in their supply line. One time, a TC called in for a resupply of 90mm and got a slingload of 90-mm recoilless rifle ammo.

When you are cross-linked with infantry, your tanks will be scattered to the winds, and you can't afford to lose track of them. When terrain intervenes, set out relays or establish links through other nets.

armor ammunition and replacement crewmen on tap.

No one, except another tankerman, can anticipate the needs of armor in combat. Using seasoned tankers to control the flow of combustibles expedites the process because their experience allows them to understand the needs of the men in the turrets.

We discovered this by accident when my decrepit dozer tank took one hit too many and had to be turned in for rebuild. My crew and I got trapped in company base just as some of its critical personnel rotated out. I was assigned the duties of ammo/POL NCO, and when a call came in, we didn't have to guess what was needed. We knew.

I learned to sleep with one eye open, and to keep one ear tuned to the radio track. Every time a tank or section passed through company base, the support troops would check with the TCs to see what was needed.

We developed the practice of keeping a basic load for one platoon in helicopter cargo slings, under canvas, ready to go. That supply had to be partially unpacked in order to ease the job of the men on the other end. Ninety millimeter main gun rounds, for example, were uncrated but left in the fiber tubes. We also had several sizes and



makeups of slingload. Sometimes, a platoon or section would call in, needing only a few main gun rounds, C-rats, water, and a few mechanical spares. Other times, a section on convoy escort would need a few hundred gallons of diesel choppered out in bladders.

After a while, you develop an instinctive feel for the type of operation, and start planning ahead. When a section of tanks is working through a heavily fortified area, it is going to draw HE and HEP more than any other type of ammunition. A convoy rescue, on the other hand, will burn a lot of flechette and coax.

The prime rule is that everything necessary for a protracted engagement must be in company base, in cargo slings at all times. Any chopper, even a gunship, can lift supply loads. I have seen an ARA ship come into a hot LZ, drop off a sling, and then take up station over a tank and start shooting.

The highest priority after contact must be the establishment of a semi-secure LZ for medevac, resupply and reinforcement. Many times, only tanks can do this, because a section of forest must be smashed flat to allow the birds to land. Several times, we had to pull the tanks out of a village, form up on line, and wheel around in a circle to clear both brush and snipers out of an area. It was also necessary, at times, to carry the wounded out on

the tanks, and haul ammo back to the infantry.

Tanks working in a built-up area expend ammunition at a prodigious rate. A Patton-series tank carries between 54 and 64 rounds of main gun ammo, which can be shot off in a few hours. We learned, early on, that coax and .50 storage in all main battle tanks is insufficient. Twenty thousand rounds of 7.62 and 4,000 rounds of .50 ought to be considered minimum.

We also learned to stow extra main gun rounds outside the turret, and to expend them in a bombardment period, before entering a hot zone.

All this consumption, however, will work the hell out of the company HQ people. For one thing, the first-use ammunition dump must be at company base, not battalion. The company doesn't provide enough bodies or vehicles, so battalion has to be tapped beforehand for vehicles and personnel. These men should be attached to the company, under control of its NCOs.

We had to set up a flying column composed of two 5-tonners and one deuce and a half. One truck and its trailer were for ammo and demolition supplies, and the second rig was equipped with POL pods. The deuce and a half was crammed with general supplies and carried our own personal gear. Each truck

should come with a driver and a load handler or two. There were never enough bodies to go around, and at one time, I was moving ammunition with Montagnards.

For the types of war that we seem to be headed for in the latter decade of this century, the company supply system is going to have to be slightly modified. Wheeled vehicles just can't go all the places that a tracked vehicle can. On many occasions, we used APCs to haul ammo into a remote area because helicopters couldn't get down through triple-canopy rain forest.

A much better solution would have been to use M-548s. That way, each one could be loaded with combustibles and set up to tow a fuel bladder. Each carrier should come with enough crew to handle cargo, and light, if need be. There should be a .50 ring on each one, and they have to have radios. In far too many instances, we had to find the tanks by following their tracks - or even by asking the infantry if they'd seen them.

The company bunkers must be able to resupply the whole outfit several times over, once contact is established, and the ready-slings must be sent off more quickly. Next, whatever means of transport is practicable must be sent off to resupply the base itself. The flow of ammunition must not stop, or you'll lose the initiative.

As Captain DeMario asks in the September/October issue of *ARMOR*, "Even if we stop the Warsaw Pact cold, shouldn't we have to expect to throw them out of every town and forest they will be sure to defend?"



Soviets make unscrupulous use of the civil population, and that will force us to create many small, independent armored units, with the attendant supply/admin problems.

Once the enemy is on the defensive, the pressure must be relentless, and that means massive consumption of fuel, ammo, and rations, as well as spare parts.

We must give some serious thought to adding a support platoon to the line armor company, especially to those that are part of an infantry division. It should be fully tracked, and capable of allowing the company to split into six segments. The supply, mess, and maintenance people would all fit in here, and we should add an artillery-style ammo section. Also, you'd gain an extra officer who could double as liaison with cross-linked outfits.

Whoever is controlling the re-supply operation must get with the company HQ noncoms and set up a running inventory. A balance must be struck between having enough combustibles on hand, and still being able to move the whole shebang on a moment's notice. When move-out time comes, you'll have to make a decision between making extra trips, or destroying the extra supplies in place.

Our normal ground supply procedure was to take my three-truck column and make bi-weekly runs to

the nearer platoons or sections, as necessary. Depending on local VC activity, we would either make the runs unescorted, or tag along with a hardened convoy. We usually stuck to roads or tank trails, and let the tanks come out to us.

For a unit that was over 50 miles out, we would draw extra trucks from battalion, or a transportation company, and set them up with their own supplies in a section of the host unit's firebase. (On one occasion, we had a platoon working with the Korean Capital Division, and had to carry an interpreter with us).

Unless something radical happened, one run every two weeks was sufficient for these detachments. In any case, there was always enough in their dumps to replace a basic load at least twice, and a Chinook from Pleiku or Bong Son could easily restock them in a few hours.

As time in the field accrues, so will the need for spare parts and advanced maintenance. As a result, there'll usually be one or two tanks in the company LZ being worked on, and these can be tapped for escort duty. Alternatively, when one tank is returning to its platoon, the trucks can simply tag along. This also allows them to penetrate deeper into the bush, because the tanks can pull them through rough going, as well as protect them.

If a platoon has been out much over two weeks, it will need everything from Coleman mantles and mosquito nets to torsion bars and turbo chargers, bearings, seals, headlights...the list is almost endless. Your motor sergeant is the key here. His experience will allow him to second-guess wear and tear, and to replace things before they blow.

When a road wheel or idler bearing, for instance, starts to use too much grease, replace it before the wheel falls off. When a battery gets too thirsty, replace it before the others get pulled down, too. You have only as much voltage as the lowest battery in the harness, and plugging in the slave cable is not advisable when lead bees are trimming the underbrush.

When you have exceeded turn-in mileage by double or triple, and are being shot at in the bargain, the rules go out the hatch. Annual maintenance was being done quarterly in Vietnam, and normal monthly lube schedules had to be pulled weekly. If the parts can be gotten to the tanks, it's amazing how much repair work the crews can perform out in the field. We even brought a VTR out to the Cambodian border and changed powerpacks on top of a jungled mountain.

As mileage increases, so does the list of on-board spares. We learned to carry road wheels and extra track sections, headlights, bolts, lengths of wire, LMG spares - I think we hauled about a half ton of parts most of the time. Some tanks even carried a few torsion bars, lashed to the sponson boxes.

In a normal tank or cavalry platoon, there's no such thing as

platoon or section equipment, because you're supposed to be able to get everything necessary from company HQ.

That's fine for a World War II-type operation, but if you're in a Central American rain forest, or halfway across Africa, you're going to have to be self-supporting. That means extra gear, and a place to haul it. Long-range base antennas, for example, and engine-lifting slings. Extra-length tow cables and slave cables. Fuel transfer pumps and hoses. Trip flares, claymores, and wire for semipermanent perimeters. The list goes on forever, and all this needs to be stowed. Eventually, we wound up manufacturing oversize bustle racks and splitting up the accessories.

If a section or platoon is to operate in a defined area, say, out of some infantry firebase, it can be given a trailer load of basics and a fuel trailer. You simply hook the trailers directly to the tank and haul your housekeeping gear with you. This method will give a heavy section an independent capability, because three tanks and two platoons of infantry can live for quite a while off five tons of general supplies. The normal SOP was for one tank and one platoon to man the perimeter and rest, while the other platoon and two tanks beat the bushes.

You can find a way to get fuel, ammunition, food and parts out to the tanks, but eventually, wear on the machinery will overcome the supply of mechanics, and combat attrition will cause a shortage of skilled crewmen. There simply aren't any spare troops in a line company unless you cross-train your rear echelon types as tankers.



I have seen three TCs medevaced out in half an hour. The gunners took over the tanks, and galvanized cooks and clerks came out on the supply ships. Most of the time, when a platoon was sent out to clean up an ambush, there'd be a line of would-be loaders waiting by the gate. We even used Air Force men during Tet.

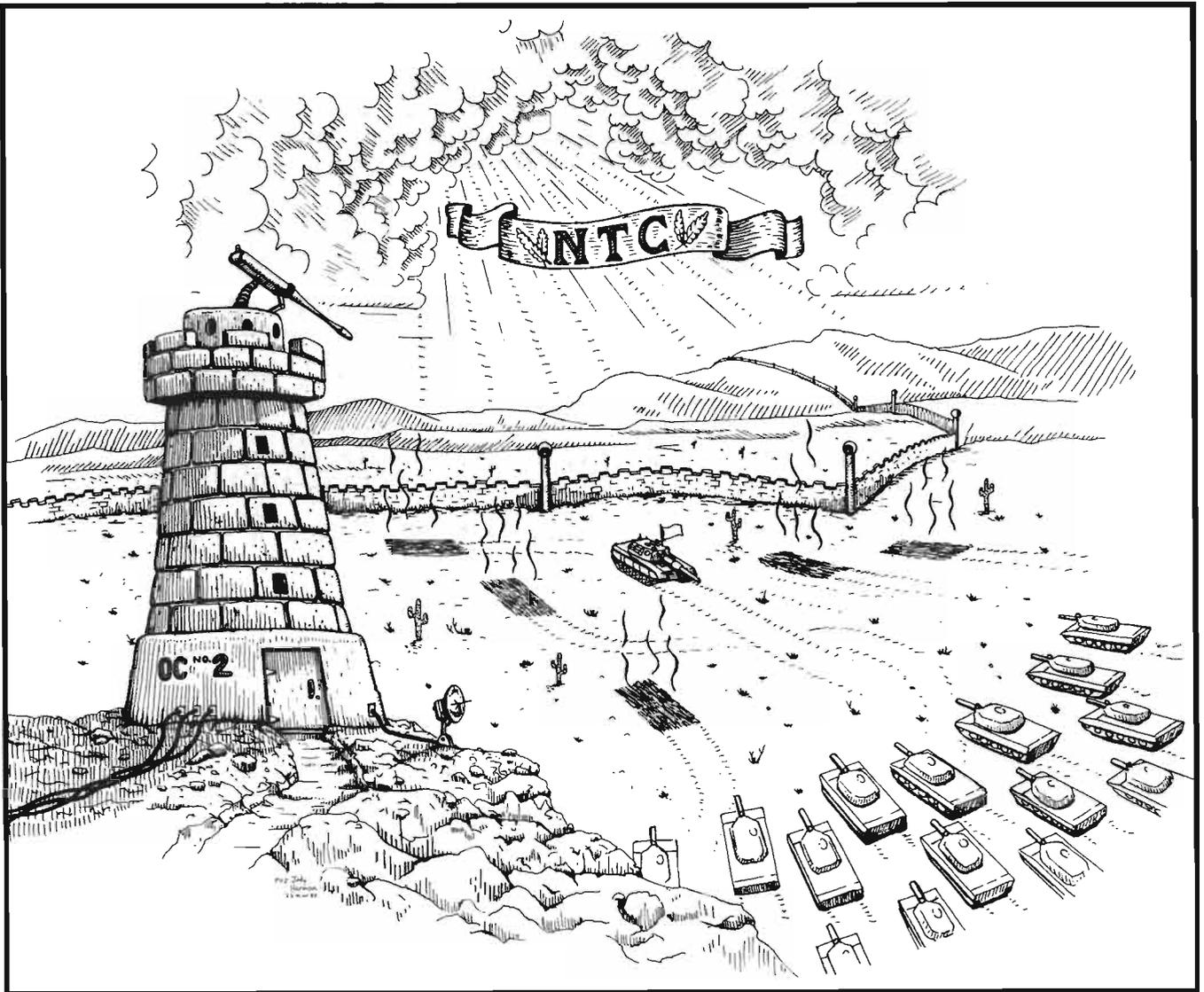
Cross-training will also help solve the mechanic problem. If you start having your motor people give classes now, and send your more promising candidates to schools, you will drastically increase your unit's effectiveness and flexibility.

Americans are unique in that we, more than any other nation, are wedded to machinery. That means that our Army, more than any other, can keep tanks running under adverse and even impossible conditions.

We'd damn well better be planning ahead, though, because the Russians are still building 260 tanks per month. That means that the fate

of the free world is resting squarely on our armored shoulders.

"Tank Sergeant," Ralph Zumbro's memoir of his service in Vietnam, was released in paperback last year by Pocket Books. He has served as an NCO in each of the combat arms, including combat service in the RVN. He has commanded tanks in Vietnam, USAREUR, and CONUS, and has served as a gunnery and demolitions instructor. With a degree in marine propulsion technology, he's also worked as a salvage diver, yacht captain, and vocational-technical instructor. Currently, he is writing full-time and his new book, "Jungletracks," co-authored with his former XO, James Walker, is due to be released by Pocket Books this summer.



Book One: Genocide

(Or How the NTC Came to Be)

According to MAJ Harold W. Coyle

In the beginning, there was only darkness and a vast void populated by OCs, computer technicians, and the OPFOR. Across the face of the great barren nothingness, these indigenous personnel wandered lost, aimless, and without purpose. In despair, they cried out, "Father, save us. Look down upon us and take pity on such miserable creatures as us."

From the heavens, God heard their appeal for salvation. What He saw did not please Him. With a 600-ship Navy and the the B-1 bomber on the way, He turned to answer the prayers of His lost children.

So, on the first day, God created the National Training Center. And lo, the masses rejoiced in the fact that they had received a mission and funding. God looked down and said, "For a start, it ain't bad."

On the second day, God created the hardware and tools for His huddled masses. For the computer technicians, He gave them the Star Wars building, an air conditioned oasis of wire, diodes, and CRTs

from which the COG could reach out and touch everyone. To the OPFOR, He gave them Sheridans with unlimited warranties, VISMODs, and no speedometers.

But the greatest gift of all went to the OCs; the controller gun. There was much happiness over this. In fact, the masses were so pleased with Him that, in His honor, they named the controller gun after Him.

On the third day, very early, God created NTC rotations. Before dawn, He summoned forth the warrior chiefs of His armored and mech brigades and assigned them the tasks of leaving their green, lush domain where they ruled supreme and sally forth into the Valley of

Death. There, DRRTs watched and reported. Computer technicians scanned the air waves and recorded every move. Worse, hordes of OCs moved throughout the vast wastelands, watching, waiting, recording, as the armored and mech force wandered about singularly and in clumps. And in their time, the OPFOR fell upon the hordes of the warrior chiefs, wreaking great havoc and destruction. It was not a pretty sight. From His heavens, God looked down and said, "Not bad for a beginning. But now what?"

On the morning of the fourth day, it came to Him. To aid the warrior chiefs, He created the eight operating systems, (later to be revised to seven, once all the warrior chiefs had memorized the eight). God took these eight operating systems and again summoned His warrior chiefs, and to them He said, "Take these, my children. Read them. Learn from them, and go forth and prosper at the NTC, for within them are the keys to success." The warrior chiefs, awed by His presence, accepted the gift, went back to their green pastures, and became confused.

But all was not well. Despite His generous gift of knowledge and wisdom, the warrior chiefs still blundered forth into the Valley of Death and were decimated by the rampaging OPFOR. Searching for a solution, God tore a page from medieval history. Using the principles perfected by the Spanish Inquisition, He created the AAR on the fifth day. In a flash, OCs, trained in the finer points of physiological torture and KGB interrogation techniques, scoured the countryside in small vans, linked by radio to the Star Wars building, in search of warrior chiefs who violated His holy writ, (i.e. the eight operating systems). When found, the offending warrior chief and his

selected minions were crammed into the tiny vans and subjected to hours of multimedia "AARs". God looked down upon this and chuckled.

But all was not well, for soon a few warrior chiefs not only began to master the OPFOR, but, misguided and ill advised, some even pronounced the NTC to be fun. So, on the sixth day, God created fire marker teams, Hind helicopters, and infantry augmentation of the OPFOR. To them, He charged, "Go, seek, strike, and punish the offending warrior chiefs. Make them believers." And so, in liege with the OPFOR and OCs, these new elements roamed the vast wastelands in search of wayward warrior chiefs. And in His name, the fire marker teams, Hind helicopters, and infantry augmentees metered out swift and just punishment.

Now, this being the NTC, there was no rest on the seventh day. Instead, God searched far and wide for new and exciting ways to torment His warrior chiefs. And as He searched His great domain, He cast His eyes upon the light infantry. In a flash of inspiration, He decided that they too should share in the "fun" at the NTC. So again He called forth His warrior chiefs to the mound and bestowed upon them a new gift. He called it the heavy/light rotation. Rather than rejoice, however, the warrior chiefs cried out in fear, "What, My Lord, shall we do with them? We have no doctrine, no common ground. We are pleased with your gift, but we need your light to show us the way."

But there was only silence and darkness. Confused and in great fear, the warrior chiefs each returned to their respective green pastures where they contemplated their navels and awaited divine guidance. But lo, there was none. So, with mounted warriors and

"Light Fighters" hand in hand, the warrior chiefs went forth once more into the Valley of Death. Though there was much befuddlement and little success, the warrior chiefs did not protest, for they feared the "AAR".

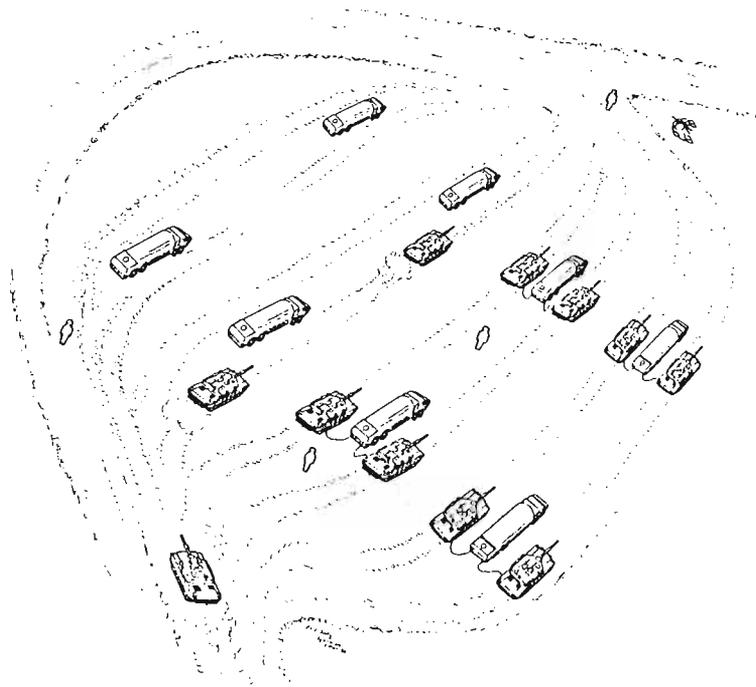
Satisfied that His work at the NTC was done, God looked upon His vast domain and searched for new worlds to create. And lo, from across the great Atlantic, He heard much gnashing of teeth and the renting of clothes. Looking from His heavens, He saw another great void where darkness, despair, and fear abounded. He was unhappy with what He saw at Hohenfels. Calling his lost children of Hohenfels together, He said to them, "Fear not. Be strong of heart. I have heard your cries, and have come to give you purpose and meaning."

