

ARMOR

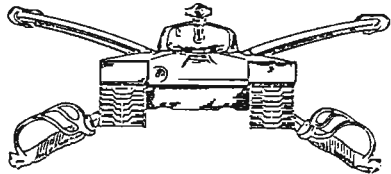
The Magazine of Mobile Warfare

“...It took the 4th Armored Division five days of bitter, costly fighting to break the ring of German units encircling the 101st, but only six days before, elements of this same 4th Armored Division *had actually been in Bastogne*. In fact, during their earlier movement into the town, these forces had come within one kilometer of the same spot where they would return, six days later, after heavy fighting...”



March-April 1986

SCHWERPUNKT



Putting together an issue of *ARMOR* has always been a challenge, and this issue has been no different. During each week, we receive many excellent articles on mobile warfare. Our challenge is in selecting the best and

most relevant ones. I believe that this issue contains some very good choices.

Our cover story, "Bastogne: A Fascinating, Obscure Vignette," by **Brigadier General Albin F. Irzyk, Ret.**, reveals a little-known, but very interesting fact. Six days *before* the Germans encircled Bastogne, the 4th Armored Division — which was later to break that enemy encirclement — actually had forces inside the battered city and then was ordered to withdraw. This story illustrates the often chaotic nature of mobile warfare and the way that a fluid battlefield affects the leaders and commanders on it.

Glenn Johnston's article, "The 120-mm SP Mortar/Howitzer: Its Impact on NATO Rear Area Defense," gives us a detailed view of this new Soviet weapon system and how it adds to the capability of Soviet airborne units to disrupt their opponent's command and control, reserves, and service-support units.

This issue of *ARMOR* also includes the second article on U.S. armored cavalry doctrine: "The Armored Cavalry Regiment: Catalyst for Operational Success." With the publication of the new FM 100-5, comes increased emphasis on the operational level of warfare. This article by **Colonel Thomas White** and **Major John Rosenberger** shows how the armored cavalry regiment fits into this very neglected aspect of AirLand Battle.

Robin Fletcher concludes his "Trunnions on the Move" with his recommendation for the next generation of main battle tanks. "Creating the 'Gun-Over-Hull' Tank" is full of intriguing possibilities for tank design. It's well worth your reading.

In "Management Methods at Platoon Lev-

el," **Captain Michael Landers** provides some detailed and workable techniques for platoon leaders who find themselves overwhelmed with information or the need to recall it. For the young officer just starting out, this article offers excellent advice.

The argument of whether armored vehicles should travel on tracks or wheels has been with us for many years. **General Andre' Sciard**, a distinguished combat veteran of WW II, Algeria, and Indochina, offers us his ideas on the "Modern Use of Wheeled Armored Vehicles." The article recognizes the changing terrain of Europe, the diverse battlefields upon which armored forces may have to fight, and the growing "battlefields of the budgets" in Western nations.

As promised in our last issue, we have included a feature on "The St. George Award" that the U.S. Armor Association has implemented this year. Based on the responses that I have read from the armor and armored cavalry commanders of the force, this program is going to be very active. In fact, I understand that the Armor Association has already received requests for the award.

Before I end this already-too-long column, I commend to you the Professional Thoughts section of this issue. It contains three excellent points of view on three very important topics: reconnaissance skills training, mentoring, and command and control.

The purposes of *ARMOR* are to disseminate knowledge of the military arts and sciences, with special attention to mobile, ground warfare; to promote professional development of the Armor Community through an exchange of ideas, thoughts, and concepts; and to preserve and foster the spirit and traditions of Armor and Armored Cavalry. We believe that this issue does that well, and we hope you believe so too. — GPR



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JON T. CLEMENS
Assistant Editor
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Production Assistant
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LETTERS

Our Thinkers Must Also Write

Dear Sir,

In his Professional Thought, "Imagination: The Ultimate Force Multiplier," (pp. 46-48, Nov-Dec 1985) Captain Harry Noyes suggests that "certain key innovators (should) do nothing but sit around and think." Of course, that is not quite enough; our futurists must also commit their thoughts to writing, so that they may compete in the marketplace of ideas.

We do have a few active think tanks. The Command and General Staff College has begun an Advanced Military Studies Program for selected officers to pursue research and to write during a second year in the Fort Leavenworth resident course. TRADOC's Deputy Chief of Staff for Doctrine oversees various study cells which address future Army and Air Force operational concepts. The Army War College Strategic Studies Institute looks at how world economic and political trends will affect military institutions. The Air University at Maxwell AFB and the Naval War College at Newport have similar centers for scholarship. Their periodicals, like *Armor*, *Military Review*, and *Parameters*, are open to serious contributors.

Captain Noyes is correct when he states that "mandatory readings are no substitute for...self-motivated study." But I think that "duty time for supervised study" (in units) is a questionable idea. Books, magazines, paper, and pencil are very portable; they can go to the field, on an airplane, or be held handy in an office for a slow day. Any soldier can join the debates about future war, doctrine, and human nature.

ROBERT P. FAIRCHILD
LTC, Armor, NYARNG
ARNG Coordinator,
Directorate of Reserve Component
Support, Ft. Knox

"Monster" 130-mm AT Round Confirmed

Dear Sir,

I am writing to offer both some new information as well as some comments with regard to the January-February 1986 *ARMOR Magazine* letters column.

First of all, the existence of a 130-mm APFSDS-T antitank round, as suggested in the article, "T-64, IT-122, and IT-130: The Soviet Advantage," has been confirmed. According to *Military Technology Magazine*, the round has been designed by a French company for an unnamed Arab customer. The round has been labeled "the Monster" by the press. It may not be surprising to see a new Saudi Arabian or Libyan main battle tank (or gun mounting) carrying the M46 130-mm gun, capable of firing "the Monster."

I would like to thank Mr. Burniece for his comments concerning my article. His letter (On Soviet Tank Destroyers), however, seems to have missed its mark. The primary mission of Soviet self-propelled artillery has never been in question. The suggested "IT-152" tank destroyer would have very little in common with the 2S-3 howitzer and the 2S-5 self-propelled gun. Perhaps a description of the "IT-152" (as well as the IT-122 and IT-130's) mission would clarify this point.

As I suggested in the article, "T-64, IT-122, and IT-130: The Soviet Advantage," the development of these earlier tank destroyers was initiated by the requirement to defeat NATO heavy tanks. The Soviets had to react to the American M103, the British Conqueror, and the "new" British Chieftain. The apparent balance achieved by the Soviets with the IT-122 and IT-130 was short-lived, however. Soon they were faced by even more effective and heavily armored western tanks. The fielding of the American M1 Abrams, the British Challenger, and the West German Leopard 2 main battle tanks caused a new problem for the Soviets. Exactly what they would gain by fielding a vehicle such as the "IT-152" would be a tank destroyer that could engage NATO antitank positions and vehicles at extreme ranges by accurate indirect fire; and upon closing with NATO defensive positions, start engaging the M1s and Challengers (from beyond their maximum effective range) with hypervelocity armor piercing and large diameter HEAT-T ammunition. The precedents for such large antitank rounds have already been set with the 152-mm APFSDS-T round of the joint American/West German MBT-70/KPZ-70 and XM803 prototype main battle tanks. This two-fold capability is essential to the Soviets because of their great concern over the range and effectiveness of NATO ATGMs. Once the softer-skinned antitank vehicles are put out of action, the "IT-152" (like the IT-122 and the IT-130) could then carry out its purpose-built mission: the destruction of NATO's special-armored main battle tanks.

The suggested "IT-152" would solve two problems for the Soviets: first, it would ensure that all (or at least most) of the combat vehicles in a given unit were based on the same vehicle (i.e. the T-64 or T-72 main battle tank hull); second, it would also ensure that the antitank arm within the Soviet Army was at least keeping pace with the latest NATO main battle tanks. Very little information is available about the two earlier tank destroyers, let alone the suggested "IT-152." If such a vehicle is fielded by the Soviets, a move that would only be continuing a long-established line of purpose-built tank destroyers, the NATO armies will hopefully discover it prior to initiating their fire commands.

Finally, Mr. Burniece's idea that the West German Kanonenjagdpanzer-90 is an equivalent to the IT-122 and IT-130 is questionable at best. How can this West German vehicle be considered an equivalent to a vehicle that can (by design) carry more or heavier armor than a main battle tank, fire 122-mm or 130-mm hypervelocity APFSDS-T ammunition, and deliver extremely long-range indirect fire? Certainly equivalent in name only. As far as the Swedish S-tank is concerned, the equivalency is not even present in the vehicle's name.

