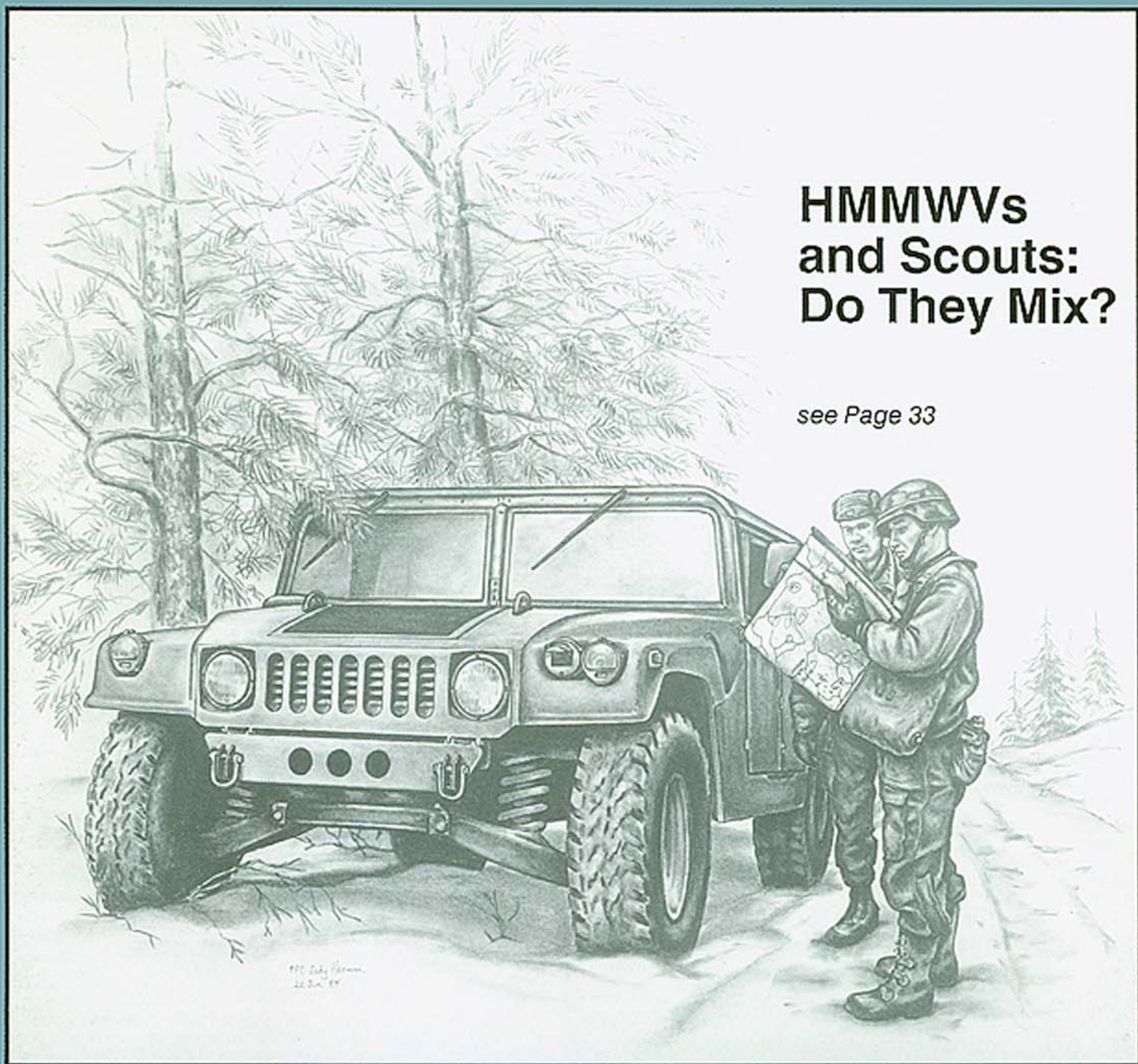


# ARMOR

## HMMWVs and Scouts: Do They Mix?

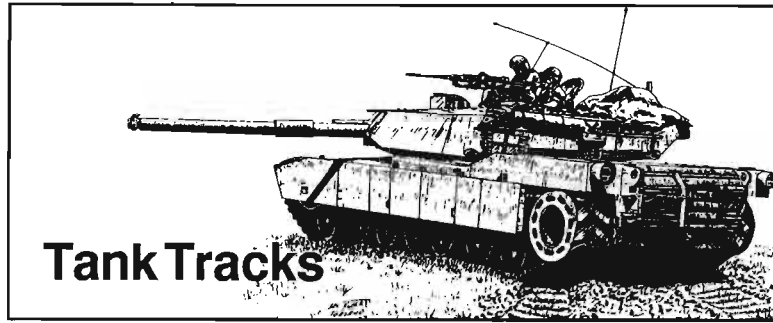
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PB 17-89-4

July-August 1989



In 1960, General Maxwell D. Taylor wrote in his book, *The Uncertain Trumpet*, "The determination of the United States strategy has become a more or less incidental byproduct of the administrative process of the defense budget."

The truth of this statement has not weakened over the last three decades. If it is possible to be even more true now than then, it is. But when coupled with the perception of a diminished threat to our national security, the two, hand in hand, can do more to effect our readiness than any other single pressure.

The INF Treaty, Mr. Gorbachev's initiatives, and U.S. responses have undoubtedly lowered the possibility of a conflagration due to a mistake or misunderstanding. But this sword has two edges, and that second edge has generated a feeling throughout NATO that peace has broken out, so why do we need all this expensive hardware?

This is not an unusual nor a new reaction. When the external threat ceased after our War for Independence, Congress disbanded the Army and sold the Navy.

While General Chaffee and others were fighting for the creation of an Armored Force between the World Wars, they received only \$60,000 for tank development from 1925 to 1939, when a clear and present threat emerged again.

But this time, the stand-down process seems to be moving at a faster pace than before. Over the past two months, defense periodicals have reported one NATO member after another taking budget action to kill upgrade and modernization programs. These unilateral measures require no

agreements or treaties. They just quietly go into effect. They form a big picture that may sound alarms to some folks.

What does all this mean to tankers and cavalrymen? Besides finding ourselves in the smallest Army since World War II, besides fewer and slower promotions, it means that we will have to make do with what we have now. We'll have to train better because we won't be able to train as often. We may have to do without Block II and III improvements to the Abrams. We'll have to get some more years out of our old recovery vehicles. We'll have to do more simulation than the real thing. We'll have less opportunity to serve overseas and to go to schoolhouse training. Here at Fort Knox, according to a recent article, there may be cutbacks or elimination of initial entry driver training, M1 Tank Commander Certification Course, M3 Bradley Scout Commander Certification Course, AOB gunnery training, M60A3 Master Gunner Course, and BNCOC. Officials are only looking at these programs as a source for savings, but they indicate which way the wind is blowing.

Every unit and installation will be forced to evaluate and cut. We will get lean. There is no choice there. But to stay mean is the real challenge. We've been through budget-slashing periods before, and we've made do with old equipment before. But we've not always been successful in the second part. Let's hope we've learned from the past.

The difficulty in making predictions is that we don't know what will happen in the future. So it might be a good idea to keep one hand on your wallet. — PJC

By Order of the Secretary of the Army:  
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Chief of Staff

Official:  
WILLIAM J. MEEHAN II  
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# ARMOR

*The Professional Development Bulletin of the Armor Branch PB-17-89-4*

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July-August 1989, Vol XCVIII No. 4

## Features

- 4 **1989 Armor Conference – Equipment Displays**
- 7 **Air Defense in the Covering Force Area**  
by CPT Steven W. Karaffa and 1LT Timothy J. Perez
- 11 **Employing Tanks with Collective NBC Protection**  
by Major F. R. Thomas, 8th Canadian Hussars
- 18 **The Acceptable Margin of Error**  
by SFC Thomas J. Lindsley and CPT Lloyd A. Davis
- 20 **Rehearsals: The Silent Requirement**  
by CPT James M. Warford
- 24 **Merkava Mk.3: Israel's New Spearhead**  
by Lieutenant Colonel David Eshel, IDF, Retired
- 26 **Passing Through the Eye of a Needle: Breach and Defile Operations**  
by LTC Thomas V. Morley and CPT Anthony J. Tata
- 33 **HMMWVs and Scouts: Do They Mix?**  
by MAJ Barry Scribner
- 40 **The Battalion Task Force S2-Scout Platoon Leader Relationship**  
by CPT Herbert R. McMaster Jr.
- 43 **The Soviet Operational Maneuver Group: Would It Work in Central Europe?**  
by CPT Gregory W. Grist
- 48 **Army Fitness and Combat Readiness**  
by CPT Michael W. Schweppe

## Departments

- 2 Letters
- 2 Contacts
- 6 Commander's Hatch
- 39 Recognition Quiz
- 42 Recognition Quiz Answers
- 50 Bustle Rack
- 51 Books

# LETTERS

## The Cost of "Looking Good"

Dear Sir,

I read with interest CPT Mark Reardon's article, "Camouflaging Tanks: A Lost Art?" (March-April 1989). CPT Reardon highlights many excellent points and shows that a little time spent honing camouflage skills in garrison will result in great gains in the field and in combat. What one would think are crafts acquired naturally through field exercises are actually perishable skills that require periodic refresh-

ment. There is one point brought out in the article that I would like to illuminate. He questions why, "...we go down Table XII without TA-50 and uncamouflaged?"

The answer to this question is simple: because we succumb to the pressures, from whatever source, of "looking good." We do this, unfortunately, at the expense of realistic training. I have been as guilty as the next guy of telling my platoon leaders to leave their gear in the cantonment area and have their vehicles negotiate certain tables "naked." My logic

at the time was that I wanted the crews to concentrate solely on honing their gunnery skills and not be bothered by load plans or TA-50 flapping in the breeze as they went downrange. Unfortunately, some seem to believe that one mark of a disciplined unit at gunnery is a bunch of aesthetically pleasing M1s and Bradleys prancing down the course road with large colorful signs attached to the rear of the turret. While there is an element of esprit generated by displaying unit regalia, it is often done at the expense of good training. I may have been more concerned

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with the visual impression my unit made on visitors to the range, rather than with the creation of a more realistic scenario, which forced the soldiers to contend with the realities of live firing from a camouflaged, combat-loaded vehicle. Unit ARTEPs cannot replicate the shock to the vehicle caused by live firing, and camouflage in the way of sights can easily be overcome with the MILES system.

This was, obviously, an incorrect approach. To fire gunnery tables on vehicles prepared for anything less than the manner in which they will be outfitted for combat is criminal. Even the preliminary "warm up" tables cannot be fired in a fish-bowl. With our current "train as we will fight" philosophy, we must resist the urge to incorporate incorrect barometers of success and discipline at the expense of preparing ourselves correctly for combat. In our Army today, there are many examples of gunnery fired from fully geared, camouflaged machines. In some places, however, our focus has become skewed. A better mark of success would be how well a unit can maintain its load plan and camouflage throughout the entire gunnery cycle, rather than how well it can secure its gear in the cantonment area for most of the tables, in order to have the equipment standing tall for the platoon and/or company battle run pre-combat inspections. Yes, there will be leadership "sessions" for crews that have vehicles resembling gypsy-wagons. Yes, the timeliness of that all-important first round downrange and the number of crews fired may suffer (figures which are routinely associated with range efficiency, but not necessarily with the quality of training on the range!). Yes, a run might have to be interrupted while a loader polices a Kevlar incorrectly secured to the turret. And yes, some folks will cite local safety regulations that prohibit negotiating the course with TA-50 on board, and vehicles camouflaged.

Next time vehicles go to gunnery and I'm in a position to make the call, they'll be uploaded with TA-50 and camouflaged throughout the tables. I'll take the heat for the occasional gypsy-wagons and lack of gunnery signs, (we'll put ours on the tower and in the cantonment area). I'll accept the criticism when the first round downrange is not fired precisely at the moment the range OIC receives a firing code. And I'll work to ensure that no range safety guidelines are violated in the process. If we don't take the time, Army-wide, to do it correctly now, we won't have the time to fix it when the targets start shooting back.

WALTER F. ULMER III  
CPT, Armor, Fort Myer, Va.

## Woodland Camo Works In Urban Areas, Too

Dear Sir:

I read with interest Captain Mark J. Reardon's article, "Camouflaging Tanks: A Lost Art," in your March-April 1989 issue. As the principal investigator in a 1981 U.S. Army Berlin Brigade study on urban camouflage, published by MERADCOM in 1983, I have some additional observations on urban camouflage.

Captain Reardon made the comment that typical camouflage techniques would probably not be useful in an urban environment. The studies that I conducted did not bear this out. We found that the woodland camouflage screen system was very effective in reducing visual detection of target vehicles in an urban setting as long as some basic guidelines are followed:

- The object to be camouflaged is placed in a visually dense area. The more complex the background, the harder it is to detect the object.

- The object is placed in large, shadowed areas. This stops the object's shadow from negating the camouflage effect of the screen.

- The object is placed in an area with limited exposure to aerial observation. The shorter amount of time available for aerial observation reduces the chances of detection.

When U.S. Army vehicles, painted gloss OD, were parked in urban areas of Berlin using the above guidelines, they were virtually undetectable by airborne observers flying at less than 300 feet. You will notice that the same rules applied to camouflage in a normal field environment are also conducive to good urban camouflage.

PATRICK J. COYLE  
Columbus, Ga.

## A Bridge Too Far?

Dear Sir:

I appreciate Colonel Beardslee's kind remarks concerning my assault bridging article that appeared in the November-December 1988 issue of ARMOR.

However, I cannot let his remark concerning an inaccuracy go unchallenged. Israel Military Industries was originally contracted to develop and fabricate for test a

32-meter Heavy Assault Bridge (HAB). This length bridge required the use of composites, and their use was encouraged by BRDC. There were problems, probably not unsolvable, encountered in this length bridge and the use of composites. However, instead of setting about solving the development problems, the Army reviewed and revised its requirement. It seems more than coincidence that the new requirement document, decreasing the requirement to a 26-meter gap crossing capability and accepting the option of a horizontally launched bridge instead of the previously dictated folding bridge, followed shortly after a German company proposed that the Army buy its bridge. The German bridge is a horizontally launched 26-meter gap crosser.

I believe Israel Military Industries is reducing the length of its bridge preparatory to a "bridge off," or whatever a competitive test might be called. It looks like a case of the Army starting off in one direction and then relooking at its requirement when outside factors came into play. It is no wonder that the Army has a credibility problem with its requirements system and that there is concern with spending money that need not be spent.

There was more behind my "inaccuracy" than meets the eye.

PHILIP L. BOLTE  
BG, USA, Ret.  
Burke, Va.

## The HMMWV Scout Platoon

Dear Sir:

Having recently attended the Armor Conference, I was interested in the proposed Battalion Scout Platoon MTOE (10 HMMWV, 4 motorcycle). It makes a lot of sense. Our past organization did not fit our doctrine, and our manuals did not adequately address the missions of the battalion/task force scout platoon. My personal experience at the National Training Center, and conversations with similar veterans, echoes this belief. More and more focus falls upon this key organization.

The NTC experience brings out a number of key issues over and over again.

- Many battalions over-task their platoons. They gave them too many missions, too much ground to cover, and lit-

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*Continued on Page 53*

# Armor Conference 1989

## Equipment Displays Included

### Up-armored Bradley, Armed OH-58, and Mine Roller Set

#### Up-Armored Bradley

The Up-Armored Bradley has new conventional armor bolted to the top, front, and sides, to provide 30-mm ballistic protection. Interior spall liners provide additional protection. The Army Chief of Staff has directed that the issue of reactive armor be re-examined, so the new conventional armor provides mounting points for up to 105 reactive tiles, thus facilitating future upgrade plans.

The M3A2 Cavalry Fighting Vehicle (CFV) comes complete with the armor upgrade. In Europe, a fielding plan is currently refitting M3A2s with the new armor.

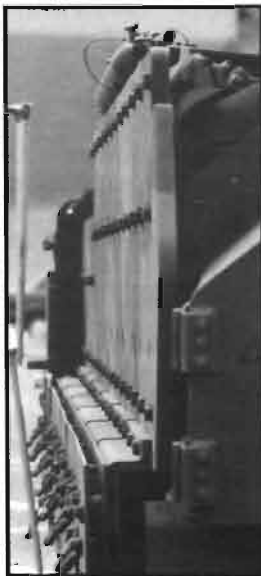
Steel applique sheets cover the front and back decks, and the rear cargo hatch, has additional steel applique armor.

Photo below shows steel applique side sheets and spaced laminate steel armor lower side skirts. Some of this skirt armor must be removed to perform maintenance tasks.

Close up at far right clearly shows the additional turret ring protection with provisions for armor tiles.



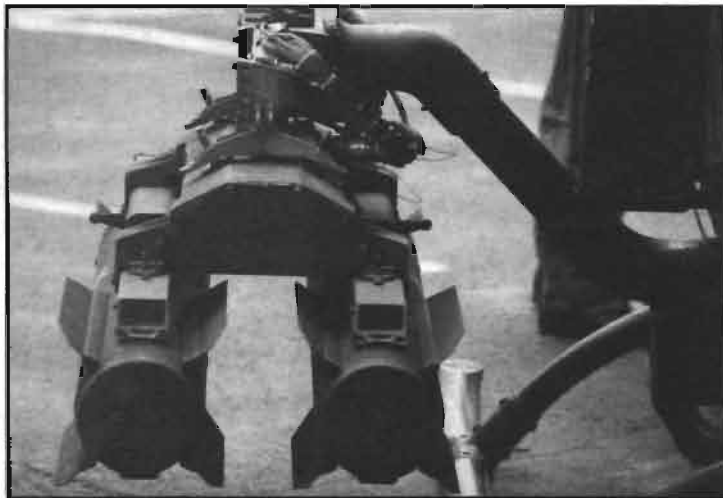
Steel applique plates reinforce the upper and lower glacis, the front deck, and the engine access door. A new ring of steel applique protects the turret, and both the commander's and gunner's hatches have an additional steel casting.





### M1 Mine Roller Set

This new mine-clearing roller is part of the M1 Battalion Countermine Set, consisting of four mine clearing rollers, six mounting kits, four cleared-lane marking systems (CLAMS), four CLAMS mounting kits, and 12 mine-clearing blades. Each roller can absorb the detonation of two anti-tank mines while clearing a lane. The CLAMS mounts on the back of the tank and marks the lane with chem lights. The battalion countermine set has completed testing and will begin fielding in September of 1989.



### Armed OH-58

Photo at left shows an OH-58D armed with the Hellfire anti-tank missile system. The Armed OH-58D can carry either four Hellfire missiles or eight Stinger air-to-air missiles. Currently, the Armed OH-58D is fielded with the XVIII Airborne Corps.

# COMMANDER'S MATCH

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



## Fighting a Two-Brigade Roundout Division

Heavy divisions based in CONUS may find it necessary to fight initially with only two maneuver brigades because their reserve components (RC) may not be able to link up in theater for 30 days. Forward-deployed brigades may be decisively engaged and unavailable to their parent division. Divisions will often fight under strength, but working without an entire major subordinate command presents a new challenge: How does the commander constitute a maneuver reserve?

The commander recognizes the need for a reserve, but he must decide how to build and control this essential element. His cavalry squadron is the one unit in the division which has the CS and CSS base to allow it to fight additional maneuver units efficiently. With the attachment of combat maneuver units from the two brigades, and reallocation of CS and CSS, the cavalry squadron can become a nucleus for this third maneuver unit, or cavalry battle group. The squadron support system can absorb a maximum of four companies taken from the two brigades. When the brigades lose companies instead of an entire battalion, they retain their own capability to form a

reserve, and the battle group's command and control span does not exceed its capability. If the division commander decides that more combat power is needed for the battle group, he can attach one or more battalions to the cavalry, along with staff augmentation from the division, and utilize the cavalry headquarters as a major subordinate command.

Fire support for the roundout division is limited because one of the direct support (DS) artillery battalions is either part of the Reserve component or is assigned to the forward-deployed brigade. The two organic DS artillery battalions will be committed in support of the forward forces, while a supporting corps cannon battalion, if assigned, will initially be in general support. When the division reserve is committed, the corps cannon battalion must be given an on-order mission to provide direct support. A fire support element is normally provided to the divisional cavalry headquarters from DIVARTY, as are FISTs, so there is no need for an ad-hoc structure to integrate indirect fire support. In the case of a roundout division, the RC brigade's slice of engineers, ADA, and CEWI

could be made available to support the cavalry battle group.

When the battle group is approximately task force size, it can continue to draw support from the division main support battalion, as the cavalry squadron does presently. The battle group will receive medical evacuation and clearing station support on an area basis. Should the commander form a battle group of brigade size, the DISCOM will have to be restructured to provide an ad-hoc forward support battalion for the new organization.

Considering its limitations, how might the commander use this cavalry battle group? The battle group's high mobility and possible task organization would be ideal for a reserve mission to add depth and resiliency to the defense. The battle group could be assigned a separate sector along a secondary enemy avenue of approach in an economy-of-force role. This would enable the division commander to weight the main effort astride the most dangerous avenue of approach, and would free a brigade to be a strong

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*Continued on Page 42*



# Air Defense in the Covering Force Area



by Captain Steven W. Karaffa and  
First Lieutenant Timothy J. Perez

*"...Half an hour before, at 7 A.M., the order had come from the Kompaniechef to be prepared to move at 0800 hours, but to remain meanwhile in positions of observation. These were on the high ground south-east of Wolfenbuettel, and Klaus was a Zugfuhrer, in charge of his own and three other Leopards in 16 Battalion of 3 Panzeraufklaerungsregiment... Half an hour later, the position was very different. The whole of his company was advancing, in the usual tactical order, with two platoons moving to the next tactical feature about 1 kilometer ahead, supported and covered by the other two in fire positions... 'Ganz schnell vorwaerts!' came a sharp radio order to him as his four tanks moved carefully forward to the ridge a half a kilometer ahead, jinking from side to side as they went so as to provide a difficult target.*

*Suddenly the world was full of express trains shrieking past. Enemy armor-piercing shot! He fired his smoke protective shells at once and changed direction, telling his platoon to conform, to seek the cover of a small copse ahead to the left. The sky appeared to fill with huge predatory helicopters bearing strange markings, and worse, with rockets issuing from their undercarriages. The Leopard next to him stopped, smoke pouring from it. One crewman*

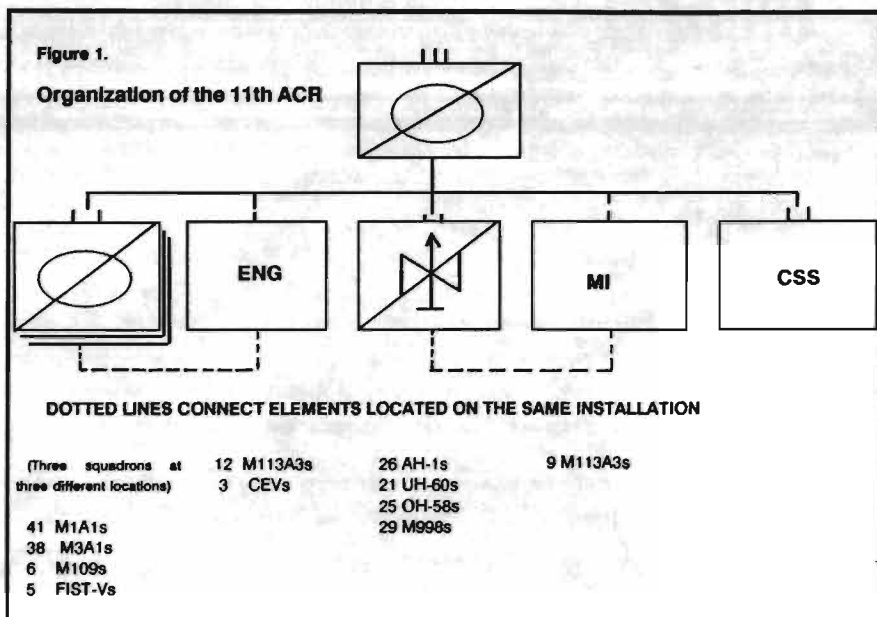
*scrambled out, another got to the turret and fell back, a shattered trunk. Of all the absurdities, there occurred to Klaus at this very moment a phrase which had been hammered home to him and his classmates at the Panzerausbildungsschule so often and so emphatically. "The great thing about the Leopard tank, which makes it superior to all Allied, as well as Soviet tanks, is its agility. It gives you protection through speed..." Klaus thought, 'Protection through speed, eh? Was fuer Quatsch ist das!' What rubbish! He jumped to the ground and ran. A moment later the whole Leopard exploded in a shambles of twisted metal, equipment, human wreckage, and indescribable mess of war."*

*The Third World War  
General Sir John Hackett*

*...The armored cavalry regiment is a powerful battle formation. However, it has its 'Achilles Heel.' As illustrated, covering force units are woefully short of organic air defense artillery support. Currently, American armored cavalry regiments are authorized only one ADA platoon, consisting of 24*

Stinger crews. The scarcity of this combat multiplier, combined with the ACR's numerous ADA demands, force the regimental commander to position his Stinger crews only with his most vulnerable/critical and least recuperable assets. Additionally, the prime mover of these crews is the M998 HMMWV. While a great improvement over the M151A2, the HMMWV provides only limited cover for the Stinger crew. Consequently, limited regimental ADA assets are deployed across the CFA but are generally too few in number, and too vulnerable, to totally meet all the ADA needs of the regiment. Given the scope and demands of the cavalry mission, this shortcoming could prove extremely costly in a conflict with a modern and highly sophisticated enemy force.