And so, He went back and scheduled a command and staff meeting for early Monday morning at which He would announce His intent to clone the OPFOR, computer technicians, and OCs at the NTC and levitate the clones to Germany, where the Seventh Army warrior chiefs would be able to partake of the fruits of the dreaded "AARs".

Satisfied with His efforts for the week, He turned off the lights, locked the door, and went home to Her.

Major Harold W. Coyle is a 1974 distinguished military graduate of VMI. He has served as a tank platoon leader in the FRG, chief of the M1 Branch and Gun Management Branch in the Weapons Department, USAARMS, armor advisor to Readiness Group Knox, and assistant operations officer with the Combined Field Army in Korea. He is currently assigned to Fort Hood.

Figure 1. Short Site Configuration



The S4 computes the fuel required for each tank by dividing the battalion total by 58 (the number of tanks assigned). In this example, the computations work out as follows:

$$1.0 (675.8) + 2.0 (3,059.8) = 6,795 \text{ GALLONS FOR THE BATTALION}$$

and

$$6,795 \text{ GAL divided by } 58 \text{ TANKS} = 117 \text{ GALLONS PER TANK}$$

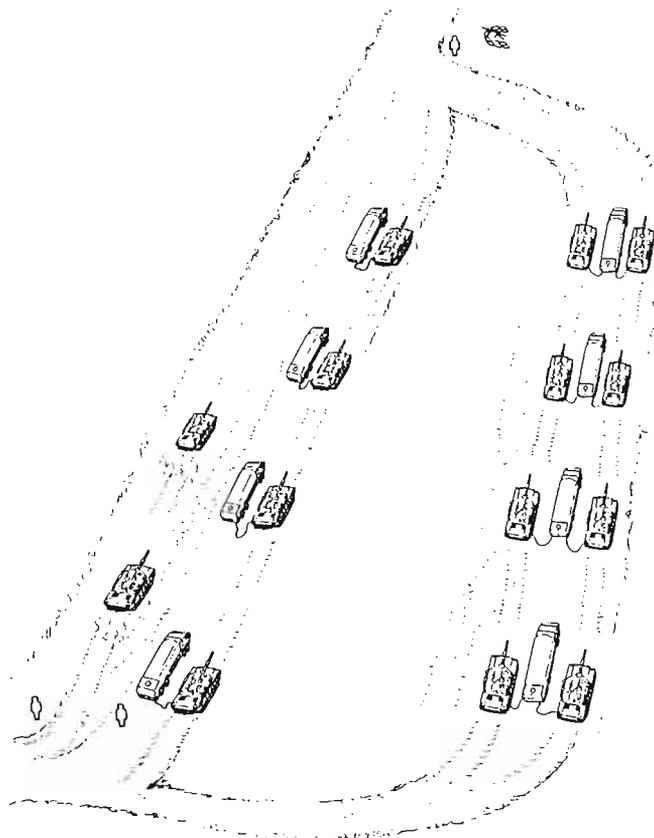
This 117 gallons represents 23 percent of the M1A1's capacity.

With this information, the S4 knows that he must provide each tank 117 gallons of fuel if the battalion is to cross the LD/LC "topped off." He also knows that at 50 gallons-per-minute it will take the M978 approximately two minutes to bring an individual tank to near capacity. He can now plan the hot refuel.

As with most military operations, the hot refuel planning process begins with a map reconnaissance. The object is to find areas along the battalion's line of march that will support up to eight M978 fuelers parked either abreast or in column at least 100 meters apart.

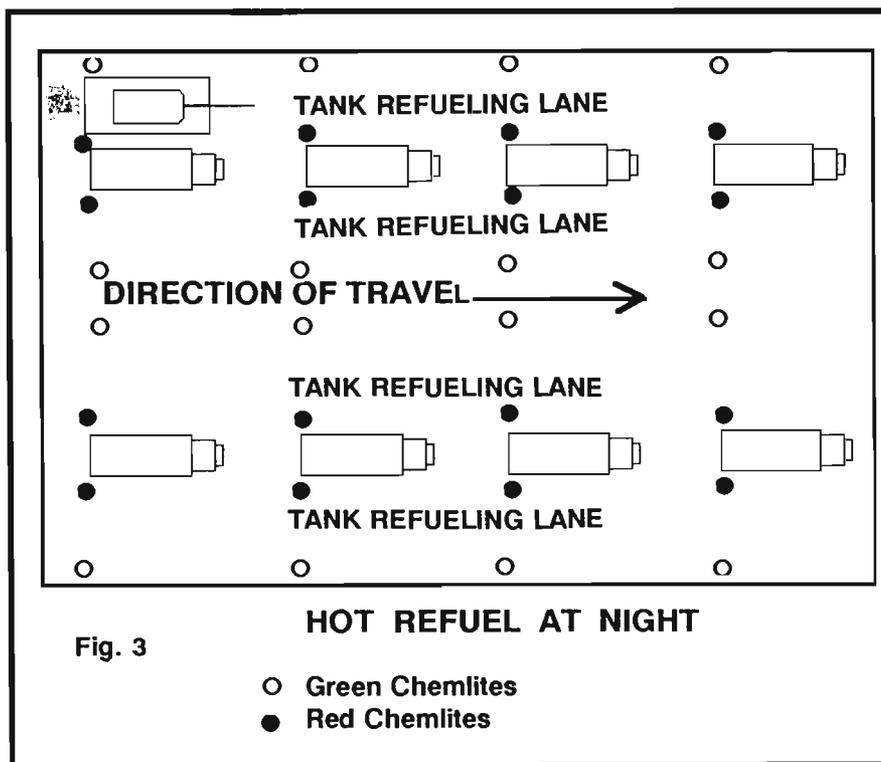
The criteria for selection of hot refuel sites vary little from criteria used in the selection of other sites for military operations. However,

Figure 2. Long Site Configuration



Hot Refueling: Two Ways to Set Up the Site

Figure 3. Hot Refueling at Night Using Chemlites for Traffic Control



trafficability in the hot refuel site is essential because the entire battalion will pass through in about an hour. The hot refuel site is also a very lucrative target and at the same time very vulnerable. The support platoon leader seeks a site with some cover and concealment, but the most effective protection for the hot refuel site is careful OPSEC before occupation and rapid use of the facility once it is established.

After a map reconnaissance, the support platoon leader conducts a ground reconnaissance and selects at least two hot refuel sites. These become part of the service support annex to the S3's OPORD and are annotated on the service support overlay. He selects multiple sites because the kind of operations requiring hot refuel often produce conflicts over possession of terrain among friendly units. He alerts the support platoon sergeant and briefs his platoon on how the hot refuel is to be configured at each site. There are two standard hot refuel configurations: the short site and the long site (figures 1 and 2). Common to each configuration is the preparation of the M978 fuelers, which must be grounded and camouflaged.

Two 10-pound fire extinguishers are positioned to the rear of each fuel truck. The support platoon leader establishes traffic control points (TCP) at the point where the battalion will leave the designated

route, at the rear of each group of fuelers, and at the point where the battalion will rejoin the designated route.

As tanks enter the hot refuel site, they maintain road march speed. Trained drivers know to fall in on the fuelers and to take their directions from the traffic control points. They position their tank adjacent to the designated M978. They work quickly, but they have been trained to understand the delicate balance between a sense of urgency and safety.

During limited visibility and at night, chemical lights are used to mark lanes for the tanks (figure 3). Tank crewman are trained to drive between red and green lights, and TCPs guide them into position. All traffic control points and fuel handlers are equipped with filtered flashlights.

Security at the hot refuel site is the result of a combination of the support platoon's heavy machine gun assets, Stinger teams attached to the platoon for this phase of the operation, and the arrival of the tank companies. However, as mentioned earlier, clearly the best security for a hot refuel operation is OPSEC and speed.

The hot refuel site must be set up and operational one hour from the time the support platoon leader receives the order to execute it. It will be broken down and ready to move 90 minutes after the first tank begins to refuel.

The support platoon leader manages "time at the pumps," based on guidance he receives from the S4 and battalion executive officer. Each fuel squad leader in the platoon uses a stop watch to monitor "time at the pumps" for his



HEMTT fueler's design permits refueling two vehicles at once, on either side.

three trucks. If 100 gallons per tank is the goal, the squad leader allows each tank two minutes on the pump. When that time has elapsed, the squad leader instructs his fuel handlers to pull the hose, and he waves the tank on its way. A tank company trained in hot refuel can pass through a site and receive 100 gallons (2 minutes) of fuel for each tank in about eight minutes.

Because each tank receives the same amount of fuel, the first tank into the site is the first tank out, and the battalion's march is virtually uninterrupted. The battalion hits the LD/LC nearly "topped off" and configured as it wants to be when it makes contact.

When the battalion has passed through the refuel site, the support platoon breaks down its camouflage nets and moves to a designated, secure location. There, it cross-levels the fuel tanks. The empty fuel trucks then move to a support battalion forward fuel point to draw fuel; the full trucks remain on call to support the battalion.

The "Bandits" of 4-67 Armor used the hot refuel with great success during Reforger '88. We used it

both in the counterattack role described here, and while pulling out of defensive positions in response to a change in mission. We used it to bring our tank fleet - and attached Bradleys - to near-full on fuel, and we used it to provide the fleet a one- (50 gallons) or two- (100 gallons) minute burst of fuel until the situation settled and refueling could be accomplished on our terms. We used as many as eight M978 fuellers, and we used as few as four, depending on how quickly the battalion commander wanted companies on the move. We used both short and long sites based on the terrain available.

The hot refuel works. It works because we train with it. It works because our support battalion (54 FSB) supplies our M978s forward. It works because we take advantage of the capabilities of our equipment. It works, and it adds to our agility on the battlefield.

In *Supplying War*, Martin Creveld suggests that tactics is the art of the possible, and logistics the art of the practical. In 4-67 Armor, these come together in the hot refuel - part of the agility equation.

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Captain Alfred C. Tanner was commissioned in Armor from Norwich University in 1985 and is a graduate of the Armor Officer Basic Course, the Motor Officer Course, Airborne School, Jungle School, and the German Airborne School. He has served as an M1 tank platoon leader, support platoon leader, and company executive officer. He is currently attending Infantry Officer Advance Course at Ft. Benning.



Tactical Weaknesses Seen at the NTC:

by Lieutenant Colonel Peter F. Manza

*Despite much improvement,
Rotating units seem to have
Reached a plateau...*

The emphasis on "winning" at the NTC has inspired major, positive changes in our training philosophies and the improved readiness of the force. Yet, to even the casual observer, our forces have reached a plateau of effectiveness through the continued failure to address fundamental issues of battalion and brigade tactics. I will address these issues as an ex-regimental commander and my opinions are certainly open to criticism, based upon this limited view.

*The artillery system
Does not work*

It is broke, because the maneuver commander does not control the resource, is out of the communications link for call for fire, and is subject to passing the problem off, instead of fixing it. Failure to hit the OPFOR with sufficient artillery is a significant weakness of the force, and only the maneuver commander can solve the problem. We can look

for some solutions to the OPFOR, which do not employ automation or secure radio:

- Pass calls for fires over the command net as spot reports. Centralize authority to deny the engagement of a target at the battalion level. Sounds like the pre-1980s, but it works!

- Make the subordinate commanders plan their fires with the FISTS and hold the commanders responsible for the execution. The FIST must then rehearse the fire plan with the maneuver commander and mark engagement areas.

- The S2 must also call for fires through other means the commander provides - scout platoon, reconnaissance elements, FIST teams, etc. This places the responsibility for long-range fires (those outside of the battalion direct-fire engagement areas) in the hands of the man responsible for the area of interest.

- Have the battalion fire coordination elements report fires in progress, rounds expended, and planned fires. This system backs up

breakdowns in communications, allows for allocation of assets, and assures timely fires when needed.

- Use FASCAM in the offense to pin forces down (target platoon defensive positions), segregate a part of the battlefield, or deny likely avenues of approach by a reserve force. Look at the holes dug by the defender; this simple technique will template the defense in sufficient detail to execute accurate fire plans, to include FASCAM. The 194th Armored Brigade was the master of the FASCAM in the attack. FASCAM used in the offense does not have to be covered by fire in order to confuse, delay, or segregate.

The maneuver commander is the key to fixing the system, not the artillery, for he alone controls the planning and the means to execute.

Keep a reserve

Although our doctrine at battalion level certainly does not encourage this, four tanks can break the attack, and a tank company loose in the rear of a defender destroys the will to fight. A reserve force provides flexibility, a resource to



gain the initiative, and a force capable of executing deception plans. However, its probable locations in the defense must be as well planned as any other, to include engineer support.

*We still don't use
Our infantry well*

Although commanders at the NTC have identified our use of infantry as a problem, little has been accomplished. Infantry platoons, cross-trained as security elements and reconnaissance elements, are one of the better missions for continuous operations, particularly in the desert. The M2 platoon, much like the BMP-equipped OPFOR unit, provides a suitable force capable of varied mounted and dismounted operations, which can supplement or replace the battalion scout platoon. Security operations conducted by infantry platoons are the backbone of the OPFOR security during defenses. They are used in the regimental security zone for ambushes, flank security during movement to contact, as advance guards, and in any number of missions where the BMP's mix of weapons can be effective. The U.S. infantry platoon does not appear to operate well in such independent missions. Apparently, problems are caused by poor training, inadequate doctrine, and a lack of mission.

*Getting more from
Our engineers*

Engineer support must involve more than digging fighting positions for combat vehicles. The excuse of inadequate equipment for offensive operations is weak at best. What is

lacking are definitive missions during offensive operations.

Engineers walking at night are effective in clearing passages and lanes, and marking breaches for maneuver forces. Combined with a dismounted infantry attack, they gain mutual support.

*The attacking OPFOR
Still has the initiative*

In the defense, we still appear to be too smart for our own good. On numerous occasions, the defender's decision point is equated to some mythical decision point of the attacker.

In almost all instances during a regimental attack, the decision as to which of two avenues of attack to use was made nine hours before H-hour. Intelligence updates only confirmed the choice, deception plans and infantry attacks made the choice possible, and finally artillery preparations were time sensitive and could not be changed within two hours of attack.

The real issue in the conduct of the defense is initiative. The defender must do something to get the initiative away from the attacker. The 3rd ACR, in defending SIBERIA, was the master of this principle by defending forward behind The Whale, where the regiment had to enter the engagement area piecemeal. This truly took the initiative away from the attacker.

Deception incorporated into the defense is essential, and must be a part of the plan to be believable. Resupply operations are the usual indicators of real and deception

plans. The 9th Infantry Division's rotation was a classic example of using deception operations, and much can be learned from its approach to executing operations that combined deception, maneuver, and attack by fire. The risk is high, but the payoff has the potential to improve security for the force and gain the initiative.

*Weaknesses persist in
Reconnaissance and security*

Apparently, there is an intrinsic weakness in reconnaissance and security operations in the U.S. Army. First, the introduction of trucks in the scout platoons will not solve the basic doctrinal problem of *what the scout platoon is to do*. In the regiment, the issue is simple - do reconnaissance.

The reconnaissance platoon always lost when it had to fight. This was particularly true when it had to fight to gain intelligence. In reality, it fought to gain access to an area for reconnaissance. When the mission was supported by other arms, particularly dismounted infantry, the introduction into an area of operations by the reconnaissance platoon came after the fight.

Our contention was that the regimental reconnaissance platoon should be equipped with all trucks (BRDM). This is easy to say, considering that the regimental battalions/companies were prepared to conduct security operations themselves, and are not dependent upon the scout platoon or the counter-reconnaissance effort of the battalion as we currently execute our doctrine. The U.S. Army must solve the basic doctrinal problem and as-

sign the mission and equipment accordingly - particularly at brigade level.

*Plan for coordination,
But keep plans simple*

Plans must be simple yet coordinated. The OPFOR used the "outdated" graphic order with a S2 matrix for AIs and TIs, plus an engineer work plan, artillery maneuver and fires plan, air defense plan (offense included), an IPB, plus a security or reconnaissance plan prepared by the S2. This graphic approach was combined with a well-versed SOP and simplistic Soviet-style graphics, which orient the force utilizing fire lines. The S2 is a big player and therefore received the assets to do his job, and the agony of defeat if it didn't work.

Antitank doctrine in the U.S. Army can get a boost if we study Soviet approaches to antitank platoon operations, particularly in the offense. In the offense, the antitank platoons (nine BRDM-2s) protect the flanks or other likely avenues of approach with *massed* fires, in coordination with attack helicopters. Simple graphic coordination measures, such as firing lines, are used to orient the fires of both weapons systems and inform the higher headquarters about location. Overwatch by thin-skinned vehicles, such as the ITV and BRDM, is next to impossible to achieve in the offense. In the defense, the antitank platoons were coordinated with the reserve (also co-located) to improve survivability, maximize their mobility, and add their long-range fires to the reserve fire lines or to engagement areas forward. Engineer support for firing

positions was critical, as was the ability to reconnoiter all engagement areas and mark the limits of fire.

Some conclusions

Finally, I think one can easily deduce that the OPFOR has the advantage of time and place, and of doing on a daily basis. But OPFOR's degree of intensity has increased markedly as the standards of the "BLUEFOR" improved. The issues discussed above assume competent soldiers, good equipment, and the skills to employ the organization, which is generally true of all units coming to the NTC. Leadership is seldom the issue. Intensity sometimes is the issue. The issue now is training at the harder level of coordination, and fixing the systems and doctrine that are broken. This will require a directed effort into the "how to" manuals. Armor commanders will have to take the lead in applying the lessons by questioning current procedures, offering alternatives to systems that break during combat, and training the combined arms force for combat.

Lieutenant Colonel Peter F. Manza was commissioned in Armor from OCS and has served in various Armor assignments, the most recent as commander of the 1st Bn., 63d Armor, the NTC OPFOR. He is currently attending the Naval War College, Newport, R.I.

Recognition Quiz Answers

Craig M. Hughes of the Threat Division, USAARMS, prepared this issue's Recognition Quiz. Instead of showing the full vehicle, Mr. Hughes has focused on distinctive details of Soviet vehicles. It's a difficult quiz, and only those who have kept current on the most recent developments in Soviet ground force equipment will correctly identify all vehicles.
-Ed.

1. BMD. The airborne emblem on the turret hatch, the AT-5 missile to the right of the commander, and the mantlet of the 73-mm cannon are the identifiers telling you this is a BMD.

2. BMP-2. The 30-mm main gun (the BMP-1 has a 73-mm gun), the AT-5 missile, and the smoke grenade launchers to the right of the turret identify the BMP-2.

3. BRDM-2. You can see that this is a wheeled vehicle, limiting the field somewhat. It's the centered turret with the 14.5-mm gun, and the engine at the rear of the hull with exhaust system (partially painted) on each side, that identifies this as the BRDM-2.