JAMES M. WARFORD
CPT, Armor
FRG

Don't Eliminate NBC Expertise

Dear Sir,

The November-December 1985 issue of *ARMOR Magazine* contained a letter by Captain Dale Wilson concerning improving the J-Series HHC by creating two separate companies in its place, among other things. Captain Wilson's ideas are not without merit, and have provoked much thought, I'm sure.

I must take issue with one aspect of his proposal, however. Captain Wilson suggests that the increased manning necessary to accomplish his reorganization (seven additional personnel) can be made up by eliminating the NBC NCO and field radio mechanic slots in the four line companies, because they "would not be sorely missed".

The unit NBC NCO 54E has been a long-awaited event. It is a fact that the additional duty position in the H-Series TOE was inadequate, at best. One of the best features of the new J-Series TOE is the addition of a dedicated 54E at company level. Finally, DA has recognized that in order to become proficient in NBC, units require this kind of primary MOS manpower. With the emphasis on NBC defense that exists in today's environment, we can hardly afford elimination of these critical positions.

I would suggest that Captain Wilson look at the J-Series unit NBC NCO position a bit more as an asset, rather than one to be traded like a draft choice.

ALLAN B. QUIAT
Captain (P), Infantry
CA ARNG

"We're Infantry, Sir"

Dear Sir,

A minor correction to your Regimental Review item in the November-December issue: In the section on armor rotations set

for 1986, you state that "Two armor battalions from Fort Hood, TX, will rotate to Germany...the 2d Battalion, 5th Cavalry, 1st Cavalry Division and the 1st Battalion, 41st Infantry, 2d Armored Division..."

Though you clearly give unit designations, the 1/41 Infantry is not one of the two "armor" battalions. This might be nit-picking to some, but as an ex-member and a company commander in one of the first Bradley-equipped INFANTRY battalions in the U.S. Army, I feel we need to keep the record straight...

MICHAEL T. ESSELMAN
Captain (P), Infantry
Barbados, WI

Armored C³ Vehicles — Nothing New

Dear Sir,

After reading Major Richard Geier's article entitled "Battalion Command and Control" (September-October *ARMOR*), my immediate impression was that the article was probably going to generate some negative responses. Of course, I didn't have to wait long to see a rebuttal, as in the next issue of *ARMOR* (November-December, Captain Calvin R. Sayles wrote a fairly credible critique in his letter entitled, "Is the Command Tank a Non-Fighter?" It is this letter that has caused me to take pen in hand and respond, as Captain Sayles brought up a point in the first part of this letter that "frustrated" him, but I believe was exactly a point that Major Geier was trying to emphasize.

Today, in the Armor Corps, leaders are taught to "lead from the front...set the example," and I agree with this entirely. However, this concept is not new. From 1939 until 1942, the German armored divisions shocked the world with astonishing victories, advancing hundreds of miles and defeating enemies that were just as well-equipped but nowhere near as organized. One of the major reasons that this worked was the German command structure emphasized the need for commanders to lead from the front, so that exploitations could be developed faster. Also, commanders at the front are more in touch with what is happening, and from that can make better decisions on what course of action to take.

Of course, there became a need for commanders to have vehicles which could maintain the same rate of advance as the tanks, provide protection, and provide the radios needed to control maneuver. What did the German planners turn to? The tank! Yes, that's right; a tank, specially modified on the inside so that the battalion and regimental commanders would have the equipment they needed to fight their *units*. I emphasize units, because the German high command realized that they needed commanders fighting with their units on the battlefield, not tear-assing around the countryside as overpaid tank commanders. By 1938, the very first

"Grossen Panzer befehlswagen" (large armored command vehicles based on a PzKw Mk III chassis) had been produced and the following versions were issued to the troops:

- SdKfz 266 with FuG6 and FuG2 (wireless set 6 and 2).

- SdKfz 267 with FuG6 and FuG8 (wireless set 6 and 8).

- SdKfz 268 with FuG6 and FuG7 (wireless set 6 and 7).

Externally, these vehicles were identical (both to each other and to other tanks on the battlefield). Like the armored car command variants, these vehicles carried a distinctive loop aerial above the engine compartment, though this was replaced by the whip aerial in 1943. Armament was an MG34. A dummy gun replaced the main armament (to accommodate a map table, extra radio and extra operators). At the start of the campaign in France in 1940, there were 39 of these vehicles, plus about 200 more based on the PzKw Mk I & II chassis, with the tank divisions.

Naturally, the absence of a main armament restricted the use of these vehicles on the battlefield, so fully operational tanks were assigned as "wingmen" for local security. German industry also began to produce command tanks with their original armament retained, but these vehicles were certainly degraded in fighting capability. Another example of this trend from later in the war: several versions of the Panther series were delivered as armored command vehicles, which differed mainly in turret design. The loader also served as a second wireless operator and had a receiver and transmitter fitted next to him on the right-hand turret wall. The second antenna was fitted on the rear of the turret roof, and 15 rounds were taken from the tank's basic load, thus degrading its fighting capability (though not much; Panthers had a normal load of 79 rounds). Two versions of the panzer-befehlswagen Panther were issued to units, differing only in the types of radios they carried.

These command vehicles gave the German regimental and battalion commanders the ability to lead and fight their formations right up in the front lines, and the later versions gave them a main gun to defend themselves, if necessary. The fact that they looked like other tanks in the formation added to their protective value, as the opposing forces would not see the extra antenna arrangement at normal battlefield ranges. (This point is what "frustrated" Captain Sayles too much; "The commander has disguised his command vehicle as a tank...").

Today, as in the past, specialized command vehicles for brigade and battalion commanders have shown themselves to be absolutely vital to the success of the Armor mission. If the Armor and Engineer Board can design a tank that looks like any other, does not have its fighting ability degraded, and can allow brigade and battalion commanders to fight their unit, great. But I think the key point here is that we need these commanders to maneuver

and fight their *units* on tomorrow's battlefield first, and worry about fighting their *tank* second. The command and control that these men would exercise over their units, if successful, would more than offset any degradation in their own vehicle's fighting capability. As an added bonus, their vehicle would exactly resemble every other vehicle in the unit, thus allowing them to blend in with the rest of the formation. The Germans tried it in World War II, and their record of successes from 1939 to 1942 was due in no small way to the fact that their commanders had specialized vehicles based on a tank chassis that allowed them to maneuver, fight, and most importantly, *lead* from the front with anonymity.

THOMAS C. HOUSTON, II
1LT, Armor
FRG

Understanding the OMG Concept

Dear Sir,

Since the initial revelation in 1983 of the revamped Soviet "Mobile Group" concept, now labeled the "Operational Maneuver Group" (OMG), a great deal of speculation has been rendered on mission performance and capabilities of such units. In a large part, the early discussions dealt with what could be readily described as recognition of one more in a series of Soviet "step evolutions" in their *operational doctrine*. More recently, however, it seems a great deal of effort is being expended on what the OMG may or may not do in the way of equipment and organization. Perhaps nowhere is this more evident than in the Secretary of Defense's report *Soviet Military Power — 1985*. It seems now is the time to consider both the equipment side and the operational side of the OMG.

As *Soviet Military Power — 1985* reports, the Soviets have recently nominally organized two divisions into what are considered to be a prototypical OMG organization. By comparison with a standard motor rifle division, these new organizations ostensibly field nearly twice as much in the way of heavy equipment: over 450 tanks versus 255, over 600 APC/MICV versus 311, and more than 300 artillery pieces and MLRS launchers compared with 166. As such, these divisions have been determined by DoD to be "...ideally suited to act as an Operational Maneuver Group (OMG), conducting high-speed, large-scale raid and exploitation operations deep in an enemy's rear area." It is here that the line is crossed between doctrine and equipment which leads to a reconsideration of the current concept of these organizations.