The obvious solution to the regiment's dilemma is to outfit it with an ADA battery fully capable of the forward support mission. The reality of this situation is that fielding of this battery will be delayed until the mid-1990s, due to fiscal constraints and production difficulties. The immediate problem, then, becomes "how does the ACR solve



its forward ADA problem under its current TO&E?"

### CFA in Defense Criteria

In searching for an answer to the covering force area air defense problem, the response must adequately consider the following requirements: flexibility, command and control (C<sup>2</sup>), suitability of firing positions, cover, mobility, and probability of kill.

Flexibility refers to the element's capacity to perform all missions quickly and effectively. If required to perform an air defense task in conjunction with its primary function, the two requirements must minimally conflict.

Command and control is critical, due to the integrated nature of ADA operations not only within the regiment, but also with the corps. It is essential that CFA air defense elements receive timely airspace management and early warning information in order to fully realize their potential on the battlefield.

Vehicular cover must be sufficient to protect the crew from the hazards of the CFA. This cover may

be due to the construction of the vehicle or a combination of the vehicle and engineer works. Firing positions provided by the CFA air defense asset must enable it to defend its associated formation from rotary wing air attack. Specific attention must be focused on locations that offer good to excellent observation and field of fire, concealment, and communications. The mobility criterion dictates that the vehicle must be capable of keeping pace with the M1/M3 family of vehicles.

Finally, the aerial effectiveness of this element's weapons must be scrutinized. In the CFA, the primary threat to the ACR is rotary wing aircraft employing high speed, low-altitude attack profiles. The designated air defense element in the CFA must have a weapon with sufficient range and kill probability to destroy the target with the first or second round. It is only through an optimum combination of the previously cited characteristics that the ACR will establish an effective and credible CFA air defense ability. Due to the combined arms nature of the ACR, a regiment has a wide variety of options to consider in meeting this challenge.

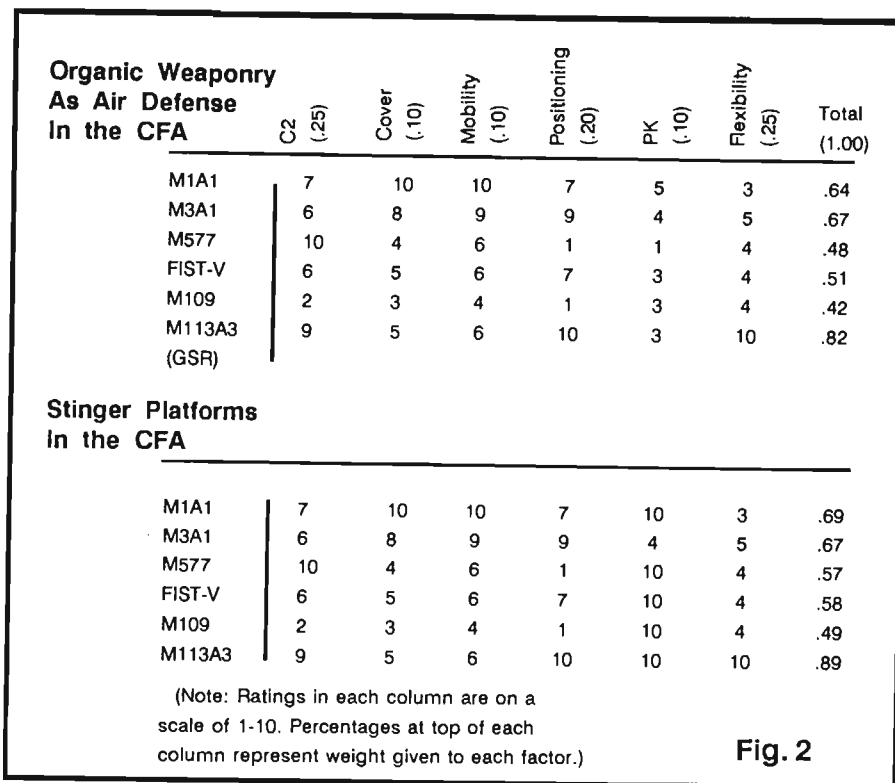
### Regimental Options

An armored cavalry regiment consists of three ground reconnaissance squadrons, one combat aviation squadron, one combat support squadron, a separate military intelligence troop, and a separate combat engineer company.

Figure 1 shows the current garrison organization of the 11th Armored Cavalry Regiment. The major combat systems for each organization are listed below its unit symbol. This chart clearly indicates that the ACR has numerous candidates capable of providing some degree of air defense in the CFA. The options fall into two basic categories: those elements capable of providing air defense through their system's organic weaponry, or those systems serving as platforms for Stinger crews or weapons.

To provide forward area air defense through such weapons as the Bradley's 25mm or the M1's main gun has some advantages. However, the disadvantages greatly outweigh its merits. To rely on the organic weaponry does not significantly disrupt troop internal operations. It does, however, pose the following problems. First, weaponry organic to the M1 and M3 lacks the range to nullify hostile air attacks before it reaches its ordnance release lines (ORL). Consequently, the M1/M3 system may destroy its target but still fail in its air defense mission. And second, the target array presented to a cavalry troop facing a hostile ground force supported by close air support (CAS) will appear overwhelming.

These M1/M3 crews face a significant but not insurmountable challenge. To add a third dimensional task merely serves to complicate and intensify the situation. A system specifically devoted to countering an air threat would greatly enhance the cavalry troop's probability of success in this scenario.



**Fig. 2**

The matrices in Figure 2 compare various systems in the air defense role. Each category is weighted in accordance with its relative importance to this mission. The matrix at the top of the chart compares systems with organic weaponry in the air defense role. The lower matrix contrasts various platforms with regard to their ability to accommodate the air defense mission and Stinger crews and/or weapons.

From this comparison and the previous analysis, it is evident that the "platform" option to the CFA air defense dilemma is the superior solution. Of the various platforms available, the GSR M113A3 is the clear favorite. This platform, though, is not capable of accommodating a Stinger crew. Rather, each GSR M113A3 could be allocated two or three Stingers per track for use by the GSR crew.<sup>1</sup> This solution permits the ACR's Stinger platoon to remain focused on its established priorities while extending the regiment's air defense depth forward.

### **Blackhorse STUNAR: Stinger Under Armor**

The 11th Armored Cavalry Regiment's solution to the forward area ADA challenge is to place Stinger under armor. Known as STUNAR in ADA battalions, this concept places Stinger crews into M113 armored personnel carriers. These APCs then deploy with armored or mechanized maneuver formations. While the 11th ACR does not have the resources to place Stinger crews into its own APCs, it does have an option that achieves the same result. This solution, which is proving successful, is to equip ground surveillance radar (GSR) crews with Stinger weapons. Once trained in the use of the weapon, the APC-equipped GSR crews will provide credible and effective forward area air defense.

Ground surveillance radar teams are attached to cavalry troops for the surveillance of critical areas in the covering force. Doctrinally employed along the FLOT, GSR

crews are usually found well forward of friendly battle positions or along flanks. In order to maximize the capabilities of the GSR system, crews are located in areas that afford clear observation and fields of fire. Additionally, these crews operate primarily at night or during periods of limited visibility. The Stinger weapon, on the other hand, is principally a "daylight" system. Stinger gunners require weather conditions that offer excellent visibility, for two reasons. First, the crew must visually detect the aircraft before engaging. Consequently, the range fan of the weapon is directly dependent on the ability of the crew to spot the target. Second, the Stinger crew normally must positively identify its target before engaging. Clear atmospheric conditions greatly aid this task. Thus, it is clear that GSR and Stinger systems will rarely be used simultaneously. The GSR/Stinger crew's primary and secondary missions, therefore, do not readily conflict.

The overriding consideration in the GSR/Stinger concept, however, is that the surveillance mission remains the primary task of the crew. It is imperative that the cavalry troop commander understand that he is not receiving a Stinger crew, *per se*, but rather a GSR crew with air defense capabilities. With this point clear, the GSR/Stinger crew is free to maximize its contribution to the cavalry troop. The GSR/Stinger crew, when doctrinally employed, extends air defense coverages deep into the covering force area while offering the troop commander the unique opportunity to focus the capabilities of this valuable asset at the critical moment.

Air defense artillery operations within the 11th ACR are centralized under the control of the MANPADS platoon leader and coordinated through the regimental airspace management element

(RAME). The activity of GSR crews, as alluded to earlier, is independent of the ADA platoon and is under the control of the squadron S2s. Positioning of GSR crews is solely a function of their GSR mission. The ADA platoon monitors GSR activity through the squadron tactical operations center (TOC). Based upon current GSR positions, the ADA section leader, who supports the squadron and is located at the TOC, determines the Stinger coverages of the GSR crews and integrates them into his own squadron ADA plan. Subsequently, this information goes to the platoon headquarters and the RAME so that a coherent regimental ADA scheme can be developed. Similarly, the ADA section leader passes early



warning and airspace management information to the GSR crew through the squadron TOC. This relationship between the GSR and ADA platoons retains the necessary communication links to diminish the possibility of fratricide and increase the Stinger probability of kill, while allowing the squadron to retain independent control over a valuable intelligence and air defense asset.

The benefits of this air defense plan are threefold. First, to deploy Stinger weapon systems with GSR crews provides maximum early engagement for the regiment as a whole, and the cavalry troop in particular. Second, it allows the regiment to execute an ADA plan that has significant depth. And third, it permits the squadron and its subordinate cavalry troops considerable flexibility in the use of forward air defense assets. The overall benefit to the regiment cannot be overstated. By filling the forward area air defense gap, this GSR/ADA marriage has shielded a serious ACR vulnerability and greatly strengthened its general ADA posture.

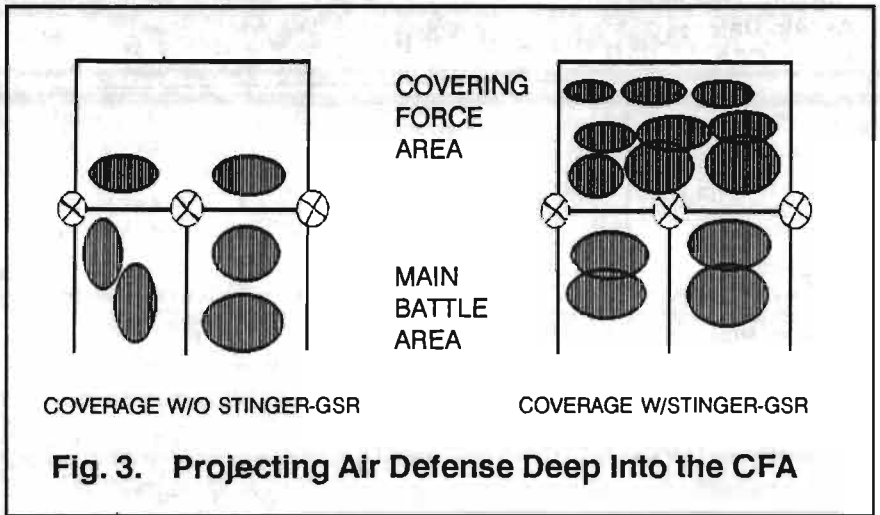
#### Note

<sup>1</sup>These missiles originated from the Regiment's Stinger Platoon. Each Stinger crew

had one weapon round subtracted from its basic load of six missiles. The reallocation left the Stinger platoon with 120 missiles and pushed 24 missiles forward to the GSR platoon.

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**Fig. 3. Projecting Air Defense Deep Into the CFA**

# Employing Tanks with Collective NBC Protection

by Major F. R. Thomas,  
8th Canadian Hussars

*NATO forces can initially expect to conduct defensive operations against more numerous Warsaw Pact armored forces. As the only kinetic energy tank-killing system presently available, tanks have a key tactical role to play in any antitank battle. Moreover, in view of the apparent closing of the technological gap between NATO and Soviet main battle tanks (MBT), the crews of Western tanks can no longer rely on the qualitative edge of their equipment to ensure success in armor engagements. The greater efficiency on the part of NATO tank crews must now be the factor that gives an edge to the performance of NATO tank units.*

Unfortunately, not only does the USSR have numerical superiority in tanks, but its forces also have a massive offensive chemical capability. The use of chemicals by the Warsaw Pact would force NATO troops to wear individual protective ensemble (IPE). Chemical collective protection offers an alternative to the wearing of IPEs, particularly the mask.

There can be no doubt that wearing a chemical mask degrades efficiency, as anyone who has worn one can testify. Most masks are not compatible with tank optical and weapon systems. Eating, drinking, and even breathing is made more

difficult. The mask in its present form restricts vision and speech. Crews member lose their personal identity behind their masks. Improvements to masks are being made but, at present, the ability to fight the tank without the requirement to wear masks improves the efficiency of that fire unit. Therefore, equipping tanks with collective NBC protection that permits the removal of masks enhances the tactical performance of NATO units and may be the factor that gives such elements an edge over their more numerous opponents.

There is another important reason for equipping tanks with collective

NBC protection. The interior of a tank may never be successfully decontaminated once contaminated by either a vapor or liquid agent. "Vehicle NBC systems cost a certain amount of weight, armored volume, and power. The main justification for them could be the virtual impossibility of cleaning the inside of a tank once it has been contaminated by either modern chemical agents or radioactive liquids or dust."<sup>1</sup> Collective NBC protection provided by the overpressure systems found on most present-day tanks can prevent contamination by agents in the form of vapors, provided the tank operation is closed down and correct crew entry drills do not permit the



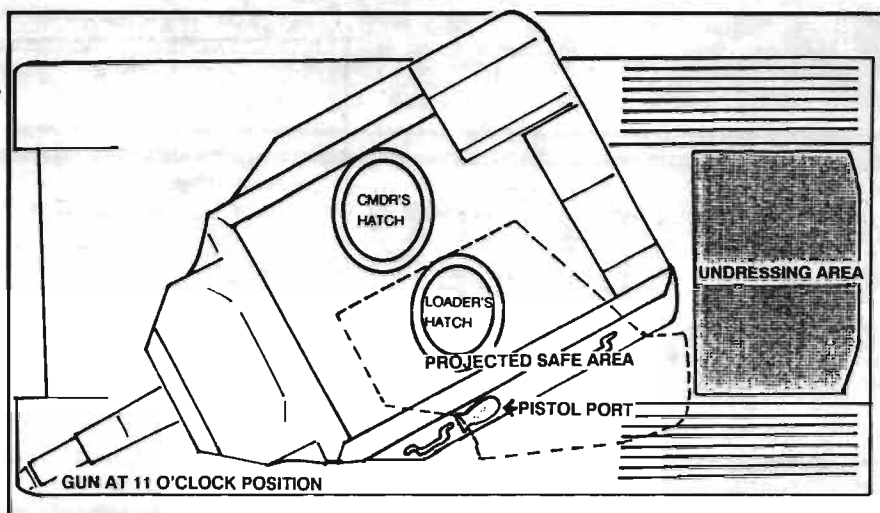
**Figure 1.**

*Loader assists driver in removing chemical suit before re-entry.*

induction of agents in liquid form. The danger has been demonstrated in tests that show vapors and liquids can be trapped in various crevices and fittings for days, thus constituting a long-term hazard. Collective NBC protection is necessary to prevent interior contamination.

Because most tanks, at least in NATO's central region, are equipped with collective NBC protection, it is important for armor officers, and indeed any officer involved in armor operations, to consider the command decisions and staff problems associated with the use of tank collective NBC protection in a chemical warfare environment. Some major decisions are required, although some, at first glance, appear quite simple. Each decision will require staff action both before and after the commander makes his choice as to the course of action to follow.

The first major decision is whether to operate tanks equipped with chemical protective systems with hatches open or hatches closed. This question is more important than it first appears because present collective NBC protection systems require the hatch to be closed to provide guaranteed protection. Operation with hatches open requires the crew to wear masks and risks the possibility that contaminants could get inside tanks. There are, however, some limitations to operating closed down that might make commanders hesitate before deciding. Crews have reduced vision, which affects tactical handling of the tank and even straightforward movement. Reduced visibility results in slower target acquisition, slower speed of engagement, and more chance of being surprised, both by hand-held antitank weapons systems and those on helicopters.



**Figure 2.**  
*Dotted line defines safe area on tank deck and turret.*

Before a commander accepts these limitations, he would want to know the chemical threat. In this decision, and in discussion of others that follow, the importance of chemical intelligence will be obvious. Intelligence staffs must make assessments of the chemical threat, with its implications in terms of indicators and intelligence collection plans. They must quickly disseminate this information to those who need to know. For example, rail-loading tanks while buttoned up at night is quite a task. Yet formations such as Canada's 4th Mechanized Brigade Group, located well to the rear, could expect to be the target of a chemical attack with a persistent agent. The reaction time lost loading closed down would have to be weighed against the risk of being surprised with hatches open. Chemical intelligence is required.

Reserves closer to the Warsaw Pact penetrations can also expect to be targets. An alternative to closing down the tanks of these reserves may be to move them so frequently that they are difficult to target for chemical attack. In addition to the chemical intelligence required to use this alternative, staffs will have the additional problems of finding space, not only to place such reser-

ves on the ground, but also the roads on which to move them. Resupply of such frequently-moved forces brings further staff headaches. Of course, the threat from conventional artillery closer to the main battlefield may force closed down operations even if the threat from persistent agents has lessened. However, closeness to the enemy doesn't mean that there is no chemical threat. The potent combination of firepower and cross-country mobility represented by armored units make them a worthwhile chemical target at any time. The commander of such a valuable asset must deliberate carefully before taking the risk of operating with hatches open.

A commander operating his tanks with hatches closed faces another decision. "When should crews exit this collective NBC protection?" The dimensions of this decision are best understood after examining what is involved in leaving and then reentering a tank with collective NBC protection. The Patterson exit and reentry drills<sup>2</sup> used by Canadians can be broken into three distinct phases: exit and maintenance phase, replenishment phase, and reentry phase. These drills were developed to allow two

crewmembers to exit protection to bomb up the tank and carry out necessary maintenance.

To exit, the turret is traversed to eleven o'clock, which allows the driver to enter the loader's compartment. All the crewmembers put on full individual NBC protection. The driver and loader then exit through the loader's hatch, taking with them their personal weapons, detector kits, and decon mitts. Once the hatch is closed, the remaining crewmembers decontaminate inside around the hatch seal. Once outside, the loader checks for liquid contamination. If he finds liquid contamination, he establishes a SAFE AREA (See Fig. 2). He prepares it using decon apparatus, which is stored in an outside bin. He also decontaminates the area around the pistol port. There is a 30-minute waiting time to allow the decontamination to take effect. Obviously, the two crewmembers outside must take care not to contaminate this SAFE AREA. While the loader is carrying out these decontamination tasks, the driver disposes of the disposal bag and dismounts to carry out his checks, as well as erase vehicle tracks if required. Once the loader has finished spraying the decontamination, he would check the turret machine gun optics and radio antennae. After the 30-minute waiting period, the decontamination on the SAFE AREA is washed off. Natural camouflage would have to be removed from this area by both crewmembers. The echelon with ammunition and other supplies may well arrive before the SAFE AREA is ready. Then a protective sheet may have to be laid to keep uncontaminated stores from touching agents on the turret.

Resupply is done first. Stores that cannot fit through the pistol port are then placed on the SAFE

AREA or protective sheet, if uncontaminated. Ammunition is passed up to the pistol port in its protective canister with its end removed. The loader holds the open-ended canister to the pistol port, and the crewmember inside would pull the round from its canister by the base clip. When everything that can fit through the pistol port has been passed through, the port is closed and decontaminated on the inside. Stores placed on the SAFE AREA of the turret are then passed in, checked for contamination, and decontaminated if required. Handling these stores requires decontamination of the gloves of all crewmembers. Once all the stores have been passed inside, the loader's hatch is again closed and crewmembers on the outside prepare to reenter.

First, they have to replace camouflage. Imagine the problem of avoiding the SAFE AREA at night while doing this! Chalking the SAFE AREA helps. Camo nets, if being stowed, must be decontaminated and wrapped in protective sheets because contamination can linger for weeks. Once these preparations are complete, the driver stands beside the SAFE AREA and removes his overboots and IPE, except for mask and gloves.

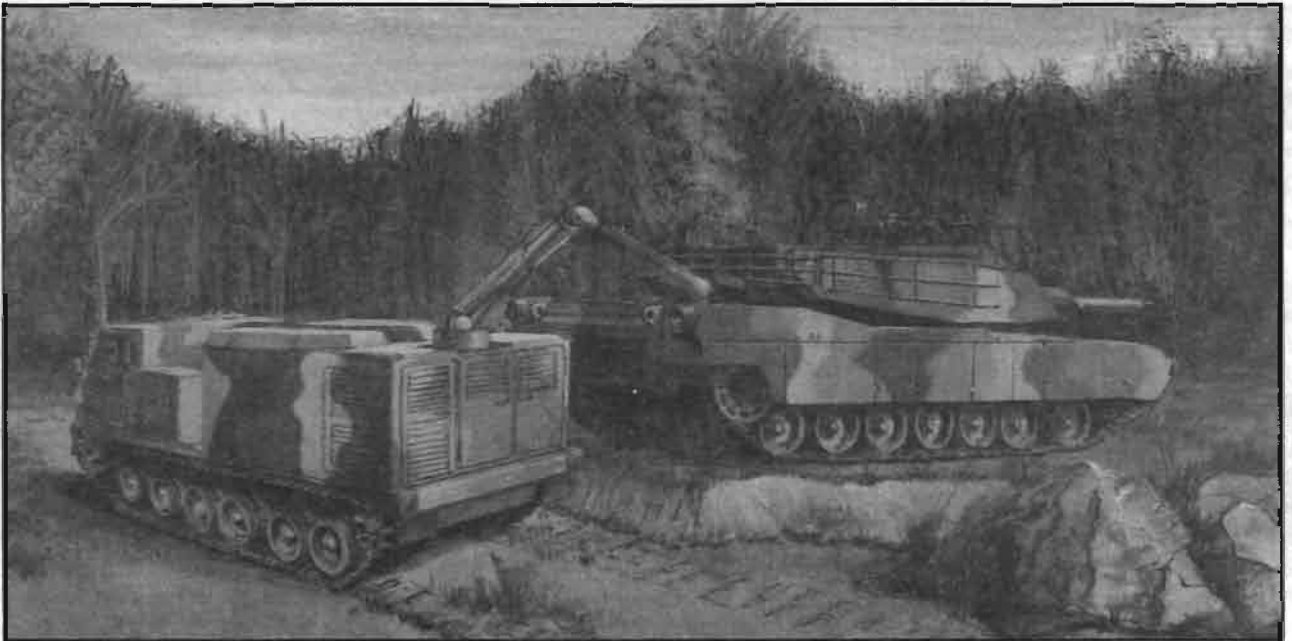
As he removes his overboots, he puts on his clean combat boots on the SAFE AREA. When finished, he is standing on the SAFE AREA. The loader repeats this procedure. The suits and overboots go on the back deck where the echelon retrieves them. Crewmembers assist each other, as shown in Figure 1. The loader's hatch is opened, and the driver enters first. Gloves are thrown over the side. The loader repeats this procedure. Once both are inside, the interior of the hatch is again decontaminated with

the decon mitt, which is then discarded through the pistol port. The loader and driver put on new IPEs. The crew remains in complete IPEs for 15 minutes to allow the overpressure system to purge any vapor hazards. Once tests prove there is no danger, the crew can take off masks.