4. 2S9. This is a relatively new system and difficult to identify. The distinctive mantlet, the size of the gun (120-mm) and the unique turret are identifying features of the 2S9 self-propelled airborne assault howitzer.

5. MTLB. The unsupported track (i.e., no return rollers), boat-shaped hull, and small turret mounting the 7.62-mm machine gun are all features of the MTLB.

6. BTR-80. This looks like a BTR-60 or 70, but notice that the roof hatches in the middle of the hull have been reconfigured, and there are firing ports in each hatch. These obvious features identify this vehicle as the BTR-80.

Team-COFT Training for the CAT '89 Competition



"RED 6 this is your National Judge - Watch Your Front."

"RED Elements, this is RED 6, watch your front."

"Targets Up."

"One three, shot four."

"One four, shot seven."

"One one, shot 27 right, need help with Q2."

"One two, shot Q2."

"One one, give me a count."

"One four, I count four."

"One one, roger four."

This platoon radio transmission did not take place on a firing range, it occurred in a simulation device in Vilseck, FRG. It is the newly designed Canadian Army Trophy Team - COFT (T-COFT), designed and built by General Electric Aerospace. It is an essential part of the U.S. Army's latest approach to competing for the coveted CAT trophy. Considered by many tankers throughout NATO as the "Super Bowl" of tank gunnery, the CAT competition requires tank crews from five nations to rapidly and accurately engage targets, which are considerably smaller than the standard NATO "H"-series targets.

Teamwork is the key to CAT competition, and the new COFT trainer provides the environment to develop each platoon into a rapid engagement force. The Vilseck trainer is a network of four sheltered U-COFT systems. The training program is specifically designed to provide a tank platoon with the opportunity to train rigid fire distribution and control. The database represents lanes 3, 4, 5, and 6 of Range 9 at the Bergen training area in the northeast area of the Federal Republic of Germany. Natural vegetation, lane surfaces, range markers and targets accurately provide platoons with a computerized version of the actual range. Crews are able to move through the simulated terrain just as they will on the day of the competition.

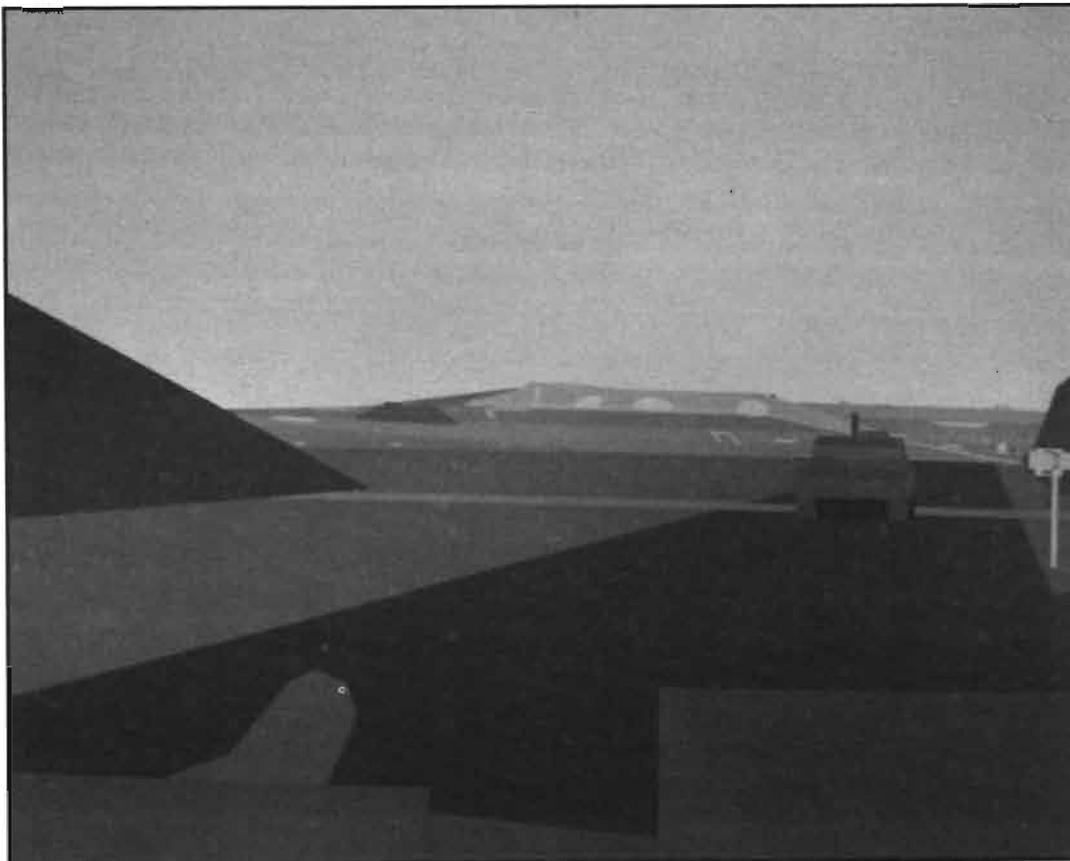
Features unique to the CAT (T-COFT) include main gun and troop targets that correspond in size, shape, and color to those fired during the week of competition. Targets are both stationary and moving, with a range band from 800 to 2000 meters. A crew can engage up to eight targets simultaneously from any firing position on the range. The ballistic characteristics of 120mm SABOT are so exact that a gunner must perform all manipulations correctly in order to obtain a target hit. Gun tube bending and droop are also introduced, requiring a gunner to periodically perform

a muzzle reference system update in order to maintain proper boresight. The TEAM-COFT capitalizes on the skills learned in individual gunnery training. A platoon gunnery role further develops collective coordination and gunnery skills.

Another new innovation in the T-COFT is the system's performance measurement capabilities. Automated scoring stringently follows the rules of competition scoring. A special CAT "Platoon Battle Run Score" summary is generated at the end of each battlerun. It provides the platoon with a total score, including the time score, hit and bonus score for main gun targets, machine gun score, and main gun ammunition bonus points. In addition to providing a platoon score, each tank receives printouts, which list the targets it engaged, whether hit or miss, the time to engage, and the exact lay of the reticle aiming dot in relation to the center mass of target. The T-COFT can operate as an individual crew trainer, a section trainer, or a platoon trainer. Competition scoring gives unit leaders a standardized approach to training, and requires each crew to demonstrate mastery of difficult skills. The strongest feature of the U-COFT system, direct measurement of critical skills, is preserved and increased in the new T-COFT. All required data to produce a highly qualified tank commander/gunner combination is readily available.



Lane 4 tank follows Lane 3 tank from quarantine area to Bound 1.

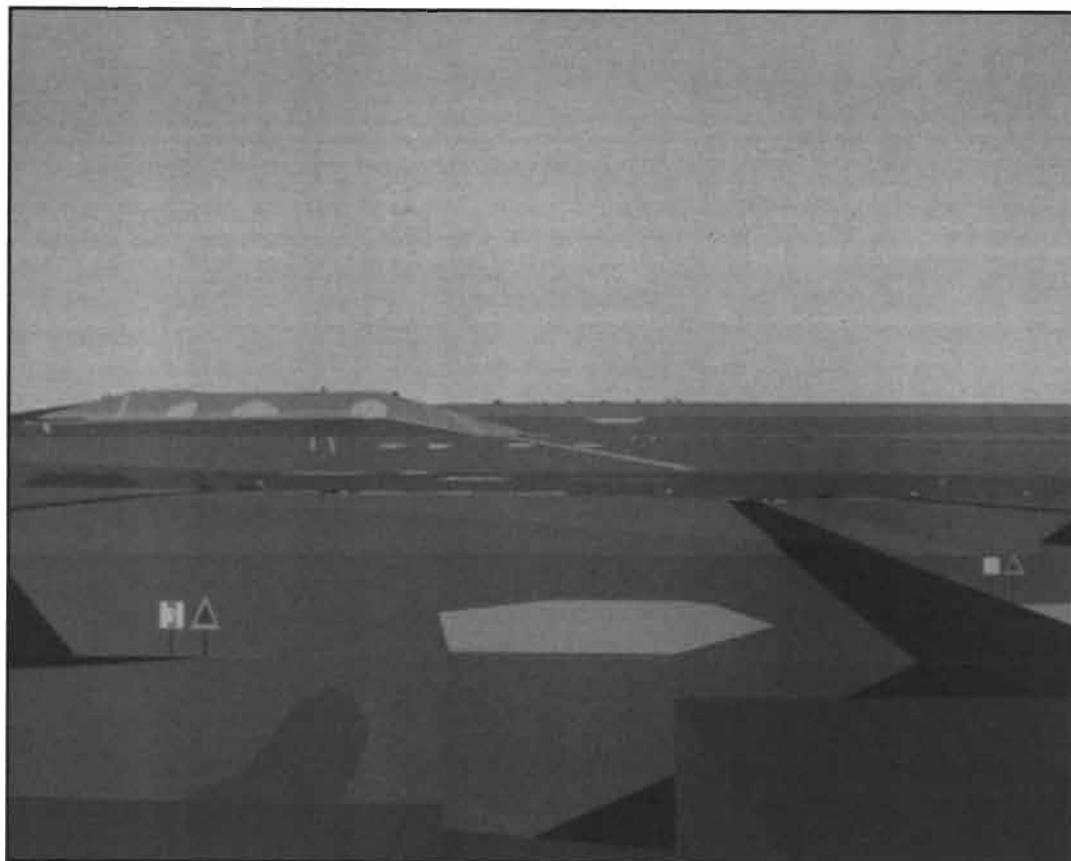


Lane 3 tank has turned onto its lane while Lane 4 tank continues to move on its appropriate lane.

Lane 3 tank conducts offensive recon from Bound 2 to Bound 3. Lane 4 tank conducts simultaneous offensive recon from Bound 1 to Bound 2.



Lane 4 tank moves from Bound 1 to Bound 2 in preparation for target presentation.



Lane 3 tank conducts range recon, while Lane 5 tank recons from Bound 1.



In the near future, the Armor School in Fort Knox will receive the first CONUS platoon configuration of COFT. The device, named UT12, will provide Armor Officer Basic students with the opportunity to train fire distribution and control at a collective level. UT12 will resemble Range 301, a major com-

bined arms training range in Grafenwoehr, and provide computerized scenarios based upon Tank Table XII in FM 17-12-1, plus special purpose scenarios based upon a Threat attacking or defending force. AOB students will also have the capability to formulate a battle plan by conducting a reconnaissance of the

area through a special recon exercise. The system will also provide a valuable resource to test new innovations such as the Commander's Independent Thermal Viewer. By using the existing proven COFT system hardware in the new platoon and section trainers, a substantiated method of measuring proficiency can be obtained. In addition, the new applications of the COFT systems avoid the enormous expense required for new design and development costs. The current post facilities, instructors, and maintenance support can meet a wider variety of training needs.

United States Army Armor crews have displayed expert skills in the past three CAT competitions. Hopefully, in the 1989 competition, they will surpass previous levels. TEAM-COFT supports the specific needs of the CAT '89 competition; perhaps future generations of network COFTS will support much, much, more.

CAT Platoon Battle Run Score

Date: 12/6/88
 Vehicle: 1/11 All
 Exercise No.: 201114

Instructor: Carlsberg, K.
 Commander: Lane, B.
 Platoon 3/68 C1

Program: CAT
 Gunner: Black, J.

Sit No.	Firing Tank	Target Number	Kill Time	Platoon Hit/Miss Status			
				WM1	PL	PS	WM2
1	PS	32	8			HIT	
	PL	3A	5		HIT		
	WM1,WM2,PL	Q1	11	HIT	MISS		HIT
Hit Score	Time Score	Hit Bonus	Ammo Bonus	MG Points	Total		
10000	6120	500	400	1800	18820		

Status: Exercise Complete - Freeze
 Keypad Options: Perf, Repeat, Shot Pat, Print, Terminate



Defeat at the Greasy Grass: Intelligence Operations at the Battle of the Little Bighorn

by First Lieutenant Steven J. Martin

On the afternoon of 26 June 1876, Lieutenant James Bradley led a detachment of 23 Crow scouts up the Little Bighorn River. Behind him was a force of over one thousand infantrymen and cavalrymen under the command of General Terry, who was attempting to trap a village of hostile Sioux between himself and the 7th Cavalry, under the command of LTC Custer. Terry had received reports from excited scouts belonging to Custer that there had been a large battle the previous day, and the soldiers had been destroyed. Although he

was doubtful that the 7th had been wiped out, it was obvious that there had been some sort of fight, and all had not gone well for Custer.

As Bradley hurried south along the river, he found equipment belonging to the 7th Cavalry strewn among the remains of an Indian village, indicating that at least some of what the scouts reported earlier was true. He moved up onto a ridge which ran along the east side of the river to get a better view. From there, he could see what looked like the remains of some slaughtered

buffalo on a hillside, their white meat shining through the haze of the oppressive heat, which was over one hundred degrees. As Bradley moved closer, however, it became obvious that the objects were not buffalo carcasses, but the naked and mutilated bodies of the men of the 7th Cavalry.

Bradley moved among the bodies to get a count of how many soldiers were actually there. A quick survey indicated that there were about two hundred men on the hillside and in the immediate vicinity. Visibly



"The leader of the scouts, Forked Horn, told Reno that the Indian band was too large for his battalion to handle. Custer scoffed at the notion of any number of Sioux being too large to handle."

shaken, Lieutenant Bradley rode north to inform General Terry of what he had found.

Lieutenant Bradley was the first white man to see the sight of "Custer's Last Stand." Custer had led the 665 personnel of the 7th Cavalry against the largest concentration of Indians ever to assemble in North America. The battle cost the lives of Custer and 271 of his men, and became one of the most discussed engagements in American military history. Although the battle occurred over 100 years ago, it is replete with lessons for today's intelligence officers, especially those at battalion and brigade levels.

24 June, 1600 hours:

Mid-afternoon of 24 June found Custer near the headwaters of the Rosebud River, approximately 30 miles from the Little Bighorn. He had been detached from a larger force headed by General Terry in the north. Custer's mission was to swing south of a large band of Indians and prevent their movement south to the Bighorn Mountains, while the larger column under Terry moved from the north down the Bighorn River. The Indians would thus be caught between the two columns and given the choice of annihilation or surrender.

Preceding the 7th Cavalry was a detachment of Crow and Arikara scouts under the command of Lieutenant Charles Varnum. Mitch Bouyer, a half-breed, led six Crows to the front about ten miles, since

the Crows knew the terrain. Two groups of Arikaras, led by their leaders, Bobtailed Bull and Soldier, followed, scouting each side of the Rosebud River. Also with the scouts were Lonesome Charlie Reynolds, a local woodsman, and a black man named Isiah, who had volunteered for the trip so he could see the Indian country he loved so much.

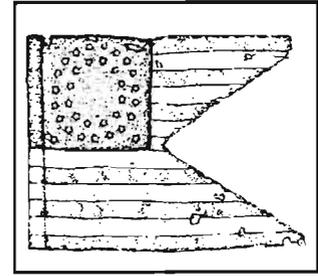
This scout organization was fairly typical of those used at the time. Maps of the area were rare and very inaccurate (for example, the map used by General Terry had only hypothetical courses for all rivers except the Yellowstone, and these courses were off by as much as forty miles. This forced commanders to rely on local Indians to act as guides and interpreters of the vastly different Indian culture. The Indian scouts were of inestimable value to the commander. They were the eyes and ears of the Army, and their daring and bravery under fire is well-documented. The differences in cultures between them and the white soldiers they fought alongside caused some problems, but the Army effort against the hostile Indians of the Plains would have been severely crippled without them.

The scouts were on the trail of a hostile band of Sioux and Cheyenne Indians, which was traveling a few days ahead of them. What they found was very disturbing to them. Custer, along with the rest of the leaders on the mission, was initially told that there were not many warriors in the field, and those that were were not united. He believed

that no more than five hundred warriors were scattered about the Bighorn Mountain area, and was, therefore, prepared to meet a small force of warriors, which would naturally try to break contact and escape. This had not turned out to be the case. On a scout mission prior to Custer's detachment from Terry, Major Reno came upon a large Indian trail. The leader of the scouts, Forked Horn, told Reno that the Indian band was too large for his battalion to handle. Custer scoffed at the notion of any number of Sioux being too large to handle. He quickly moved south and located the trail Reno found and was now following it. The trail was one mile wide where it crossed the Rosebud River, and the scouts estimated that it was made by 1,500 lodges, or approximately 4,500 warriors. On the day prior, the command had come across a village remains, where a great religious ceremony had taken place. The Sioux had left signs that they had prepared strong "medicine," and could not be defeated. They also indicated that if the cavalry did not find the Sioux, the Sioux would come after the cavalry - a tactic almost unheard of in the Indian Wars.

Mistake #1: Custer failed to update his enemy template or alter his assessment of the enemy's probable course of action.

As the Indian trail was found, it became obvious that there were thousands of Indians on the war-path. Custer amended his estimate of the number of Indians in the field somewhat (he now felt there might



be up to 2,000 warriors), but still held firm the belief that the Indians would run when they saw the cavalry, and the real challenge of the upcoming fight would not be to destroy the enemy in battle, but to catch him as he ran.

Custer initially developed an enemy template and probable course of action based on the information known when he left Ft. Abraham Lincoln in South Dakota on 17 May. His mistake was that he failed to reassess this estimate in the light of increasing evidence that he was off the mark. The number of warriors in the field was of little importance to Custer, who believed the 7th Cavalry could defeat the entire Sioux Nation by itself. The bigger village simply meant more glory should he succeed in capturing it.

Custer's poor understanding of the enemy's culture, morale, strength, and intentions caused him to misjudge his probable course of action. This was a major error which would have a large impact on the decisions made in the next 24 hours.

24 June, 2200 hours:

Believing that he was closing in on the Indian village, Custer ordered a night march. He hoped he would be able to observe the camp the next morning. He would make the decision to attack or wait at that time.

There was no moon on the evening of 24 June. The 7th Cavalry stumbled through the night, with the soldiers often falling asleep on their

mounts. The evening was filled with the sounds of tin cups banging together, the pack mules braying and the soldiers' curses at being bumped into by others. The soldiers were beginning to tire after over a month in the field and the hurried pace of the past few days, and were mostly concerned with their own comfort and when they would return home. At daybreak, the regiment had reached the foothills of the Wolf Mountains, some fifteen miles from the Little Bighorn, and made camp. The soldiers immediately started campfires to boil coffee.

The noises the regiment made during the evening's march could be heard for miles, just as the smoke of their campfires could be seen for miles. The regiment had made contact with some Sioux hunting parties in the morning and there was little doubt that the hostiles knew of the 7th Cavalry's presence. Custer ordered Lieutenant Varnum, Mitch Bouyer, Charlie Reynolds, and four Crows to some high ground (called the Crow's Nest by the Crows) to see if they could observe the village.

Mistake #2: the 7th Cavalry's poor OPSEC posture allowed the Indians to track them from a long distance, hastening Custer's decision cycle and forcing Custer to give up any thoughts of surprising the village.

The US Army of the late 1800s trained for conventional wars, involving thousands of soldiers. The combat experience of the Army came out of the Civil War. Officers in the Army were used to an

OPSEC posture that permitted clanking cups, braying mules, and camp fires. Commanders had been successful in the Civil War using a certain set of methods and they saw no need to change them to any degree when confronted by a group of "barbarians." Noise and light discipline in all units was poor, and in this case allowed the enemy to track the soldiers from dozens of miles away. Only the scouts seemed to have any appreciation for proper OPSEC. They were rarely discovered and were usually able to approach close to enemy villages undetected.