COL Wontrucki (Polish Army), in a 1981 article in the *Polish Ground Forces Review*, is credited with raising the issue of NATO operational concepts, and the problems the combination of positional and mobile defense — active defense — would

propose for a Warsaw Pact offensive seeking to effect a breakthrough by amassing 6 to 9:1 odds against defending NATO forces. Then, noting that the U.S. Army and Bundeswehr plans for active defense generally called not for coordinating counterattacks with superiority of materiel and troops, but rather for maintaining a more or less constant 1:2 or 1:3 force in the face of each Warsaw Pact thrust, his conclusion was that the Eastern forces would be continually slowed and drained of resources and time without gaining the momentum sought in the elusive breakthrough. Reinforcing this study was a separate paper prepared about the same time for the *Soviet Military History Journal* by COL GEN Grinkevich, Chief of the Main Staff of the Soviet Ground Forces. Grinkevich, through his study, based on the significance of the Battle for Moscow, demonstrated the feasibility of a strategic defense against an attacker superior in numbers employing blitzkrieg-style tactics.

From these and additional studies it is clear that the intent of the Warsaw Pact debate concerning the employment of the OMG may be reduced to a few basic concerns at the operational level:

- First is the means to lever forward the main echeloned forces. The OMG would serve to facilitate the movement and maneuver to breakthrough by the main force.

- Second, the OMG would accomplish this task by seeking a gap (i.e., not a breakthrough in the classic sense, but a mechanized version of infiltration) through which to enter the NATO rear area and/or to overrun airfields, communications centers, nuclear weapon and storage sites and choke points.

- Third, in so doing, the OMG permits a greater number of NATO tactical forces to be tied down prematurely, limiting their maneuver and restricting the possible cases where NATO forces may shift according to the active defense method to blunt a Warsaw Pact penetration. This provides the additional valuable contribution of limiting the tendency of Soviet and Warsaw Pact forces to "bunch up" as forward elements reduce their rate of advance upon entering the NATO defense zone.

- Fourth, in cutting through and seizing rear objectives, the OMG limits the number of NATO opportunities to exploit tactical nuclear weapons (and in some cases, chemical and biological, as and where applicable).

- Fifth, the OMG by the nature of striking through and moving in the rear areas, will substantially adversely affect NATO planning for and movement of reserves and reinforcements. NATO may potentially lose the ability to mass for major counteroffensives at the critical moments of imminent Warsaw Pact breakthrough of the defensive zone, thus turning a marginal tactical/operational development into a possible strategic victory for the Eastern forces.

Again, according to the *Soviet Military Power — 1985*, the OMG is "ideally suited" to deliver these five basic concepts in

a future European confrontation. Agreements can and most certainly will be given for NATO's ability to dramatically affect the tactical operational ability of the OMG to accomplish its mission — not least through the application of tactical air assets at the critical moment. (This is a factor recognized in the Eastern camp as a problem of nearly overwhelming impact.) But the concern remains that efforts on the part of NATO to understand the nature of the OMG concept are now being driven by the "mechanical" pursuit of attempting to identify the OMG by TO&E organization, rather than by serious study into the means to evaluate — through METT or otherwise — the intentions of the Soviet/Warsaw Pact army (of four divisions) or front (of two or more armies) commander to effect a breakthrough according to a very rigid and harshly defined timetable. Thus, we find continued reference to "finding the (OMG) organization," the effort apparently facilitated as defined by an equipment base level twice that of the standard Eastern motor rifle or tank division.

Certainly the possibility here is that the size of the two above-mentioned divisions may indeed be indicative of a Soviet intention to employ them in the role of OMG. Conversely, noting the Soviet penchant for and emphasis on camouflage and deception at every level, repeatedly proven to be highly effective in campaign after campaign in World War II, the real concern is that NATO attention may be riveted to following the movements of these divisions to the exclusion of other "lower profile" divisions at normal equipment levels. Specifically, the warning is that *the OMG is not a physical organization, but a theoretical operational concept*. By definition, any division (and by inference, any army at front level) may be designated an OMG at any time plans and circumstances dictate. Orders would probably be issued, per the German execution of planning for the 1944 Ardennes Offensive, by (couriered) written means only. Advance notice of OMG mission status may be of such short notice that a division currently in the line, at perhaps only 60 percent of normal authorized establishment, could be so designated as it located a suitable gap in the NATO defense.

It would seem then that the critical requirement for dealing with the OMG is to study, among other factors, the critical shortcomings of the active defense concept. COL Wontrucki has already highlighted a number of these concerns, including by definition of active defense:

- It provides for only limited engineer preparation of defense positions, especially in the case of earthworks.

- It requires decentralization of forces, potentially resulting in diffusion of effort with no clear definition of the main defensive effort, since the latter is only developed during the battle.

- It results in piecemeal commitment of reserves by NATO, leaving little or no opportunity to eliminate a break-in to the defensive zone.

- The "activeness" is generally limited

to assembling and maintaining a dense grouping of forces in the tactical defensive zone, after which inertia sets in until senior command orders a counterattack.

By recognizing these critical features of active defense and the role they play, especially in the case of the last point, the course of operations planning and execution, a greater opportunity exists to avoid the pitfall of becoming altogether too engrossed in the "trees" of tactical data and developments to the exclusion of the "forest" of operational/strategic action.

JOSEPH R. BURNIECE
Arlington, VA

We Have Experts on 360-Degree Defense

Dear Sir,

I read with much interest Captain Michael A. Deaton's article, "Fighting 360 Degrees," (see *November-December 1985 ARMOR*).

The Army already has a group of individuals who have fought a war employing all-around security and fields of fire. These men are the Vietnam combat veterans.

During my service as a platoon leader in E Troop, 2d Squadron, of the 11th ACR, we operated out of troop defensive positions that were designed to provide 360-degree protection. Our reconnaissance-in-force missions and offensive sweeps also utilized formations and procedures designed for the same purpose.

I recognize that the threat employs much more armor than the forces we faced in Vietnam (although there were tank battles in that war), but the principles learned there by armor and cavalry combat veterans could certainly be of use today.

ALEXANDER J. SHOGAN
Major, Armor, USAR

(Major Shogan's letter arrived on authentic 11th ACR stationery, with the old APO San Francisco return address! I agree with him. ARMOR will be more than happy to consider stories on mobile warfare in a low intensity conflict environment and how armor/cavalry can work together with light infantry. Ed.)

1985 Index Available

The four-page subject and author index of stories in the 1985 issues of *ARMOR* will be available on request after April 15. Be sure to include a return address in your letter.

COMMANDER'S HATCH

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



Armor Assessment, Part II: Our Strength is Our People

First and foremost, we are an Army of people. Although the Armor-Cavalry force tends to focus on equipment, equipment is useful only to the extent that it is fought by capable, motivated individuals. Our first concern has been to ensure that we have selected the most capable and that we can train them consistent with their expectations as they strive to "be all they can be", and also consistent with the demands of the equipment.

We have been reviewing the accessioning policies, both for initial entry and lateral entry, as we have been building the noncommissioned officer component of the Armor force. First and foremost has been the emphasis on the combat arms. We have joined the Infantry branch in aggressive recruiting within our Army itself and from the colleges through the ROTC programs and the Military Academy.

Although training spaces are not yet available, Ranger training will be established as a prerequisite for service in Cavalry. Capability is being built into the training base to support this. We have also been reviewing the adequacy of our testing — both mental and physical testing. We are now working with the Army Research Institute to establish suitable measures of hand-eye coordination and visual acuity to better determine who the best armored vehicle fighters will be. We are actively seeking the aggressive young combat arms leader who has both the motivation and the ability to command the tank or cavalry track.

Training Our People

This high-potential accession then needs to be developed. We have fielded new technical and tactical training programs within the Armor Center. It begins with the Excellence Track, whereby the chain of command selects up to 20 percent of the young tankers and

troopers in the 1st Armor Training Brigade. These quality young people are provided more intensive training. They are, in fact, trained in some Skill Level 20 tasks. They are sent to their units on the verge of being successful gunners. We have now provided over eight hundred to the Armor and Cavalry force. Our present indications are that close to 100 percent of the young soldiers selected for accelerated promotion to E-5 are, in fact, Excellence Track soldiers.

We are reinforcing this competence with the Tank Commanders' Certification Test (TCCT I) which will be implemented across the force during FY 86. Essentially, it is based upon an improved tank gunnery skills test to be administered by the chain of command prior to service firing. All officers and noncommissioned officers within the Armor and Cavalry force are expected to demonstrate their proficiency at least annually.

The TCCT II is a very rigorous, paper-based, annual MOS examination which will be provided to the chain of command to test young soldiers who volunteer for it. The intention is that success on TCCT II would result in early selection to E-6, service as a tank commander, and an invitation to Fort Knox to attend the Master Gunner's Course.