There are certain characteristics of this drill that a commander must consider before he allows crews to exit chemical collective protection in a likely contaminated area or with their vehicle contaminated. Tests established that it took 60 to 75 minutes from time of exit to time of reentry when taking on 30 main armament rounds and only 15 jerry cans of POL.<sup>3</sup> Exit and reentry drills take time. Moreover, these drills must be done in a safe location. As seen in the illustration, removing suits for reentry leaves crewmembers vulnerable, not only to follow-on chemical attack, but also conventional fires. Contaminated crewmembers cannot enter the armor protection of their vehicle when shells start falling. Remember that some camouflage has been removed during replenishment, possibly rendering the tank visible.

The discarded suits taken away by the resupply echelon must be replaced, either by the echelon or from spares in the tank. Although in the short-term these problems with replacement suits may not affect tactical commanders, the logistics of discarding IPEs will have an impact on armored formations and their staffs. The time taken to do the drills, and the requirement for a safe location, will force a commander to carefully consider the reasons to have tank crews leave collective protection in a chemically contaminated environment.

Some likely reasons are resupply and replenishment, the need to un-



**Figure 3.**

*Artist's sketch shows how technology might simplify resupply under NBC conditions.*

undertake urgent repairs, the need to dismount personnel for local protection, the need to undertake chemical surveys, evacuation of casualties, and the requirement for commanders to attend verbal orders groups or to perform reconnaissance before giving their own orders. Examination of these reasons leads to the conclusion that there are alternatives open to commanders rather than have crews go through these time-consuming entry drills and contaminate precious suits.

Personnel outside the tank could do the urgent repairs, provide the local protection required, do all the tasks associated with replenishment, and conduct the chemical survey required. The question is, where would these people come from? In the short term, a commander might have to have the infantry accompanying the tanks undertake these tasks, or personnel from the supply echelon. Such personnel can only perform these additional tasks at

the expense of their primary function. Staff officers would be required to advise commanders on who exactly to use if they want to keep tank crews inside and have outsiders do these jobs.

If, however, armored units had more men just to undertake these tasks, then tank crews would not have to exit, except in emergency. The British writer, Brigadier Richard Simpkin, in his books on armored warfare, advocated the provision of a multi-purpose support vehicle, which would contain a three-man crew, six assault troopers, and a medic.<sup>4</sup> In addition to providing basic recovery and serving as an ambulance, this tank support vehicle, if established on the basis of one per troop, could supply the manpower for these external tasks.

Swedish armored battalions equipped with the S-tank have two extra soldiers per troop, carried in squadron echelons to undertake the

extra tasks associated with an arctic environment.<sup>5</sup> The same could be done for employment in a chemical environment.

If a commander decides to have crews exit, then staff will have to advise as to a safe location. Again, the importance of good chemical intelligence is evident. Figure 1 shows the vulnerability of the crews.

Exiting for orders is a problem that can be resolved by use of the radio and passage of appropriately protected traces (overlays) through the pistol ports in the same manner as ammunition. Staffs and commanders in formations with collectively equipped AFVs will have to factor in the time needed to exit and reenter protection when calling commanders to personally attend orders groups.

In addition to the straightforward solution of adding more people to the organization to perform tasks outside the tank, technology is also



making this easier. Armored ammunition and POL vehicles alleviate the need for anyone to be outside for replenishment. Figure 3 is an example, and it is only one.<sup>6</sup> Externally-mounted chemical detectors, or detectors dispersed from AFVs, may eliminate the need for anyone outside to undertake chemical survey. Finally, disposable suits may solve the problem of replacement suits required for reentry.

Technology is well on the way to helping commanders and staffs with the question of exiting protection, but yet another question surfaces.

A commander may have to decide whether to move contaminated tanks into uncontaminated areas. Some of the factors that he must consider are:

- The operational need for the contaminated tanks
- The type of chemical agent on the tanks
- The impact on other troops in the area of using contaminated tanks

- The time required to decontaminate these tanks using available resources.

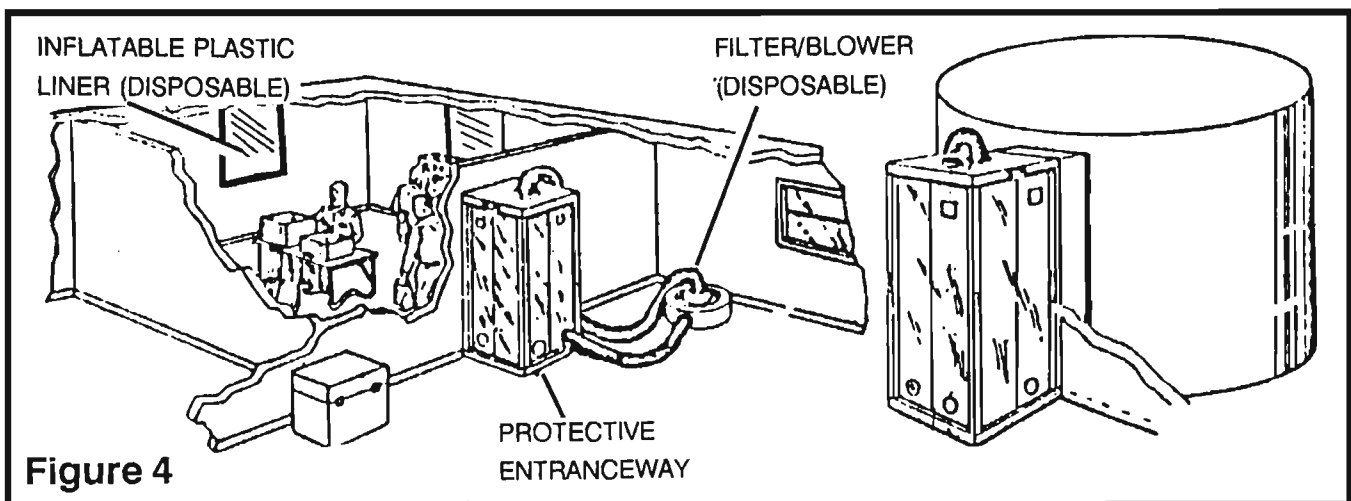
The importance of operational need requires no elaboration. If the commander's battle depends on employment of these tanks, then he will use them contaminated. However, staff officers must be prepared to advise commanders on the consequences of moving contaminated tanks. Some of the major consequences are:

- Unprotected troops must be warned
- Degradation of fighting efficiency brought on by wearing masks
- Contamination spread by these "dirty" tanks must be marked and warnings passed
- Requirements for additional decontamination brought about by spread of this contamination must be established.

Company commanders, unless they are desperate, are not going to appreciate contaminated tanks moving into their area at night, forc-

ing them to don masks perhaps in the middle of a fire fight. The infantry used to say that tanks on their position brought unwanted artillery fire. Now tanks may also bring the unwanted requirement to put masks on.

The primary reason tanks may have to move contaminated is the time that will be required by the limited supply of conventional decontamination resources. Conventional decontamination involves spraying on decontaminate and then washing it off. Containers or vehicles to hold both are required, as well as time. Those who have been involved in decontamination exercises can testify that even a company-sized group takes considerable time. The inherent decontamination capabilities of the M1 with use of the tank's turbine engine, described in an *ARMOR* article, will relieve armor commanders of the need for outside decontamination.<sup>7</sup> Such units, decontaminating themselves as suggested in the article, could be available much more readily. Future tank designs may well have to con-



**Figure 4**  
Simplified Collective Protection Equipment (SCPE)



sider this bonus, derived from use of the turbine engine. Of course diesel-engined tanks could have add-on decon pods, which could also serve as additional armor. Technology can and must relieve commanders and staff of the requirement to move contaminated tanks.

If contaminated tanks have to be moved, the use of marker dispensers on these "dirty" tanks, like those the Russians employ on their chemical reconnaissance vehicles, would reduce the requirement to deploy marking parties. Warnings would still have to go out, and staff will quickly have to develop a contamination control plan. As anyone who has been involved in plotting downwind hazards knows, more than the immediate route can be affected, even if contaminated vehicles are restricted to one track. The longer the distance, the bigger the problem.

Casualties in a chemical warfare environment can be classed as "conventional," in that wounds were inflicted by conventional means, or "chemical," in that the casualty has been affected by a chemical agent. When employing tanks with chemical collective NBC protection, there should only be conventional casual-

ties among tank crews unless a tank has been unlucky enough to have its overpressure system damaged.

The problem of handling casualties in a chemical environment is difficult enough without adding the complication of AFVs.<sup>8</sup> NATO members have scarcely come to grips with the problem. For example, do you send a medic inside the collective NBC protection of the tank - after proper entry drills - where he can work with his mask and gloves off, or do you move the casualty outside to more sophisticated treatment? Putting a casualty into the Canadian NBCW Casualty Bag while inside a Leopard tank is a problem in its own right. Commanders will have difficulty deciding what to do about casualties.

Another decision armored commanders will face is when to rest tank crews. Rest will be a very real problem for crews forced to remain closed up for longer periods. Simpkin's book, *Human Factors in Mechanized Warfare*, devotes a whole chapter to the subject of waiting periods under NBCW threat.<sup>9</sup> He cites the need to avoid dehumanization and boredom, as well as the requirement to maintain physical and mental fitness.

His solutions include chemotherapeutic and psychological support and, of course, training. A less extreme solution may be the provision of collective NBC protection in the form of shelters, such as that in Figure 4, which could be inflated inside structures to serve as a crew rest area. Armor commanders will seek staff advice about *where* these shelters should go and *when* they are to be used.

The provision of rest for crews of costly AFVs raises the question of relief crews. Although it goes against the grain of armored soldiers in every army, the employment of tanks with collective protection may force the use of more than one crew per tank in order to obtain maximum efficiency from the expensive combination of firepower and mobility that is called an MBT. No airline today assigns only one crew to an aircraft. Simpkin's ideas on application of aircraft servicing to tank operations has considerable validity when developing concepts that provide more than one crew per tank.<sup>10</sup>

Some of the decisions commanders must face are reiterated:

- Operate hatches open or closed?

At left, the Soviets use a truck-mounted jet engine's exhaust to neutralize chemical contamination on tanks. Units move in column through the decontamination site, car-wash style.

- Exit from collective protection?
- Move contaminated tanks?
- Tank crew casualties?
- Tank crew rest and relief?

No matter what the commander decides, there will be staff problems associated with the operation of tanks with collective NBC protection in a chemical warfare environment. Some of these staff problems are: collection, analysis, and dissemination of chemical intelligence; chemical attack detection and dissemination of warning; determination of safe areas for exit and reentry; advice on decontamination resources available; advice on time required for decontamination; advice on routes on which to move contaminated tanks; advice on impact of using "dirty" tanks on other troops; marking of routes contaminated by "dirty" tanks; contamination control of hazards spread by moving contaminated tanks; organize relief and/or rest of tank crews inside collective protection; how to deal with casualties of crews inside collective protection; and how to pass orders and traces to commanders inside tank collective protection.

Technology can provide some staff assistance in the form of improved monitors, automatic dissemination of warnings, dispersible markers, on-board decontamination systems, or at minimum, systems organic to tank or tank subunit, local protection gas dispensers, disposable suits, packaging to fit through pistol ports, and radio-transmitted traces.

Tanks equipped with collective NBC protection should be able to undertake active monitoring without the crew exiting. In addition to monitors mounted on the exterior which could be read or heard in the interior, there is also a need for the tank to project monitors some distance through a dispenser in order to obtain readings for less well-protected follow-on infantry or support echelon elements. (It could be as simple as a balloon carrying a small detector). Reconnaissance helicopters, as a matter of course, should have detectors which pass on warning automatically to troops that they are overflying as well as those that they are working with. Monitoring technology is only one area in which development can only make the decision involved in operating tanks with collective NBC protection easier.

At present, commanders must decide how they will face the problems that accrue based on what they have in their units and their staff. Collective NBC protection may give NATO tank crews the edge in fighting efficiency that they need to win, but only if their commanders and staffs remain alert to the implications of operations in a chemical warfare environment.

#### Notes

<sup>1</sup>Simpkin, R.E., Human Factors in Mechanized Warfare, Oxford, 1983, p. 117.

<sup>2</sup>These drills are so-called after Captain D.C. Patterson, the Australian armor officer who developed them while attending a course at the Canadian NBCW School.

<sup>3</sup>Patterson, D.C., Preliminary Report Field Trial Crew CW Drills Leopard C1 Tank, 10 August, 1983, p. 2.

<sup>4</sup>Simpkin, R.E., Tank Warfare, London, 1979, p. 193.

<sup>5</sup>Olsson and Thomas, "The Swedish Armor Battalion," ARMOR, March-April 1979, pp. 27-29.

<sup>6</sup>Squitier, J.E., "Inherent M1 Decon Capabilities," ARMOR, January-February 1986, pp. 19-21.

<sup>7</sup>"Future Battlefield Logistics Vehicles," International Defense Review, 7/86, p. 941.

<sup>8</sup>Canadian Forces videotape "Exercise Trial Chace II" CFB Petawawa, October, 1984.

<sup>9</sup>Simpkin, Human Factors in Mechanized Warfare, op cit, p. 28.

<sup>10</sup>Simpkin, *ibid*, p. 70.

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# The Acceptable Margin of Error

by Sergeant First Class Thomas J. Lindsley and Captain Lloyd A. Davis

"Calibration vs Zeroing," in the September-October issue of *ARMOR*, was a good attempt to address a very sensitive topic, but we would like to add some additional comments. We have some concerns about tank gun accuracy and want to shed some light on areas that are of major concern to any armor professional interested in accurately putting steel on target with a high first-round hit probability.

The bottom line is that we should examine how to exploit the system advantages of the M1A1 tank. We can obtain proof of this need by observing what is done on many screening ranges, or by listening to conversations behind the closed doors of many units that seriously consider individual zeros in the event of imminent combat.

One method of improving first-round hit probability would be to increase the range to the screening target and decrease the size of the target. Another would be to construct a "Hit Zone" on the current target at the current range. In either case, not meeting the standard would justify conducting a proofing test, a thorough check of the fire control system to eliminate faults. The increased expenditure of ammunition for proofing could possibly be recouped through an increase in first-round hit percentages.

## Thoughts from the Field

There are well-understood limitations in our current procedures to confirm tank gun accuracy. The "Fleet Zero Policy" has considerable merit from the standpoint of con-

serving ammunition. But you do not get individual zeros nor compensate for the error expected from various lots of ammunition.

Few tankers will disagree with the fact that fleet zero works well for the majority of gun systems. But whenever results are an average (a fleet zero is basically that), a percentage of those results will deviate from the norm. In this case, a small group of tanks will deviate from the acceptable norm. Most vehicles will screen rather closely to the target center, while others will hit somewhere near the edges of the panel. This performance will generally repeat on other firing occasions, the most important of which will be combat.

## What is Really Happening Out There?

Figure 1 represents a tank battalion's performance during calibration screening at New Equipment Training in Grafenwoehr, Germany. At first glance, it is apparent that this entire battalion successfully passed on its first attempt. This can lull crews into a false sense of security, and make them feel they have a high degree of first-round hit probability. For most crews, this sense of security is justified.

Figure 2 approximates what would happen to the same shots if the screening range were increased from 1,200 to 2,100 meters. A considerable number of crews would miss the 2,100 meter target, and many of those who did hit would not likely achieve a kill.

Figure 3 represents the probable effects of firing at a T-72 in a hull-down position. (Remember that crews that fired in Figure 1 were not under the stress they will encounter in combat). The outcome is even more significant when engaging a BMP because it is a smaller target. The target distances used for Table VIII are barely within the error accepted in the fleet zero policy. It is the GO TO WAR experience that will tell much about the full impact of this procedure (Figures 2 and 3).

A considerable number of units are using methods other than calibration-by-screening to accurize weapons systems. One popular technique is to apply the published fleet zero data as a start point for screening, and then use some tighter standards for accuracy. For example, a circle one meter in diameter is drawn around the aimpoint on a standard screening panel. If the round impacts outside of this circle, the unit will employ one of two steps beyond this. Some will re-lay on target center, depress the ZERO key on the computer control panel (CCP) and remove apparent error by toggling to the strike of the round. Others may fire a second or third round, then use the CCP and toggle to the mean point of impact. In either case, the new data is recorded and used in place of the fleet zero data for that tank.

## Why Not Individually Zero?

A major argument for using the fleet zero policy is the prohibition against firing depleted uranium ammunition in peacetime, thus

eliminating the ability to individually zero combat ammunition. Furthermore, one cannot expect an individual zero for training ammunition to be effective for service ammunition. Another reason is the anticipated occasion-to-occasion deviation expected when firing different ammunition from different lot numbers. The reality is that a fleet zero for service ammo will still be an "average," and there will be a percentage of tanks that will not be able to hit with a reasonable hit probability at extended ranges. Would you want it to be *your* tank?

One can justify further investigation into this matter by those who desire to get more bang for the buck. Address your concerns to the Armor School. We understand that this is a very complex issue involving great amounts of money for research and ammunition development. But if you have any doubt about potential payoffs, look again at Figures 2 and 3.

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Captain Lloyd A. Davis received his ROTC commission in 1981 from Morgan State University, Maryland. He has served as M1 platoon leader, H Company, 2-6th Cav at Fort Knox, Ky. and M551 (Sheridan) platoon leader, C Company, 3-73rd Armor, at Fort Bragg, NC. He is currently the Commander, HHT, 1-11th ACR.

Fig. 1

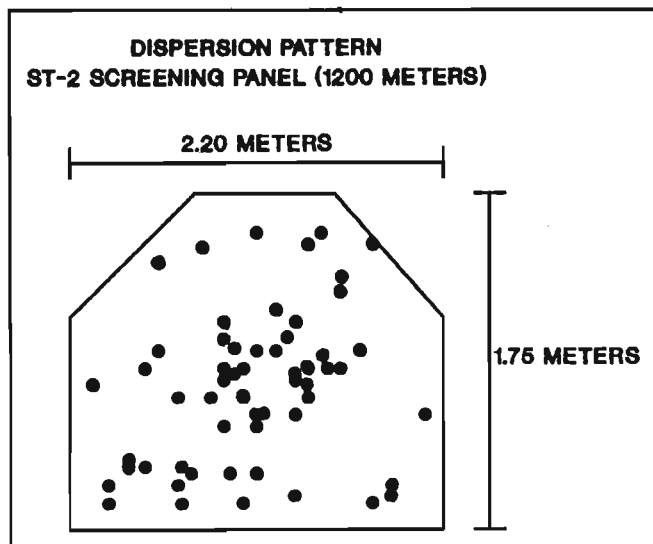


Fig. 2

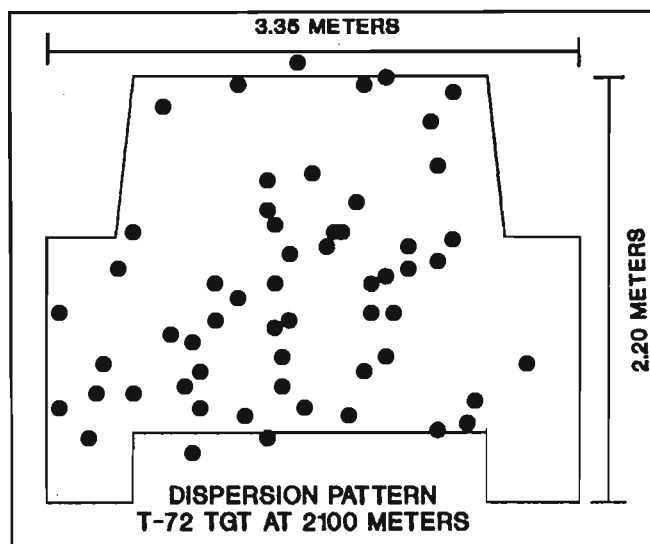
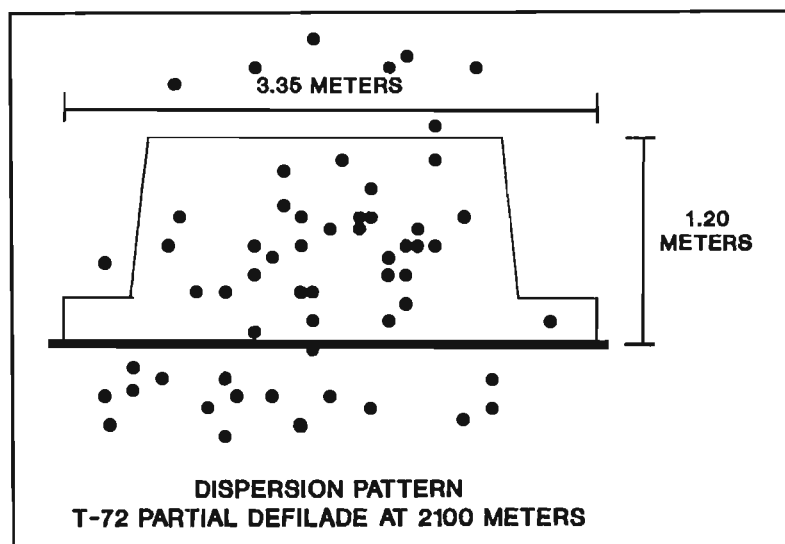
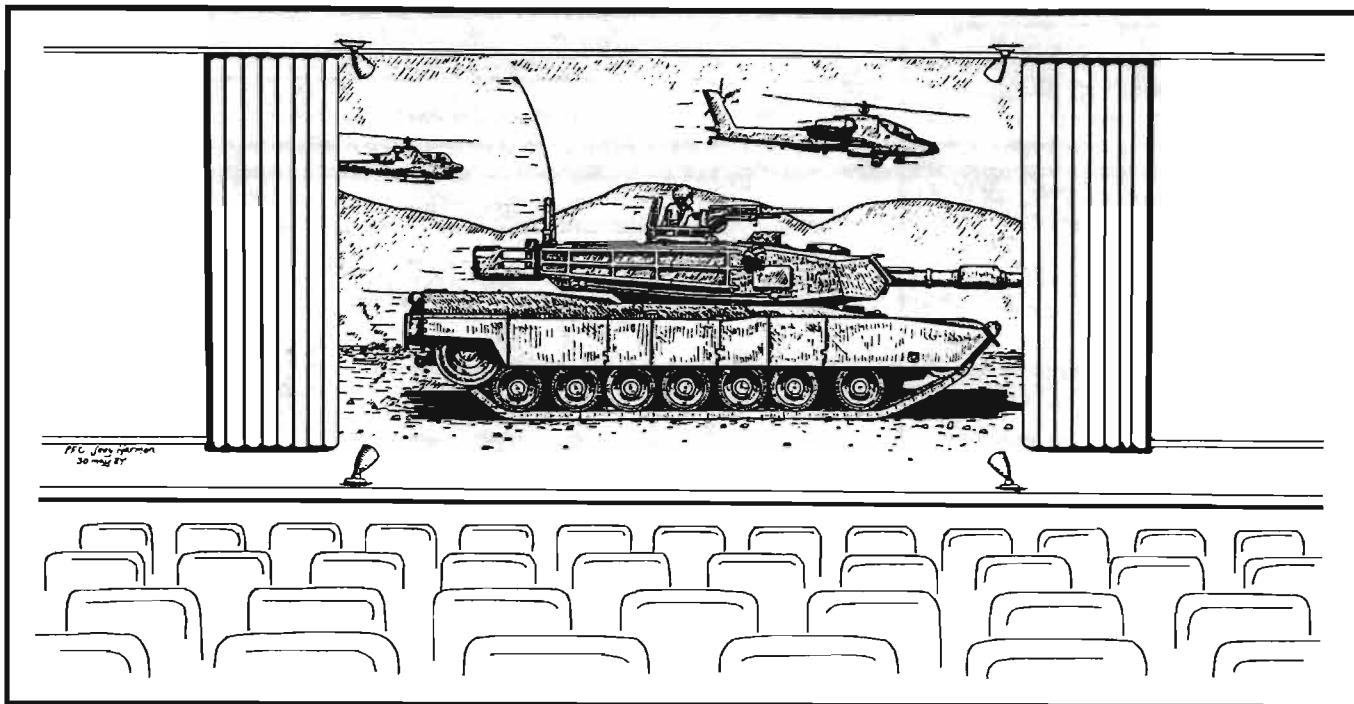


Fig. 3





## Rehearsals: The Silent Requirement A Soviet Assessment

by Captain James M. Warford

*"Rehearse all movements, in gas masks, with no communications, and at night. Assume that confusion will reign at the moment of execution, and rehearse all procedures accordingly."*

That statement, taken from James R. McDonough's book, *The Defense of Hill 781*, was Captain Yuri Kharkov's starting point. The division commander of the 7th Guards Tank Division had asked him about some of the data that had been "acquired" from the U.S. Army's National Training Center (NTC).