Custer realized that the enemy was probably aware of his presence. He was about to make some key decisions on the Crow's Nest, and much of his reasoning would be based on the fact that he had been compromised. He would prefer more time to rest and recon, but he felt he was forced to attack to catch the village before it began to break up. Thus the poor OPSEC posture of the soldiers forced Custer into a course of action he would have preferred to avoid and helped create the conditions that allowed the Indians to defeat him.

25 June, 0600 hours:

From the Crow's Nest, the Crows could see the Indian Village in the valley created by the Little Bighorn River, or the Greasy Grass as the Indians called it. It was huge. The ground was white from the tipis, and the pony herd covered the hills behind the village like a brown car-



"To wait would allow the Indians time to scatter, and the moonless nights would not help the cavalry track them. Custer felt he had no choice - he had to move in closer to the village or risk losing it entirely."

pet. Mitch Bouyer had been among the Sioux for 30 years, and he had never seen a village so large.

The scouts sent word to Custer, who climbed the hill to look for himself. By the time he reached the top, however, the village was obscured by the haze created during the hot June day. Bouyer assured Custer that the village was out there and he described its immense size.

Custer had a major decision to make. He either had to move in and close with the village, or he could wait, rest his men and conduct further reconnaissance of the village (or villages, for Custer was not sure how many villages there actually were, nor was he entirely sure of the reported village's location, since he could not see it himself). It is here that it is possible to observe the effects of the previous errors in intelligence. Based upon the facts that the Sioux knew of the cavalry's presence (due to poor OPSEC) and the incorrect estimate that the Indian village would scatter when the cavalry approached, Custer decided that it was necessary to close with the village. To wait would allow the Indians time to scatter, and the moonless nights would not help the cavalry track them. Custer felt he had no choice - he had to move in closer to the village or risk losing it entirely.

Unsure as to what Indian force may exist farther south and remembering his mission to deny enemy movement in that direction, Custer ordered Captain Benteen to take three troops and move southwest.

He told Benteen to "pitch into" anything he came across. Custer took the remaining nine troops and the pack train directly west, toward the reported location of the Indian village.

Mistake #3: Custer failed to conduct any reconnaissance on the objective prior to choosing a course of action.

The reasons why Custer chose to move when he did have been discussed. Nevertheless, a good reconnaissance of the objective is essential to any offensive mission. Custer's only knowledge of the enemy came from a sighting at a distance of 15 miles. He had no clear picture of the actual number of warriors he would face, how they were arrayed (for example, was the camp just one large camp, or several small camps which could be defeated separately?), and he had no idea if there were other camps in the area, which could support the main village. Also, he had no detailed terrain analysis. He did not know how terrain would support or hinder his maneuver, or even if an attack against the village in its present location was possible. A good reconnaissance and surveillance plan could have answered all of these questions.

25 June, 1300 hours:

Custer had taken the remainder of the regiment to a spot approximately two and a half miles from the village. There, against a bluff, they came upon a funeral tipi. The tipi held the body of a warrior killed

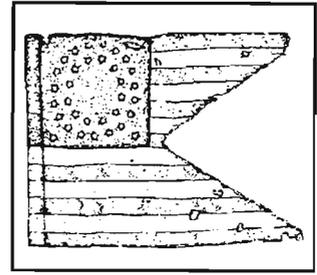
while fighting against General Crook in the Battle of the Rosebud on 16 June several miles to the south, and would come to be known as the "Lone Tipi."

The debate over how the Indian was killed came to an abrupt end when a scout named Fred Gerard yelled down from the top of the bluff "There are your Indians, and they're running like the Devil!" Custer looked in the direction Var-num pointed and could see dust at the mouth of a creek leading to the Little Bighorn. What Gerard saw was forty Indians moving to the security of the village when they saw the cavalry moving in their direction. Gerard took the running Indians to be a sign that the entire village was beginning to scatter. In fact, the village was not breaking up, nor did it have any intention of doing so.

Concerned that the village was scattering and that time was now of the essence, Custer ordered Major Reno to take three troops and follow the Indians down the creek and attack the village from the south. Custer told Reno he would "support him with the whole outfit." Custer then left one troop with the pack trains for security and took the remaining five north, in an attempt to hit the north end of the village, while the Indians were occupied with Reno in the south.

Mistake #4: Scouts did not tell Custer what they saw. Rather, they told him what they thought they saw.

It is the mission of the scouts to be the eyes and ears of a unit, not its



brain. Scouts should only report what they see; they should not interpret it. That is the job of the intelligence officer (in this case, it was the job of Custer).

A better report that Varnum could have given Custer would be to state that he had seen dust and approximately 40 enemy Indians moving north. By reporting as he did, Gerard gave Custer the impression that approximately 5,000 men, women, and children were packing up their belongings and moving away with all of their stock. Obviously, this was not the case, and the poor reporting by Gerard gave Custer an incorrect picture of the enemy situation. Once again, Custer committed his forces based on erroneous information.

Mistake #5: Custer's analysis of combat information was poor.

This error is similar to Custer's failure to reassess the enemy's probable course of action. Custer had been receiving reports for several days on the immense size of the village he was following, and there were ample signs indicating that the Indians had every intention of fighting the soldiers.

However, Custer chose to ignore all of these signs, which conflicted with his enemy assessment, and listen to the one spot report that confirmed it.

He should have realized at this point that something different was happening, but instead, he let a single report drive his entire scheme of maneuver.

25 June, 1530 hours:

Major Reno was now in a fix. He had charged the village on line and had made contact with the hostiles about 500 yards from the southern end of the village. He quickly dismounted and formed a skirmish line, as the Indians began to mass against him. The Indians soon turned his flank, and he chose to withdraw to a timber line, which ran along the river banks. There were approximately 800 warriors facing Reno's 150 men, one quarter of whom were now occupied holding horses. The Sioux set the grass on fire and waved blankets in an attempt to stampede the cavalry's horses. Reno was discussing with Custer's favorite scout, Bloody Knife, what the Sioux would try to do next when a murderous volley from the Indians ripped through the command. One round hit Bloody Knife in the face, splattering blood and brains over Major Reno. Sioux and Cheyennes were now in the timber and were again flanking the soldiers. Reno decided that he could not hold his position and chose to withdraw across the river to some bluffs on the opposite side. Reno led the withdrawal, in which many soldiers were left behind to be butchered by the hostiles. The withdrawal quickly turned into a rout, with every soldier fighting for himself. The Indians later likened the chase to hunting buffalo. The soldiers made it over a poor crossing site. Many horses broke their legs on the steep banks, and several cavalymen were killed at the crossing. The men finally arrived at a hilltop. They were exhausted and

had 30 percent of their numbers wounded or missing. Reno ordered them to dig in with their mess kits and canteens.

Meanwhile, Custer continued to ride north. He rode to the top of the bluffs and could see Reno beginning to engage the Indians below. He could also see most of the camp and could see that it had not started breaking up. Custer was pleased to see this and was certain of victory. He rode back behind the bluffs until he came to a coulee that led to the river. He took this coulee, thinking that he would strike the village's north end. He actually hit the village in its middle, and there were approximately 1,500 Indians under the war chief, Gall, to meet him. Outnumbered almost 6-to-1, Custer fought a withdrawal to some high ground in the northeast in the hopes that he could hold off the Indians until relief came from Reno, Benteen, or even General Terry.

Mistake #6: Improper terrain analysis and a poor understanding of the enemy's disposition hampered Custer's scheme of maneuver.

Custer's plan was to move north and attack the opposite end of the village. He had no idea if the terrain supported his plan. The coulee he eventually took could not be seen from the "Lone Tipi," where he made his scheme of maneuver.

Custer had no idea if there was any way to approach the village farther north. He assumed that there was. A proper reconnaissance



"It was at this moment that an additional 1,000 Indians under Crazy Horse crested the very hill Custer was moving toward. The resulting fight was short and violent. Pressured from the front and from the rear by an enemy outnumbering him almost 10 to 1, Custer's command was overwhelmed and destroyed in 20 to 30 minutes."

would have let him know exactly what routes were available to him.

When Custer came upon the coulee, he thought he would arrive at the northern end of the village. He was incorrect because even at this late time, no one had seen the entire village. The village was one mile wide and stretched along the river for four miles. There was still one half to one mile of village to the north of Custer when he reached the river.

Custer's plan was based on guesswork. At this point in the battle, when contact with the enemy was imminent, guesswork should not have been necessary. Custer should have known the exact location of the village, how many warriors he was facing, what they were doing, and what the terrain was like in the area. He knew none of these things as he made his decisions to break off Reno and move north. Custer's hurried approach and refusal to conduct a proper reconnaissance resulted in a poorly-planned attack, which did not support Reno and had little chance of success.

25 June, 1630 hours:

Custer's five troops continued to move northeast, conducting an orderly withdrawal under fire. They were taking heavy losses, but the command was well-organized, and should have been able to gain some high ground to its rear and organize a defense. Custer had sent word to Benteen to come quickly, and probably was expecting him to arrive any moment. He planned to

hold the hill with as many people as he could and wait for reinforcements. It was at this moment that an additional 1,000 Indians under Crazy Horse crested the very hill Custer was moving toward. The resulting fight was short and violent. Pressured from the front and from the rear by an enemy outnumbering him almost 10 to 1, Custer's command was overwhelmed and destroyed in 20 to 30 minutes. No soldier lived through the fight. Most of the Indians now turned south to deal with Reno while the remainder stayed behind to loot and mutilate the bodies of the soldiers.

Reno had since been reinforced by Benteen, who had realized that he was on a fruitless mission. He had received word from Custer to come quick. Failing to find him, and coming upon Reno's desperate situation, Benteen chose to remain on the hill with Reno. A troop under Captain Weir eventually moved north to regain contact with Custer, but could only see Indians. These were the same Indians who had just defeated Custer and were moving south to Reno. Weir withdrew under fire and rejoined the Reno defense.

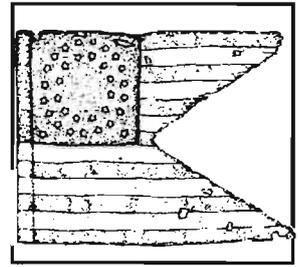
Mistake #7: Custer failed to continue his reconnaissance during the battle.

After realizing he could not continue his attack, Custer chose a piece of high ground to anchor his defense. At this point, all of his scouts were dead, fighting, or had been ordered to leave the fight by Mitch Bouyer. Custer had no one available to recon the hill and the

ground on the other side. Just as reconnaissance of the objective is critical to the success of any attack, continued reconnaissance during the fight is crucial. The lack of reconnaissance during the battle allowed Custer to be surprised yet again by an unexpected attack led by Crazy Horse. This was not necessarily Custer's mistake, but a flaw in doctrine, because scouts traditionally stopped their reconnaissance when contact was made. This practice severely hurt Custer at a time when he was trying to extract his command from a desperate situation.

The men remained on the hill for the rest of the day and the following night and would have almost certainly been defeated on 26 June, if not for the approach of General Terry's column from the north. Elated with the greatest victory ever known against the white man, the village moved south to the Bighorn Mountains and began to break up into dozens of smaller villages. Benteen would later remark that the village looked like a fully-outfitted cavalry division, the likes of which he had not seen since the Civil War.

Once united with Terry, both commands arranged a hasty burial for the dead. They were buried in shallow graves where they fell. An attempt was made to identify the remains of the officers, but the enlisted remained anonymous. A group of soldiers would return to the site two years later to create a national cemetery for soldiers killed in the Indian Wars. Many bodies were then exhumed and reburied in the cemetery, some three hundred



yards away from Custer Hill. As for Custer, his body would be exhumed and reburied at the United States Military Academy, where it remains today.

The commands then moved north with the wounded to the Yellowstone River, where a steamboat waited to take them back to Fort Abraham Lincoln. The news of the defeat soon spread to a stunned America, which had never imagined such a defeat was possible, especially with the Army's most-famous Indian fighter in command. The battle quickly was the subject of much talk, speculation and controversy and has thus remained a major event in American military history.

Summary:

Custer and the men of the 7th Cavalry made numerous mistakes during the Battle of the Little Bighorn. Those of an intelligence nature have been discussed here. All of these errors are directly applicable to today's Army, and much can be learned from them:

- The 7th Cavalry's poor OPSEC procedures allowed the enemy to follow them from miles away and forced Custer into a course of action he normally would not have chosen.

- There was no reconnaissance on the objective. Because of this, Custer had a poor appreciation for the terrain and for the enemy dispositions. He was forced to detach one quarter of his combat power to conduct a reconnaissance in force to ensure the command was not

surprised because the enemy situation was not completely known.

- Custer allowed one "spot report," which confirmed his enemy template, drive his scheme of maneuver and ignored dozens of reports to the contrary.

- The scouts interpreted what they saw instead of simply reporting it. Their interpretation was incorrect and contributed greatly to Custer's flawed scheme of maneuver.

- Custer's analysis of combat information during the battle was poor. He did not realize that the enemy was not reacting as he had expected them to, even when he could observe their camp himself.

- Custer failed to conduct reconnaissance during the battle. He therefore did not know the size of the enemy village until his forces were committed, nor was he aware of Crazy Horse's movement north to deny him the high ground he desired.

- The single fault that most-affected the outcome of the battle was Custer's unwillingness to modify his assessment of the enemy's probable course of action. He remained convinced the Sioux would try to scatter, and would not change his mind despite dozens of signs to the contrary.

The key to being successful in predicting an enemy's course of action is maintaining an open mind, and trying to realistically assess the situation. Custer certainly did neither of these things in the days

and hours prior to his battle at the Little Bighorn, and this contributed greatly to his failure.

Notes

There has been much written concerning the Battle of the Little Bighorn, and the facts presented here are not pulled directly from any one source, but rather are gathered from several sources, including a trip to the battlefield as part of an officer staff ride my battalion conducted, conversations with National Park Service guides and fellow officers during that trip, and several books and articles. The following publications were the main sources I used while preparing for the staff ride.

Graham, W.A., The Custer Myth, A Source Book of Custeriana, Harrisburg, The Stackpole Co., 1953

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Employing the Heavy Mortar Platoon in the Offensive

by Captain Richard F. Atkinson

Mortars in the offense provide the battalion or task force commander with responsive, close indirect fire support, thus disrupting the enemy's defensive plan and aiding friendly forces in seizing and maintaining the initiative. The 1973 Yom Kippur War illustrated this vital need for mobile and continuous fire support in armor offensive operations when the lack of artillery and mortar support played a major role in the costly failure of Israeli attacks against the Egyptian bridgehead over the Suez Canal. With our current doctrine focusing on the AirLand battle, which stresses a strong of-

fense, fast pace of attack, and weapon systems supporting this concept, the task of mortar employment has become increasingly difficult. This article will propose techniques of mortar tactical employment in the offense, focusing on two critical missions, movement to contact and the deliberate attack.

It is often stated that the mortars are the weak link in fire support. Given the importance of mortar fires on the battlefield, this presents an alarming problem. This deficiency has been attributed to poor positioning by the FSO and the mor-

tar platoon leader, and underutilization by the company FSOs. In order to solve this dilemma, the mortar platoon leader must get involved with the planning process. After all, he should be intimately familiar with the platoon's strengths and weaknesses. Furthermore, the mortar platoon leader should actively follow the battle and talk with the FSO. By doing so, he will be able to keep pace with the battle and insure the fire control net is open. With this in mind, we can now address tactical employment in the offense.

A lack of knowledge of the enemy's location characterizes the

movement to contact. As a result, the movement to contact is a rapid movement, in order to surprise the enemy, giving him less time to mount a successful defense or counterattack. In order to effectively support the movement to contact, the mortar platoon should be forward, no more than 1,000 meters behind the lead company or team. By doing so, the platoon will be able to concentrate one-half to two-thirds of its maximum range in front of the lead element. Therefore, it will be able to provide immediate fires on suspected enemy positions, or screening fires in the vicinity of certain danger areas or obstacles. During this move, the platoon should operate split section on line, maneuvering no closer than 300 meters, to enhance survivability. During the move, the platoon leader and the platoon sergeant each should lead one section and position themselves in the lead. This will facilitate the move, and decrease the amount of internal radio traffic, because the section will key off the lead vehicle. Because platoon leader and platoon sergeant have wheeled vehicles, these leaders should consider controlling from an M106 mortar gun track, thus enhancing their mobility and survivability. The wheeled vehicles can be placed at the trail of each section, or with the combat trains. Movement for each section should always keep in mind security, especially since the platoon would be operating so far forward. Therefore, movement formations,



such as wedge, line, or staggered column should be considered. If there is one area in which mortar platoons are particularly deficient, it is in this area. They find it very difficult to deviate from the traditional "ducks in a row" technique of movement.

When arraying the platoon with sections abreast and continually moving with the lead battalion or task force element, the "hip shot" is the best method for employing fires quickly and accurately. Two methods are particularly good, enabling the platoon to have rounds out of the tubes in two minutes for a T-rated platoon.

The first is the distant aiming point method, or DAP. When using this method, the element leader (platoon leader or platoon sergeant) sights in on a recognizable point that is no less than 1,500 meters away, and preferably located on the flank. He would then shoot an azimuth to this point. Once the fire direction control center (FDC) computes the azimuth of fire, the element leader quickly computes the back azimuth of fire and subtracts this from the azimuth to the DAP. He then gives this data to the guns and identifies the DAP. With the data indexed on their sights, the

crews then sight in on the DAP by adjusting the tube. If the squad leaders are accurate in aligning their vehicles on the azimuth of fire, and sighting in properly on the DAP, a quick check with a safety circle will reveal a difference normally of only a few mils. The DAP method, given its speed, is very accurate. Some of the drawbacks, however, are that during periods of limited visibility, this technique can't be used, nor can it be used in heavily forested areas, because it relies on sighting in on a distant point.

The second method is the M2 compass method. Here, the base gun aligns the vehicle on the azimuth of fire. The other vehicles reciprocally lay off the base gun. Slower and not as accurate as the DAP, the M2 compass method is more versatile, not succumbing to limited visibility or distant points.

During each hip shot, the called section would fire, while the other section would continue movement forward. Once the firing section takes its systems out of action, it would hastily catch up to the lead company. It is in this manner that the platoon is able to effectively maneuver with the battalion or task force. During a movement to con-



ing on the speed of the attack, the platoon will either employ successive or alternate bounds. Again, the platoon leader and platoon sergeant should lead their respective sections, rather than moving forward of the section to prepare the next firing position. By using the platoon leader and sergeant in this manner, if the unforeseen happens during the move, the leadership will be there to react appropriately. Once the displacement plan is completed, brief the FSO and S3 to insure compliance with the battalion's scheme of maneuver.

Mortar employment in the offense should be flexible enough to react to the fluid nature of the modern day battlefield. By employing the techniques described, the platoon should be more responsive, given the two offensive missions addressed. In fact, these methods of employment could be tailored for most offensive operations, including the hasty attack, exploitation, and pursuit. Through effective training, planning, and leadership, the mortar platoon will be able to provide the commander with accurate fires when he needs them.

tact, any other method would quickly put it out of range.