We see the master gunner occupying a critically important position in assuring quality performance to his relative commander at every echelon. We have instituted the TCCT III as a bi-annual evaluation of master gunner proficiency. The first course was completed at the Armor Center in the fall of 1985 with the master gunners from III Corps CORTRAIN. We intend to send our best young soldiers into the Master Gunner program early so that they can serve as master gunners in the grade of E-6 or E-7, while also serving as platoon sergeants. In this way, we can further develop

“...A return to Knox for training should be a positive experience, a renewing experience...”

their professional ability for subsequent selection as first sergeants. Within several years, we hope that virtually all of our first sergeants will be former Excellence Track soldiers, successful on TCCT II, and master gunners. They will have served for many solid months on the tank or cavalry vehicle.

Personnel Policy Initiatives

As we worked to improve tactical and technical excellence, it became apparent that we needed to improve the tour length, particularly in the United States, for the noncommissioned officer corps. To do this, we thoroughly scrubbed the TDA within the CONUS Army and developed considerably more spaces for the Armor and Cavalry force to increase the turnaround time to Europe to periods comparable to that for infantrymen. This has almost been accomplished. We also looked at the numbers of positions across the Army for CMF 19 at the grade E-8 and E-9 and discovered that there was inadequate promotion flow. So we have increased the number of E-8 and E-9 positions, in particular, to develop a flow similar to that of the other arms.

Improving Officer Training

Almost a decade ago, the Armor Officer Basic Course was improved to provide considerably more hands-on training for officers. This is being further enhanced, particularly with the institution of modular training experiences similar to what the officer will expect in the field. We are now in the process of extending this structured hands-on training to the Advanced Course, both for the active and reserve components. The result will be officer training with considerably more field experience than has been the case in the past. Lastly, we have redesigned the former Lightning Brigade into the 2d Armor Training Brigade (Leader Training). This unit is responsible for providing intense two-week instructional experiences to officers and NCOs on tanks or cavalry vehicles.

The Tank Commander's Certification Course (TC³) and the Scout Commander's Certification Course (SC³) have been designed to provide refresher or transition training on the equipment to which the individual will be assigned at his unit. If you have been away from the tank or cavalry force for two or more years, you will be scheduled to go through this training to ensure that you are fully technically proficient before you arrive at your new unit.

We intend to complement this with an Armor Commander's Course for active and reserve officers, offering a very intense, two-week, hands-on, field tactical leadership training period. In 1986, this instruction will be initiated at Fort Knox and, hopefully, at Gowen Field, Idaho in 1987. The instruction will be overwatched by the 2d Armored Training Brigade, which is responsible not only to ensure tactical and technical competence, but also training in leading and caring for armor and cavalry force officers and noncommissioned officers.

Leadership in Depth

We believe that developing leadership in depth is an essential responsibility, initially of the institution (that is, the Home of Armor at Fort Knox, but primarily of the chain of command in the field. The 2d Armor Training Brigade can set the standards for the force, and it does; but the real development which must occur comes from the unit, in its officer and noncommissioned officer development programs. That development also includes well-measured, quality training to ensure that our leaders, and their soldiers, meet the physical standards not just of the semi-annual APRT, but the high standards required in both the training area and the battlefield.

Solid leadership is an integral part of a robust, winning force. Our intention is that as we train in peacetime we'll develop both noncommissioned officer and officer corps which are trained to exercise battlefield responsibilities at least one level higher than their current position. We would hope, in fact, to get to two levels.

We hope for example, that the platoon sergeant who is an Advanced Noncommissioned Officer Course graduate would be capable of commanding the tank company or cavalry troop on the battlefield should the occasion demand.

This is a very similar approach to the depth that was built into the Reichswehr in Germany after World War I, and it provided a base of excellence which was multiplied manyfold during World War II. Greater depth will be required to survive during the initial stages of the AirLand Battle which we hope to deter, and greater talent will also serve as a source of expansion potential.

Leading Forward, by Example

We at Knox have also focused on the essential necessity of the combat arms leader leading forward. The leader must lead by example, whether it is in his technical knowledge and proficiency — the knowledge of maintenance services, for example — or his personal proficiency on the Unit Conduct of Fire Trainer, to commanding the first tank to qualify on Individual Tank Qualification. The end result is the same — leaders leading forward by example, against a standard set by the Armor School.

The Armor School Role

Fort Knox should play other roles in support to our overall force. Knox should be the home of the branch. In the Patton Museum of Cavalry and Armor, we portray our rich battlefield heritage. In the Draper Trophy program we support excellence of leadership across the armor and cavalry force. We also foresee other vehicles to support the development and expansion of the regimental system. We at the Home of Armor are pledged to the aggressive support of those programs developed by the chain of command to reinforce the ethos and esprit of the mounted arm. A



return to Knox for training should be a positive experience, a renewing experience. We look forward to welcoming you back as you renew your proficiency as a fighter and leader.

We also see an obligation to set the standard in demonstrating how you can better care for your soldiers and their families. We have a range of programs underway to ensure a positive, developing environment here at Fort Knox, whether you are assigned or merely passing through for instruction. If assigned to an unaccompanied area, we are striving to make the larger Fort Knox area a place where you would want to leave your family. We see caring for the family of the mounted arm as an integral aspect of the Home of Armor, as applicable to the guardsmen or reservists as it is for the active force.

The Man-Machine Interface

Our last "people program" involves looking at the design of our equipment so that it can be fought more effectively and efficiently by motivated, capable soldiers who may be dead tired, cold, and frightened. We are reviewing performance data from Table VIII qualification at Grafenwoehr, as well as data from the National Training Center. At present, our efforts are

focused on improved command and control information, specifically the evolution of battlefield management systems. We are now engaged in a significant effort to determine the information requirements so as to take advantage of the microprocessor — how much, where, when, to what purpose?

This effort has been complemented by considerable testing in the Physiological and Psychological Effects of NBC and Extended Operations on Crews (P²NBC²) Study. This is the study of the ability to fight the tank in NBC conditions. We are doing other studies to develop more understanding of human performance under stress and ways that we can condition ourselves to survive and prevail under these very difficult battlefield conditions.

In the near future, we will begin evaluation, using development simulation networking (SIMNET). A research facility will be established at Fort Knox to be used for evaluation of new doctrine, organization, equipment, training, and, most critically, establishing "Manprint" personnel factors to ensure that all that we develop can be accomplished by average people.

These people programs are vitally important to the evolution of our force. We are pursuing them with particular vigor.

Forge the Thunderbolt!

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



Developing the 19D Scout

In the past few years, we have seen the Armor Force adjust to many changes in both manning and doctrine. Until recently, however, those changes have had a devastating effect on the cavalry scout (MOS 19D). Now, with the assistance of practically the entire Army, we have been able to increase the size of armor. New decisions concerning how we develop cavalry scouts and manage their training and career progression will cause great improvement in what some people have considered a neglected MOS.

A major change in 19D structure has been in the grade of the Cavalry Squad Leader. For years, the Cavalry Squad Leader's grade was Sergeant E-5, and hence, was one grade below his combat arms counterparts: the Infantry Squad Leader, the Armor Tank Commander, and the Artillery Gun Chief, who are all Staff Sergeants (E-6). An even more intriguing fact is that the Scout Squad Leader and the Scout Section Sergeant had the same skill requirements, but were authorized different grades (The Section Sergeant was, and remains, a Staff Sergeant). I suppose that the rationale was that it was easier to determine who was in charge! Now, the authorized grade for a Cavalry Squad Leader is Staff Sergeant (E-6). Who is in charge? The senior man, of course! The point is that scout squad leaders were performing all the duties and had all the responsibilities of their combat arms counterparts but were only authorized a rank of Sergeant (E-5). We've corrected that now.

The recent SFC promotion list indicates the 19D promotions have opened up: 125 noncommissioned officers were selected for promotion on that list in MOS 19D. There were a number of reasons for the increased number of promotions, but the major reason was the increase in authorization. These increases were also identified in TDA positions: drill sergeants, recruiters, positions in the centers and schools, and elsewhere.