According to reports from the Center for Army Lessons Learned, representing a sample of U.S. tank and mechanized infantry battalion/task force (BN/TF) rotations, only half of the units rehearsed, and almost half of the rehearsals were

not considered effective. Time was not the problem; a more thorough rehearsal was possible in 80 percent of the operations. The question that puzzled the Soviet commander was, why weren't these U.S. units conducting rehearsals?

Yuri was not enthusiastic about his task. He had already spent so many hours studying the U.S. Army that further effort seemed to be a waste of time. The division commander's order was clear. Yuri's mission was to examine rehearsals in the capitalist army and answer these questions:

- Do U.S. Army doctrinal references cover the subject of rehearsals? If so, how in-depth is this coverage?
- What types of rehearsals can a BN/TF or CO/TM use?

- What points must a unit commander consider to develop an effective rehearsal plan?

- What points must a unit commander consider to conduct an effective rehearsal?

- What are your recommendations concerning the conduct of rehearsals in the 7th Guards Tank Division?

As he read the NTC reports, it was clear that some of the American BN/TFs were neglecting to conduct rehearsals before a tactical operation. Making matters worse, the CO/TMs and platoons were also failing to carry out this fundamental task. How could unit commanders know that their subordinate leaders and vehicle crews fully understood their plan? Yuri

hoped that his research would provide some answers.

Certain documents and publications were "obtained" for his use. Yuri's superiors gave him copies of FM 71-1, FM 71-2, ARTEP 71-1-MTP (coordinating draft), ARTEP 17-237-10-MTP, FM 7-7J, FC 17-16-1, a few old Ranger Handbooks, and some important data from the NTC. Little of the material was useful, not because of an acquisition problem, but because the U.S. Army apparently had not published any doctrine on rehearsals. While all of the references either suggested or recommended a rehearsal, they failed to explain what type, or how to conduct rehearsals.

Finding little detailed information, Yuri turned to the dictionary. A rehearsal was defined as a private performance or practice session preparatory to a public appearance, or a practice exercise. Yuri could not understand why a rehearsal would not precede a public appearance such as an attack. The next question was, what type of rehearsal could a BN/TF, CO/TM, or platoon use before a tactical operation such as an attack?

With his experience as a tank company commander, along with some general guidance, he developed the following:

### Offensive

1. Briefback
2. Map Rehearsal
3. Sandtable/Terrain Model
4. Walk Through (w/o Unit Vehicles)
5. Dress Rehearsal on similar terrain

*NOTE: At minimum, a rehearsal could involve only the key leaders of the unit.*

After examining his list, Yuri realized that offensive mission rehearsals and defensive mission rehearsals are virtually the same. The single exception is that during a defensive mission, a BN/TF could give its CO/TMs the luxury of rehearsing on the same terrain that they would defend. For an offensive mission, the best the CO/TMs could usually hope for would be the use of similar terrain. Yuri noted the importance of using similar terrain; a stage in a different theater is still a stage.

It was becoming clear to Yuri that most of the older references dealt almost exclusively with American infantry, with the most specific information contained in the Ranger Handbook. The 1972 version provided a breakdown of the necessary coordination and tasks required to conduct a rehearsal. Although the list included several steps applicable to modern U.S. CO/TMs, one point stood out. The last item on the Ranger Handbook list referred to the possibility of having to coordinate with other units that either share or own the terrain where the rehearsal would take place. Yuri smiled to himself: He had just been reading about an incident at the NTC when an un-

coordinated rehearsal was ended by the fire of a friendly unit emplaced on the same terrain.

Now Yuri could see that an effective rehearsal must start with a detailed and coordinated rehearsal plan. FM 71-1 and 71-2 offered general guidance, noting that units conduct rehearsals to reinforce both the scheme of maneuver and the fire plan. The manuals recommended that units conduct rehearsals under limited visibility or NBC conditions whenever possible. They urged commanders to ensure that the rehearsal includes the actions critical to the accomplishment of the actual mission. Yuri realized that the CO/TM commander must be fully confident that his unit can accomplish these actions, given the unit's state of training, its orders, and the expected weather and terrain conditions. To ensure there is time for a rehearsal, the commander plans backward during his conduct of the troop-leading procedures, and develops a rehearsal plan. The rehearsal plan and sequence of events should specify the following:

- The time the rehearsal is to begin.
- The items or actions the unit will rehearse.
- Specific tactical techniques and drills the unit should rehearse.
- The critical areas and operations the unit should observe.
- The location of the rehearsal.
- The time that the rehearsal will end.

*NOTE: In his planning, the CO/TM commander allows the neces-*

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sary time for rehearsals during the supervision phase. This planning must also include enough time for the platoons and vehicle crews to conduct their own rehearsals.

After examining all of the available information concerning the development of a solid rehearsal plan, Yuri felt that the commander still needed further guidance to best use the limited time available. To help with this difficult task, Yuri developed the following notes:

- Emphasize events that trigger different contingency actions.
- Emphasize fire support, to include the targets to be fired, when they will be fired, and who is responsible to call for and adjust the fire.
- Emphasize unit problem areas, critical tasks, and actions on contact.
- Emphasize and verify that the commander's concept and guidance reach all those who will execute the plan.
- Emphasize that if the unit makes any suggested changes to the CO/TM or BN/TF plan following the rehearsal, it reports the changes to the commander.
- Emphasize that the vehicle commanders brief their crews and conduct additional training to prepare for the mission.

Once Yuri was satisfied with the rehearsal plan guidelines, he concentrated on the actual conduct of the rehearsal. He felt that the best way to conduct a rehearsal, and to ensure that it achieved its aim, would be to have the commander conduct the rehearsal himself. Not only would this ensure quality control, but it would also satisfy the

commander that his unit fully understood his concept. The rehearsal would start off with a briefing and orientation for the key leaders of the unit, and then a review of the OPORD. This review would include a discussion of maneuver danger areas, calls for fire, reporting procedures, and any other points that the commander felt were critical to the mission.

Depending on the type of rehearsal, and the time available, the sub-unit leaders would demonstrate their understanding of the plan and how they would carry it out. As stated earlier, this could range from a simple briefback to a dress rehearsal on the actual terrain. Yuri decided to highlight this point. He had always been a little envious of the amount of initiative the Americans allowed their junior leaders. The rehearsal would include practicing contingency plans in response to enemy activity. The unit would repeat all of these actions until the commander was satisfied that all of his sub-unit leaders were capable of leading the actual mission.

After the rehearsal, the commander would update or change his plan, based on what he'd learned during the rehearsal. This was another point that Yuri decided to highlight. No matter how effective a rehearsal seemed, if the lessons learned were ignored or not identified, the plan that should have been improved could go unchanged. The CO/TM commander would report any changes to his commander or suggestions that would affect the BN/TF plan, and would also emphasize that he expected his platoon leaders to do the same with the CO/TM plan. Finally, the CO/TM commander would end the rehearsal in time for the platoon

leaders to conduct their own rehearsals at platoon level. These platoon rehearsals, like the CO/TM rehearsal, could be any one of the types described earlier.

Yuri decided that the rehearsal procedure should extend to one additional level, the vehicle crews. The soldiers who would actually carry out the plan must understand the commander's intent. At this level, the preparation would probably be nothing more than the vehicle TC explaining the events to his crew over the vehicle intercom.

Although this briefing does not qualify as a rehearsal, and is not included in the list of rehearsal types described earlier, Yuri felt that it was important enough to include in his report.

At what level should units conduct rehearsals? So far, Yuri's report had concentrated on the CO/TM and its platoons, but shouldn't higher echelons also plan and carry out rehearsals? Yuri decided that the process should start at brigade level and include, as a minimum, a briefback. Once the brigade commander formulated his plan and briefed it to the BN/TF commanders, the brigade commander should require a briefback from his commanders.

Once the BN/TF commander returned to his unit and he and his staff formulated the BN/TF plan, he conducts what could be called a two-stage rehearsal with his CO/TM commanders. Once the CO/TM commanders are given the OPORD, they participate in a rehearsal in the form of a briefback led by the BN/TF commander. This briefback, lasting only as long as absolutely necessary, would continue until the BN/TF commander was confident



that his CO/TM commanders fully understood his concept. The second stage of this rehearsal would take the form of a second briefback to the BN/TF commander, after the CO/TM commander had developed his own plan back at his unit. Yuri felt that this second briefback could be at either the BN/TF Tactical Operations Center (TOC) or at the CO/TM's location. In either case, the second briefback would ensure that the required synchronization of the BN/TF plan had reached those who would execute it on the ground.

Now that he had discussed the conduct of the rehearsal itself, in detail, Yuri focused his attention on the single most important problem facing the development and conduct of an effective rehearsal: the requirement for sufficient time to carry it out. The availability and management of this most critical asset was a problem for his own army, as well as the Americans. It was clear to Yuri that perhaps the best way to deal with this problem was to solve it as high up the organizational chain as possible.

Yuri agreed with some of the data taken from the U.S. Army's NTC that suggested this process should start with the brigade. The brigade-level tactical plans should include as much planning time for the BN/TF as possible. While Yuri was very much aware that the tactical requirements of the battlefield never allowed the commander the amount of planning time he desired, it was this reality that should dominate the planning process at each unit headquarters.

He remembered something that was drilled into him while he was studying at the academy. A unit headquarters should complete its

plan and issue the OPORD within one-third of the total time before mission execution. This would ensure that each lower echelon would have as much time as possible to prepare. The one-third/two thirds rule, as the U.S. Army called it, should be the guide for all tactical plans. The question to ask now was, how much time was enough time? Yuri wished he had the answer to that question. He was sure that some of his own graded exercises would have gone better had he known the answer. Yuri's research confirmed that some exercises required more time to plan and rehearse than others. Also, some may argue that, by design, a defensive operation requires more preparation time than an offensive one. In fact, one of the few references Yuri found for the conduct of a rehearsal concerned the improvement of battle positions and preparation of subsequent battle positions in FC 17-16-1. Each of these two tasks, however, included the caveat that units conduct rehearsals if time allowed.

Yuri was confident that his research, and his answers to the first four of the division commander's questions, gave him sufficient background to make some recommendations concerning his own division. The amount of effort that the U.S. Army spends identifying the requirement for rehearsals, as opposed to the time that some BN/TFs actually conduct them, still amazed Yuri.

He felt that his own unit might be guilty of the same neglect. To check the status of his unit, the commander should first conduct a detailed review of the current rehearsal procedures, if any, used in his unit. Once he has done this, he should correct any details or procedures, as necessary, as soon as pos-

sible. When the commander is satisfied with these procedures, he should ensure that unit SOPs incorporate them.

After accomplishing this, the details of how to plan for and conduct rehearsals should be sent to the doctrine writers to be incorporated into the proper manuals. Once units conduct these self-examination procedures at all levels, proven and agreed upon rehearsal procedures could become doctrine and be used by the entire force. Once a commander completes these tasks, he would know that his unit is ready for combat and the stage for his plan is set.

Yuri smiled again when he remembered a statement he read, quoting an American BN/TF commander. After an NTC rotation, he "was amazed at how well we performed when we rehearsed the plan." Without the operation "proofing" a rehearsal provides, deficiencies in the commander's plan, ranging from poor vehicle positioning to the inadequate coordination of combat support assets, could doom a good plan to failure.

Captain James M. Warford was commissioned in Armor in 1979 as a distinguished military graduate from the University of Santa Clara, Calif. He has served as a tank platoon leader, and a support platoon leader; and has also commanded D/1-66 Armor, A/2-66 Armor (COHORT), and HHC 2-66 Armor. He is currently assigned as a Small Group Instructor/Team Leader for the Armor Officer Advanced Course at Fort Knox, Ky.



Photos by Tamir Eshel

## Merkava Mk.3: Israel's New Spearhead

by Lieutenant Colonel David Eshel, IDF, Retired

The latest version of the Merkava - the Mk.3 Main Battle Tank - was unveiled in Israel in May, on the eve of Israel's 41st Independence Day. Based on the general concept of the Merkava's earlier models, the new version contains a wide range of improvements, which virtually make it a new tank.

### Modular Armor

The Merkava Mk.3's new armor protection offers "special armor" bolted to the hull and turret, instead of traditional steel cast plates. Repair crews can easily replace damaged modules in the field. The new "special armor" is passive, and offers protection from both hollow-charge and kinetic attack. A further advantage is that, in the future, as advanced technology makes it possible, new armor can replace the old.

The new armor has actually reduced the weight of the vehicle by one ton, to 62 tons, and thereby increased the power-to-weight ratio

to 20 hp/ton. Seventy percent of the weight is dedicated to frontal arc protection.

### Armament and Fire Control

One of the most prominent elements in the new tank is its main armament - the IMI (Israeli Military Industries) 120-mm smooth bore gun. The locally designed and produced gun is adapted to fire IMI ammunition as well as American or German 120-mm rounds. The 120-mm ammunition uses fixed rounds with combustible cartridges. The 50 rounds (62 in Mk.1 and 2) are each placed inside the tank in individual fire resistant containers and maintained at constant low temperature, enhancing crew protection.

A 60-mm mortar, which the loader can fire from inside the turret, fires smoke, HE, and illumination.

A new fire control system includes advanced subsystems such as a laser rangefinder, a common optical sys-

tem for day and night vision for the commander and gunner, and a new ballistic computer. The FCS ties in with the turret traverse and gun-laying controls, allowing line-of-sight stabilization for the commander and gunner, and links to the electrically-driven turret control system. It offers accurate firing while on the move.

### Mobility

The American AVDS-1790-9AR Teledyne/Continental engine is an updated version of the 750-hp power pack used in the Israeli M60-series, upgraded Centurion, and former Merkava models, but it now provides 1,200 hp.

The new suspension is characterized by a powerful spring and a rotary coil spring system, differing from the former double spring system. The first road wheel is strengthened to absorb shock. Built of ballistic steel, the suspension also contributes to the protection of the



*Merkava's road wheels are made of ballistic steel, contributing to the protection of the hull sides.*

hull. Unlike torsion bars, the Merkava's suspension is fitted externally so that each unit can be replaced rapidly in the field.

#### Other Features

- Foreign sources claim the tank uses sensors for both laser and mine detection. With early warning, the tank crew could take evasive action or counter the threat with quick reaction gunnery.
- IMI CL-3030 smoke dischargers on both sides of the turret.

- Fast reaction fire detection and suppression systems in the fighting and engine compartments - the first to be hardened against electromagnetic interference.

- Overpressurized fighting compartment, with provision for central filter and crew air conditioning.

The Merkava Mk.3 will become operational with IDF tank units in 1990.



*Although similar in appearance to earlier Merkavas, the Mk.3's armor is modular, easily upgraded and easy to replace.*

Lieutenant Colonel David Eshel, IDF, Retired, is senior defense advisor to Eshel Dramit Ltd. publications. He served many years as a career officer with the Israeli Defense Forces with which he saw much combat duty including action with signal and tank units. He recently published a book, **CHARIOTS OF THE DESERT**, a combat history of the Israeli Armored Corps.

# Passing Through The Eye Of A Needle: Breach And Defile Operations

by Lieutenant Colonel Thomas V. Morley  
and Captain Anthony J. Tata

## Introduction

When an attacking force encounters a defile or obstacle network controlled by the enemy, it will usually attempt to bypass it, but there will be instances when the seizure of an objective requires an attacking unit to secure a complex obstacle or heavily guarded defile.

What actions must take place at task force level in a contested breach or defile operation? And what should the company team do to accomplish the actual breach?

## Battle of Velddorf Pass

The balanced task force received the mission to create an opening through a heavily guarded pass, destroy the defending enemy forces, and pass through the remainder of the brigade to seize a deeper objective.

The enemy had been preparing for two days, and the task force commander knew he had blocked the

defile through the pass with a formidable series of obstacles. Before the task force crossed the line of departure, the battalion scouts confirmed the templated enemy defense. In the 800-meter depth of the defile was a tank ditch and belts of wire and mine obstacles. Dense minefields and areas of chemical contamination peppered every trail suitable to armored vehicles. Behind the defile were wire obstacles to deny lateral movement across the objective. A motorized rifle company was dug in 1,000 meters behind the defile. Every enemy vehicle could mass its fires on the minefield at the rear of the pass.

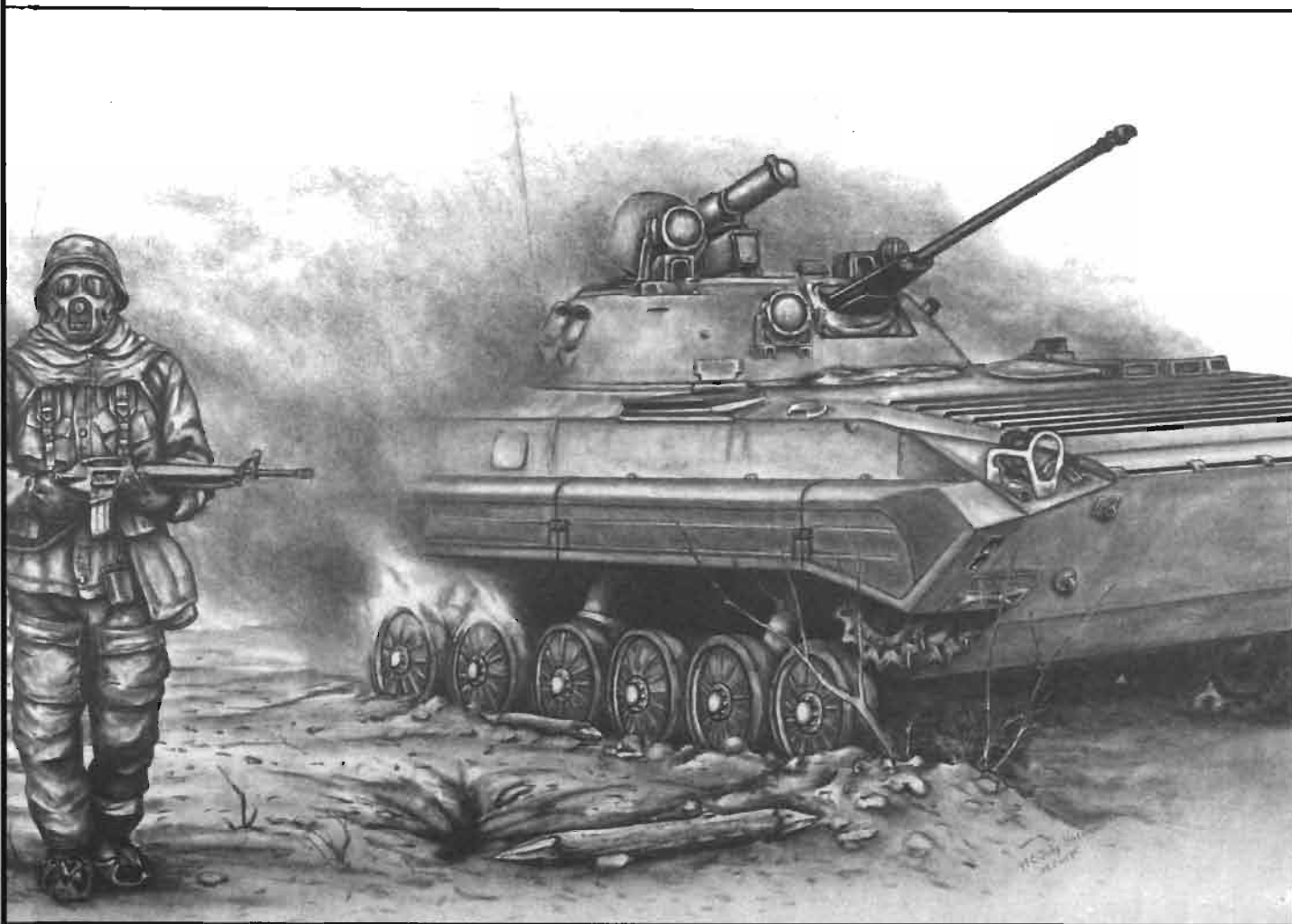
The task force plan had the two infantry teams leading abreast through the rugged terrain east of the road leading from the assembly

area to the pass. In the left column, the engineers and a tank team followed, while the right column had a tank team following.

The left column mech team was to secure the obstacle area, and assist in the breach. The right column mech team was to conduct a supporting attack over the steep ridge east of the pass. This team would have to dismount to move over the ridge, because the only mounted avenue was through the pass. The two tank teams were the assault force, with the subsequent company objectives to the rear of the enemy positions holding the east end of Velddorf Pass.

The original intent was for the task force commander to control the actual breach operation.





However, as we will see, this was a flawed plan, and lacked sufficient detail to be successful.

The task force crossed the line of departure at 0030 hours. From the start, artillery harassed movement to the objective, and two enemy ambushes blocked the task force routes. Enroute to the objective, the right mech team destroyed five BMPs, a BRDM, and 35 of 40 dismounts, while losing one tank to artillery. This team's success allowed the task force to reach the defile with nearly all of its combat power.

The left side mech team secured the near side of the obstacle, and assisted the engineers as the breach began. The right side mech team moved dismounted over the ridge and destroyed two platoons of dis-

mounted infantry covering the back side of the defile.

At this point, the task force attack began to unravel. Because of the complex nature of the obstacle, the breach was taking more time than anticipated. The dismounted engineers and infantrymen were in MOPP IV, while enemy artillery was harassing the breaching effort.