During a deliberate attack, which is "characterized by more planning time, detailed intelligence, and a more detailed scheme of maneuver," the mortar platoon leader should plan in detail the positioning of his forces during the move. This is necessary so that the platoon can provide immediate fires on critical targets and maintain sufficient fires forward, one-half to two-thirds of its maximum range, in order to suppress enemy counterattacks and unexpected enemy positions.

This is a two-step process. First, the platoon leader must discuss in

detail with the battalion or task force FSO the fire support matrix and accompanying target list. By doing so, the mortar platoon leader will understand the concept of the operation, and the commander's intent regarding fire support. Furthermore, he will have had a chance to wargame with the FSO covering the "What ifs" of mortar support. The second step focuses on the displacement plan drawn up by the mortar platoon leader. This plan should include, as a minimum, primary routes and firing positions, as well as alternate routes and firing positions. Additionally, the plan incorporates platoon control measures and movement techniques. Depend-

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The Battalion Support Platoon at the NTC - Flexibility Is a Must

By First Lieutenant Michael P. Gilroy

Flexibility, the ability to be at the critical point "firstest with the mostest" is the deciding factor in any battle. This is no less true in the logistics arena. In fact, it is more critical. Unfortunately, there is a current dearth of information regarding how the battalion support platoon operates in the field. What we need is some practical advice, notably lessons learned at the NTC, as well as that staple of every Armor Officer's Basic class, a field SOP. Until that information arrives in the field, there are some basic principles that guide the operation of the support platoon. The key principle is flexibility. Captain William Hedges' "Push-Pull Logistics" (*ARMOR*, Nov-Dec 1987) laid out one system that works for the battalion support platoon. This article seeks to expand on that system.

Task Force 2-34 Armor went to the NTC in February 1988 as a balanced task force with one tank-pure company, one tank-heavy team, one mech-pure company, and one mech-heavy team. It deployed with its parent brigade and a new twist: the 3-27 Infantry (Light) from Fort Ord, Calif. In pre-exercise planning at home station, we realized that, with a light infantry battalion in the picture, the battalion support platoon would have to be extremely flexible in order to deal with any task organization. The key to flexibility was the support matrix (Figure 1).

The support matrix allowed the support platoon to respond quickly to any changes in mission and/or task organization. Its major advantage is that it is a quick and easy

system, which provides a common frame of reference for all logistics personnel. It served as the operations order for the service and support section of the battalion, and provided a format to make any changes with a FRAGO by radio.

Every individual in the logistics chain of TF 2-34, from platoon sergeant to battalion XO, had a blank copy of the matrix. The task force S4 formulated his support plan, based on the mission, and completed the matrix. The commanders received the matrix at the evening orders brief. When last minute changes occurred, it was then a simple matter to make any changes by FRAGO over the radio. The matrix was also used to inform the support platoon leader or HHC commander of the logistics plan if face-to-face contact could not be made. The system proved to be invaluable in the support of specialty platoons. Oftentimes, the scouts would receive a mission, only to have it changed in the early morning hours, negating the earlier support concept. With the matrix, the S4 sent the changes to the support platoon leader in the brigade support area (BSA) prior to the formation of that LOGPAC.

In an emergency, the scout platoon sergeant, with his blank copy of the matrix, could also communicate directly with the support platoon leader. The matrix was used as a FRAGO: when the mech commander received a late mission to detach two squads (20 men) to the scout platoon to assist in the reconnaissance effort, the mech first sergeant contacted the task force S4 at the ALC to inform him of the chan-

ges to their supply requirements. The S4 called the support platoon leader in the BSA and informed him of the changes.

The transmission sounded like this:

"A24 this is L77, support matrix change, OVER."

"L77 this is A24, send it, OVER."

"A24 this is L77, line one column three 95, line one column six 42, OVER."

The support platoon leader then read the change back. With this short message, the scout platoon's headcount for Class I was increased by 20, and the mech team's headcount was decreased by 20.

The task force S4 had decided, prior to deployment, that he would use the sponsorship concept as much as possible to support the attached/specialty platoons. Under the sponsorship concept, a line company/team supply package will include the supply package for another unit, usually an attached/specialty platoon. By assigning every unit in the matrix a color, it was also a simple matter to change the "sponsoring" unit. Example: The ADA platoon was originally to receive its support package with the D Company LOGPAC. Due to a late mission change, the ADA platoon will now be closer to A Team. The transmission sounds like this:

"A24 this is L77, matrix change, OVER."

Figure 1.
Support Matrix

SUPPLY CLASS	1. TM TK BLUE	2. TM MECH WHITE	3. MECH CO RED	4. TNK CO YELLOW	5. MORTARS GREEN	6. SCOUT RED/WHITE	7. ENGINEER BROWN	8. ADA PINK	9. TOC GOLD	10. CBT TRNS ORANGE	11. ATT INF MAROON
1. CLASS I & WATER											
2. CLASS III											
3. CLASS IV											
4. CLASS V											
5. MEDEVAC											
6. MAINT											

MSR: TO MCP 1: EFSP 1:
 LRP 1: MCP 2: EFSP 2:
 LRP 2: MCP 3: EFSP 3:
 CBT TRNS LOC: PRESTOCK 1: SPECIAL:
 BSA LOC: PRESTOCK 2:
 ORDER # _____ MISSION: _____

"L77 this is A24, send it, OVER."

"A24 this is L77, line one, column eight, Blue, OVER."

"L77 this is A24, line one, column eight, Blue, ROGER OUT."

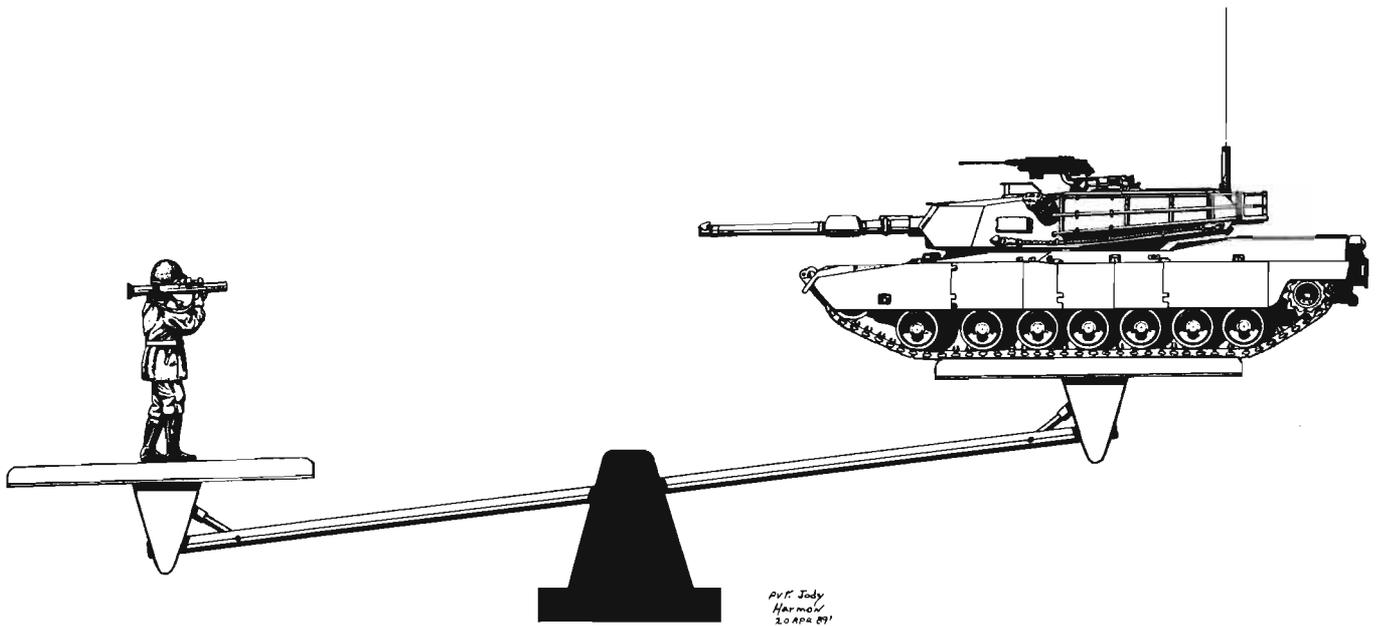
With this short transmission, the support platoon leader learned that the ADA platoon would receive its package as part of A Team (Blue), and to configure the LOGPAC that way. For the support platoon to preserve its flexibility, it must be able to communicate. One of the advantages of the support matrix is that it shortens radio transmissions on an already crowded admin/log net. But this is not enough. The current TO&E gives the support platoon only one AN/VRC-46 radio. Early on, we realized that this would not mesh with the system we wanted to employ. An AN/VRC-64 radio was taken "out of hide" and installed in an M977 cargo HEMTT. This provided the support platoon with its own net. With his expanded communications capability, the platoon sergeant used the radio-

equipped HEMTT as a trail vehicle in convoys to provide command and control, and as a second "command post." This allowed the support platoon leader to control two operations at the same time. On occasion, the platoon leader controlled the recovery of a LOGPAC while the platoon sergeant supervised the establishment of an engineer forward supply point. The support platoon could now divide itself in half to support anywhere on the battlefield.

The major disadvantage of the support matrix system is that it relies heavily on FM communications, which, owing largely to the great distances at the NTC, are not always possible. We solved this problem using a retrans station provided by brigade, as well as our organic radio teletype (RATT) rig. Radio teletype is an outstanding logistics multiplier. With RATT, you can send matrices as hard copies to the brigade RATT and for personnel in the battalion field trains on a regular basis. RATT all but negates the effect of distance on the support effort. As I mentioned before, radio

communications are not reliable. Each individual, down to vehicle operator level, must have a complete understanding of the support matrix and the task force mission. There is also no substitute for face-to-face contact between the S4 and the support platoon leader. It must occur each day at the logistics release point. Additionally, the support platoon leader should attempt radio contact with the S4 every eight hours, at a minimum. Although the support matrix was originally conceived to handle any possible task organization with attached light infantry, it proved its utility in the support of attached/specialty platoons and other elements, such as the TOC and combat trains. It was particularly effective in ensuring Classes I and IV were in the right place at the right time. The matrix allowed the S4 to form a good plan immediately, as opposed to a perfect one later, secure in the knowledge that it could be updated quickly if the need arose. This allowed the support platoon more time to itself for its own planning, as well as maintenance and rest. Central to all this was the expanded communications capability of the support platoon, which ensured that it could execute any mission once it received the order.

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To Estimate the Situation

by Major Michael W. Symanski, USAR

Too many comparisons of the effectiveness of U.S. and Soviet equipment and doctrine are made in terms of one-on-one duels. This kind of assessment does not match us against them, either in terms of overall combat power or of the conditions that influence the decisions and actions/reactions of each combatant. Too often, the question we address is, "Can our tank be destroyed by a particular weapon known to be possessed by the enemy?" It would be better to ask, "What must the enemy do to destroy our tank, and how often must he do it?"

Although a weapon or doctrine is designed to close with and destroy the enemy, the existence of that weapon or doctrine has an effect all its own. This is the idea behind deterrence. An arms race is a competition of possession, not application. This is true strategically and tactically. We must consider the combined effects that our material capabilities, positioning, and numbers have upon the enemy's actions. The accurate estimate of the enemy

and friendly situations is basic to his planning as well as to ours.

All weapons and units are designed to perform in harmonious concert, not *a cappella*. We must consider the sum of the parts. The infantry is the prime consideration because it is needed to occupy territory, where its presence coerces the enemy nation to do our political will. The infantryman is vulnerable to small arms fire and shrapnel, so we encase him in armored vehicles, or fortifications, and support him with weapons impervious to bullets (primarily from automatic weapons). Armored vehicles, on the other hand, are vulnerable to antitank weapons. Because the walking man is not generally the most productive target of an antitank rocket, he protects the tank against ATMs. Counter-battery artillery fire is the best defense against the high explosive round that destroys armored vehicles and man alike. The enemy artillery cannot fire from positions already occupied by our infantry. Thus, no single weapon can provide sufficient firepower, protec-

tion, or mobility in every situation. None are designed to do so, and we should not expect it. The Bradley, an agile vehicle proof against small arms and shrapnel, draws criticism because it can be penetrated by a HEAT round; this is a common example of myopic estimation. We must employ all weapons and units together to succeed.

Terrain has its effect upon employment. Infantry seeks ground inhospitable to enemy fighting vehicles, and armor avoids places where hostile infantry with ATMs may be concealed and covered. These responses to terrain, of course, assume that the enemy has the weapons and numbers to exploit such ground.

Combat power is relative. Opposed by an enemy on foot in the open, the commander applies a machine gun. The opponent meets this raise in the stakes by deploying tanks. The infantry counters with antitank missiles, mines, and artillery. The armored force calls for air support and counter-battery fire. So it

"Part of the maturing of an officer is to sharpen his perspective of a threat. An enemy advantage of one tank is decisive to an estimate made by a lieutenant, bothersome to a captain's, and inconsequential to a colonel's."

goes, *ad infinitum*. At any point, one side has the tactical advantage, but these rounds of "raising and calling" continue until one contestant can make no credible riposte. This escalation can easily be seen in low intensity conflict, which becomes high intensity as quickly as the participants can manage to "go heavy." The militia in ambush of the American Revolution became the Continental Line, and the NVA replaced the Viet Cong. Light divisions are strictly temporary measures. They will be plussed-up with armor augmentation so that they will become heavy divisions in practice. The path of insurgency is intended to lead to a decision by heavy forces.

The material demands of this escalation require a logistical base and transportation system that are up to the task. Our strength forces the enemy to invest in a material effort that we hope is beyond his means. He must somehow transport his antitank mines to his infantry positions. He must bring his T-80 tanks to the battlefield. It doesn't matter that a round from a T-80 will penetrate our M60 if that Soviet tank is not present, or our numbers exceed his rate of fire.

The material requirement is easier to meet than the training requirement. Even if the weapons are there, the soldiers must know how to operate them effectively. We all know how long it takes to train to adequate standards, and how impos-

sible it is to train someone lacking the basic education necessary to master modern equipment. Further, it is far easier and quicker to train the individual weapons operators than it is to train the commanders and staff who must bring them to contact at the right time and place. Soldiers take months to train, but staffs take years. Part of the maturing of an officer is to sharpen his perspective of a threat. An enemy advantage of one tank is decisive to an estimate made by a lieutenant, bothersome to a captain's, and inconsequential to a colonel's.

Equipment and training will still not provide if the soldiers are not psychologically prepared for combat. Enemy fire is not effective fire until it causes serious degradation of our relative combat power. One lost tank does not neutralize its platoon. What good is weaponry if the operators flee at the first shot? The soldiers must be willing to use their weapons in order to win in combat, where losses are inevitable, pain is unavoidable, and the contender who is only relatively stronger will prevail.

Tactically, capabilities bring their own share of the reward when the enemy is forced to commit to a course of action not of his own choosing. After all, the NBC capability produces most of its results not by killing large numbers of the enemy, but by degrading his performance by forcing him to suit up. Mines are not sown to blow up

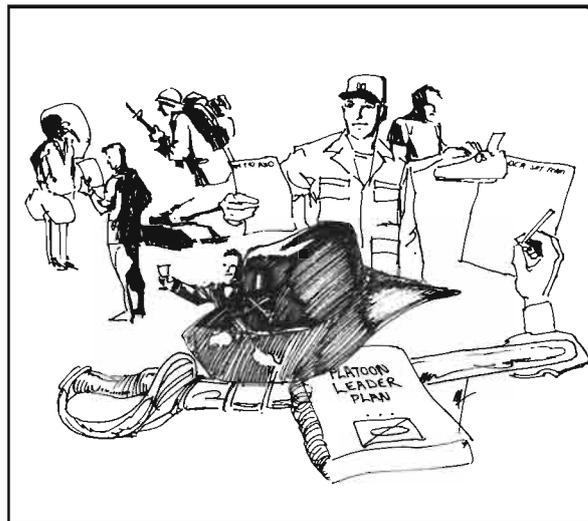
the enemy, but to canalize his movements to a more vulnerable position. Our armor threat confines an infantry heavy enemy to bad terrain. Our material strength forces the enemy to invest his resources in logistics and training, which may expend his resources before the battle begins.

The combat commander and staff may not always be able to bludgeon the adversary to death, and our doctrine is based on the assumption that the U.S. Army does not hold a bigger cudgel than the Soviets. The qualitative advantage that we possess, and our often local quantitative advantage, must be applied to stress the enemy's weaknesses and enhance our strengths. Like any good poker player, we must know how to read the cards, know the odds, and make smart bets instead of gambles.

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Reinforcing Leadership In the AOBC Officer

By Captain Mark E. Asbury
and Captain Jesse White



A new breed of lieutenants is reporting to take charge of platoons in your units. Last September, the Armor Officer Basic Course began placing greater emphasis on a new lieutenant's leadership development. The Leadership Assessment Program (LAP) focuses on continuing the leadership development begun during precommissioning.

LAP is the outgrowth of the Leadership Development Study. General Carl E. Vuono, Chief of Staff of the Army, commissioned the study, and the Combined Arms Center, Fort Leavenworth, conducted it.¹

The Leadership Assessment Program measures 12 dimensions of leadership selected as a result of a joint conference between the Armor School's Leadership Department and the Center for Army Lessons Learned (CALL).

These dimensions are the eight competencies - communication, planning, supervision, teaching and counseling, soldier-team-development, decision-making, management technology, and professional ethics - incorporated in the revised version of FM 22-100, *Military Leadership*, as well as four warrior

characteristics - initiative, innovation, boldness, and flexibility.

The National Training Center (NTC) is currently testing these dimensions. The Army goal is to push these dimensions to the field through the examples of the Officer Basic Course graduates. The Armor School's goal is to confirm the officer's leadership style and provide him with the material to create a "Platoon Leader Plan."

LAP is an inter-departmental effort between the Armor School faculty and the Senior Class Advisor (SCA), aimed at providing increased assessment and feedback of the student officer as he conducts himself through the course activities. LAP is the key ingredient of a "Be-Know-Do" framework to ingrain these dimensions into his character. This framework focuses on instruction on attitudes and values (Be); coaching, and counseling to help the officer know his leadership style (Know); and feedback assessment as the officer performs in student leadership positions, as a tank commander during gunnery, and in platoon leadership positions during tactical maneuver training (Do).

BE. During in-processing, the SCA presents an overview to all stu-

dent officers on the Leadership Assessment Program, as well as their job book (*Armor Officer Military Qualification Standards II*, STP 17-1211-MQS). The course introduces the Armor MQS II manual to show officers the tasks taught by the Leadership Department. Throughout the course, the SCA reinforces the MQS Level II tasks (see Table 1). He also conducts OPDs, hands out leadership articles, and encourages students to read books listed in *A Professional Reading List For Faculty And Students*, FSKM PH-40.

KNOW. The course challenges students to make self-assessments of their leadership strengths and weaknesses, using the 12 dimensions of leadership. Officers transcribe their self-assessment goals and other course goals to an OER Support Form. The OER Support Form provides a foundation for building the AOB students' developmental objectives. We use it as a teaching tool to prepare them to effectively use it following graduation, and as a discussion structure for their counseling sessions. Each officer receives three formal counseling sessions to review his development objectives (see Figure 1).