As the number of authorizations increased, the turn-around time for CONUS-to-overseas assignments increased from 13-16 months to 24-30 months for ranks of SP4 through SSG. This change will have a very positive effect on our soldiers and their families. Because of the short turn-around time of the past, our Army was losing outstanding soldiers and their fam-

ilies because of the extreme personal and family problems being caused. This new situation will also help the units because now, stabilization may in fact become a reality.

Additionally, we have identified many 19D positions in TOEs that should be coded for Ranger qualification. These authorizations are now in effect. The duties of the scout squad leader require that he have many of the capabilities trained into the soldiers attending the Ranger Course. The opportunity for the cavalry scout to attend the Ranger Course will not only increase his personal skills in leadership and scouting, but will increase the commander's all-around reconnaissance capability.

Cavalry assignments cover a multitude of different units: heavy divisions, light infantry divisions, airborne and air assault divisions, and the motorized division. Cavalry soldiers have the responsibility to be proficient on the M113A1/A2, the M901, the M3, the M551, the HMMWV, etc. We have always expected him to know the equipment when he arrived at our units, yet he may have not worked with it for the previous three years, or perhaps never at all! Now we have a way to provide refresher training for him.

When a soldier moves from one station to another, or has been assigned outside his MOS, and is due to return to cavalry duties, he first returns to Fort Knox to be retrained and certified in the Scout Commander's Certification Course (SC3).

Additionally, on-the-job training for the scout is a load that the unit no longer has to carry. Those soldiers who are reclassified (voluntarily or involuntarily) into the 19D MOS will be trained at Fort Knox. They will receive OSUT 19D and — depending on their rank — will be required to attend PLDC (if they have not attended), TC3, or BNCOC.

The Excellence Track Program for 19D has been approved at Fort Knox. The following procedures will be used to select these soldiers for cavalry:

- The OSUT unit will conduct a nomination board to develop an Order of Merit List of nominees for the commander. The board will consist of, at a minimum: a company/troop officer, the first sergeant, the senior tank commander, and a senior drill sergeant.

"...The Excellence Track Program for 19D has been approved at Fort Knox..."

• The company/troop commander will use the list to select soldiers for the EIA Program. The number of soldiers selected will be determined by the number of qualified soldiers on the OML and the unit's training capacity for the program (nominally, 20 percent of its trainees).

• The company/troop commander will also use the list to select soldiers to be recommended for accelerated promotion to PVT (E-2) in the soldiers' eighth week of training. The commander may recommend up to 10 percent of his unit's PVT (E-1) trainee strength at the eighth week for promotion to PVT (E-2). Promotion authority to PVT (E-2), however, rests with the battalion/squadron commander and may not be delegated.

• Selection for promotion to PFC will be made during the thirteenth week of the training cycle. Platoon sergeants will recommend those soldiers with the rank of PVT (E-2) who successfully complete the EIA Program and who have continued to demonstrate the ability to learn, personal motivation, leadership potential, physical fitness, and technical proficiency.

This program may also be used by TOE unit commanders to place outstanding soldiers in the Excellence Program. Procedures are outlined in Appendix A of the *Armor Enlisted Development Manual*.

Another new program coming on line to increase the proficiency of the 19D is the Scout Commander's Certification Test. The Scout Commander's Certification Test I aligns 19D hands-on proficiency with the 19E's and 19K's Level I tests. It is an annual test designed to examine all leaders on the system or systems to which they are assigned. If you are assigned

to an organization equipped with the M113 and M901, you will be evaluated on your proficiency with all weapons systems assigned to the vehicles as well as the vehicles themselves. Soldiers assigned to Sheridan, Bradley, or HMMWV, will be tested on their vehicles and weapons.

The Scout Commander's Certification Test II will be a written test for Excellence Soldiers and Master Gunner candidates. The test is a generic 19D examination, and consists of Skill Level 3 and 4 subjects. The test will be administered to an Excellence Track Soldier when recommended by his commander for early promotion to SSG (at the 4-year TIS point). The 19D Sergeant will have only one opportunity to take the exam. Upon notification of passing the test, the NCO will be awarded 50 additional promotion points.

There are other programs for the future that will contribute to excellence in the 19D MOS. The Scout Commander's Certification Test III for D3 Master Gunners is one. SCCT III will give the Armor Force the capability of maintaining a check system on all Master Gunners assigned to these positions. However, the effectiveness of the program is dependent on two elements: the chain of support and the chain of command.

The noncommissioned officer must understand that his responsibilities must be executed to the highest of standards. The support chain and the command chain must understand those responsibilities and evaluate them according to the high standards that are necessary if we are to create a truly professional 19D Cavalry Scout Leader.

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RECOGNITION QUIZ

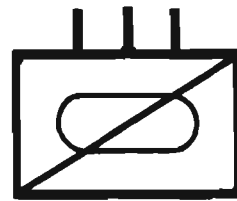
This Recognition Quiz is designed to enable the reader to test his ability to identify armored vehicles, aircraft, and other equipment of armed forces throughout the world. *ARMOR* will only be able to sustain this feature through the help of our readers who can provide us with good photographs

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

(Answers on page 48)



The Armored Cavalry Regiment: Catalyst for Operational Success



It has been said that "Without cavalry, battle is a rather inelegant affair." Some would say this is ample justification for having an armored cavalry regiment in the force structure. But as this article describes, the armored cavalry regiment is the catalyst which turns the tenets of our corps doctrine into a battlefield capability.

The operational concept of the regiment stems from the corps' requirements for reconnaissance and security; so first, let's review the operational concept of the corps.

The Corps Operational Concept

The corps is the focal point for fighting AirLand Battle. Within a corps structure, we harness the combat power of our army and apply it for decisive effect against our enemies to achieve the goals of our strategy. The corps commander is the quarterback of the fighting team. He is primarily in the business of fighting "tomorrow's battles."

- He looks forward in time and anticipates where battles should be fought or where they should be avoided.

- He plans and executes simultaneous battles in deep, close-in, and rear operations.

- He assures the corps is disposed and resourced to achieve the objective of the operational plan and remains poised to exploit opportunities created by tactical success or enemy mistakes.

- He synchronizes the concentration of units and logistical support of each battle to enhance the tactical success of his subordinate units.

- He influences the tactical success of subordinate maneuver units by fighting enemy follow-on forces, shifting the main effort, employing corps-controlled combat and combat support units, committing the corps reserve at the decisive time and place to assure operational

success or convert tactical success into operational advantage.

Fundamentally, the success of the corps depends on the soundness of the corps commander's campaign plan, the accuracy of his intelligence, and the speed with which the corps creates and exploits opportunities for decisive maneuver. In large measure, the corps' success depends on the corps commander's sense of timing. This sense of timing is a bit intangible, but crucial to eventual victory.

Operational Maneuver

A thorough appreciation of maneuver is the key to understanding the concept of AirLand Battle. *Maneuver* is the essence of our fighting doctrine. Maneuver, in the operational sense, is the swift positioning of combat units to attack the enemy's rear, strike his flank, cut his lines of communications, bog him down in non-decisive areas, fall on an isolated segment of his force, or elude his attack. Maneuver is the *means* to seize or retain the initiative. Maneuver is the *means* of concentrating overwhelming combat power at a decisive time and place. Maneuver is the *means* to create and exploit tactical and operational advantages. It is the *means* to fight outnumbered and win. Only by retaining the ability and freedom to maneuver his brigades and divisions can the corps commander achieve the requirements of our fighting doctrine. The basic doctrinal tenets of initiative, depth, agility, and synchronization contribute to this end. Facilitating operational maneuver is where the armored cavalry regiment finds its niche.

The Fundamental Role of the Armored Cavalry Regiment

The armored cavalry regiment serves as a catalyst which translates the concept of operational maneuver into a battlefield capability. *Performing reconnaissance and security, the regiment facilitates the*

corps commander's ability to seize and retain the operational initiative and concentrate overwhelming combat power against the enemy at the decisive time and place.

Provides Fresh Information

The ability of the corps commander to seize and retain the operational initiative and concentrate overwhelming combat power at the right time and place is predicated on having fresh information about the enemy — his exact dispositions, size, composition, direction of movement, and rate of advance. Acting sooner than the enemy, concentrating units at the right time and place, keeping him continually off balance, and disrupting his operational timing, are primarily functions of having an accurate picture of the enemy's dispositions and activities sooner than he knows about ours. Timing is everything. Victory stems from it. Precise timing of fires and operational maneuvers requires a fresh and accurate picture of the enemy's current dispositions and operational initiatives.