The breaching teams had to cut concertina, lay charges on successive minefields, and shovel dirt into a tank ditch. These tasks were time-consuming, especially in limited moonlight. The tank-heavy teams were locked up at the obstacle, suffering casualties to artillery. Fortunately, enemy CAS and HINDs were not a factor because of darkness.

The task force commander, on a terrain feature away from the breach, was unable either to understand the slowness of his operation or influence the action. The task force S3 was with the tank team, awaiting word that the breach had been made. The mech team commander actually conducting the breach faced an overwhelming range of tasks compounded by the difficulty of command and control of numerous dismounted elements in the dark.

His relationship to the engineer company had been vague in the plan, and began to disintegrate in the darkness. He mistakenly reported to the task force commander that the breach was clear. Unfortunately, he had failed to expand his recon and gain control of the far side of the breach site.

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At the order to resume the attack, the first tank team charged through the defile, began its sweep toward the objective, and drove into an undetected minefield. Enemy direct fire engaged the tanks as they attempted to bypass. Artillery began to fall at the obstacle, breaking apart the first assault. After a renewed breaching effort, the second assault force finally made it onto the objective. The right side mech team continued its attack to the rear of the pass, and was able to assist the assaulting tank team in the destruction of the enemy vehicles. Enemy remnants held out in isolated positions until destroyed by infantry and tank teams.

Although the task force was successful, the enemy had mauled it. By daylight, less than 10 tanks and two understrength infantry platoons remained. The task force had accomplished its mission, but was now combat ineffective.

Some clear lessons learned in this operation were:

- The task force used no obscuration, either at the breach sites or on the enemy positions covering or overlooking these obstacles.
- Obstacle reconnaissance was flawed, and lacked sufficient detail.
- No one was tasked to recon the entire objective area, especially the far side.
- No artillery suppression supported the assault of the tank teams.
- Command and control of the breach was ineffective.
- The task force commander and S3 were too far back and not in control.
- The mech team commander had too much to do, resulting in little actual control.
- The engineer company commander focused solely on the actual

mechanics of establishing the initial breach.

- There was no expansion of infantry security on the far (enemy) side of the breach.

- The unit did not commit its tank teams based on the actual battlefield conditions; the obstacle network had not been breached.

### **A Technique for Clearing Breaches and Defiles**

Similar drills are used to breach obstacle belts and to clear defiles. In each case, a large number of vehicles must pass safely through a narrow gap. It is irrelevant whether the gap is constrained by terrain or man-made barriers. FM 5-101, *Mobility*, gives us an adequate framework to establish effective techniques for dealing with defile/obstacles. In both instances, you must suppress, obscure, secure, and reduce the enemy and obstacle complex. Both require a breach team, a security team and an assault force to clear the obstacle. With the addition of an obstacle reconnaissance team, a unit can clear defiles and breach obstacles with minimal casualties.

The conduct of a breach or defile operation, with its eventual passage of forces, is the sole responsibility of the task force commander because he alone has the C<sup>2</sup> apparatus to control the entire operation from start to finish. The complexities of such an operation require the synchronization of all elements of the task force, and every combat multiplier available. Obviously, the commander or S3 must be physically present at the breach to control, and if necessary, to personally take charge, to get the task force through as quickly as possible.

One company/team commander is normally assigned to physically

create the breach. This breach team commander has a monumental task, requiring the active assistance of the task force commander. The task force commander or S3 must be with the breach company, overseeing the execution of the breach.

To delineate responsibilities is the first key to a successful operation. To ensure that the company commander does not get more responsibility than he is physically able to control is just as critical. A misconceived common practice is to give this company additional platoons, leading to a team of six or seven separate units. This further reduces the effectiveness of the breach company commander. The task force commander can better control most of these assets — ADA, engineers, smoke platoon — channeling them into the actual breach site as needed. This frees the breach company commander to focus solely on his task, and not the entire operation. The breach company commander should be responsible for:

- Finding the obstacle.
- Locating an adequate breach site or bypass.
- Providing near- and far-side security.
- Overwatching with tanks on the near side.
- Conducting reconnaissance to the back side of the obstacle preparatory to expanding the breach.
- Expanding the far-side security zone with tanks or TOWs, and infantry teams.
- Reducing the obstacle and marking lanes.
- Establishing initial antitank ambushes to destroy enemy counterattacks.

The task force commander should be responsible for:

*"Templating doctrinal enemy positions to cover the breach will further assist in providing requirements for the scouts to either confirm or deny"*

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- Providing additional overwatch from other teams.
- Controlling the breach.
- Massing forces for assault.
- Determining when to pass the lead assault companies through the breach.
- Controlling the remaining task force elements' passage through the lanes.
- Controlling the assault on the main objective.
- Positioning ADA to protect the breach.
- Controlling smoke vehicles and indirect smoke.
- Controlling the engineer company to execute the expansion of the initial hasty breach.
- Coordinating indirect fires and CAS.

When planning an attack or movement to contact involving passage through a defile or obstacle, consider it in phases.

**PHASE I: Planning and task organization.**

Naturally, METT-T determines the requirements of the attack. Of particular importance in this METT-T analysis is the obstacle area or defile. The magnitude of the defile or obstacle area may overshadow the ultimate task force objective. Consider the size of the obstacle or defile in comparison to the ultimate objective. Which requires the greater weight of your force? The enemy forces defending the obstacle or breach might be a greater challenge for the task force than its main objective.

The task force commander must first concentrate upon specific intelligence requirements. Using organic or other means, he must develop all unavailable information on the obstacle or defile. Scouts must un-

derstand that the precise dimensions and locations of all parts of the obstructions are critical, for ignoring a tank ditch placed behind a minefield will lead to disaster. Templating doctrinal enemy positions to cover the breach will further assist in providing requirements for the scouts to either confirm or deny, and in a breach reduction, the reconnaissance must detail individual enemy positions.

The task force commander must task-organize his unit to guarantee its success in breaching the defile or obstacle zone, to destroy the enemy force, while preserving his own force. A typical task force organization would be a mech company/team to breach the obstacle, with a tank company/team providing overwatch during the breaching/defile clearing. If possible, the commander should designate another mech company to go dismounted over rough terrain to strike deeper in the defile, destroying enemy vehicles overwatching the defile or its exit. He needs to designate a tank company/team as an assault force, sending it through the enemy defense once a breach has been created. The breach company should have some engineer assets - perhaps a platoon. If more are available, they should be under task force control for commitment as needed.

A typical task organization for a breach company/team might be a mech-pure team with an attached tank and engineer platoon. This company could be organized as follows:

**Mech platoon:** Near-side security/back-up breach team.

**Mech platoon:** Far-side security/back-up recon team.

**Mech platoon:** Recon team/back-up far-side security team.

**Tank platoon:** Assault team/suppression on near side.

**Engineer platoon:** Breach team/back-up far-side security team.

The infantry platoons can secure the near and far sides of the defile, clearing enemy direct-fire systems. The overwhelming imperative for this team must be the constant, aggressive expansion of the far side of the breach or defile. Recon and security elements, either assault or ambush teams, must be constantly on the move to add even more security to the site.

Clearing the far side is key, and should not begin at the completion of the breach; it should occur simultaneously, so that the far side is secure at about the same time the lane opens. Also, a thorough reconnaissance of the entire defile or obstacle is critical. Again, it does no good to clear nine-tenths of the obstacle only to have the assault force die in an unexpected and unseen belt of mines.

One platoon-size team, in addition to the task force scouts, should be dedicated to reconnoitering the obstacle, and looking for bypasses along the route. This platoon should make personnel breaches through the wire and mines, moving as quickly as possible to the templated back-side of the obstacle. They must be prepared to conduct hasty antitank ambushes to defeat any vehicular counterattack against the obstacle clearing site. As enemy positions are encountered, this platoon must destroy the individual vehicles or dug-in infantry. The second infantry platoon assists the lead platoon as the clearance of far side begins.

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The tank platoon makes an excellent assault force because of its survivability, rapid-fire capabilities, and thermal sights. The obvious breach team is the engineer platoon. However, the infantry and tank platoons must be prepared to breach if the engineers falter. The breach commander, as well, must plan for replacing or reinforcing teams as he attacks the defile.

#### **PHASE II: Movement to the defile/obstacle.**

Movement to the defile/obstacle area must be rapid and obscured. The suppression and obscuration of the defile/obstacle must begin during this phase, with indirect fires and air support. Ideally, smoke is obscuring enemy direct-fire systems, and artillery is creating enemy casualties at the same time the breach company/team is approaching the defile.

The task force commander must make the decision whether to smoke the enemy covering the obstacle or to obscure the obstacle itself. If he obscures the enemy, only his weapon systems with thermal sights can provide direct-fire suppression. If he smokes the obstacle, then all of his direct-fire systems can provide effective suppression. He should dedicate a mortar section or two to provide smoke. He should alter this section's basic load to provide as much smoke ammunition as possible. Artillery smoke would be the primary means, with his dedicated 4.2-in. mortar section as a totally reliable augmentation/backup.

The enemy will naturally target the obstacle with direct and indirect fires. The enemy will allow the attacking forces into the obstacle, and then begin to mass his fires on the

slowed attack. Thus, artillery, HE, and smoke must mask potential enemy artillery observer sites, as well as positions for direct-fire systems.

The attacking unit will surely encounter enemy combat outposts or ambushes enroute. The task force commander must decide either to rapidly destroy these forces or bypass them. Tank sections could pin the enemy outpost while the task force bypasses. Regardless of method, the plan must preserve the breach company/team for the breach/defile actions. In some METT-T conditions, a company team other than the breach team should lead to the defile/breach site.

#### **PHASE III: Reconnaissance.**

Reconnaissance begins with the scout teams attempting to confirm the location of every obstacle in the hours prior to the task force attack. We can never assume, though, that they have seen everything. Many times, the enemy will deliberately add new obstacles during darkness. The scout platoon must continue to recon the defile/breach site until the arrival of the task force.

The breach company/team must execute its own reconnaissance effort upon arrival at the defile/breach site. The designated reconnaissance platoon must dismount as close to the obstacle as possible, executing a series of man-sized breaches through each obstacle belt. This platoon should have a system of recording, reporting, and marking the type, size, and location of every obstacle it encounters.

A reliable technique is to have a numbering system that is common to the task force. For example, obstacle number one is the first belt

encountered at the main network. The platoon leader could then report the next obstacle belt as, "number two, 150 meters from the back of number one, minefield, 75 meters deep." Trying to use grid coordinates will only confuse everyone, because it is not easy to translate the distance between obstacles into six-digit coordinates. Scouts should label harassing obstacles enroute to the defile/breach site using a different system, perhaps with letters, to prevent confusion. As the breach team's recon platoon moves through the obstacle series, the scouts should already be reconnoitering in the vicinity of the main objective area and establishing OPs overlooking the most likely counterattack axis. The enemy understands that complex obstacles work, and the day of the single strand of concertina is over. A thorough reconnaissance of a deep obstacle network is essential.

#### **PHASE IV: Securing and reducing the defile/obstacle**

The breach/site commander should designate a release point where each of his platoon teams moves independently to execute its mission. The point should be close enough to the defile so that his forces are not piecemealed, yet far enough away to allow freedom of maneuver. This point could also be a dismount point for his infantry and engineers. From this stage on, all concerned need to understand that securing and clearing the defile/obstacle is deliberate, methodical, and slow by its very nature. Patience must be the watchword for the task force commander. A too-early commitment of the tank-heavy assault companies will result in high casualties as they are pinned on uncleared deeper



obstacles. Premature commitment also quickly results in confusion and loss of control at the breach site. This may be the most difficult task for an aggressive task force commander who wishes to rapidly accomplish his mission. However, if the plan is adequately thought through, tenacity in following the plan will generally provide the desired results. A synchronized supporting attack with indirect fires and dismounted forces can prevent the enemy from concentrating his combat power on the main effort. The dismounted supporting attack should be initiating direct fire on the enemy as the task force has begun closing on the obstacle/defile.

The breach company must rapidly clear the near side of the breach site/defile. The platoon(s) create infantry breaches to get through the obstacles and begin establishing security on the far side. To destroy any enemy vehicles or infantry positions within direct-fire range of the breaching effort, use overwatching tanks and ITVs, in coordination with dismounted infantry. The thermal capabilities of these vehicles permit easier detection and destruction of enemy vehicles and personnel. They can vector dismounted infantry elements to concealed enemy vehicles or positions. If radio communication is lost between the infantry and tanks, M85 or coax tracers can mark enemy locations.

The near- and far-side security teams must establish fire superiority to allow the breach team to begin its work. At this point, an infantry platoon is probably securing the near left and right flanks, another is reconnoitering along the defile or obstacle, identifying belts by using bypasses or personnel breaches in the obstacles.

A third infantry platoon, if available, may be moving in conjunction with the reconnaissance team, or better yet, is using a more rapid avenue to the templated backside of the obstacle. There it will establish a security zone. This platoon should probably carry the majority of the antiarmor weapons available to its parent company. Logically, the recon and near side security teams either do not need these weapons or have tanks in support. The far side security platoon should establish a series of ambushes protecting against enemy counterattacks to close the lanes. This platoon will establish security in three stages:

**Stage 1:** Local antiarmor ambushes and destruction of enemy vehicles and positions within 500 meters of the backside of obstacle network.

**Stage 2:** Antiarmor ambushes 1,000 meters from the local ambushes. These ambushes should be in position along major avenues of approach into the back side of the obstacle. Hunter-killer teams continue to destroy enemy vehicles that threaten the breach site/defile or the exit axis that the task force will use.

**Stage 3:** The breach company's tank platoon has now assaulted through the lanes and should be able to expand the security zone out to 3,000 meters. The infantry platoon will work in conjunction with this platoon of tanks to destroy any enemy positions or vehicles.

Meanwhile, the engineers are breaching and marking lanes, ensuring they never get ahead of the reconnaissance team. The tank platoon has provided local suppression of the near side, while finding

cover from enemy artillery so that it can assault through the breach when committed. The tank platoon can also vector the breaching teams through the obstacle or defile using their thermals. If the task force commander has decided to smoke the obstacle, the tank thermals will prove invaluable.

The company and task force commanders are with the breach team, ensuring every obstacle is breached properly. This is probably the most difficult phase of the drill, because the breach team is most likely in MOPP IV, with backpack radios, the leaders using hand and arm signals. The process is decentralized by its very nature, enemy artillery is bursting everywhere, and, above all, the task force commander wants to get through the defile *now!*

As the process nears completion, the task is not to commit the assault force prematurely. When the breach company commander has seen the lanes, knows that they are there, and can see that no more obstacles exist, only then should he call his own assault force tank platoon through. The tank platoon can move through rapidly, suppressing deep into the main objective area, and enlarging the breachhead. At this time, the task force commander sees that the security zone has been established, and realizes he can now commit his company-size assault forces onto the main objective.

**Phase V: The task force assaults through the obstacle.**

While the task force commander has been orchestrating the breach, his S3 should be fixed at the entrance point of the defile, preventing commitment of forces through the lanes, and controlling the traffic

once the vehicles are moving. Visual signaling devices — star clusters, smoke grenades — supplement radio control of the task force movement through the breach. A system of panel markers on six- to eight-foot poles can direct the teams to the breach site, which is usually hard to find. These markers can make the approach march to the breach site much easier because they are more visible. Tight control of the task force is essential for the rapid movement through the breach/defile. The task force command group must control this passage. The team commander who has made the breach does not have the resources to control the movement of the task force.

The task force commander must use artillery, smoke, CAS, or helicopters, and the maneuver of his own forces, to keep the enemy from assaulting the vulnerable passage area by forces or indirect fire. The effort must be to expand the far side of the breach/defile continually. The task force overwatch elements - tanks or ITVs - must be prepared to repel any counterattacks.

Since most breaches or defiles prohibit spread formations, the task force must move one or two vehicles abreast through the breach. If there is protected terrain beyond the obstacle, the task force assault team can use that area to organize from its single-file formation to its attack formation quickly.

If there is no such protection, the assault force needs to break through the lane using preassigned sectors of fire that cover the full 360 degrees. The far-side security, and assault teams from the breach company, should provide effective over-

watch and suppression of enemy direct-fire weapon systems in the area of the continually expanding breach/defile site.

A company/team passing through the site must rapidly mass its combat power into platoons. The task force commander then commits this cohesive combat power to subsequent objectives, expanding his control over the site, while blocking any counterattacks at ever-increasing distances from the vulnerable breach. When he is satisfied that his task force is through the constriction in sufficient mass, and reorganized into cohesive units, then the task force can continue its attack to seize its ultimate objective. He should not make a piecemeal commitment of individual platoons and companies.

### Conclusion

The breach/defile operation is a complex, incredibly demanding one. The task force must focus all of its resources to create the breach, expand the breach, and regain its combat organization at the far side, before continuing attacks to seize its ultimate objective. The demands of this operation require the focus of the task force's command group at each stage. The task force commander must be forward, assisting the team commander of the breach site. The S3 must be an active participant in moving the task force and regaining its combat formation. Company/team commanders must be as far forward as possible. With aggressive, dynamic leadership, the task force can secure a breach/defile rapidly, allowing the task force to preserve its combat power for use on the ultimate objective.

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# HMMWVs and Scouts: Do They Mix?

by Major Barry Scribner



Scouts Out! To a cavalry platoon leader in an armored cavalry regiment, that means one thing; to a scout platoon leader in a tank battalion, that means something entirely different. However, the Tables of Organization and Equipment (TO&E) under the H and J series appear to treat the two platoons as one.

In the former case, there is a focus on covering force operations and guard-type missions. In the latter case, battalion commanders generally use the scout platoon intelligence to gather and as a light screening force. Can a scout platoon equipped with HMMWVs adequately perform the missions assigned it by a tank-heavy battalion task force? The "Desert Rogues" Battalion, 1-64 Armor, based at Fort Stewart, Georgia, tested this concept during its August 1988 rotation to the National Training Center. The task force found that a HMMWV-equipped scout platoon was enormously effective during both the offensive and defensive phases of task force and brigade operations.

There are several missions that the scout platoon did not perform

during this rotation, due to the nature of the battalion's operations. It is impossible on the basis of one rotation, with one scout platoon and nine "battles," to develop any meaningful statistical conclusions concerning the propriety of equipping the scout platoon with HMMWVs in lieu of M3 Cavalry Fighting Vehicles. Rather, given the small sample size, the difficulty in assigning numerical ratings to the results, the lack of a "control" group, and the large intra-platoon variation, this evidence must be considered anecdotal in nature. We believe that it is well suited to additional iterations of wheeled scout platoons. Additionally, we hope that the results of our rotation will stimulate debate within the force-development community regarding the usefulness of a wheeled scout platoon.

The genesis for the wheeled scout platoon begins with concern about the survivability of scout platoons at the NTC. In our November 1986 rotation, the platoon took heavy casualties during every battle. Often, the OPFOR detected and destroyed the scouts early in the battles. The scout platoon sometimes forgot its reconnaissance mission and attempted to close with and destroy

the enemy, usually resulting in a one-sided victory for the OPFOR. Perhaps Cavalry Fighting Vehicles (CFV) would have provided the answer to both problems, but our scout platoon had not transitioned from M113s and ITVs to M3s. Thus, when the corps commander presented the possibility of using HMMWVs on the upcoming rotation, the battalion seized on the idea.

The scout platoon had eight HMMWVs for this rotation. Three were hard-shell versions that included a TOW system. Two were pickup trucks, and three were four-passenger models.

We did not specify the type of HMMWVs we received: the selection was based strictly on what was available within the division and local National Guard units. The selection was not the best for the scout platoon.

The platoon received an assortment of day and night vision devices. Among the most useful were 16 sets of PVS-5s and six TOW2 night sights. Three of the latter were attached to the TOW weapons mounted on the hard shell vehicles. The remaining three were

The TVS 4As and 5s were of no value to the scout platoon. The space they consumed could have been allocated to service support requirements, as well as room for litter patients. Thermal sights and PVS5s ruled the night during this rotation.

Batteries for the thermal sights were a constant problem. It was evident this would not have been a problem if we had had M3s. Planners should consider battery needs well in advance of a rotation if using wheeled vehicles. Overall, if the mix of HMMWVs was changed to eliminate the hardshell vehicles and include at least four 100-amp pick-up-truck HMMWVs (necessary because of the two-radio requirement for scout vehicles), eight HMMWVs provide adequate room for cargo and personnel.

Vehicle recovery was not a major problem during the rotation. Because there were eight within the platoon, vehicle recovery did not hinder the platoon's mission accomplishment. There was never a situation when a disabled HMMWV required more than one other HMMWV for recovery operations.

### **Manpower Requirements**

The scout platoon deployed with 29 enlisted personnel and one officer. This is consistent with the manpower authorization for the J-series TOE. The eight HMMWVs provided sufficient passenger-hauling capability for the platoon, although the comment above concerning replacing the hard shell vehicles with pickup trucks and four-passenger models applies. The scout platoon was able to emplace three or four OPs per offensive mission, with one exception, when time was

a critical factor. At least three scouts manned each OP. There were also at least three OPs emplaced for each defensive mission. There is no need to increase the TOE for the scout platoon. Manpower resources were adequate for mission accomplishment.

In addition to the personnel normally assigned to the scout platoon, the supporting field artillery unit provided an enlisted forward observer (FO) and digital message device (DMD). These additions proved invaluable. The DMD almost eliminated the need to send fire missions over voice systems. The forward observer was particularly useful during the deliberate attack, when precise grids allowed the task force to strip away much of the OPFOR's security force and deplete his tank reserve before the task force crossed the LD. Given the number of fire missions from the scout platoon, vis-a-vis the infantry platoons, serious thought should be given to changing the TO&E to reallocate the FO from the infantry platoons to the scout platoons. We submit that the infantry platoons have no greater need for an FO than tank platoons. The scout platoons can make excellent use of artillery fires.

Plans were made to attach an engineer squad to the scout platoon for offensive operations. The intent was to provide the scout platoon with some experts in the field of obstacle breaching.

Unfortunately, this attachment occurred only once. It would have been difficult, given the carrying capacity of the HMMWVs, to carry six additional personnel. If the hard shell vehicles were eliminated, there would be sufficient space for the additional personnel. Regardless of

the vehicles assigned to the scout platoon, a squad of engineers remains an attractive concept in the offense.

We attached a medic to the platoon for the rotation. He proved to be a valuable asset. The aid he provided to the litter patients contributed significantly to the lack of "died of wounds" patients in the scout platoon. We will continue to attach a medic to the platoon.

HIND helicopters caused problems during two of the operations. Although the scout platoon was more adept than other units' scout platoons at avoiding detection, attachment of a STINGER would have been extremely helpful. We do not believe, however, that a STINGER team needs to be attached to the scout platoon. Rather, we advocate that scouts be trained in STINGER operations, and consideration given to authorizing one STINGER weapons system to the platoon. We were unable to effect this attachment during the rotation because of the NTC's reluctance to deviate significantly from TO&E authorization. However, to the extent that the United States can train Afghan guerrillas on the use of the STINGER, we submit that category I-III scouts can be trained with minimal resources. In any event, it is an area we intend to experiment with during our next rotation.

### **Weapons Systems and Survivability**

There was a weakness in the mix of weapons available to the scout platoon. Besides the usual TO&E complement of M16s, VIPERS, and M60s, the scout platoon had six TOW weapons systems and eight DRAGON systems available. The scout platoon knew at the outset

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that these weapons were for breaking contact, as opposed to ambushing or attacking enemy vehicles; unfortunately, there is no way to separate the data on the scout engagements between the two categories. However, regardless of the rationale for engaging enemy vehicles, OPFOR direct fire systems killed significant numbers of scouts.

One obvious reason for the relatively high mortality rate among scouts (an average of three vehicles per offensive mission were lost prior to reaching the objective) is the nature of the TOW and DRAGON weapons systems. In both cases, the scouts must track the enemy for upward of 11 seconds. Such weapons systems are not conducive to quickly disengaging. The platoon complained at length about the problems associated with the TOW system. Not only was it inadequate to deal with enemy BMPs, but the space required for ammunition cramped CSS operations.