The three different counseling sessions mark the transition in the stu-

Table 1

MQS II Tasks That Can Be Reinforced By a SCA

Task Number	Mentored	Coached	Counseled	Task Title
01-9001.00-0010	X	X	X	Demonstrate an understanding of the responsibility of membership in the profession of arms.
01-9001.00-0020	X	X	X	Relate the influence of key Army values on soldier and leader behavior.
01-9001.00-0030	X	X	X	Analyze ethical issues.
01-9001.00-0040	X	X	X	Analyze the effect of institutional pressures on ethical conduct.
01-9002.01-0010	X	X	X	Apply Army leadership doctrine in typical unit situations.
01-9002.01-0020	X	X	X	Demonstrate an understanding of duties, responsibilities, and authority.
01-9002.02-0010	X	X	X	Apply communicative process in dealing with superiors and subordinates
01-9002.02-0020		X	X	Apply communicative techniques for listening to the commander's intent.
01-9002.02-0030	X	X		Apply communicative techniques for speaking to be heard.
01-9002.03-0010	X	X	X	Apply decision-making process.
01-9002.04-0010	X	X	X	Apply the planning process.
01-9002.05-0010	X	X	X	Apply the principles of supervision to implement an action, task, or mission.
01-9002.06-0010	X	X	X	Apply motivation principles on subordinates.
01-9002.06-0030	X	X		Demonstrate leader teaching and role modeling responsibilities and skills.
01-9002.06-0040	X	X	X	Demonstrate effective counseling skills.
01-9002.07-0010	X	X	X	Develop a plan for assuming a leadership position and taking charge.
01-9002.07-0020	X	X		Analyze the supportive climate of a platoon-size unit
01-9002.07-0030	X	X		Apply team-building factors that make cohesive units.
01-9002.07-0040	X	X		Develop plans and evaluation procedures to determine unit cohesiveness.
01-9002.07-0050		X	X	Apply procedures to reduce and control stress, fear, and panic.
01-9003.00-0010	X			Implement the Army's Equal Opportunity Program.
03-9601.00-0007		X	X	Prepare an Officer Evaluation Report (DA Form 67-8-1.
01-9191.00-0001		X	X	Counsel personnel on job performance.
01-9191.00-0002		X	X	Counsel personnel on personal problems.
01-9191.00-0003		X	X	Counsel personnel on disciplinary matters.

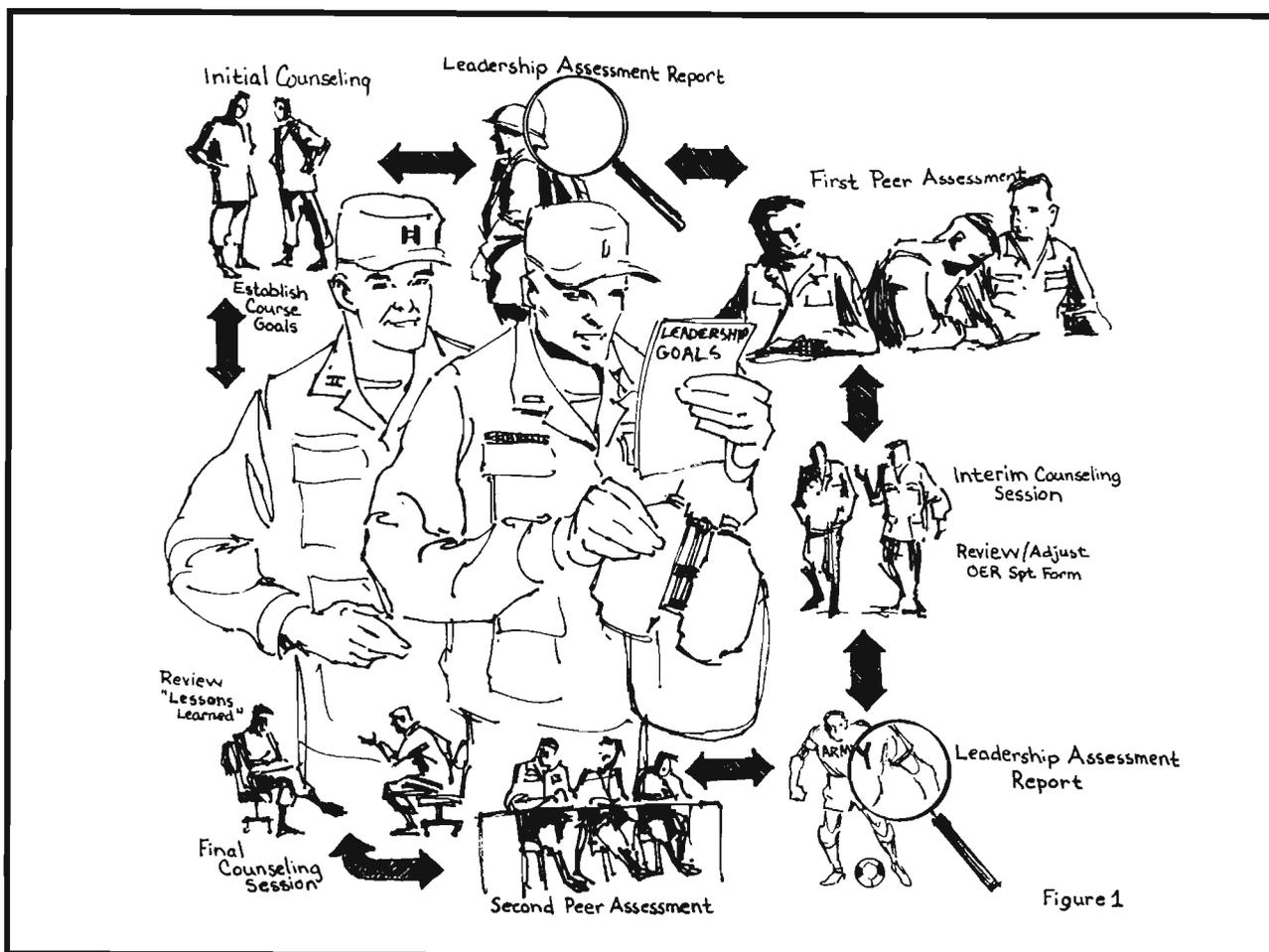
NOTE: An "X" denotes primary method of reinforcing this task.

dent officer's course curriculum from maintenance/supply to weapons/gunnery to armor/cavalry tactics. The initial counseling session, during the first two weeks of training, functions primarily as a "get acquainted" session, to clarify course objects, review how to use an OER Support Form, and discuss the development of a "Platoon Leader Plan." The interim counseling session focuses on reviewing progress of goals made on the OER Support Form, discusses assessments made by the SCA, and discusses the first peer assessment. The final counseling session, held prior to their 10 days of tactical training,

finalizes the OER Support Form, reviews the gunnery department assessments and SCA assessments, and discusses the second peer assessment.

DO. As mentioned above, each officer participates in two peer assessments. These assessments are valuable because they confirm the leadership assessments made by the SCA and instructors. They also provide indications of team membership and teamwork. Conducted during the sixth week of training, the first peer assessment proves to be excellent in helping the officer visualize his first impression upon

arrival at his gaining unit. During the interim counseling session, the SCA discusses possible leadership techniques on "Taking Charge." After gunnery training, officers complete the second peer assessment. By this time, all officers have seen each other in a field and garrison environment. Besides being more detailed on leadership behavior, this assessment provides a good snapshot of crew compatibility and platoon cohesion. During the final counseling session, the SCA discusses the importance of teamwork, methods of motivation, concepts on modifying impressions, and strategies to reduce stress.



Throughout the basic course, students function in a variety of leadership and staff positions. The SCA and the instructors coach and assess each officer as he executes his leadership tasks. Following job completion, each officer receives a briefback. The goal is to increase job performance during the final 10-day field training, confirm each officer's leadership style, and confirm his platoon leader plan.

The platoon leader plan is our method of challenging the officer to organize his course material into an easy reference tool. It becomes his book of lessons learned while at the Armor Officer Basic Course.

Summary

Overall, the Leadership Assessment Program (LAP) gives new

lieutenants an opportunity to establish their leadership, prepare to meet their platoons, and establish their "Platoon Leader Plan" to aid them in success.

Notes

1 MG Gordon R. Sullivan, Leader Development Study, Combined Arms Center, Fort Leavenworth, Kan., 1987.

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Artwork for this article was by 2LT Michael Harris, currently assigned as a scout platoon leader with the 1-101 Cav, NYANG. He recently graduated from AOBC.



To Gain and Maintain

by Lieutenant Colonel Robert R. Ivany
and Captain Michael D. Formica

Glance over any after-action report from the the National Training Center and, all too often, you will find epitaphs for incompetent scouts. Poor movement techniques, failure to anticipate enemy actions, or losing contact with the enemy frequently result in heavy losses for their battalion. But are they to blame? For many years our 19D

scout has been a "jack of all trades." Today, our modern "Old Bill" must master the most difficult and important craft of his profession: The ability to gain and maintain contact with the enemy.

Detecting enemy forces before the battle and keeping them under continuous surveillance requires a spe-

cial combination of patience and aggressiveness. Experience makes a big difference.

Veteran scouts versed in the subtle art of scouting are hard to find. The Army expects to fill only 80% of its 19D slots in FY88. Combat units, meanwhile, must contend with high personnel turbulence and with scouts who have been serving on recruiting or drill sergeant duty. In the 1st Squadron, 3d ACR, we developed a series of platoon-level training exercises to overcome these obstacles. Designed to train "experienced" scouts who can gain and maintain contact in any environment, these force-on-force drills can

"QUICKFIGHTER" SCENARIO

Time	1st Platoon	Time	2nd Platoon
0630	Pre-Combat Inspection	0630	Pre-Combat Inspection
0800	Troop Cdr. Receives OPORD	0800	Move to OPFOR Assy Area
0900	Screen a Stationary Force (3-IV-3-4)	0900	OPFOR Probes, Attacks
1200	AAR	1200	AAR
1300	Move to OPFOR Assy Area	1300	Troop Cdr Receives OPORD
1400	OPFOR Probes, Attacks	1400	Screen a Stationary Force (3-IV-3-4)
1700	AAR and MILES Check	1700	AAR and MILES Check
1800	Hot Refuel and Rearm	1800	Hot Refuel and Rearm
1900	Troop Cdr Receives OPORD	1900	Move to OPFOR Assy Area
2000	Reconnoiter a Zone (3-IV-2-5)	2000	OPFOR Screens
2300	AAR	2300	AAR
2400	Move to OPFOR Assy Area	2400	Troop Cdr Receives OPORD
0100	OPFOR Screens	0100	Reconnoiter a Zone (3-IV-2-5)
0400	AAR/ENDEX	0400	AAR/ENDEX

"Quickfighter is not a "free-play" exercise. While the friendly platoon responds to its troop commander, the OPFOR platoon maneuvers under the direction of the S2. Troopers learn a great deal from their experience as the OPFOR."

be adapted to divisional cavalry squadrons or to the scout platoons of armor or mechanized battalions.

Incongruously named "Quickfighter," these 24-hour exercises challenge everyone from the platoon leader to the youngest scout. The exercise begins with some self-diagnosis by the squadron leadership.

Relying on input from the troop commanders, his own observations and after-action reports, the squadron commander designs the exercises to meet his unit's particular requirements. With the help of ARTEP 17-55, the squadron S3 incorporates these requirements into a fast-paced exercise.

The attached scenario portrays a typical Quickfighter exercise. In this case, the commander wanted to develop the scouts' cross-country movement techniques during zone reconnaissance and screening operations. These requirements translate into ARTEP tasks such as "Reconnoiter a Zone" (3-IV-2-5), "Screen a Stationary Force" (3-IV-3-4), and

"Maintain Contact" (3-IV-2-18). Each platoon has the opportunity to conduct the missions and act as the OPFOR.

The squadron staff plays an important role in developing realistic training. It coordinates outside support, publishes the necessary orders and provides two evaluator/controllers. One officer or NCO from the S2 shop maneuvers with the OPFOR platoon. A member of the S3 shadows the friendly platoon. The staff's participation allows the troop commander to focus his attention on the movement, reporting, and calls for fire from his scouts.

Quickfighter exercises make the scouts feel "at home" during the evaluation. The commander directs the platoon leader according to the troop's standard operating procedure. Logistical resupply arrives under the control of the unit first sergeant. The troop's maintenance section responds to vehicle breakdowns. In this way, the entire unit benefits from the training, not just the scout platoons.

Quickfighter is not a "free-play" exercise. While the friendly platoon responds to its troop commander, the OPFOR platoon maneuvers under the direction of the S2. Troopers learn a great deal from their experience as the OPFOR. In addition to controlling their movements, the S2 explains OPFOR formations and tactics. Using colored flags to designate them as BRDMs, BMPs, or T-72s, he configures them as the Forward Security Element or as part of an Advance Guard.

The OPFOR attacks or defends under the S2's watchful eye. If conducting a recon, for example, the OPFOR moves on a pre-arranged dog-leg with prescribed speeds for each leg. If the OPFOR defends, the S2 positions them as combat outposts or part of a defensive belt. Most importantly, the S2 teaches the scouts to fight and move as the OPFOR. When the platoons trade roles later in the day, the scouts will be knowledgeable about the enemy's tactics.

The friendly scouts conduct their zone reconnaissance or screen under the command of their platoon leader and troop commander. Neither knows the OPFOR scheme of maneuver. Routine, but



often insistent, queries, find their way to the platoon leader. Questions like, "Where's the enemy?" and "How many tanks are there?" keep the platoon leader focused on the importance of gaining and maintaining contact. The S3 representative follows the evaluated scouts so he can observe their movement and actions on contact. From his vantage point, he can restrain or hasten the pace of the enemy to challenge units with differing abilities. By increasing the speed of the OPFOR's advance by only 5 mph, for example, the controller quickly builds pressure on the friendly unit.

The ability to perform under pressure usually separates the veterans from the newcomers. Actions on contact, on losing contact, or on being overrun provide plenty of excitement for the evaluated platoon. It takes guts to follow on the heels of enemy outposts as they withdraw or to shadow OPFOR elements after they have penetrated the screen. Scouts quickly learn the size of the cushion they must maintain with the enemy. Retrograde screening operations as well as night

reconnaissance missions especially challenge inexperienced leaders.

The use of MILES significantly helps the evaluator and commander assess a platoon's effectiveness. During some missions, the commander may order his scouts to avoid engaging all enemy forces, even recon elements, so their positions will not be compromised.

Some young scouts, however, can't resist the temptation to kill a BMP or T-72. These scouts and their units usually pay a high price for such trigger-happiness. Flashing yellow lights quickly pinpoint those scouts who have allowed the enemy to detect and overtake them. Fortunately, each platoon has the opportunity to learn from its mistakes when it switches sides during the exercise.

The real learning process takes place during the After Action Review (AAR) following each phase of the drill. Quickfighter AARs bring together both platoons, evaluators, and the troop commander. Everyone examines the friendly platoon's actions. Where did they lose contact? How accurate were the spot reports? Whatever the shortcomings, the AAR ends on a positive note as the scouts go out and try again.

Quickfighter exercises benefit every level of the command. The platoon leadership learns by being forced to handle a resourceful and cunning enemy. The troop commander has the opportunity to exercise his command and control and to discover each platoon's weaknesses and strengths.

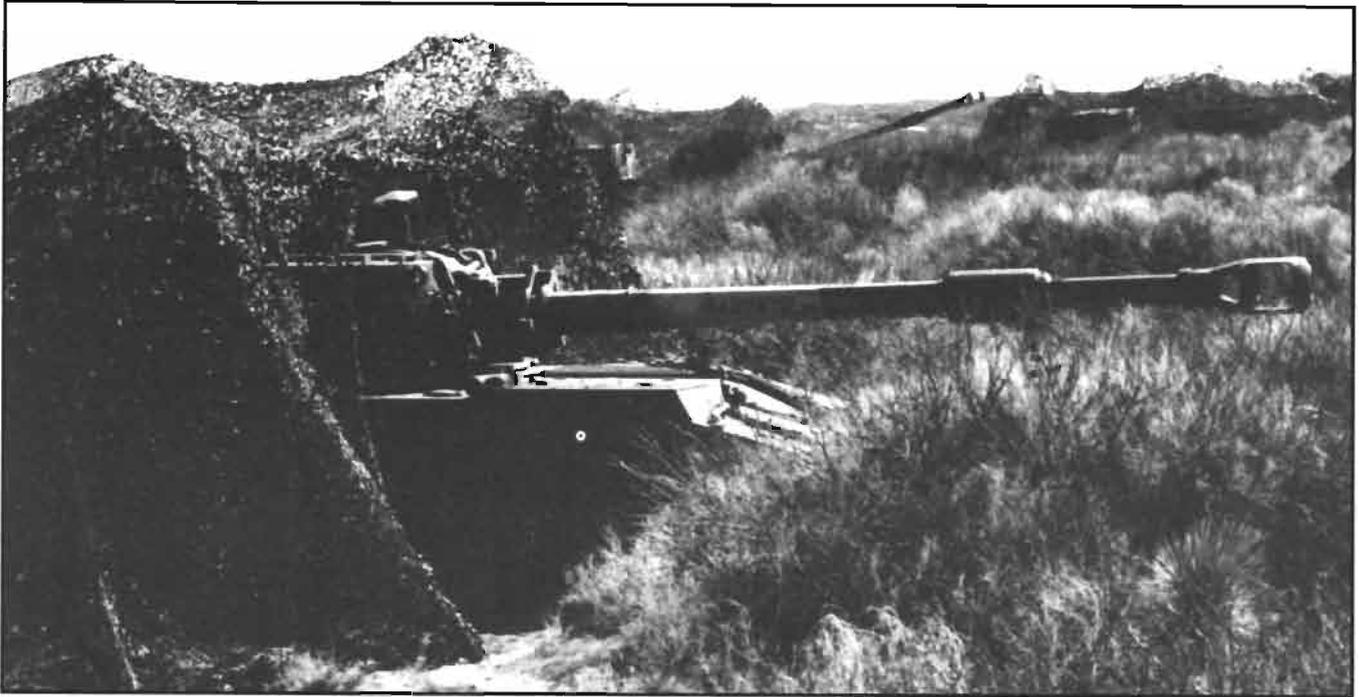
The squadron commander, meanwhile, is able to watch, listen, and gain an appreciation of his "eyes and ears." As the units progress, he can add more challen-

ges, such as barriers, operations in MOPP 4, and the integration of the tank platoons with the scouts.

These additional requirements can challenge even veteran scouts. As the Army faces major funding constraints, Quickfighter offers commanders a low cost and low overhead exercise which can generate high trooper interest. It will develop experienced scouts who can gain and maintain contact in any environment, and live to tell about it.

Lieutenant Colonel Robert R. Ivany was commissioned in Armor from West Point in 1969. He earned a Ph. D. in history from the University of Wisconsin and graduated from the Command & General Staff College. He served with cavalry regiments in CONUS, the FRG, and the Republic of Vietnam. He recently commanded the 1st Sqn., 3d ACR, and is currently assigned to the Combined Arms and Tactics Department, U.S. Army Air Defense Center.

Captain Michael D. Formica was commissioned in the Regular Army in Military Intelligence after being selected a distinguished military graduate at Indiana University of Pennsylvania. He transferred to Armor in 1984 and has served as battalion S2 and scout platoon leader with 1st Bn, 64th Armor in the FRG. He served as squadron S3-Air and commanded D Co., 1st Sqn., 3d ACR. A graduate of MIOBC, AOAC, and the Airborne School, he is currently the plans officer, 3d ACR.



Commander's Intent and the Field Artillery

by Captain Richard G. Cardillo, Jr.