Concentration of units through maneuver is also predicated on the ability of divisions and brigades to move with precision within the corps area of operations. Consequently, the corps commander must also have current information about terrain and trafficability within his area of operations. These factors, more than any other, influence his ability to maneuver divisions or brigades to the point of decision or advantage. A corps commander courts disaster without this kind of information.

The corps commander has a wide variety of intelligence sources available to him: military intelligence organizations, long-range surveillance units, artillery target acquisition systems, air defense warning systems, Air Force and Army reconnaissance and surveillance aircraft, and strategic systems. However, these sources are focused primarily on intelligence preparation

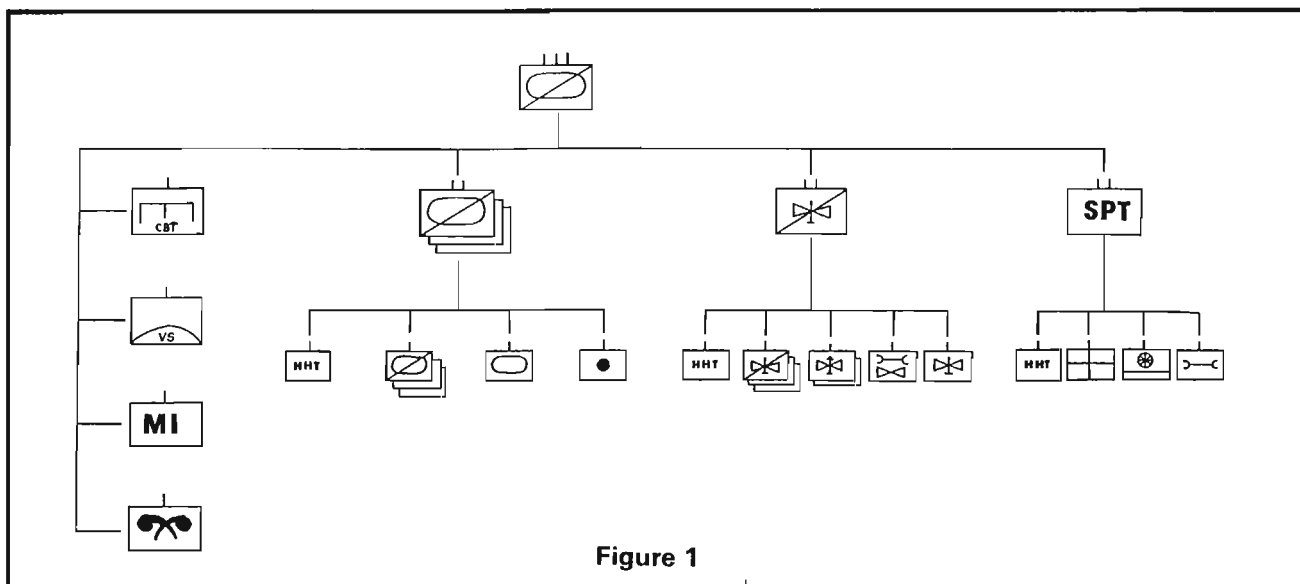


Figure 1

of the battlefield (IPB). Collection efforts are predominantly oriented well forward of the FLOT to identify enemy activities or operational maneuvers which could affect the corps several days in the future. This kind of intelligence information is collated, analyzed, and disseminated by the corps all-source intelligence center. Here is the point: This information is used primarily to support *planning* of future operations. It serves as a basis for the corps commander to dispose and concentrate his forces to meet future combat requirements. While this type of intelligence is absolutely necessary, it is not sufficient. The corps commander needs *fresh* combat information during the *execution* of current battles to be precise in his maneuvers and application of supporting fires.

Precise concentration of units and supporting fires during execution of corps plans is predicated on having *current* information about the enemy and terrain. The primary source of fresh information for the corps commander is the armored cavalry regiment (Figure 1).

Performing *reconnaissance*, the regiment confirms or refutes the IPB collection effort. It tells the corps commander what he needs to know to fight — the actual size and composition of the enemy, his *current* dispositions, where he's strong, where he's weak, and where the application of superior combat power could have a decisive effect. The regiment shows the corps commander how and where to move his forces despite conditions on the battlefield which stand in his way:

impassable routes, blown bridges, unfordable streams, contaminated areas, refugee columns, and the enemy. The regiment can guide maneuver units into engagements with the enemy, assist in rapidly massing and dispersing maneuver units, and monitor the movement of combat support and combat service support elements to support the main effort.

Preserves Combat Power

Performing *security*, the regiment carries out missions which protect and preserve the combat power of the corps until the corps commander determines where forces need to be concentrated and until forces can be maneuvered into battle with the enemy. In offensive operations, well in advance of the corps main body, the regiment prevents premature deployment and attrition of the corps until it reaches its operational objective, due to the influences of terrain or enemy forces. In defensive or retrograde operations, the regiment provides early warning of enemy approach, counters enemy ground reconnaissance activities and effectively screens the corps from ground observation, and protects the corps from surprise attacks and unanticipated engagements.

Operating at a distance from the corps main body, the regiment develops the situation and, hence, prevents the corps from fighting at a disadvantage (e.g. unwarned, poorly deployed, not poised to fight). In the process, the regiment permits the corps commander to see opportunities and exploit them.

Provides Time and Space

The regiment provides *time* for the corps commander to assess the situation, develop a course of action, issue orders, and maneuver units. The regiment also provides *space* to maneuver brigades and divisions by creating the flexibility to respond to unanticipated enemy initiatives. Performing reconnaissance and security operations at a distance from the corps' main body, the regiment provides the corps commander time and space to synchronize effectively maneuver with supporting fires, and logistical support.

An Economy of Force Option

A corps commander will probably have to fight a bigger opponent. Outnumbered in the macro, he must be stronger in the micro at a decisive point. The only way he can do this is accept risk somewhere in his area of operations. Organized as a powerful, combined-arms team, the regiment provides the corps commander an *economy-of-force option* to free other combat maneuver units in the corps for concentration elsewhere in the area of operations.

Disruption of the Enemy's Operational Timing

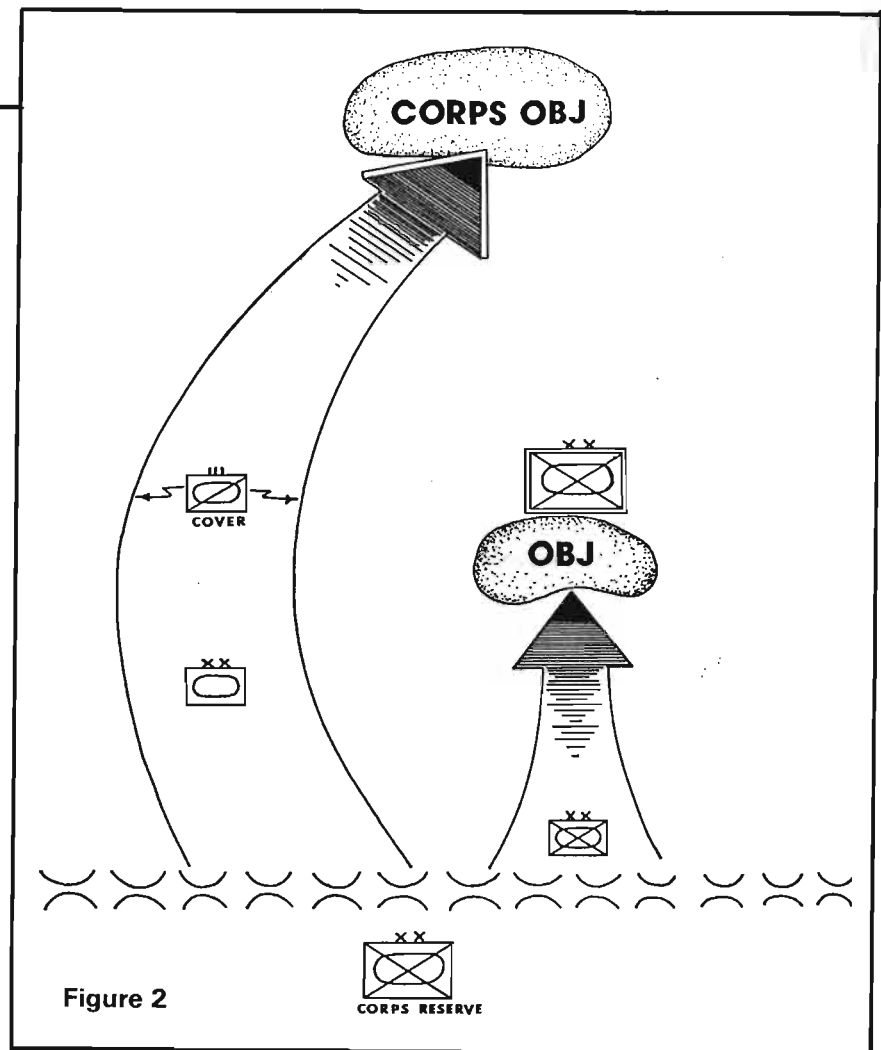
There is decisive benefit to disrupting the operational plan of the enemy. The Soviets are rational players who construct top-down, scientifically-based, and highly-detailed plans. Any disruption in the execution of their plan will break the tempo of their operation and dissipate their combat power before