Given this experience, we believe there is a clear need for a HMMWV-mounted weapons system to provide immediate suppression. The M3, with its 25-mm cannon, does not have this problem. The Mark 19 automatic grenade launcher would appear to fit the needs of a HMMWV scout platoon. The ammunition storage requirements are no greater than a Hofman box, and the quick-fire nature of the weapon would quickly suppress a BMP.

Tanks would still pose a problem, but tanks pose a threat to the M3 as well. The Mark 19 is simple, compact, and appears to be easy to master. We do not want to turn the scouts into regimental cavalry platoons, but we do want to offer

them a modicum of protection if they are surprised by enemy vehicles. That more scouts did not "die" in direct fire engagements is more a testimonial to their stealth than to the TOW's effectiveness.

The DRAGONS provided enough firepower in those situations where a very lucrative target presented itself. More than eight systems would be nice, but carrying capacity is limited, and lack of large numbers of offensive weapons systems helps ensure that the platoon is adequately circumspect, once it identifies an enemy vehicle.

#### **The Impact of HMMWVs On Command and Control**

The scout platoon was organized into three sections. There was one pickup truck or four-passenger HMMWV and one hard-shell HMMWV per section. The scout platoon used the wingman concept. Typically, the platoon leader and platoon sergeant would each follow one of the sections. On occasion, the platoon leader would erect an antenna to act as a relay between a vehicle and the task force command post. Contrary to the brigade's conventional wisdom, scouts should have had either RT524s or RT246s, because of the extended ranges over which the scouts were forced to operate. All radios, to include the AN/PRC-77s, operated in the secure mode. We know of no occasion when the OPFOR located a scout by direction finding. Our experience suggests that the scout net must be secure at all times. Each scout section must also be able to monitor simultaneously the task force command net and the scout net. Only three of the eight HMMWVs had this capability. However, the radio configuration

within the platoon allowed the platoon sergeant and the senior section sergeant to take over the platoon and report to the task force commander in the event of the platoon leader's "death."

The platoon leader found that control of eight vehicles was manageable. During the training period before the rotation, the platoon was assigned 10 HMMWVs. Based on this experience, the platoon leader is convinced that eight vehicles is optimal, and that additional vehicles would add little to the platoon's effectiveness. Rather, he believes that command and control would suffer.

Finally, the hard-shell vehicles lent themselves to the wingman concept. The platoon was uncertain whether, in the absence of vehicular-mounted TOWs, it would continue with this practice. However, the three-section concept worked well and there was never a situation where the scout platoon was unable to perform the S3 and the S2 reconnaissance missions.

#### **Conclusions**

At the outset, we cautioned that the findings from this experiment would be more qualitative than statistically analyzable. One must be careful not to attribute the success of the scout platoon to the wrong input. There was a labor input, a highly motivated and well-trained platoon of smart soldiers; and a capital input, the HMMWVs.

How much of the scouts' success was due to the independent effect of being assigned wheeled vehicles, in lieu of tracks, is difficult to determine and inherently subject to speculation, but the scouts provided the task force with important intel-

hand held. Additionally, the platoon had two DRAGON night sights for its use.

The task force's missions during this rotation consisted of a combination of movement to contact operations (where the scouts were allowed to cross the LD/LC less than 30 minutes prior to the advance guard), hasty and deliberate attacks, and defense-in-sector/counterattack-by-fire operations. Most task force missions had LD times during daylight hours. However, the scouts often would move during periods of limited visibility.

The task force rotation was extremely successful. This success was due, in part, to the effectiveness of the scouts. Effectiveness is a nebulous concept at best, and we do not attempt to expand upon the seminal work done by Goldsmith in this area.<sup>1</sup> We take as a given that scout effectiveness is an input that adds to mission effectiveness. However, we contend that scout effectiveness is, in fact, an intermediate product whose inputs include the ability of the scouts to reach an objective, survive long enough to provide meaningful intelligence to the task force, sustain operations beyond one battle, and provide command and control to the personnel assigned to the scout platoon.

### **Survivability**

Survivability is a historic problem for scouts at the NTC. This is particularly true during offensive operations, such as movements to contact and attacks. In previous rotations, scouts were destroyed crossing the line of departure, enroute to the objective, and immediately upon reaching the objective. We found that the HMMWV-equipped scout platoon could almost travel with impunity around the battlefield. HMMWVs

are extremely quiet, and unlike previous rotations, not one scout vehicle was lost due to enemy "spot light" teams (two OPFOR vehicles, one with a searchlight attached to the turret to illuminate targets at night, and a second to destroy the illuminated targets.) With one exception, the brigade hasty attack, the scouts were always able to perform reconnaissance on the task force's objective and provide intelligence critical to the commander's prosecution of the battle. On average, five vehicles reached the objective, and three scout vehicles survived until "change of mission."

During the task force deliberate attack, the scouts moved out during hours of daylight, and continuously reconnoitered the objective and the task force's routes to the objective for two days and one night. The scouts emplaced three 3-man OPs and gave six-digit coordinates to the task force on 80 percent of the enemy's vehicles. The result was an incredibly effective artillery preparation that destroyed close to one third of the enemy's combat power before the task force crossed the line of departure.

During this mission, the scout platoon was able to make continuous trips back to the task force command post. Enemy fire got only one HMMWV and one OP before the task force crossed the LD. Ultimately, four of the scout vehicles were destroyed (one was lost to artillery, and three to enemy direct fire). Some argued that the scouts' "invisibility shield" came from the OPFOR's inability to distinguish between its own HMMWVs, the observer-controller HMMWVs, and the scout platoon HMMWVs. That may or may not have been the case. There is no way to disaggregate the data to confirm or deny that assertion. However, the OPFOR knew the scout platoon was equipped

with HMMWVs. It also knew the locations and activities of its own vehicles, and it knew controller vehicles would not "die."

Additionally, only the scout HMMWVs had a green fluorescent "V" taped on their sides. Thus, we do not believe that OPFOR confusion was a major factor in the ability of the scouts to roam across the battlefield.

During the brigade movement to contact, the scouts were again able to deploy quickly and more than two kilometers in front of the task force advanced guard. Unfortunately, in this case, all operational scout vehicles eventually were destroyed, and at first glance, the raw data might indicate that the lack of armor protection on HMMWVs is a significant disadvantage.<sup>2</sup> However, the scouts' inability to survive during this battle was due to other reasons, not so much to the soldiers being surprised. Scouts were killed attempting to engage BMPs positioned to ambush the task force along its route of advance and attempting to disengage from Hind helicopters. Both enemy weapons systems are effective against HMMWVs, M113s, M901s, and M3s. The scout platoon also had significant problems disengaging from enemy BMPs during the task force movement to contact, although two vehicles ultimately reached the objective (20 km from the LD) and survived. On the average, three scout vehicles survived until change of mission during task force and brigade offensive operations. The average number of OPs that survived was two. Direct fire engagements accounted for a vast majority of friendly casualties. The average number of HMMWVs lost per mission due to enemy artillery was one.

In terms of stealth, HMMWVs played a critical role during offen-

*"Direct fire engagements accounted for a vast majority of friendly casualties. The average number of HMMWVs lost per mission due to enemy artillery was one."*



sive operations, particularly during attack missions. They were able to reconnoiter the task force routes to the objective and usually determine the enemy's disposition on the objective. During movements to contact, when the time between the scouts deployment and the deployment of the advance guard was short, the speed and stealth of the HMMWV allowed the scouts to screen the task force's advance. Only when the scouts attempted to close with and destroy the enemy, or attempt to disengage when fixed by the enemy, did they suffer significant casualties.

The scout platoon is unanimous in its view that the addition of tracked vehicles to the equipment list, while providing additional firepower, would be offset by the vehicles' high profile and noise.

Contributing to the scouts' success was the ability to quietly emplace dismounted OP scouts within 500 meters of the OP's destination. OPs were, therefore, on station quickly.<sup>3</sup> Without stealth, a scout platoon is nothing more than the forward combat element of a task force. A heavily armed platoon may offer increased security for the task force main body, but it provides little in the way of intelligence, and the probability of reaching its objective is small.

During task force and brigade defensive operations, stealth was not a major factor in the scouts' survivability and the ultimate success or failure of the task force. In terms of stealth, the HMMWVs offered no particular advantage to the scouts' ability to deploy. However, a

major plus for the scouts during the defense was the HMMWVs' maneuverability. OPs were emplaced quickly in areas such as Tiefert Mountain, which is untrafficable to tracked vehicles. Not a single scout was lost during any of the three defensive missions assigned to the task force.

Scouts would typically deploy OPs, both vehicle-mounted and dismounted, up to eight kilometers in front of the FEBA. Initially, the scouts tended to bunch up during the emplacement of the OPs, but that is not unique to the use of HMMWVs. No OPs were destroyed, which means that either the enemy did not observe their emplacement or, more probably, just avoided the areas covered by the OPs.<sup>4</sup>

### **Combat Service Support (CSS)**

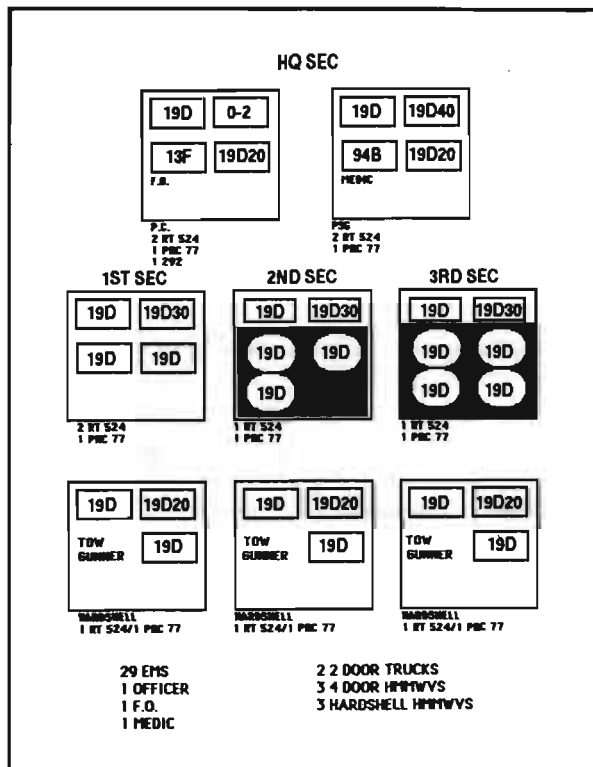
To be effective, the scout platoon must be able to sustain itself beyond the first battle. It is, therefore, particularly appropriate to discuss the CSS issues at this point. First, the operational readiness rate for the scout vehicles was outstanding during the rotation. The scouts deployed with all eight vehicles on five of the nine missions. During three of the missions, the scouts operated with seven of the eight HMMWVs, and on one mission they had six of eight.

HMMWVs are reliable pieces of equipment capable of sustained operations over rough desert terrain. This should not come as a surprise given the observer/controllers' reliance on these vehicles for several years.

Medical evacuation of wounded personnel was made easy by the number of vehicles available to the scout platoon and the speed of the HMMWV.

The scout platoon's eight vehicles, coupled with their speed, helped "wounded soldiers" survive: only one soldier "died" of wounds during the entire rotation. If the scouts had not had wheeled vehicles, an average of seven soldiers would have "died" because many of the "wounded soldiers" were located in hard to reach terrain, up to 40 kilometers forward of the jump aid station. This estimate is based, however, on a comparison of the capabilities of HMMWVs and M113s, not M3s. In hindsight, the scout platoon should probably have carried one stretcher per vehicle.

Resupply was easy with the HMMWV. The vehicle is not fuel hungry, and the scouts carried 10 additional gallons of fuel per vehicle on every mission. The HMMWV's speed enabled the platoon to resupply in times consistent with mission requirements. The scout platoon received a hot meal every time the task force main body received a hot meal. However, space aboard the HMMWVs was at a premium, and it was difficult to push adequate amounts of classes III and V forward during offensive operations. Part of the problem was due to the large number of night vision sights carried by the scout platoon, and the lack of room inside the hard shell vehicles. We probably could have reduced the number of night sights significantly with little degradation of scout effectiveness.



*"How much of the scouts' success was due to the independent effect of being assigned wheeled vehicles, in lieu of tracks, is difficult to determine and inherently subject to speculation, but the scouts provided the task force with important intelligence and suffered fewer casualties than expected."*

force scout platoons by continuing to analyze the concept of wheeled scouts. Not all divisions are equipped with M3s.

We advocate allowing non-M3 equipped scout platoons the option of using HMMWVs during their NTC rotations as a low-

cost means of expanding the data base on scout platoons from one platoon to 20 or 30, so that we can gather some truly robust statistics.

and, ipso facto, survivability. In fact, there is reason to believe that motorcycles would provide those riding more stealth than a relatively large wheeled vehicle such as the HMMWV. However, since we did not employ motorcycles, any comparisons we make are purely speculative in nature. There is also reason to believe that the eighth operating system, safety, would suffer if motorcycles were employed in a manner similar to the HMMWVs. The training requirements for effective use of motorcycles on unimproved surfaces are likely to be significant. Even then, the safety aspects of using a motorcycle on unimproved surfaces seem substantial. That is one advantage of the HMMWV. It is a stable platform that tends not to pose safety problems for individuals maneuvering over rough and mountainous terrain. The scout platoon, for all its rough terrain and night maneuver did not suffer a single injury. Would a motorcycle equipped platoon be as fortunate?

intelligence and suffered fewer casualties than expected. The scout survey, conducted at the conclusion of every battle, indicated that scout personnel who were used to training with tracked vehicles all believed that a large measure of their success was due to the HMMWVs.

The fear that enemy artillery would devastate the unarmored platoon proved groundless. Less than one HMMWV per mission was destroyed due to enemy artillery. Moreover, 100 rounds of artillery will destroy a Bradley as easily as a HMMWV. The fact that so few HMMWVs were destroyed by artillery says much about the stealth, especially in the offense, of a HMMWV scout platoon.

We hope that more NTC-bound task forces will be allowed to use HMMWVs to enlarge the data base on wheeled scouts and offer a meaningful standard against which we can measure M3-equipped scout platoons. Currently, there is the possibility of weighing the costs versus the effectiveness of the M3 for task

cost means of expanding the data base on scout platoons from one platoon to 20 or 30, so that we can gather some truly robust statistics.

### Notes

<sup>1</sup>See Martin Goldsmith and James Hodges. Applying the National Training Center Experience: Tactical Reconnaissance (Santa Monica: Rand Corporation, October 1987), Rand Report 14-2628-A.

<sup>2</sup>During this operation, all six M3s assigned to the mechanized task force were also destroyed. It appears that scouts have an inherently difficult mission to perform during movements to contact.

<sup>3</sup>Casual conversation with the M3 scout platoon assigned to the mechanized task force indicated that its OPs were forced to dismount much farther away from the sites they intended to occupy.

<sup>4</sup>Much discussion has been devoted to the use of motorcycles in conjunction with M3s. Motorcycles offer advantages similar to the HMMWV in terms of stealth

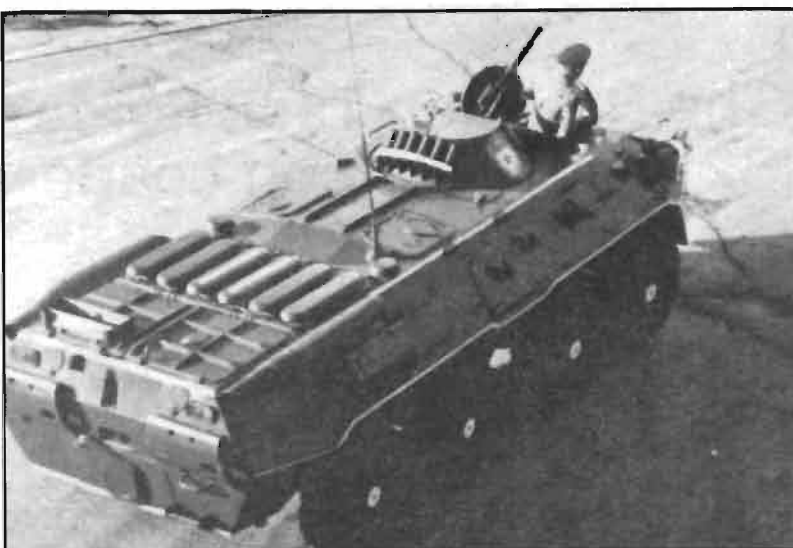
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# Soviet Vehicle Recognition Quiz

Compiled by Craig Hughes

1.



2.



3.

5.



4.



6.



Answers on Page 42

# The Battalion Task Force S2 - Scout Platoon Leader Relationship

by Captain Herbert R. McMaster Jr.

Recently, many have written about the reconnaissance battle at the National Training Center. These articles, along with improvements in FM 17-98, have engendered a greater understanding of Cavalry Fighting Vehicle-equipped scout platoon operations. There are, however, certain important aspects of scout platoon operations that have not been addressed. Perhaps most important of these is the battalion/task force S2's relationship with the scout platoon leader. To be completely effective, the S2 and the scout platoon leader must work together as a team.

The scout platoon leader requires the S2's assistance most while planning the operation. Time is perhaps the most limiting factor in the planning and execution of reconnaissance missions at the task force level. Time is usually in shortest supply as we prepare for the attack. During offensive operations, the scout platoon leader often cannot afford to wait for the task force operations order before the platoon begins reconnaissance. Time allows scouts to move with more stealth and reconnoiter more completely. It is extremely important that the S2 help streamline the planning process for the scout platoon leader. When the task force receives a new mission from brigade, the S2 should issue to the scout platoon leader as complete a warning order as possible over the radio. The warning order should include who, what, where, when, and why for the scout platoon, and not just parrot the task force warning order. It should also

include a brief fragmentary order for establishing a forward screen in the new area of operations. Assuming secure communications, an example of a warning order issued to the scout platoon leader is as follows:

*AIK conducts a zone reconnaissance in sector NLT 272000 April 1989 oriented on Objective Tyler (NK5910) to detect and report enemy elements and obstacles. Task force southern boundry from 4493 to 5296 to 6104 to 6308. Northern boundary from 4605 to 5309 to 5712. Establish screen along the 49 north-south grid line oriented east ASAP.*

After receiving the above order, the platoon will execute a hasty screen to provide security for the task force as it moves into the area and prepares for the attack. The platoon's non-commissioned officers know the mission and can begin preparation. The platoon leader has enough information to formulate a rough tentative plan. He can assign section sectors and observation posts (OPs) for the screen mission. A brief execution matrix is helpful, to include movement to the observation posts.

The scout platoon leader should plan for the OPs to serve as the start point for each section's reconnaissance mission. This allows section leaders to conduct a visual reconnaissance of their sector early in the planning process. Once the scout platoon leader issues the warning order for the upcoming mission and the fragmentary order for oc-

cupying the screen line, he goes to the task force tactical operations center (TOC) for a more complete briefing. The platoon sergeant conducts a pre-combat inspection, resupply operations, and controls the occupation of the screen line.

While the platoon leader is en-route, the S2 should gather information necessary for the scout to plan his reconnaissance. The primary medium for providing guidance to the scout platoon leader is the reconnaissance and surveillance (R&S) plan or overlay. If time does not permit, this plan need not be the final R&S plan, which the S2 will include as part of the intelligence annex to the operations order. Its purpose is to give the scout platoon leader enough information to plan the platoon's reconnaissance. The S2 bases this plan on taskings from brigade headquarters, what is known about the enemy, and the task force commander's priority information requirements (PIRs). The S2 designates named areas of interest (NAIs) to focus the scout platoon's reconnaissance effort. Other information the scout will need includes:

- The situational template. This includes all confirmed and templated enemy positions and obstacles in the task force area of interest. When we are attacking, it includes possible enemy counterattack routes. When we defend, it includes possible enemy avenues of approach.

- Any attachments/linkup information. The S2 should ask the S3

*"The more time that the scout platoon has to prepare a forward screen, the more successful the counter-reconnaissance battle will be."*

for scout attachments as early as possible. Scout attachments, such as a tank platoon employed in a counter-reconnaissance role, should conduct their troop-leading procedures with the scouts. The scout platoon leader must also conduct rehearsals with his new team members.

- The task force commander's intent, both for the task force mission and the reconnaissance effort. This must include the primary axis along which he intends to attack.

- Brigade and task force operational graphics.

- A follow-on mission for after the reconnaissance mission is complete.

- The fire support plan in its current form. Of particular importance are priority of field artillery and mortar fires during the reconnaissance mission, priority targets, scheduled fires that may affect the platoon's mission, and the fire support overlay in its current form. The fire support coordinator should allow the scout platoon leader to plan several additional targets to support his reconnaissance.

- Air defense artillery threat warning and weapons control status.

- Nuclear, biological, and chemical warfare threat and mission-oriented protective posture (MOPP) level.

- Essential combat service support information. This includes the location of the combat trains and ambulance exchange point during each phase of the operation.

- Any signal information unique to the upcoming mission. Examples are pyrotechnic signals or pre-planned frequency hopping. The S2 can include much of the above information on an overlay.

After the S2's briefing, the scout platoon leader can quickly plan his operation and develop his graphics. The scout platoon leader now briefs his plan to the S2 and leaves a copy of the graphics with him. The S2 can now follow the scout platoon's progress by eavesdropping on the scout platoon net. He can also brief others, specifically the team commanders, on the scout platoon's scheme of maneuver. An execution matrix is a particularly helpful reference for the S2 personnel, as well as for scout section and squad leaders.

The S2 must have responsibility for maintaining radio contact with the scouts. The scout platoon does not have sufficient assets to provide radio relay. For certain operations, the S2 should plan to use the battalion RETRANS vehicle, or some other kind of relay.

The S2 monitors the scout net for numerous reasons. Obviously, he records any information the scouts gather, disseminates it to the task force commander, S3, and company/team commanders, and updates his situational template.

He must also remember to relay the scout platoon's disposition to the task force S3, team commanders, and fire support element to reduce the scouts' vulnerability to friendly direct and indirect fires. The fire support coordinator should establish restricted fire areas around scout positions.

During defensive operations, the S2 should assist the scout platoon leader in the same manner. The more time that the scout platoon has to prepare a forward screen, the

more successful the counter-reconnaissance battle will be. During the defense, however, the scout platoon leader and the S2 have greater opportunity for more extensive preparation and continuous planning.

Just as effective reconnaissance and security operations are a significant combat multiplier for a battalion/task force, efficiency during the scout platoon's planning and preparation phase greatly enhances their effectiveness. If he understands the information the scout platoon leader needs, the S2 is a considerable asset to the scout platoon and his battalion. The scout platoon leader must also understand what information the S2 needs from him concerning the scout platoon's scheme of maneuver. The effectiveness of reconnaissance and security operations at the task force level depends not only on the individual competence of the S2 and the scout platoon but also on their ability to work together as a team.

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## COMMANDER'S HATCH

*Continued from Page 6*

reserve to counter any penetration. The battle group could also be assigned the sector astride the main enemy avenue of approach and given a delay mission, with the intention of creating an assailable flank to set the preconditions for a counterattack.

The battle group is not limited to defense. It may lack the combat power to penetrate the enemy regimental first echelon, but its high mobility and speed make it ideal for exploitation. It could also serve as a follow and support force for an exploiting brigade. Another mission would have the cavalry battle group

conduct a supporting attack to fix enemy reserves, while one of the division's brigades conducts a penetration. Then the second brigade exploits the success.