Throughout the night, the scouts from TF 4-77, 1st Bde, 55th Mechanized Division received periodic reports that the division's cavalry squadron, 4-23 CAV, had been extremely successful in stripping away the regimental reconnaissance company of the 11th Motorized Rifle Regiment. It's now 0630 hours, and the scouts have unexpectedly begun their withdrawal back to BP 24 under enemy pressure.

As the regiment transitions into its company prebattle formations, the scouts take heavy losses from flanking fires. They conduct their withdrawal without the suppression of enemy direct-fire systems, and smoke to obscure the enemy OPs and screen the scouts rearward movement was not planned. Back at the tactical command post, the task

force commander turned to his fire support officer (FSO) and demanded, "Where's the smoke? Where's the artillery?"

The FSO could only respond, "Sir, I assumed you wanted to save that for the close-in battle."

As the regiment approached the task force commander's primary engagement area, the FIST for Alpha Company, 4-77 initiated group A11D, too early and improperly positioned in reference to the commander's primary engagement area. Again, the TF FSO could only respond, "I thought that's where and when you wanted that group fired."

As the engagement progresses, the FSO and ALO coordinate for CAS

using Army and Air Force aviation assets into engagement area "B", not where the commander had intended to finish the enemy off. By now, the commander is thoroughly frustrated with the FSO and is willing to have the young captain sacked.

Eventually the regiment broke through the battle position and secured key terrain in the division's rear area, allowing the follow-on forces easy access into the 10th Corps rear area.

While the above scenario is fictitious, it does emphasize the importance of the maneuver commander's responsibility to articulate his intent for fire support to the fire support officer early in the planning process. The maneuver commander exercises overall direction of the



"The FSO and ALO are the commander's link to 80 percent of all available fire support agencies (naval gun fire is the one exception). Without their synchronization into one plan, the commander's ability to mass his firepower to delay, disrupt, or destroy enemy forces is severely degraded."

fire support system and is ultimately responsible for integrating fire support into his plans. Fire support hinges on the maneuver commander's intent for field artillery.

The mission of the field artillery is to destroy, neutralize or suppress the enemy by cannon, rocket, and missile fire, and to assist in integrating all fire support into combined arms operations. I will focus on one of the four basic tasks of fire support that allow the field artillery to accomplish its mission - support the force commander's battle plan. The performance of this task enables the maneuver commander to influence the battle with firepower. Firepower gives the commander the means to attack designated high-payoff targets whose destruction, neutralization, or suppression will be most beneficial to the successful accomplishment of his mission.

In order to support the commander's battle plan, the FSCOORD/FSO at each command level must clearly understand the maneuver commander's first prin-

ciple of war - his objective. His intent.

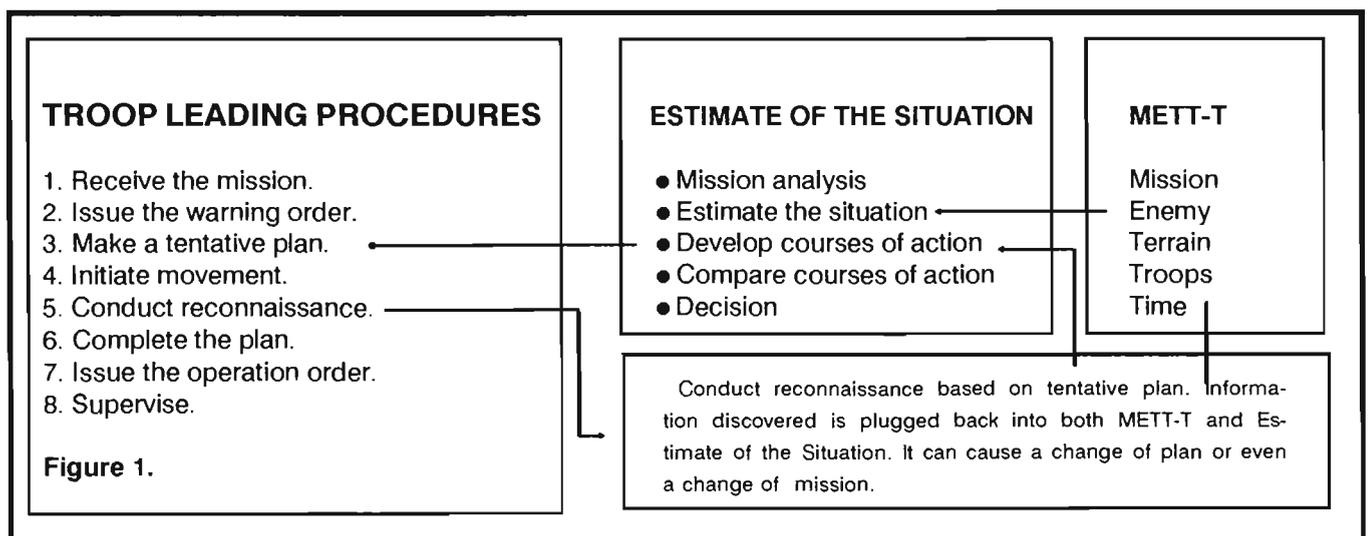
A common complaint from fire support officers is that their maneuver commander did not give them adequate guidance to formulate a fire-support plan to support the scheme of maneuver. A very commonplace approach is for the maneuver commander to tell the FSO, "Go ahead and make up a fire plan, and I'll agree with whatever you come up with." The maneuver commander is now willing to give total control of the major contributor to his firepower on the battlefield to a special staff officer, without sufficient planning guidance.

This individual is probably not the most experienced individual on the battlefield. Granted, the FSO is expected to know his job and make recommendations to the commander regarding fire support, but to do so during the battle is a little too late, especially if it could have been planned early on. Often, the commander gives specific guidance to the S2, S3, and the engineer on

what he wants done or reported, but rarely do the FSO or ALO get guidance on what to do. The FSO and ALO are the commander's link to 80 percent of all available fire-support agencies (naval gunfire is the one exception). Without their synchronization into one plan, the commander's ability to mass his firepower to delay, disrupt, or destroy enemy forces is severely degraded. When the time comes to execute the mission, you now have at least three plans instead of one. Rarely will a plan succeed without the integration of all combat, combat support, and combat service support agencies into one plan - the maneuver commander's plan.

Before the FSCOORD/FSO can begin developing his fire-support plan, he must have a clearly defined objective that is in consonance with the maneuver commander's intent.

Eventually, the commander will reiterate his intent in written form under paragraph 3.a. (Concept of the Operation) of the operation order. The concept of the operation is a statement of the commander's



intent, which explains why the force has been tasked to do the particular mission. It tells what results are expected, how these results contribute to future operations, and how, in broad terms, the commander plans to achieve those results. The fire-support officer will then address, in paragraph 3.a. (2) (Fires) of the operation order, how he plans to support the commander's intent.

Commanders must become personally involved in the decision-making process of fire support integration. The FSO is no different from any other member of the maneuver commander's staff. An effective technique in formulating the commander's intent is to follow troop-leading procedures as closely to the letter as possible, while putting special emphasis on the commander's wargaming session. Using this technique, the commander gathers all of his primary and special staff early in the planning process, and using the available intelligence and probable enemy courses of action, the commander "fights" the battle. As he "fights" the battle, with recommendations from his FSO, he inserts his fire support assets when and where he thinks they will contribute most to the battle, giving specific information on attack guidance and desired effects. One of the maneuver commander's greatest challenges is in synchronizing and concentrating all of his combat power at the critical time and place. In order to assist the commander in synchronizing fire support with maneuver, the following reminders will help to clarify the commander's intent:

- The FSO must be included in the analysis of the mission from the time the mission is received, and his

involvement must never be terminated.

- The FSO must know the commander's intent. Be specific. Tell the FSO everything as soon as it occurs.

- What targets to attack, where to attack those targets, and when.

- What are the desired effects of fire on those particular targets.

- What fire-support means will be used and when do we use them.

- Don't let the FSO plan in a vacuum.

- The FSO must understand the scheme of maneuver.

- Identify which units have priority of mortar and artillery fires.

- Give the FSO preliminary guidance on high-value/high-payoff targets.

- For what areas or key points during the operation should the FSO plan for in which certain risks may or may not be acceptable.

- The FSO needs guidance on specific courses of action.

- Guidance on critical events should also be considered.

By understanding the commander's intent early in the planning sequence, the FSO is better able to inform the commander what fire support can or cannot be accomplished during the battle so that the commander can revise his plan if necessary. Additionally, if the FSO understands the intent early, the integration of the fire-support

plan with maneuver will enhance the commander's chance for success.

Training Circular 6-71 (*The Fire Support Handbook for the Maneuver Commander*) and FM 71-2 (*The Tank and Mechanized Infantry Battalion Task Force*) Chapter 6, Section II, can assist the maneuver commander in passing his intent to the FSO. The bottom line is not intended to regurgitate already published information, but to reiterate the importance of the commander's intent for fire support. Without a clear understanding of what the maneuver commander wants done, the fire support he receives will be a reflection of the guidance he gives to the FSO. Without the synchronization of fire support, maneuver, protection, and leadership, the maneuver commander's combat power and his chances of success will be reduced.

Captain Richard G. Cardillo, Jr., a graduate of Oregon State University, was commissioned in Field Artillery in 1978. He is a graduate of the Field Artillery Basic and Advanced Courses, Airborne and Ranger Courses, and CAS3. He has served as fire-support team chief, assistant operations officer, and battery XO with 2-3 FA, 3AD; operations duty officer, DIVARTY, 2AD; and as commander, MLRS Battery, 1-92 FA, 2AD. He is currently assigned as Live Fire, FSO Trainer at the NTC.

Leadership: Loving and Taking Care of Your Soldiers

by Major Joseph N.G. LeBoeuf

Spec. Richardson has just reached an important professional milestone, promotion to sergeant. Ah, yes, "buck" sergeant, E5, now a supposed leader, as least that is what his stripes indicate. His unit is currently short of squad leaders, normally a staff sergeant, E6. So, by virtue of his newly-won stripes, SGT Richardson is now thrust into a new and difficult role, SQUAD LEADER. No longer a follower, but a leader. Quotas for NCO/Leadership schools will not be available for at least six months. There is a critical field training exercise next month and an annual ARTEP on the horizon, plus an IG is just three months down the road. So, SGT Richardson...What are you going to do now?

Many of us, officers and NCOs alike, know this feeling all too well. The anxiety, the stress, the sometime feelings of absolute panic associated with being thrust into a new leadership situation, a position of great responsibility, and, more often than not, not really knowing what your next move should be. But your soldiers are waiting! Well, what should a good leader do? How should it be done? Or, even more to the point, what is a good leader?

The behavioral science and psychological literature will throw lots of ideas at you about what a good leader is, and what a good

leader does: contingency models of leadership, path-goal theories, expectancy-value, and many more ideas that describe leadership activity and leadership behavior. These ideas are wonderful and have an application but, for some reason, they don't seem so wonderful, or even practical, when you're standing in front of your squad or platoon trying to figure out, "What do I do now?"

Well, SGT Richardson, let's not lose hope, because there is a philosophy of leadership that *can* and will help. Within all the theories of leadership, there seems to be a common, underlying, thread that provides an answer, leastwise, a starting point, to the question of "What do I do now?" This thread is that a good leader is one who loves and takes care of soldiers. That's right, you've got to love them, the good and the bad, and take care of them all.

A good leader is one who loves and takes care of soldiers - all of them.

But wait a minute, is that all good leadership is, loving and taking care of your soldiers? Well, not really. It is not as easy as it sounds.

Let's examine what it really means to love and take care of soldiers. Therein lies the key to being a good

leader and the key to good leadership.

At first glance, one might think: What's so new about taking care of soldiers? That's easy...ensuring they have chow in the field, they get their pay and they have their personal problems attended to...

WRONG!

Now, don't get me wrong, these things are very important. Any leader who forgets these basic things is doomed, leastwise he is on a rocky road. But there are other, more important, but maybe not so obvious, tasks involved in truly loving and taking care of your soldiers. Let me give you a feel for what this really means.

Taking *good* care of your soldiers means an awful lot. Taking care of your soldiers means providing them good, hard-hitting, training; training that will ensure they will survive on a modern battlefield, currently characterized by a degree of complexity and lethality that is difficult to fully comprehend. Good training is that which is well thought out, carefully planned, properly resourced, and vigorously executed.

Good training is also that which is properly evaluated, with immediate feedback provided to your soldiers, and appropriate remedial and corrective action taken. Good training

"You have to love the good ones and the bad ones; and the bad ones often take a whole lot more love. This means having the courage to get the bad ones out of the Army, before they injure themselves and others."

is "hard", consistently performed to the required standard. Good training is that which emphasizes those skills required of soldiers in a combat environment, emphasizing all-weather, all-terrain, and day and night operations. These are the characteristics of good, hard training, and this is taking care of and loving your soldiers.

Taking care of soldiers means good, hard training!

Taking care of your soldiers means ensuring that your men understand how to properly care for and maintain their equipment, both in garrison and in the field. Good leaders have to know as much about equipment maintenance, if not more, than their soldiers. If good leaders don't know, they find out!

Taking care of your soldiers means establishing appropriate clothing, equipment, and weapon's maintenance standards and procedures, and consistently enforcing them. Dirty weapons, deadlined vehicles, and unserviceable equipment equal combat ineffectiveness, and that is not what it means to take care of your soldiers. If your soldiers' "stuff" doesn't work, it could get them killed. Good leaders know all about these things and teach them to their soldiers.

Taking care of soldiers means enforcing HIGH STANDARDS. ALWAYS!

Taking care of soldiers also means establishing and enforcing a system characterized by high standards of personal appearance, professional conduct and military discipline. Poor performance must be consistently and effectively dealt with, and good performance must be consistently and appropriately rewarded.

You've even got to love the bad soldiers and do what's right for them and the Army, even if it means pursuing some form of punishment or even discharge from the service.

Bad soldiers take a lot of love and care, but a good leader cares. Bad soldiers become bad soldiers somehow, and that somehow is often a reflection upon the leadership they receive. Bad soldiers often take a lot of caring to make them good soldiers, but that is what good leadership is all about: getting the most out of your soldiers, the good and the bad.

Good leaders set the example, ALWAYS, both on and off duty. Professional conduct, characterized by high moral and ethical standards, is the name of the game. Good leaders are *disciplined*, and their behavior reflects that discipline both on and off duty. Remember, you are a leader 24 hours a day, seven days a week. Good leadership is not something you turn off at the end of the duty day. It follows you around like your shadow, always present, a constant reminder of your responsibilities. It cannot be shunned.

Taking care of soldiers also means that the leader must be technically and tactically proficient in all aspects of subordinate and unit performance. This is not an easy task. You already know that. It requires that leaders continuously assess their individual abilities and take appropriate actions to correct deficiencies and obtain and maintain required skills. When you are proficient, you then can ensure that your soldiers are. A leader must lead by example - deeds surely speak louder than words. You will not be able to fool your soldiers, they will know if you know what you are doing, so be prepared.

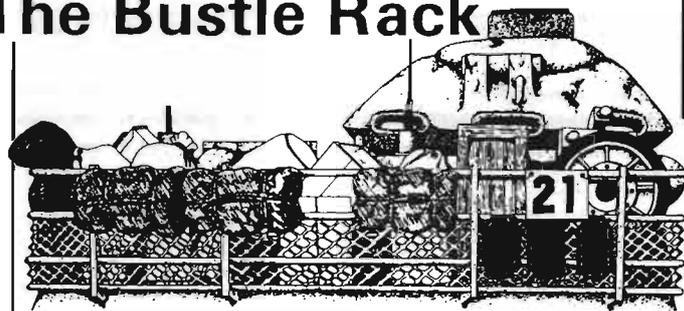
Well, SGT Richardson, what do you think? Sounds like a lot of things to do. You're right, but they're doable, without the knowledge of a lot of leadership theories. But this is by no means an exhaustive list of what it means to take care of your soldiers. It could never be. But I hope you now have an idea of what it *really* means to take care of your soldiers and thus be a good leader. But it takes work - hard work and practice - lots of it, so get started.

Remember, taking care of your soldiers means that you also have to love them. You have to love the good ones and the bad ones; and the bad ones often take a whole lot more love. This means having the courage to get the bad ones out of the Army, before they injure themselves and others. Loving means keeping the good soldiers in the Army, standing up for them in times of trouble, and readily admitting to them when you have made a mistake. If you do all these things, taking care of and loving your soldiers, you will be a good leader, and they will never let you down.

Major Joseph N.G. LeBoeuf is a 1974 graduate of West Point. A combat engineer, he is currently attending Command and General Staff College. Prior to CGSC, he was assigned as assistant professor and course director of the General Psychology course in the Department of Behavioral Sciences and Leadership at West Point. He has held a variety of command and staff positions in the United States and in Germany where, during his last tour, he was the senior aide to the VII Corps commander.

Abrams Live Fire (ALF) Vulnerability Test Proves the M1's a Survivor

The Bustle Rack



The Abrams Live Fire (ALF) Vulnerability Test, completed in July 1988, confirmed the Abrams is a "damn fine tank." Test personnel fired a total of 53 shots, covering the full range of potential threats, at the Abrams M1 and M1A1 without heavy armor. They tested every aspect of the tank armor with a combination of engineering and random shots. Although the tank is not impenetrable, the armor consistently stopped the rounds it was designed to stop, according to the TRADOC System Manager for Tank Systems.

When overmatching shots did not penetrate the tank, crew members (ballistic dummies dressed in the combat crewman's protective uniform) who were not in the direct penetrator path very often survived. The ammunition compartments endured severe tests by a wide range of threats and never failed. This fact alone confirms the vital necessity of implementing and enforcing safe loading procedures.

The Automatic Fire Suppression System (AFSS) worked well, proving the Abrams presents the least threat from fire of any tank in the world. The combination of the crew uniform (Nomex) and AFSS resulted in low vulnerability of crewmen to burns. It is important to note that the ballistic dummies always had the protective uniform on. Similarly, the ammunition doors were always closed, and the loader never had a round in his lap. To achieve the same results in the field will require enforcement of safe loading procedures, a significant leadership challenge.

The team tested Battlefield Damage Assessment and Repair (BDAR) in 26 of the 53 shots. Trained crews equipped with on-board tools and BDAR repair kits, and given two hours, were able to make significant repairs. Crews were able to restore to degraded gunnery or recover mobility nine times.

The Abrams was very often able to survive a great deal of damage and still retain some level of degraded firepower and mobility, as well as a functioning

crew. The Abrams' ability to take an overmatching hit and be able to continue the fight will require commanders to prepare crews to effectively continue to fight their tanks despite loss of a crewman and some loss of firepower or mobility.

The ALF test used a very high proportion of overmatching and flank shots, far in excess of expected combat conditions or historical analysis, and included projected threat capabilities of the 1990s. Despite this, the combination of our armor defeating the threat, crew protection by the ammunition doors, AFSS, and the crew uniform, and the tank's ability to retain function after an overmatching round, prove the Abrams is the most survivable tank in the world.

ARMOR BRANCH NOTES

Ranger School? Don't Ask

Armor Branch continues to get questions about attendance at Ranger School. The branch receives only 4-7 allocations in each Ranger class, and these are reserved for Armor lieutenants in the basic course. Due to the limited number of slots, other Armor officers cannot be considered.

Funding Cutbacks Limit Armor Branch Visits

Armor branch has had to limit branch trips by assignment officers because of funding cutbacks. Assignment officers are still being sent to installations with a sizable Armor population, and these visits are announced in the post daily bulletins. But at installations where trips are not scheduled, visits can only be arranged if the post has funds to cover the travel.