“...Though offensive cover is a security operation, it primarily entails the performance of reconnaissance...”

it can be concentrated and applied in overwhelming strength against the corps at the time and place of their choosing. Disruption sets the stage and provides the corps commander an opportunity to seize or retain the initiative. Deception at the operational level is a key element of the corps' disruption effort. The regiment is a central player in deception operations. It can easily be made to look like a division or portray a false combat operation in the form of a feint, demonstration, or supporting attack. With this as a background, let's look in closer detail at the missions performed by the regiment in support of corps operations.

Corps Offensive Operations

The corps undertakes offensive operations when the commander sees an opportunity to take the initiative or when a higher command orders an attack to be conducted. Within a corps offensive scheme of maneuver, a variety of operations are usually conducted by subordinate maneuver units. Some may perform a deep attack, a deliberate attack, a movement to contact, a hasty attack, reconnaissance in force, a spoiling attack, or a raid. Others may conduct a feint, demonstration, or display in support of corps deception operations. Others perform security operations, such as screen, advance guard, flank guard, or offensive cover. Others may defend in an economy of force role to allow the corps commander to concentrate combat power elsewhere within his area of operations. What does the regiment



do for the corps commander?

The regiment, a versatile and powerful combined arms team, can perform several missions required for operational success of the corps in offensive operations. In terms of mission frequency, *offensive cover* and *flank guard* operations will predominate. However, the regiment is also well-suited to defend or delay in an economy-of-force role, to conduct a supporting attack, or to perform deception operations if the corps commander chooses. Here's the important point: The regiment's versatility provides the corps commander a lot of options.

When attacking, the corps commander usually leads with the minimum necessary force to cover the corps advance. In most cases the nod will go to the regiment. *Though offensive cover is a security operation, it primarily entails the performance of reconnaissance* (Figure 2). The purpose of the offensive covering force is to find enemy

forces, develop the situation, identify tactical or operational reserves, provide for the uninterrupted forward movement of the main body, provide reaction time and maneuver space, and prevent the premature deployment of the corps main body. To achieve this purpose, the covering force deploys well-forward of the main body and provides follow-on divisions an opportunity to change their direction of movement if necessary without suffering a loss of momentum. To create the time and space necessary to alter the course or objectives of follow-on divisions, the regiment operates independently, well outside the range of supporting fires in the corps main body.

If the corps assigns the covering force mission to a division, the regiment will usually be assigned a flank guard mission for the corps. Flank guard is a security operation whose purpose is to provide early warning of enemy approach, reac-

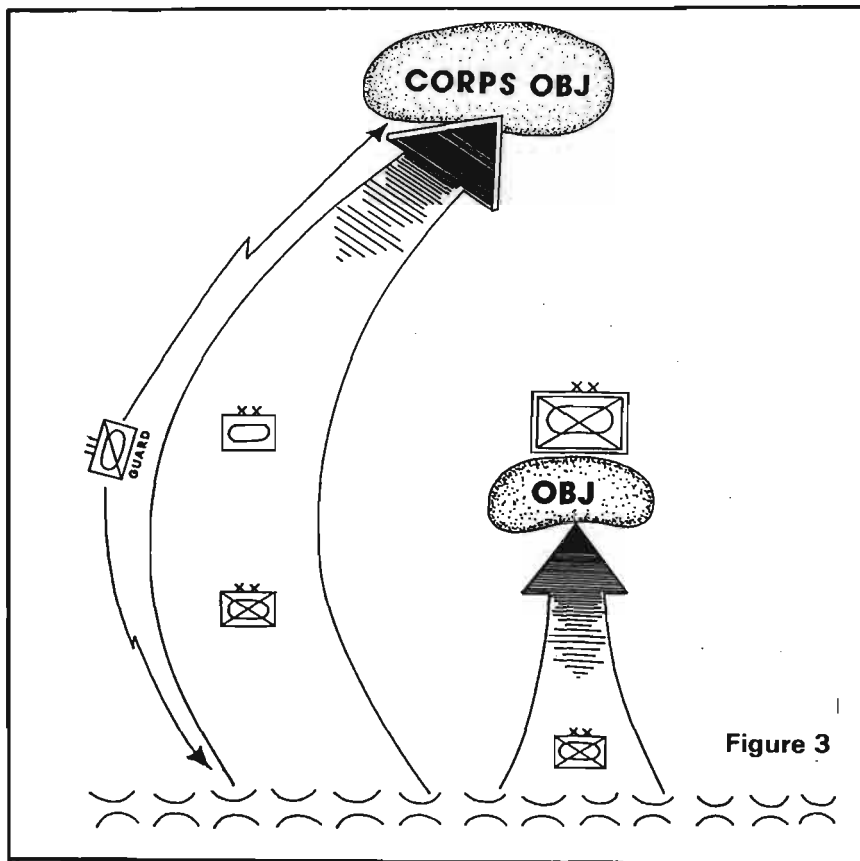


Figure 3

tion time and maneuver space, and prevent enemy ground observation and direct fire engagement of elements of the corps main body (Figure 3).

Flank guard is a complex operation which requires performance of several missions simultaneously by subordinate units of the regiment. Zone reconnaissance is performed between the regiment's route of advance and the flank of the corps main body from the line of departure to the objective. Upon enemy approach into the flank of the corps, the regiment screens, defends, delays, or attacks, if required to accomplish the mission. Unlike in the covering force mission, however, the regiment normally remains within range of corps supporting fires in the main body.

Corps Defensive Operations

A corps defends when it is not possible to attack or to facilitate an offensive elsewhere in the theater of operations. Fundamentally, a defense is usually organized to defeat an enemy attack, but the underlying purpose is to create the opportunity to change to the offensive.

The basic concept for corps defense calls for simultaneous defeat of enemy first echelon units in the close-in fight and second echelon forces in deep operations, to disrupt enemy movement of units and fire support, break up the attacker's momentum, and disrupt, delay, and destroy command and control and logistical support operations in the enemy rear area. Since the corps will probably be outnumbered, the corps commander must attempt to engage isolated parts of the enemy force by operation within interior lines and striking at exposed enemy forces at every opportunity.

Within a typical defensive scheme of maneuver, subordinate maneuver units of the corps will perform a variety of missions. Some will defend in sector, some will delay. Others will attack or counterattack. Some will guard, some will cover. Some units will defend in an economy-of-force role to allow the corps commander to concentrate combat power somewhere else in his area of operations. Some may attack deep into the tactical and