Although the battle group may have limitations of size and support, it provides flexibility, can influence the battle, and can help take the initiative. Restructuring the division to provide the third maneuver unit allows the commander to use the same tactics which he and his staff have already mastered. The employment restrictions of the cavalry battle group will be similar to those of a brigade depleted as a result of

combat actions. The difficulty of integrating roundout divisions in a combat zone invites intervention by Murphy's Law. We must figure out how to compensate for the possibility of a delayed link-up. Forming a third maneuver element on the cavalry squadron base provides the division commander with a solution that will allow him to fight effectively until his unit is complete.

Forming a third maneuver element on the cavalry squadron base provides the division commander with a solution that will allow him to fight effectively until his unit is complete.

### Recognition Quiz Answers

*This month's vehicle identification quiz again focuses on Soviet armored vehicles currently fielded with Soviet and Warsaw Pact ground forces. All vehicles are identifiable by unique features shown in these photographs. We encourage your comments, questions, or suggestions regarding our quiz. Contact Craig M. Hughes, Threat Division/DCD, AV 464-4757 or Commerical (502)624-4757.*

**1. BTR-80.** The Soviets modified the truncated cone turret used on the BTR-70 for the BTR-80 by redesigning the mantlet. This allows the 14.5-mm and coaxial 7.62-mm machine guns to be elevated to a maximum of 60 degrees. This high angle of fire is useful in engaging targets on steep mountain sides, such as those in Afghanistan. The redesigned side doors are split horizontally. The upper portion opens forward. The lower portion opens down, forming a step. Six smoke grenade projectors are mounted on the rear of the turret.

**2. BMP-2.** The BMP-2 is an infantry combat vehicle variant of the BMP-1 that includes an enlarged two-man turret which mounts a 30-mm automatic gun, with a long, thin tube and a double-baffle muzzle brake; along with a 7.62-mm coaxial machine gun on its front. On top of the turret is the AT-5 SPANDREL.

**3. BMP-1.** A centrally located, extremely flat, truncated cone turret mounts a 73-mm smoothbore gun and a 7.62-mm coaxial machine gun. A launching rail for the SAGGER AT-3 attaches above the gun.

**4. T-64B.** The T-64 and the T-72 are similar in appearance, however, there are several design differences between the two tanks. Among features peculiar to the T-64 are six small stamped road wheels, four track return rollers, the gunner's IR searchlight to the left of the main gun, and a newly designed 12.7-mm NSVT antiaircraft machine gun on the commander's cupola, which can be fired from a buttoned-up posture.

**5. BMD.** Like the BMP-1, its main armament is a 73-mm smoothbore gun, with a 7.62-mm coaxial machine gun mounted on the right side of the main gun (seen here) and with a SAGGER AT-3 or SPANDREL AT-5 (the rail visible here in the extreme upper left hand corner). The Soviet airborne insignia is on the top of the commander's hatch.

**6. ACRV.** ACRV (Artillery Command and Reconnaissance Vehicle) is the overall designation for a series of vehicles known to consist of four versions: 1V13, 1V14, 1V15, and 1V16. All four use the MTLB chassis. The four versions of the ACRV are deployed in self-propelled howitzer battalions.

# The Soviet Operational Maneuver Group: Would It Work in Central Europe?

by Captain Gregory W. Grist

*OMG doctrine sounds formidable,  
But actually making it work  
Would prove an uphill fight...*

In the early 1980s, the Soviets unveiled their counter to the NATO doctrine of active defense in Central Europe. The concept, ostensibly a resurrected and expanded version of the World War II Red Army Mobile Group, was called the Operational Maneuver Group (OMG) when it appeared in Polish military literature in 1982.<sup>1</sup>

This dramatic disclosure produced flurries of literary activity from academic observers and critics, as well as professional military authors on both sides of the Iron Curtain. Although experts focused considerable analysis and speculation on this topic, several problems remained unresolved. These problems indicate that present OMG doctrine is seriously flawed, and that NATO over-response presents a greater threat than the OMG itself.

This issue is important to NATO because it affects the assumptions analysts make when predicting the probable strength, disposition, and intentions of Warsaw Pact forces in case of war. For example, if the Soviets hold back a third of each first echelon army (with proportional tactical air sorties) to form OMGs, this will have an impact on our intelligence estimates at the start of hostilities.

On the other hand, if the Soviets actually have no intention of forming OMGs at the outset, the change in the force ratio could be even more significant. With the military balance already precarious in Central Europe, an intelligence failure to properly assess this problem before to hostilities could prove decisive.

## Background

**Definition** - An Operational Maneuver Group is a unit specifically tailored from operational forces to assist in accomplishing operational missions. In Soviet military usage, *operational* refers to front<sup>2</sup> and army-level. It is an intermediate stage between *tactical* (divisions and regiments) and *strategic* (TVD<sup>3</sup> and national-level) echelons.

But a closer look is warranted because the OMG mentioned in Warsaw Pact military literature is not so much a specific organizational entity, but a unit existing wholly in the context of the current operation. It is a *method* of achieving operational



goals by accomplishing specified missions. This distinction will become clearer in the discussion of probable OMG missions.

## Historical Development

As I mentioned, the OMG is a direct descendant of the Red Army Mobile Group. In operations against the *Wehrmacht*, and later against the Japanese Army in the Manchurian Campaign, the Red Army effectively used Mobile Groups to exploit the success of their lead echelons. In both cases, though, the Red Army was operating at its wartime peak strength and efficiency against largely defeated enemies.

Following the end of the war, the Soviets de-emphasized conventional tactics in favor of exclusively nuclear warfare. They resurrected Mobile Group doctrine after the Khrushchev era, and frequently employed it during Warsaw Pact military exercises. Then, in the 1970s, they established the OMG doctrine. Firmly based on the experiences of the Red Army, most doctrinal changes appeared in the areas of targeting and support,<sup>4</sup> juxtaposing Soviet strengths against NATO weaknesses.

### Composition and Support

The size of an OMG is less difficult to describe. The nucleus for an army's OMG is a reinforced tank division.<sup>5</sup> Supporting units may include an air assault brigade, a helicopter regiment, an army artillery group, reconnaissance and intelligence units, air defense units, engineer units, command and control elements, and a number of fixed-wing aircraft.<sup>6</sup> The obvious strain this ungainly organization would place on the Soviet's current command, control, communications and intelligence (C<sup>3</sup>I) system is one of the unresolved problems.

### Purpose and Missions

At the most fundamental level, the purpose of the OMG is to ensure the rapid and total collapse of NATO's defenses *before* NATO can execute the tactical nuclear option.<sup>7</sup> Soviet doctrine is, however, clearer on *what* the OMG is expected to do than on *how* it should be done.

Warsaw Pact writers describe various missions for the OMG, all involving objectives in the operational depths of the enemy's defenses. The term "operational depths" is inexact, and can mean anywhere from 40-350km into the enemy rear,

depending on political and strategic objectives. For example, if the final *political* objective is the reunification of the Germans, the *strategic* military objective may be the capture of Bonn. In this case, the crossing sites over the Rhine River would, perhaps, then be designated *operational* objectives. If the neutralization of French nuclear capability is the *political* objective, "operational depths" would then extend a few hundred kilometers to the west.

One OMG mission, described in great detail by Warsaw Pact writers, is the destruction of enemy operational reserves. Since NATO has no operational maneuver reserves, I choose to interpret this as destruction of logistical reserves and, perhaps, blocking the approach (or destroying the prepositioned supplies) of REFORGER units before they take up their defensive positions.

### The OMG in Action

The following scenario illustrates only a small sample of the problems of complex inter-unit coordination, space management, logistics and battlefield leadership the OMG commander would face during his first few hours in combat. Assuming at least partial failure of the various NATO deep interdiction systems, and effective (if not total) strategic surprise, the operation would run roughly along the following lines. For the purpose of this scenario, the commitment of the OMG through the breach in NATO's defensive lines would begin at H Hour.

**H minus 6 Hours** - Initially, the OMG must hover somewhere between the parent army's first two operational echelons during the breakthrough phase, with the following restrictions:

- It must be close enough behind the first echelon (composed of at least two sister divisions) to immediately exploit a breakthrough anywhere along the front.

- It must be far enough from the close-in battle to avoid premature acquisition and engagement by enemy short- to medium-range interdiction weapons (for example, tube artillery and small-scale cross-FLOT attack helicopter strikes.)

- It must be far enough forward of the second operational echelon to avoid traffic congestion and over-concentration (a sure invitation to nuclear targeting).

**H minus 1 Hour to H Hour** - At the order of the army (or more likely, front) commander, the OMG commander orders his forward detachment (a heavily reinforced tank battalion) through the breach to reconnoiter and clear his two primary approach axes. The OMG commander then (and *only* then) launches the attached air assault brigade to seize critical bridges and highway interchanges along his route.<sup>8</sup>

About an hour later, he passes his unit's main body through the breach. With the addition of army- and front-level reinforcements, his main body has now swollen to the size of nearly *two* divisions. A single division in march column stretches for 150km, so splitting the OMG along two approaches would still leave columns 75km long when approaching the breakthrough area.

There is *no* possibility of moving cross-country and hitting the objectives on time. With the passage complete, the OMG careens toward NATO's operational rear area, oriented on one or more objectives 40-100km distant.

**H plus 1 Hour to H plus 3 Hours -** While attempting to control the rapid movement of over 300 tanks, 300 other armored vehicles, and well over 1,500 wheeled vehicles along an enemy-controlled road network, the OMG commander now starts to deal with enemy forces. Contact with various types of NATO units, usually inadvertent, occurs constantly as the OMG drives deeper. The subordinate unit commanders must evaluate each contact reports quickly, not allowing their units to deploy and engage the enemy, as is their natural reaction.

As the OMG approaches its objectives, the commander must now sufficiently concentrate his forces for more traditional offensive operations. At this point, all units are in desperate need of POL<sup>9</sup> and ammunition resupply. Due to operational (as well as mechanical) losses, radio contact may have been lost with many of his organic units (and *most* of his attached units). The tactical picture, especially concerning the enemy situation, is unclear. At this moment, when the OMG is most vulnerable, the most difficult tasks of the entire operation loom ahead. The commander: must gather his forces, far from most traditional means of support, and assault an objective, which may be strongly defended.

We now leave the OMG to its fate and turn to two questions that will serve to further illustrate issues raised in the scenario and other basic inadequacies in this doctrine as it now stands:

- Can current Soviet C<sup>3</sup>I technology and practice adequately control and support far-flung OMG operations?
- Is the OMG main body overly vulnerable to NATO counterattacks from both the ground and air?

## Discussion

**Command, Control, Communications and Intelligence (C3I)** Soviet C<sup>3</sup>I has long relied on high-level, centralized planning and control to sidestep serious doctrinal and technical problems. This solution has undeniable advantages in many situations, but the execution of an OMG mission is one of the most significant C<sup>3</sup>I challenges imaginable. As the example reveals, numerous problems will arise, any one of which could prove decisive. Charles Dick<sup>10</sup> cites two excellent examples of the frictions that exist in current Soviet C<sup>3</sup>I doctrine.

**Centralized Planning Versus Initiative and Flexibility.** The comprehensive need for centralized planning and control, versus the requirement for initiative, flexibility, and fast reactions, is not purely a Soviet problem. But the Soviets are unusual in that they rely on battle drills<sup>11</sup> at higher levels than other armies. For example, the Soviet division commander depends on his regiments to behave in a predictable manner in most situations. The regimental commander, in the absence of orders, will proceed to his last identified objective, and attempt to perform his assigned mission. Acting with initiative at this level is not practiced in peacetime, and is not expected in combat because the Soviet system more often rewards caution rather than boldness.<sup>12</sup>

Inevitably, OMG radio communications will be degraded and sometimes lost. This will seriously impact the ability of the subunit commanders to assume the higher commander's missions. Skip-echelon communications<sup>13</sup> are a tenuous method of sending intelligence and information to units deep in enemy territory.

**Requirement for Speed Versus Realistic Planning.** The Soviet tactical intelligence system strives to be effective in conducting reconnaissance and in gathering near-term, combat (targeting) information. Its shortcoming - in the processing and dissemination of intelligence while on the move - is, in theory, counterbalanced by the Soviets' meticulous planning process. The problem the OMG faces is the requirement to acquire, track, and predict enemy movements while removed from the information mainstream. Complete, detailed planning will not be feasible for many of the unexpected actions an OMG would face. The Soviets do not practice this on their maneuver fields, so their ability to suddenly acquire these skills in combat is suspect.

The radio network necessary for the success of an OMG appears to be extensive and complicated - not "Soviet" at all. The absolute minimum number of stations the OMG commander and his chief of staff would be required to monitor include a link dedicated to the air assault brigade, a link to his forward detachment, an emergency call-for-fire artillery channel, higher command's reconnaissance and intelligence channel, army-level command link, as well as a skip-echelon capability, and, of course, the usual internal command and operations networks. Due to the distances involved, most of these networks would have to be high frequency. The very nature of OMG operations would preclude many of the usual communications security precautions against direction-finding (no dummy networks, remoted antennas, or land lines.) Once again, one of the most critical areas for the OMG is also one of its most vulnerable.

**Vulnerability to Air and Ground Counterattack.** As the OMG

penetrates deeper into enemy territory, and farther from higher level support, air defense and open flanks become the most significant tactical vulnerabilities. According to Warsaw Pact doctrine, a considerable amount of air defense equipment must accompany the OMG. While moving rapidly in linear formation, the maneuver elements will be vulnerable to NATO tactical air attack. The Soviets plan to overcome this challenge with "local air superiority." A safe air corridor will ostensibly be maintained to, from, and over each OMG.

Since NATO's advantage in ground attack fighters is offset by the Warsaw Pact's advantage in air defense fighters in Central Europe, rough parity exists.<sup>14</sup> Local air superiority over each OMG, therefore, becomes impossible if multiple OMGs are committed, as current doctrine indicates. The equation becomes even more imbalanced when Warsaw Pact air power is further diluted, due to the excessive number of high-risk, deep, ground-attack sorties the OMGs would require. As a result, the greatest share of the air defense burden falls on the OMG's organic and attached surface-to-air missiles (SAMs).

Two considerations now become crucial to the OMG's survival. As the OMG drives deeper into the enemy's rear, it moves farther from Warsaw Pact forward air bases and closer to NATO aircraft bases. This increases the already considerable risks the Soviet fighter pilot faces in protecting his ground-based comrades, and simplifies the NATO pilot's mission.

The other consideration is, perhaps, even more significant. The most vulnerable area in a tactical SAM belt is the zone between the maximum range of the hand-held weapons and the minimum range of

the larger SAMs. This translates to about three kilometers for modern Soviet air defense systems.<sup>15</sup> This "dead zone" is well within the maximum effective range of most helicopter-launched, heavy antitank guided missiles in NATO's inventory, making this zone an ideal engagement area for aerial counterattacks. Considering the large number of attack helicopters available to both sides,<sup>16</sup> forces outside operational and strategic-level air defense missiles and fighters will be in considerable jeopardy.

**Flank Security.** Soviet units on the march designate forward, flank, and rear guards. For a division-sized unit (such as our OMG), the normal flank guards would be companies (of the same type as the parent unit) from subordinate regiments. The reconnaissance battalion forms the forward security, along with the forward detachment and advance guard (augmented battalion and reduced strength regiment, respectively), with another line company forming at the rear guard. This practice is carried out at lower levels. Within the division, regiments send out advance guard battalions and flank guard platoons. Battalions, in turn, send out advance guard companies and flank guard squads. These deployed forces act to break up small-scale enemy attacks and warn the main body of more significant threats. In tank and motor rifle divisions (TD and MRD), specialized engineer assets bury mines across the advance of any significant enemy flank attack. The MRDs also receive antitank battalions to cover these minefields.<sup>17</sup>

This highly structured system would seem to make Soviet flanks invulnerable, but the effectiveness of the flank guard is directly related to the adequacy and extent of the road network upon which the

division is traveling. Since an OMG is required to maintain an extremely high movement rate (25-40 kilometers per hour), flank guards are road-bound as well. If the number of roads along the OMG's approach is limited, the flank guards would be unable to maintain their doctrinal distance from the main body. In mountainous, forested terrain with numerous water obstacles (as in Central Europe), the ability to maintain a quickly moving flank guard may well become impossible.

The U.S. Cavalry's solution, using scout and attack helicopter units as a rapidly moving flank guard, may sound attractive to the Soviets, but serious problems emerge with this tactic, as well. Rapid movement by the OMG would soon outrun the range of the helicopters, flying from fixed bases in East Germany. The Soviets do not often rehearse establishing forward rearming and refueling bases and, are not likely to quickly acquire this skill in combat. Also, the further the OMG penetrates into the defenses, the more NATO air defense aircraft gain an advantage. These factors combine to render the OMG's flanks (and rear) rather porous. With a serious threat from NATO ground attack aircraft, antitank helicopters, and ground forces, the ability of the OMG to race through the German countryside is suspect. Even small NATO units with only modest antitank capabilities would be able to significantly hinder elements of the OMG moving in column along the few road networks that support their approach.

## Conclusion

The violent, pro-active, movement-based nature of the OMG appears to fit well into the overall Soviet concept of offensive operations. Against a weakened enemy, on open terrain, and with the army's



*"Even small NATO units with only modest antitank capabilities would be able to significantly hinder elements of the OMG moving in column along the few road networks that support their approach."*

most capable leaders commanding the tanks, an OMG could well prove itself as effective as an old Mobile Group. The current situation in Central Europe, however, fails to support the basic requirements for employing the modern formation. The examples of C<sup>3</sup>I problems and the threat of effective counterattacks are only samples of the vulnerabilities this doctrine fails to adequately address.

Soviet military leaders are certainly aware of this situation. If NATO plans call for withholding significant forces from the main battle are to counter inevitable OMGs, however, a portion of the Soviet plan may have already been accomplished.

No military operation is ever planned without accepting an appropriate level of risk. In the case of the OMG, the risks to the Soviets appear to outweigh the benefits. Since the *threat* of an OMG seems to offer greater advantages than its actual employment, NATO should plan accordingly.

## Notes

<sup>1</sup>Operacyjna grupa manewrowa (operational maneuver group) mentioned by Major Wojciech Michalak, "Aviation in the Raid-Maneuver Operation of Ground Forces," Polish Air Force and Air Defense Review, February 1982, cited by C.N. Donnelly. "The Soviet Operational Maneuver Group: A New Challenge for NATO," International Defence Review, 15, no. 9, 1982. (Reprinted in Military Review, March 1983, p 56.) Although first mentioned in a Polish publication, the concept is totally Soviet.

<sup>2</sup>Army group.

<sup>3</sup>TVD is the Soviet equivalent of "theater of operations."

<sup>4</sup>Donnelly, pp 57-59.

<sup>5</sup>John G. Hines and Phillip A. Peterson, "The Soviet Conventional Offensive in Europe," Military Review, April 1984, pp 9-10. My justification for selecting armored unit-based OMGs (to the exclusion of motor rifle) is based on the terrain of Central Europe, troops available to the Soviet commander, his probable mission, and NATO's tactical nuclear capability. For other theaters, Soviet doctrine does not rule out the use of motor rifle-based OMGs.

<sup>6</sup>David C. Isby, Weapons and Tactics of the Soviet Army, New Ed. (London: Jane's Publishing Company, 1988), p 54.

<sup>7</sup>Donnelly, pp 44-52. This article was the first definitive work on the OMG to appear in the Western press.

<sup>8</sup>To commit the air assault brigade too early would telegraph the OMG's presence and intentions. Surprise, especially during this phase of the operation, is a prime tenet of OMG doctrine. Many analysts even suggest the OMG would be committed at night to further enhance the element of surprise. Having considerable experience with armored forces, I submit a night launch would easily double the relative difficulty of the operation.

<sup>9</sup>Petroleum, Oil and Lubricants; our phrase, not theirs.

<sup>10</sup>Charles J. Dick, "Soviet Operational Concepts," Military Review, September and October 1985, p 43.

<sup>11</sup>For an interesting discussion of this topic, see Charles J. Dick's "Soviet Battle Drills: Vulnerability or Strength?," International Defence Review, 5/1985.

<sup>12</sup>Dick, "Operational Concepts," p 43.

<sup>13</sup>"Skip-echelon" refers to the system by which a unit may communicate directly with echelons higher (or lower) than its immediate superior (or subordinate). Examples would include the OMG Division

Headquarters communicating directly with a tank battalion attempting to stop a NATO counterattack, or perhaps the OMG Headquarters communicating with the Front Commander and reporting success (or failure) of some crucial aspect of their mission. This is almost always difficult due to the great distances involved.

<sup>14</sup>International Institute for Strategic Studies (IISS), The Military Balance, (London: IISS, 1988), p 237.

<sup>15</sup>The Soviets have weapons which are able to engage in this zone, however, this area is their most vulnerable in terms of acquisition and engagement.

<sup>16</sup>IISS, p 237. Within the NATO Guidelines Area (the territories of FRG, the Benelux countries, GDR, Poland and Czechoslovakia), the breakdown is 516 for NATO and 545 for the Warsaw Pact. This includes all helicopters with a primary antitank or close air support function.

<sup>17</sup>For an insightful discussion of this little understood topic, see SFC Peter Bunce, "The Soviet Reaction to a Flank Threat," ARMOR, November-December 1985, p 28-31.

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# Army Fitness And Combat Readiness

by Captain Michael W. Schweppe

The Army has made great advances in the last seven years in many areas of physical fitness. The Army Physical Fitness Test (APFT) performance standards have become more stringent. Enforcement of height-weight/body fat standards has improved. A smoking cessation policy is in effect. The use of alcohol has been "deglamorized." Army dining facilities have begun to serve healthier, low-fat menus. But we in the Army must recognize that the credit for these advances does not belong to us alone. The Army is merely a reflection of the society which it serves. These improvements have their basis in a nationwide boom in health consciousness.

Along with the benefits this boom has given the Army, there lies the danger that we forget that the fitness requirements of the Army are not, and never can be, the same as those of the civilian sector. The Army has come a long way since the 1982 "Year of Army Fitness." We must now re-evaluate our fitness programs and ensure that they support our doctrinal requirements to provide "rigorous, realistic training...to assure (all units are prepared) to fight."<sup>1</sup>

The APFT has become, in the minds of many commanders and soldiers, the ultimate measure of unit and individual fitness. Many have

lost sight of the "bottom line:" combat readiness. Incoming Marine Corps Commandant General Alfred Grey, in 1987, noted a similar loss of focus:

*"There are those who pride themselves on the number of push-ups, chin-ups, and sit-ups they can perform, but no one has stressed how they can carry a wounded Marine the length of the parade ground without killing him. This is what we should know and be able to do. If some want to run in their silk shorts and Adidas, that's fine with me; but the Corps is going to return to physical readiness training vs. physical fitness."*<sup>2</sup>

Although AR 350-15 (*Army Physical Fitness Program*) states that the PT test "will not form the basis for unit or individual programs,"<sup>3</sup> it is easy to see why this has occurred in many units.

As MAJ Mark Hertling wrote in his 1987 paper, "Physical Training for the Modern Battlefield: Are We Tough Enough?":

*"While the readiness posture of a unit should be measured by every mission the unit performs in training, the results of the three-event PT test and the meeting of the height-weight standards are more precisely and easily measured and are, therefore, in*



*practice, the indicator of the unit's fitness program."*<sup>4</sup>

What we test determines how we train; if we want commanders to conduct physical fitness training to meet combat readiness goals, we must test accordingly.

Another current problem is the philosophy of physical training in FM 21-20 itself. There are two areas of exercise physiology. The first, high intensity training, concerns itself with preparing athletes in specific physical skills required for their sport or event. The second area, sometimes known as health or "corporate" fitness, is aimed toward adults with the goals of increasing their quality of life, improving their productivity, and enhancing their enjoyment of leisure time. FM 21-20, with its emphasis on "FITT" (frequency, intensity, time, and type of exercise) exposes the second, "corporate" approach.