Branch Seeks Captains As Small Group Instructors

The Branch asks brigade and battalion commanders to help identify captains who would be effective as small group in-

structors at the Armor School. The job involves teaching, leading, and mentoring a 12-16-man class during its 16-week cycle. This is an opportunity for branch-qualified captains to stay close to troops.

TACOM Wants Experienced Tankers for R&D Assignments

Armor branch and the Tank Automotive Command are searching for Armor officers interested in Functional Area 51 (Research and Development) assignments which would help them apply their practical tanking experience to the field of R&D and equipment fielding. Ideally, candidates would begin entry-level training after branch qualification. After the initial 51 assignment, Armor Branch will assign the officer back for troop time as a major.

Reunions

The 20th annual reunion of the 11th Armored Cavalry Regiment will take place at Fort Knox July 14-15. Information is available from Bill Squires, secretary, at P.O. Box 11, Fort Knox, Ky., 40121 (502-624-2247).

The Air Cavalry Troop (Vietnam) of the 11th Armored Cavalry meets for its fifth reunion in Atlanta August 2-5. For additional information, contact James Angelini, secretary, at 2512 Lower Hunters Trace, Louisville, Ky., 40216-1352 (502-449-1220).

The national reunion of the 10th Armored Division is scheduled for August 31-September 4 in Milwaukee. Further information is available from Trixie Everett, 2845 Broadway #307, Boulder, Colo., 80304 (303-442-1829).

Correction

The Armor Conference agenda published in the last issue of ARMOR was typeset from an early, tentative planning paper and included the names of several speakers who were subsequently unable to attend. The staff regrets any inconvenience caused by the error.

LETTERS - continued from Page 3

With interest. I've read the articles and letters concerning light versus heavy tanks, two- or three- versus four-man crews, to auto-load or not to auto-load, etc. As a former Marine tanker (platoon commander and company XO in M60A1s) and transplanted mechanized infantryman (platoon leader and company XO in M2s) in the Mississippi Guard, I'd like to address these issues.

Concerning crew size, I'd like to propose the placement in the tank of a position for an observer. As a tank and BFV unit leader, I frequently found that commanding my own vehicle and directing the efforts of my unit were at odds: two vital functions fighting for the attentions of one, very busy lieutenant. Many's the time I wished that I could be taken out of the gunnery loop to concentrate my efforts on planning, deploying, developing situations, land navigation, reporting, and all the other tasks that suffered while I was busy fighting for my personal survival.

The advantages of an observer position are many. Put the company commander, platoon leaders, and platoon sergeants in them and your unit leaders can concentrate on leadership. When the time comes to dismount and talk to the company commander, or arrange for a LOG-PAC to find you, the tank is still a full-functioning combat unit. It seems apparent to me that, presently, a majority of the tank commanders have some primary leadership responsibilities (one CO, one XO, three platoon leaders, and three platoon sergeants - that's eight out of a company of fourteen). An observer position would enable those vehicle crews to concentrate on putting steel on target. I consider this to be the primary advantage of the idea.

What we have here is a place to carry, under armor, on the other two tanks that don't have unit leaders, a handy replacement for a casualty. How would you replace a TC casualty in a hurry? Send one of the observers over to gun, move the gunner up to TC, and hit the road.

There's a training bonus to this, also. Let's say that your unit is suffering some unusual personnel attrition, and you find untrained people thrust at you. Stick 'em in the observer position and have 'em watch and listen to the way you do things, without getting in the way.

Fine, you say, but where are you going to stick the extra warm body on your

present tanks? Guys, when that automatic loader everybody's fighting about becomes a reality - and it will; sooner or later, somebody is going to sell it to the Army on the basis of reducing crew size and saving personnel procurement money - have them keep the hatch and enough room at the loader's station for the observer.

Having made my point about observers, and hopefully generated some discussion on the subject, let me inject one bit about automatic loaders. The Navy has had an automatic loading system for a variant of the 5-inch gun for quite a few years, and it doesn't take any six to eight seconds to load another bullet. Just because the Russians can't seem to build one with a high rate of fire doesn't mean we can't. You folks also seem to forget one of the unsung bonuses of autoloaders: if properly designed, they can dramatically reduce the time necessary to reload the tank. If you don't think that's critical, perhaps nearly as critical as rate of fire in sustained operations, then you probably don't believe that the Israelis carry extra bullets in the cargo areas of their Merkava main battle tanks, either.

The one, single, documented advantage of autoloaders continues to be the constant rate of fire while maneuvering cross-country. We spend a bundle making the M1 a very capable fire-on-the-move system and then fling the loader about while he does his job. We need a better way.

None of this is new. I can but hope that observers and automatic loaders become articles of faith for future tankers...

BRENT R. COTTINGHAM
1LT, INF, MSARNG
Ocean Springs, Miss.

Master Gunner Candidates: Make Sure They Have The Right Skills

Dear Sir,

Who has the ability to graduate from the Master Gunner Course? Or better yet, who should attend?

Now, I know what sergeants major are thinking: just who does this guy think he is, telling me who should attend the Master Gunner Course? Let's just say I'm the guy who has to look your NCOs in the

eye when they fail. All of the NCOs who teach the Master Gunner Course want to help you, your NCOs, the NCO Corps, and our Army produce some of the most technically competent NCOs in the Armor field today, but we desperately need your help.

As the former command sergeant major of 2d Bn., 64th Armor, I tried to do the right thing when sending NCOs to the Master Gunner Course, yet some failed, and I couldn't understand why, until now. Just because he's a good NCO, tank commander, or platoon sergeant doesn't mean he has the reading and writing skills necessary to graduate from this course.

He must be mature, not only in age maturity, but also tank maturity. The prerequisites to attend the Master Gunner Course are in DA Pam. 351-4. However, there are NCOs reporting who do not meet these prerequisites. Sending them back to you is not the answer, and it puts them at a career disadvantage.

Receiving 100 percent on the Tank Commanders Gunnery Skills Test (TCGST) is a prerequisite to attend; however, some fail when tested here. They are failing a Skill Level 1 task (like breechblock). Why? Because everyone assumes the tank commander knows this task. You must receive 100-percent GOs, by the book, on the TCGST prior to starting the Master Gunner Course.

Look, I for one would not tell you how to run your unit Master Gunner program, but you and I know that, with the quality of NCOs in today's Army, and the competition for promotions, to fail any military school limits your chances for advancement.

Please help us help you. Send only those best qualified.

GEORGE J. YIP
CSM, 2d Sqn., 12th Cav.
Fort Knox, Ky.

Think Pictures!

When preparing stories for submission to ARMOR, remember that good illustrations - maps, photos, sketches - help us present your story better and increase readership. Even rough sketches can be the basis for illustrations that help make your point. —Ed.

New Book's New Look At the M1 Tank Calls It a Winner, Refutes Press Critics



King of the Killing Zone, by Orr Kelly. W.W. Norton & Co., New York, 1989. 288 pages. \$18.95

For any armor soldier or armor buff fed up with the miserable press coverage given the M1 tank - "the Army's troubled M1" is the way it usually appears - this new book by Orr Kelly, a veteran Washington reporter, will read like sweet revenge.

Kelly covered the Pentagon for the Washington Star and later, for U.S. News and World Report, and is presumably not a man easily snowed. His very positive account of the tank's development, backed by his credibility, should go a long way toward revising the public perception of the M1. The M1 is not just a good tank, but a great tank, Kelly concludes, subtitled the book, "The story of the M1, America's super tank."

To read the papers since the early 1980s, one would hardly think the M1 was even adequate, much less super. Every minor setback in the tank's progress has been criticized, often after the problems were solved, leaving the impression that the M1 was too expensive, too fragile, too complicated to use, too fuel-hungry to feed. The tank was lumped together with other real procurement fiascos and tarred with the wide brush of uninformed press criticism that could have killed the program. For a while, it appeared that every Pulitzer-hungry reporter in Washington was waiting in ambush.

Kelly's hypothesis is quite the opposite. Not only did the M1 team produce a great tank, he argues, but the program itself was masterfully handled. In lean, fact-filled prose, he explains the genesis of the program and the major benchmarks - the selection of the revolutionary turbine engine, the controversy over the adoption of Chobham armor, the need to increase the weight of the tank as a wise tradeoff for this new armor protection, the controversy over gun caliber.

Kelly is really a genius at simplifying complex land warfare issues and casting them in readable, yet accurate, terms. Many of the reporters who covered the day-to-day issues of the M1 controversy were well trained in reporting political infighting, but knew little about how wars were fought. As a result, the armor experts had a right to cringe and complain at what they read in their daily papers about a weapon they used successfully each day of their lives.

The "track life" controversy was just one of many examples. Early tests showed that the M1 wore out track pads much more quickly than called for in its design goals. But these goals were just that, marks on the wall. No tank track had EVER met these standards. In many cases, the reporters covering the Washington meetings didn't know that, and assumed that the tank's tracks were a failure. Other articles mocked the decision to use a turbine - "a helicopter engine" - as some sort of Army plot to gold-plate its key combat vehicle. Yet few of the reporters involved appreciated the need for dash speed in close-combat situations, and getting 60 tons up to dash speed requires a hefty engine, indeed. In short, many of these news stories lacked context.

Kelly's gift is to provide this context effortlessly. Interweaved through the account of the tank's technical development, there are chapters on tank warfare that place the developers' decisions in historical context, so that a reasonably intelligent general reader could understand what his morning paper never had the time or inclination to explain.

But even the specialized reader will learn a lot about the M1 in this new book. This reader was amazed to discover, for example, that Chobham armor was a last-minute addition to the tank, discovered accidentally by LTG William Desobry on a visit to England to witness firing of a new tank gun. The adoption of the armor dictated the final, angular shape of the tank

and added to its weight and volume. Kelly argues that this change was precisely the right thing to do and praises the development team for being nimble enough to include this remarkable feature without overly delaying the development process.

The book is so positive that one wonders if it will get the attention it deserves. Unfortunately, scandal makes better copy than success, and - also unfortunately - there is an atmosphere of stubborn distrust between the press and the Pentagon, a distrust that extends to the people who read the papers. This book may help redress the balance.

JON CLEMENS
ARMOR Staff

New Artillery Reference Introduces Book Series On Combined Arms

Field Artillery and Firepower, by J.B.A. Bailey. The Military Press, Oxford, England, 1989, 383 pages.

Major Bailey, an active-duty British artillery commander, felt there was a gap in professional literature on artillery tactical principles, how they were developed, and what the future might portend as a consequence. So, he set out to fill it, and he has done that, in spades, in this excellent work.

This is a scholarly effort (there are over 420 references in the bibliography!), and it occasionally reads like a textbook, but don't let that turn you off - Bailey is readable, interesting, and provocative.

The book addresses four areas: operational concepts, ancillary services, specialized missions, and the development of fire support. The last item reviews the evolution of artillery support from the era

of Frederick the Great to modern times, with considerable emphasis on recent conflicts and how fire-support tactics have changed. His treatment of Soviet artillery tactics is particularly interesting, as are his forecasts for NATO and the Warsaw Pact armies beyond 1990. And, discussions of armor and its impact on artillery developments are sprinkled throughout the book.

The details are quite up-to-date. Bailey discusses U.S. equipment that is still in the development stage, and he has done his homework well. The Vietnam extracts are factual, and the lessons learned clearly described.

Perhaps Bailey becomes most provocative when he gets into his discussion of the AirLand Battle and the growing importance of artillery in the deep battle, as opposed to the close fire-support role. He perceives both infantry and armor as pressing against their limiting parameters of development, with very little left to upgrade. But he sees artillery with far more flexibility and room to develop, both in materiel and doctrine, and the probability of becoming an offensive arm on a par with the other combat arms, rather than as just a supporting arm. Lots of room for argument here, but he makes a good case.

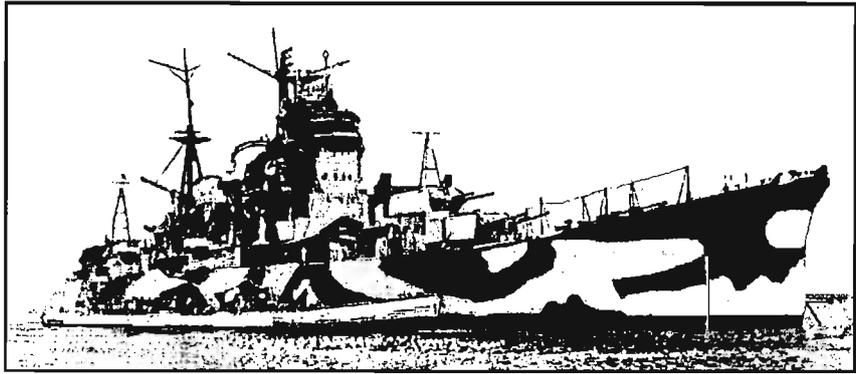
This is the first in a series of detailed studies of combined arms forces. If the rest are this good, soldiers, students, and researchers will have an outstanding source to use as their basis for professional debates.

JOHN BYERS
Arlington, Va.

Disarmament Treaties: How Much of the Past Holds True in the Present?

Scraps of Paper, by Harlow A. Hyde. Media Publishing, Lincoln, Neb. 1988. 456 pp. \$18.95.

The insistence on verification that accompanied the recent U.S.-Soviet strategic arms limitation talks has its basis in broken promises - the failed attempts of the major powers to limit the growth of the world's navies in the 1920s and 1930s. This new book, by a budget analyst with a love of history, reviews and analyzes this great, failed experiment. In doing so, he cannot help but raise questions about the



The Japanese "sneak" cruiser Myoto was limited by treaty to 10,000 tons displacement. In reality, she displaced over 13,000 tons, in violation of the Washington Treaty.

present efforts, perhaps the wrong questions.

Beginning in 1922, with the memory of WWI still recent, the world's great powers - then the U.S., Britain, France, Italy, and Japan - agreed to limit the number of battleships in their navies, the limits to be determined by tonnage. Like ICBMs today, the battleships were the key strategic systems of their era. Led by the initiative of the United States at the 1922 Washington Naval Conference, the diplomats agreed to take this first step, with hopes of later limiting other classes of weapons like cruisers, destroyers, submarines, and aircraft carriers.

The parallels are striking. Just as we watch Pershings being destroyed on the evening news, the world watched as the navies of the 1920s sent old ships to the scrapyards. The "battleship holiday" had begun. At first, it was not obvious that the holiday was a short one: in those days before reconnaissance satellites and SR-71s, it may have been fairly easy to verify that an old battleship had been destroyed, but it proved impossible to detect cheating on the new ships being built. Tonnage limits were not observed, especially by the Japanese, and later by others. By the mid-1930s, the agreements had become mere scraps of paper.

One result of the de-emphasis on battleships was that the technology of other weapon systems developed in the vacuum. When war came in 1939, the great battlewagons played very little part, while aircraft carriers, strategic bombers, and submarines - unregulated by the treaties - played major roles. Is there a parallel today? If we succeed in limiting intercontinental and intermediate ballistic

missiles, won't weapons like cruise missiles and SLBMs just get better to fill the perceived strategic gaps? In short, can we treat the symptoms of international distrust without treating the underlying disease?

The suspicious among us would point to the failed naval treaties of the past as evidence that such agreements are so much bean-counting. The treaty supporters argue that the agreements can work because global reconnaissance systems are better. But perhaps the satellites themselves are symbols of another reality, that nations are no longer in sufficient control to do the bargaining. Like the battleships, the very concept of national states may be obsolete. What nation can say it controls the international financial markets, the world-wide mass media, the international transportation net, the power of a religious concept, like militant Islam, that spills over national borders to inspire half the globe? What is the national loyalty of a multinational corporation?

Long before the Wall Street traders are awake each day, the London traders are setting the price of gold. The health of a New York bank can depend on the solvency of a poor, tiny, Latin American country. A satellite can penetrate the Iron Curtain to show us a glowing Chernobyl. And a "demilitarized" nation like Japan can rise to a prominence that makes both the West and the East uneasy.

Many will read "Scraps of Paper" to buttress an argument that the world will never change. Others will see in it evidence that it has changed irrevocably.

JON CLEMENS
ARMOR Staff



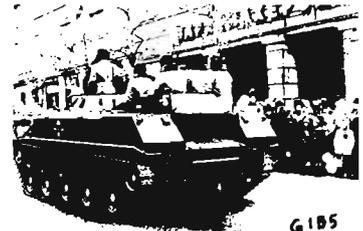
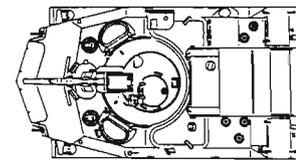
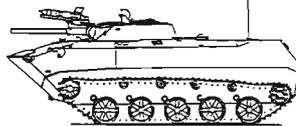
BMD



SOVIET AIRBORNE COMBAT VEHICLE



03A22



G105

BMD CHARACTERISTICS

VEHICLE CHARACTERISTICS

CREW	3 (cdr, driver, gunner)
PASSENGERS (capacity)	4
WEIGHT (mt)	7.5
GROUND PRESSURE (kg/cm)	0.57
LENGTH	
gun forward (m)	5.41
without gun (m)	5.41
WIDTH, overall (m)	2.55
HEIGHT, overall (m)	1.77
CLEARANCE (mm)	100-450
ENGINE	V-8, 240 hp, diesel
SPEED (maximum)	
road (km/hr)	80
water (km/hr)	10
FUEL CAPACITY (liters)	300
ROAD RANGE (km)	320
TRENCH CROSSING (m)	1.50
VERTICAL STEP (m)	0.90

GRADABILITY (°)	32
FORDING (m)	amphibious
ARMOR (maximum)	
hull (mm)	15
turret (mm)	23
INFRARED	
driver	yes
gunner	no
commander	yes
NBC PROTECTION	filtration and overpressure system

MAIN ARMAMENT CHARACTERISTICS

CALIBER (mm)	73
NUMBER	1
TYPE	smoothbore
TRAVERSE (°)	2A28

ELEVATION (°)	-4 to +33
RATE OF FIRE (rd./min) (Maximum/Sustained)	8/2-3
STABILIZATION	no
FIRE CONTROL	image intensifying
	1P9A22M1
	HEAT-FS,
	Frag-HE(FS)

AMMUNITION (Type)	
MUZZLE VELOCITY (m/s)	
AP-I	N/A
HEAT-FS	700
FRAG-HE (FS)	700
MAXIMUM RANGE (m)	2,200
EFFECTIVE RANGE, 50% Pb (m)	800-1,000
ARMOR PENETRATION (mm @ 0 obliquity @ 500/1,000 m)	
2A28	300 (HEAT-FS, any range)
2A28	40
BASIC LOAD (mt)	

SECONDARY ARMAMENT CHARACTERISTICS

MODEL	PMT
CALIBER (mm)	7.62
NUMBER/TYPE	1/coaxial MG,
	2/boom MG
BASIC LOAD (mt)	N/A

AUXILIARY ARMAMENT CHARACTERISTICS

TYPE	ATGM
MODEL	AT-3/SAGGER or
	AT-4/SPIGOT or
	AT-5/SPANDREL
LAUNCH RAILS/TUBES	1
BASIC LOAD (RD)	3

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98027 (Change 1) 8/81

This 24-by-27-inch poster of the Soviet BMD airborne combat vehicle is the fourth 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 Army-Wide Training Support Branch at AV 464-2914/5848 or 502-624-2914/5848.

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