As MAJ Hertling asks rhetorically, should we train our soldiers to be "healthy" individuals, or should we train our soldiers to be "athletes" preparing for a very important competition?<sup>5</sup>

The answer is clear. We know the combat missions and corresponding physical requirements of all Army units. Now, we should devise stand-

ardized physical training programs for all like units with like missions and include variations for climatic differences. Army-wide qualification tests would supplement the APFT, and de-emphasize push-ups, sit-ups, and the two-mile run as the ultimate measures of fitness. An infantry battalion, for example, would have to conduct a 12-mile road march with a prescribed load in a certain period of time, dependent on terrain.

A second area that should receive increased attention is combatives. It is possible for an American soldier to serve his entire career and never participate in any form of combatives after the completion of initial entry training. That is the only time the U.S. Army currently requires hand-to-hand training. In contrast, the Soviet soldier must demonstrate proficiency in unarmed combat (SAMBO - a Soviet military variation of Judo) yearly. In addition to providing a combat-specific skill, a graded combatives program would assist in psychological preparation for the stress of combat.

In many respects, the American people and their Army are in the best physical shape in history. Army leaders must align the Army's combat readiness and fitness goals. Civilian measures of fitness will not necessarily correspond to combat fitness requirements. The Army's focus on physical training and testing must return to combat skills. Implementation of specific supplements to the APFT, and a graded combatives program, will achieve this purpose.

#### Notes

<sup>1</sup> FM 100-5 (May, 1986), Operations, p.26.

<sup>2</sup> Associated Press Dispatch, "New Commandant Talks to His Marines," Kansas City Star, 5 October 1987, p.3.



<sup>3</sup> AR 350-12, The Army Physical Fitness Program (1985), p.5.

<sup>4</sup> Mark Hertling, "Physical Training for the Modern Battlefield: Are We Tough Enough?", Research Paper, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, 1987, p.34.

<sup>5</sup> Ibid, p.35.

<sup>6</sup> Ibid, pp.37-42. MAJ Hertling recommends using exercise physiologists at the Army Fitness Center at Fort Benjamin Harrison, Indiana, to construct these packets by unit, and extending the Master Fitness course by one week to allow students to develop programs for their units.

#### Bibliography

Hertling, M.P. "Physical Training for the Modern Battlefield: Are We Tough Enough?", Research Paper, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, 1987.

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cise. Research Paper, Army Research Institute of Environmental Medicine, Maryland, 1984.

Vilcoq, Paul M. "Physical Fitness Programs for Army Units." Dissertation, Air War College, Alabama, 1984.

FM 21-20, Physical Fitness Training, August 1985, with Change 1, June 1986.

FM 100-5, Operations, May 1986.

AR 350-15, The Army Physical Fitness Program, May 1985.

Captain Michael W. Schweppe is a 1984 graduate of the U.S. Military Academy. He served with 1st Bn., 16th Infantry in the FRG as a rifle platoon leader, company XO, and assistant S3. He is presently assigned as battalion maintenance officer in 2d Bn., 8th Infantry, at Fort Carson, Colo.

## Armor Enlisted Professional Development Guide (EPDG)

The Office Chief of Armor planned to distribute the updated Armor Enlisted Professional Development Guide to the field in late June 1989. The purpose of the EPDG is to provide Armor NCOs a path for professional development in CMF 19. Initial distribution will be to battalion/squadron level. The EPDG will not be available through the AG publication system. The entire guide, or any part of the guide, can be reproduced locally.

POCs for this notice are CPT Lucier and SGM Davis, AV 4-5155/2162.

## Excellence in Armor (EIA)

Appendix A of the Enlisted Professional Development Guide (EPDG) explains the Excellence in Armor Program. The Office Chief of Armor receives many calls each day pertaining to the program. Often, the questions concern how to enroll in EIA, or how to take the TCCT-II or SCCT-II test. These questions are covered in the guide, along with information on how to have an effective program.

The Office Chief of Armor has sent a message to each MACOM commander requesting input on standardizing the Excellence in Armor program. A recent survey reflected a need for standardization to maintain a viable EIA program.

POCs for this notice are SGM Davis or MSG Merder, AV 464-5155/2162.

## Tips for Getting Your DA Publications

DA Pam 25-33, The Standard Army Publications System (STARPUBS) revision of the DA 12-series Forms, Usage, and Procedures, 1 Jun 88, required a slight adjustment to the way we "pull" publications out of the Baltimore Publications Distribution Center. Your unit publications officer and clerk must have (or have ready access to):

- A current copy of DA Pam 25-33. This pamphlet is a guide for personnel who order and manage publications and blank forms for the organization. It explains the Standard Army Publications System and gives detailed information on opening an account at the U.S. Army Publications Distribution Centers, establishing initial distribution, how to use revised DA 12-series

forms, and how to manage your account. DA Pam 26-33 is printed and distributed in paperback, UPDATE, format.

- A current copy of DA Pam 25-30, Consolidated Index of

Army Publications and Blank Forms. This pamphlet is a source document for 12-series subscription members for administrative, doctrinal, and training publications. Units previously subscribed to publications in these categories by submitting DA Forms 12-4R through 12-12A-R, all of which have been superseded by the new "E forms." DA Pam 25-33, page G-1 (Glossary) describes the "E form" and its use. DA Pam 26-30 is updated and published quarterly in microfiche format.

How to use DA Pam 25-30? Easy. We will use FM 17-98, Scout Platoon, as an example. Just follow these steps:

- First, look at the last page of your DA Pam 25-33. It should be DA Form 12-99-R. It is an "R form," and reproduction is authorized. Find a copy machine and run a few copies.

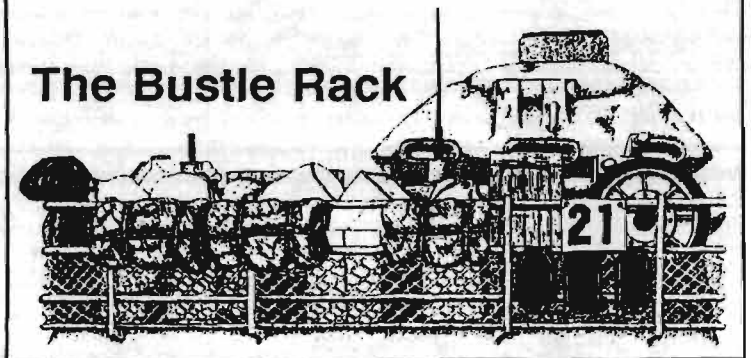
- Second, go to your microfiche viewer with your packet of DA Form 25-30. Find the FM category (Section 5-1 of the Dec 88 edition). Look for the line "FM 17-98, Scout Platoon." Immediately following the title should read "Subscription Form: 12-11-E BLK 1041."

- Third, go to your reproduced DA Form 12-99-R. Under the column headed FORM NUMBER, enter "11-E." Under the column headed BLOCK NUMBER, enter "1041." Under the column headed QUANTITY REQUIRED, enter the total number of FM 17-98s your unit needs.

Complete your unit's publication request and submit per your unit SOP (normally to higher headquarters where publication requests are consolidated).

In using this example, we have assumed that you have an established account in good standing with Baltimore, and all is in accordance with Chapters 3-6 of DA Pam 25-33. The system can work, if we make it work. USE YOUR TRAINING PUBLICATIONS.

## The Bustle Rack



## A Use for Carbonless Carbon Paper in the Field

CPT David M. Dodge of 3-66 Armor suggests that units in the field reproduce orders on carbonless paper. It's available in the supply system under the NSN 7530-01-078-7144. That gets you a box of 700 sets of 5-part carbonless paper.

It's also good for producing multiple copy sector sketches. If you can think of any other field uses, write your suggestion down, and send your idea to Advanced Tactics Branch, Command and Staff Department, U.S. Army Armor School, Fort Knox, Ky. 40121-5211. POC is CPT Bob S. Stone, Advanced Tactics Branch, Combined Arms Division, Command and Staff Department, AV 464-2319/6651.

## Four Crews Score 1,000 Points

Four M551A1 Sheridan crews achieved perfect 1,000-point scores on Tank Table VIII at Fort Bragg's Range 63 as 3d Battalion, 73d Armor fired for annual qualification. A total of 59 crews fired, with 47 qualifying on the first run.

The members of the crews with perfect scores were CPT F. Sherman, 2LT G. Owens, SSG A. Pegues, SSG P. Hernandez, SGT G. Craig, SGT J. Feliciano, SGT M. Naegele, SPCs R. VanKluyve, A. Holquin, T. Collings, D. Soderberg, PFCs D. Place, J. Oryan, PV2s M. Adkins, W. Staggs, and PVT M. May. Results of the gunnery were released by the 82d Airborne Division.



## Vietnam at the Macro Level: Part of a Three-Way Struggle Between the U.S, China, and the Soviet Union?

**Vietnam: Strategy for a Stalemate**, by F. Charles Parker IV, Paragon House. New York, 1989. 257 pages. \$19.95.

As a West Point graduate and a veteran of the Vietnam War, Lieutenant Colonel Charles Parker, like many soldiers, has found it difficult to understand the apparent lack of policy and purpose in the Johnson administration's conduct of that conflict. With subsequent research in receiving a doctorate in history in 1987 from Georgetown University, and then as a visiting scholar at the Hoover Institute, he has deduced that the conflict primarily resulted from Soviet policy to entangle the U.S. in Vietnam, to keep Communist China dependent on the Soviet Union, and to prevent a Sino-American rapprochement.

Former President Nixon acknowledges that Parker's work is "the first to explore in depth the intricate moves on the international chess board between 1963 and 1968, involving the Soviet Union, China and the United States."

The Kennedy and Johnson administrations committed forces to Vietnam on the false assumptions, says Parker, that it was vital to contain Chinese Communists, who "did not need to be contained," and that the Soviets were less a threat. They failed to understand the extent of the Sino-Soviet split, and did not respond to signals from Mao Zedong about improving Sino-American relations.

A violent struggle for power was, in fact, going on in China, with Mao Zedong

determined that the People's Republic take a course more independent of the Soviet Union. He was opposed by a faction led by Liu Shaoqi and Deng Xiaoping (currently Vice Premier) who favored cooperation with the USSR, while a group including Foreign Minister Zhou Enlai was a swing faction. Khrushchev supplied weapons to North Vietnam to escalate the American commitment, urging "unity of action over Vietnam," to force the Chinese to reestablish their relationship with the Soviet Union.

The pattern of the fighting, in Parker's view, reflected Soviet decision-making, for "Without Soviet support, the North Vietnamese could not have escalated the level of conflict." Thus the decline of Viet Cong activity by 1963 was actually because "Khrushchev had to allow the Americans to develop the perception that the advisory effort was achieving success." This success encouraged the Americans to proceed with their increasing commitment to South Vietnam, the American military presence, in turn, intended to force Mao Zedong's China back under Soviet protection.

Parker's linking of the war in the field to the Kremlin's policies does get complicated. He contends that Khrushchev then escalated the war to provoke a Sino-American confrontation, which prompted the McNamara-Taylor mission, but then curtailed the flow of weapons through Sihanoukville as Mao, in turn, increased Chinese shipments. Finally, the Sino-Soviet rift over Vietnam led to Khrushchev's overthrow in 1964, which "could be viewed as a concession to China." Yet the

author does not acknowledge the other factors, including Cuba and the Virgin Lands issue, that may also have prompted the political change, and in any case, the policy of Brezhnev and Kosygin remained unchanged.

The Johnson-McNamara troop build-up in 1965 prompted Mao to turn on the Liu-Deng pro-Soviet faction in the Great Proletarian Cultural Revolution of 1966, and to boycott the 23d Party Congress in Moscow. This, in turn, argues Parker, convinced Moscow to support a Tet offensive, which would be defeated by U.S. firepower, encouraging the U.S. to mobilize to achieve final victory, and thus giving ascendancy to the pro-Soviet Chinese to seek closer ties with the USSR.

The Soviets did not realize that McNamara had become disillusioned (not about winning, but winning before the November 1968 elections), and that the Johnson administration had decided to limit the U.S. commitment to maintain a stalemate. (This administration decision for a stalemate, but without defining new national goals, is Parker's theme, though not his focus.) Nor could the Soviets have predicted Johnson's despair after Tet. As it became evident that Nixon was determined on phased withdrawal, the Soviets escalated support to slow American disengagement, especially as the new president hinted at a rapprochement with Red China.

Parker touches on aspects of the American war effort and, as a soldier, is understandably critical of McNamara's approaching war, "as a mathematical equa-

tion" based on resources and kill-ratios. Likewise, he is contemptuous of the "brandy-sipping collection of journalists" at the Caravelle Hotel in Saigon, who reported the Tet offensive as an American defeat, with such dramatic political results.

Parker's thesis is intriguing and, indeed, the Sino-Soviet split is a watershed in the world balance of power. It is important to be reminded that events do not occur in isolation, but rather in the context of historical currents whose inter-relationships are not easily divided. In the book's subject area in particular, however, decision-making in Moscow and Beijing is obscured by the lack of authoritative sources, and the author's research, while extensive, is limited to open literature sources, such as Pravda, the Current Digest of the Soviet Press, and the English-language Peking Review.

In any case, it can also be argued that Ho Chi Minh and the Communist Vietnamese leadership were not simply pawns of their powerful allies, but had their own political agenda. And that ultimately, it was their people, not Kennedy's, who were prepared to "pay any price, bear any burden" in accomplishing their goals.

A. HARDING GANZ  
Associate Professor, History  
Ohio State University at Newark

**The Halder War Diary: 1939-1942**, Charles Burdick and Hans-Adolf Jacobsen, editors, Presidio Press, Novato, Ca., 1988. 716 pages. \$35 (Hardcover) ISBN: 0-89141-302-2.

General Franz Halder was Chief of Staff of the German Army in the first days of World War II. From the invasion of Poland until the panzer thrust toward Stalingrad (September 1942). Halder was a key participant and, most important for history, an observant recorder of events, people, and conditions. The book is especially helpful to the student of armor and its deployment in those formative years.

General Halder had the habit of recording more than just dates and the day's events. He listed units, deployments, options, and other details so necessary if one is to know the conditions under which decisions occurred. The reader could easi-

ly understand some of the dynamics at work. The thinking of those present in these major decisions is explained. The sense of the times comes through easily — the introduction of blitzkrieg in Poland, the breakthrough in the west, the penetrating and encircling thrusts into Russia.

One of the major tasks facing the editors was the need to cut the material down to reasonable size. From the original German work, the editors have put together the key diary entries necessary for the interested student of the early days of the war in Europe.

The reader will have to be a serious student. This book is not for the casual reader. One needs to be familiar with the specific times and campaigns.

PETER CHARLES UNSINGER  
San Jose State University

**The Last Magnificent War**, by Harold E. Straubing, Paragon House, New York, 1989. 403 pages. \$24.95.

Winston Churchill once stated that the American Civil War was the last gentleman's war. The Last Magnificent War not only refutes that statement, it emphasizes that WWI, the first global conflict since Churchill's reference, was in all respects something less than a gentlemanly conflict.

Straubing, a social historian, uses excerpts from contemporary magazine and newspaper articles, diaries, private files, speeches, books, interviews, poems, military journals, and political texts to produce an enlightening documentary of that fateful conflict.

Straubing delves into diplomatic, nationalistic, religious, and military materials, as well as the two opposing coalitions — the Triple Alliance of 1882, between Germany, Austria, and Italy; and the Triple Entente of 1907, when Britain allied herself with France and Russia — and presents a concise treatise of the war's antecedents and the final excuse for its happening, the assassination of Archduke Francis Ferdinand, heir to the Austro-Hungarian throne, on 28 June, 1914, in Sarajevo.

The author artfully weaves in-depth data, jingoistic opinions, and readable statistics that are of real value to the serious student of WWI. This is good reading, as well as being highly informative.

The Last Magnificent War is not only for the professional historian; its value also lies in its applicability to the military professional for its lessons learned (that oft-repeated but seldom heeded catch phrase). The lay reader desiring a more insightful look into that war's breeding, and how it was fought in the capitals and the newsrooms, as well as in the trenches, in the air and on the sea, will find this an especially intriguing and enlightening volume.

R.E. ROGGE  
Radcliff, KY

**A Portrait of the Stars and Stripes**, by Bud Hannings, Seniram Publishing Inc., Glenside, Pa., 1988. 430 pages. \$39.95.

A Portrait of the Stars and Stripes is not a typical book of military history. The author does not concern himself with the politics or roots of America's wars. He offers no lengthy discussions of campaigns or their results. Instead, Bud Hannings has written a reference book for patriotism and valor in the American military. This book pays tribute to the thousands who have worn the uniform, fought the wars, and defended our country.

Bud Hannings begins his book with the flag of the United States and "the Pledge of Allegiance." He explains: "Many of us, to be quite candid, merely take this grand Republic of ours for granted; too busy to acknowledge that our present day existence is the masterwork of a distinguished group of unselfish Americans, whom we call Patriots." Then, he provides a chronological listing of our military heritage from 19 January 1770 to 1 December 1918. A short summary text precedes each section. The book focuses on individuals who made sacrifices and is filled with memorable quotes and gallant deeds. There are accounts of privates at Valley Forge, sailors and marines in Tripoli, and cavalymen in the West. To read it is really a patriotic experience.

Each section has a listing of historical sites and museums. There are extensive instructions on the care and display of the flag. The author lists both the presidents and vice presidents, as well as Medal of Honor recipients (1863-1918). He lists the Union and Confederate generals and prominent Union naval officers of the Civil War. Also, he includes other brief sections of patriotica.

Some people may find the book naive. However, the author does not aggrandize warfare, and he gives accurate coverage to individuals on both sides of our military conflicts. Although a great deal of the book is devoted to the Civil War, this is not inordinate. It was the largest American conflict during the time period covered. The author plans two sequels to deal with our military heritage from 1918 up to the 1980s. Any large, historical reference work of this nature is bound to have some er-

rors. Nevertheless, the few minor flaws do not detract from the author's intention.

Bud Hannings wrote the book because he saw a need for his message. After rejections from publishers, Hanning decided to self-publish. (Seniram is marines spelled backward.) A Portrait of the Stars and Stripes is a well-put-together book. The paper, printing and binding are top quality. There are many striking illustrations and photographs throughout the work. However, the book is limited to black and white, and color would have benefited some of the illustrations.

A Portrait of the Stars and Stripes is not a typical military history book. Yet it is a book that any American would enjoy having.

CPT JOHN BUCKHEIT  
ARMOR Staff



## LETTERS *(Continued from Page 3)*

tle guidance. Effective intelligence preparation of the battlefield (or commander's preparation, as BG Funk mentioned) is the key method to focus the reconnaissance effort. The S2, S3, and the scout platoon leader must communicate and quickly understand the commander's intent.

- Too many scouts are vehicle bound. Platoons that successfully dismount can get in close to gain valuable intelligence. Fighting scouts lose every time.

- Scouts need to be ready to breach obstacles. Successful platoons reduce obstacles with stealth, and mark them for follow-on engineers. A good engineer/scout relationship must exist. Some scout platoons move with an engineer squad during the offense. This requires extensive planning and rehearsal.

- Unobserved artillery fire is generally ineffective. Scouts are in a position to call the first indirect fire. They need confidence and training to do this. It requires working with both the battalion FSO and the mortar platoon. Some units have successfully experimented with attaching FIST personnel, or moving with organic mortar elements.

- Scouts need to drill on OPFOR organization and tactics. This is often lip service. Every scout needs to know what he is looking for and why it is significant. This can be accomplished through the use of scale models, sand tables, and flash cards. Think of the old Indian scout, and why he was such an asset to the unit.

- The scout platoon needs to sustain. This is often the hardest lesson for the battalion scout platoon. FM 17-98 did not address its unique needs in a "J" series battalion. Who feeds and refuels it? What happens to casualties? Is one of the mech platoons designated to take the scout platoon's mission if it is destroyed or reconstituting? The battalion reconnaissance effort will stop if the scouts cannot resupply. Successful units use detailed logistical SOPs. The S4 and S1 must plan for increasing a nearby company LOG-PAC or creating a special resupply team. Whatever the technique, only detailed planning will avert disaster. I believe the proposed scout platoon organization of 10 HMMWVs and four motorcycles is in the right direction, and will suit the application of many of these lessons.

- This proposed organization and equipment focuses on the battalion scout

platoon's primary mission, reconnaissance through stealth.

- The platoon is flexible. It could quickly cover more ground and more NAIs (named areas of interest).

- The platoon is more sustainable. The PLL is common to the battalion's other vehicles and more trained mechanics are available by MTOE. Class V will be lighter and easier to move.

- One recommendation: add sniper-trained personnel. Scout platoons in Korea have 11B snipers assigned by MTOE. They continually prove their worth through long-range patrolling and application of their unique training.

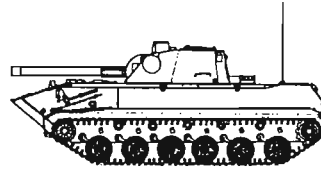
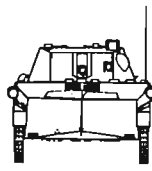
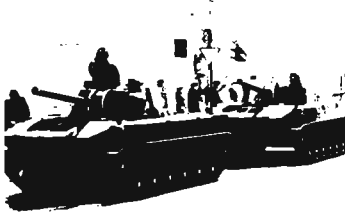
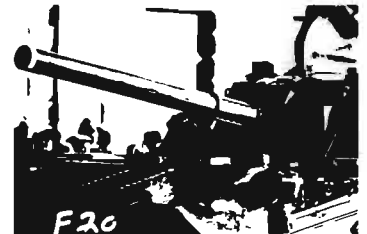
The NTC is our greatest training asset, and I'm sure scout platoons will continue to hone their skills in the never-ending challenge to detect and find the dreaded OPFOR of the Mojave.

BART HOWARD  
CPT, Armor  
1-72 Armor, 2d ID  
ROK

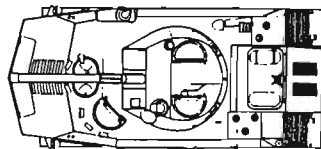


# 2S9

# SOVIET AIRBORNE ASSAULT HOWITZER



(2S9) 120mm Airborne Assault Vehicle



## 2S9 CHARACTERISTICS

<b>ARMAMENT CHARACTERISTICS</b>	<b>120-MM SP HOWITZER (ABN) 2S9</b>	<b>PERFORMANCE</b>	
<b>CREW</b>	4	<b>Elevation (°)</b>	-5 to +80
<b>WEIGHT</b>		<b>Traverse (°)</b>	35 left or right
<b>Firing position (kg)</b>	INA	<b>Maximum range (m)</b>	10,000 (est)
<b>Travel position (kg)</b>	INA	<b>Muzzle velocity (m/sec)</b>	INA
<b>LENGTH, travel position (m)</b>	5.95	<b>Rate of Fire</b>	
<b>WIDTH, travel position (m)</b>	2.7	<b>Maximum (rd/mn)</b>	10 (est)
<b>HEIGHT, travel position (m)</b>	2.4	<b>Sustained (1st hr) (rd)</b>	INA
<b>FIRE CONTROL</b>	direct fire sight and panoramic telescope	<b>Armor penetration (mm @ 0° obliquity @ 1,000m)</b>	INA
<b>AMMUNITION (types)</b>	Frag-HE, HEAT-FS	<b>UNIT OF FIRE (rd)</b>	80 (est)
		<b>BASIC LOAD ON-BOARD (rd)</b>	INA
		<b>EMPLACEMENT/DISPLACEMENT</b>	INA
		<b>TIME (min)</b>	1985
		<b>DOJ</b>	standard
		<b>STATUS</b>	
		<b>* INFORMATION NOT AVAILABLE</b>	

This 24-by-27-inch poster of the Soviet 2S9 airborne assault howitzer 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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 748-050/89-4