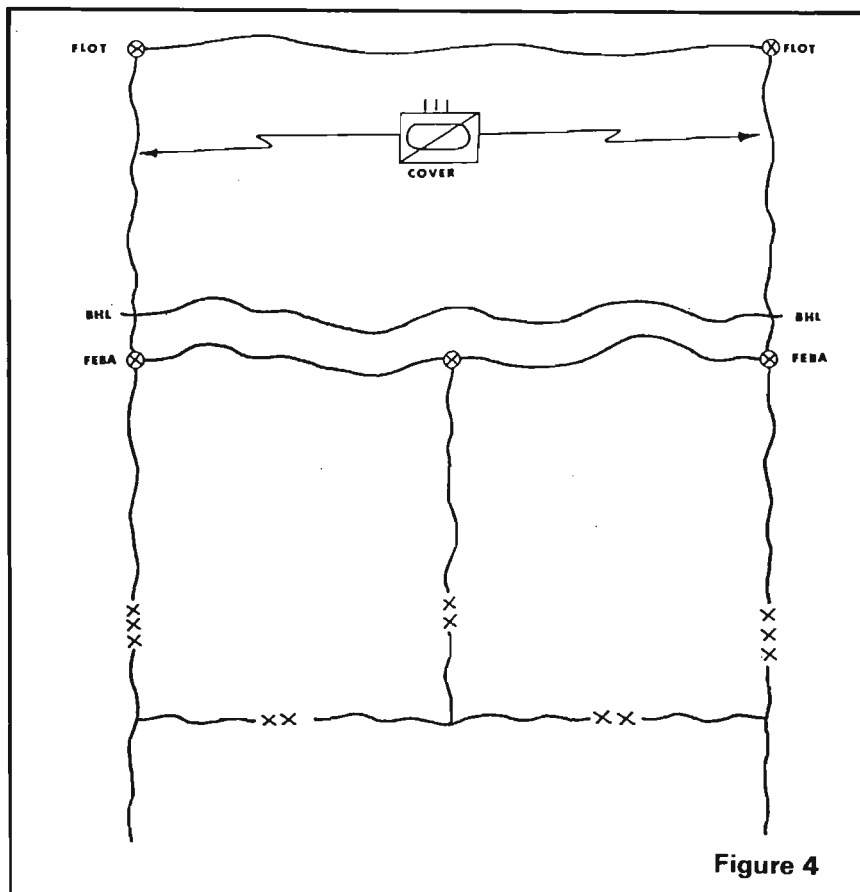


Figure 4

operational depth of the enemy's zone of action. Others perform deception operations. What does the regiment do?

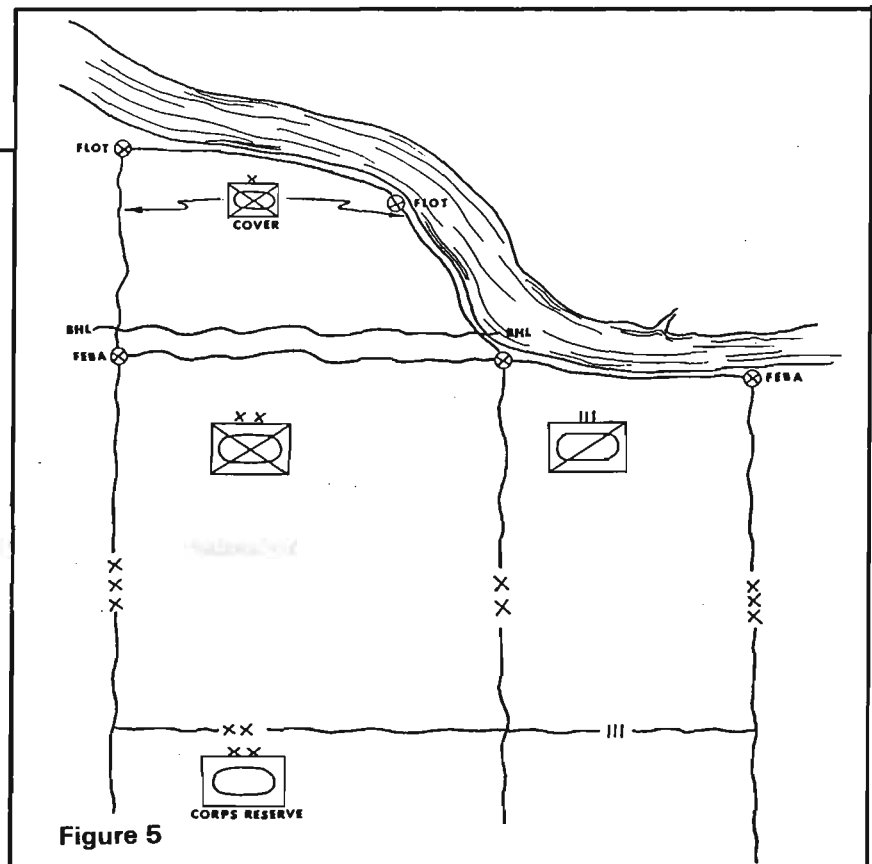
In terms of frequency, *defensive cover* and *defend in sector* in an economy-of-force role are missions which the regiment will most often be tasked to perform. Defensive cover is a security operation (Figure 4). As a covering force, the regiment deploys far enough forward of the main battle area (MBA) to protect the units from premature engagements and the concentrated fires of enemy medium range artillery forces.

The purpose of defensive cover is to slow the enemy's advance, force him to deploy and begin an attack prematurely, dissipate his combat power, disrupt his operational timing and synchronization, and identify his main effort for the corps commander. The regiment is expected to defend — rather than delay to destroy the lead regiments — cause the premature commitment of second echelon forces, and disclose his main effort. To create the time and space necessary to achieve the purpose of this mission, the regiment deploys at least 20 kilometers forward of the main battle area (MBA) (Figure 4).

If the corps commander believes he needs to generate a large operational reserve or concentrate his maneuver forces in a particular section of the MBA, he could task the regiment to defend in sector in an economy-of-force role. The regiment is well-suited for this mission, and with some reinforcement, it can successfully defend an enemy division-size zone of attack. If the regiment is employed in this role, divisions will normally provide their own brigade-size covering force (Figure 5).

Corps Retrograde Operations

Retrograde operations are conducted by the corps when it is necessary to move away from the enemy to reposition forces on more favorable terrain, husband resources for future operations, gain time, or avoid combat under unfavorable situations. The three types of retrograde operations are delay, with-



drawal, and retirement. The regiment is ideally suited to provide security for the corps as it moves away from the enemy; the regiment protects the corps from enemy exploitation and pursuit ventures. Defensive cover, delay, rear guard, and flank guard operations are the high frequency missions for the regiment during retrograde operations.

Command and Control

Because of the corps commander's pressing need for fresh information during the execution of his plan, the regiment operates predominantly under his personal command and reports to him directly. If the situation demands, the regiment may be placed temporarily under the operational control of a subordinate division.

The Regiment Today

Several of the roles and missions which the regiment performs for

the corps are traditional. Others have evolved to satisfy the requirement of corps operations and Air-Land Battle doctrine. Others have evolved in response to changes in our enemy's doctrine, operational concepts, and capabilities. The regiment is a versatile combined arms maneuver force which increases the corps commander's options. It facilitates his ability to seize or retain the operational initiative, achieve depth and flexibility, retain agility, and synchronize the concentration of units with supporting fires and logistical support. The regiment also facilitates the corps commander's ability to preserve, and then concentrate overwhelming combat power with precision where it will produce victories.

In the next issue we will describe the operational concept for employment for the armored cavalry squadron of the heavy division. Scouts Out!

This article, which reflects current doctrine, was prepared by the Cavalry Branch, Command and Staff Department of the Armor School. The article was written by Major John D. Rosenberger and Colonel Thomas E. White of the Combined Arms Center.

The St. George Award

Ed. Note: In our last issue, we announced that the U.S. Armor Association would be implementing an award program this year called "The Order of St. George." This article gives more information on that program and shows why this famous knight was selected as the patron of all mounted warriors.

For many years now, the Field Artillery Association has rewarded its premier "Redlegs" and civilian supporters with a special award: The Order of St. Barbara. Yet, for over a thousand years there has been one name that elicits visions of valor, dash, elan, and bravery. He has become known as the patron of both the soldier in general, and of cavalry and armored forces specifically. He is St. George, the Dragon Killer.

The History

The heroic and legendary image of Saint George defeating the dragon exemplifies the mounted gallantry and righteous bravery that we have come to associate with the horse-mounted knights of old. St. George is the only saint who is portrayed as fighting mounted, and his name is linked to famous battles, military orders, and mounted warriors throughout the past.

We believe that the man who became known as St. George was born in about 280 AD in a region of what is now modern Greece. As a result of his personal bravery, this man — then known as Nestor of Cappodocia — became a member of the Roman Emperor Diocletian's personal bodyguard. In 303 AD, Diocletian issued an edict in Nicodemia, now a part of Turkey, that ordered the destruction of all Christian churches, sacred writings and books, and outlawing all Christians who did not, on the surface at least, conform to pagantry.

Upon seeing the edict, Nestor tore it down. For his act and his refusal to abide by the pagan emperor's edict, Nestor was imprisoned, tortured, and executed. Early Christians changed Nestor's name to George, and he became associated with bravery, dedication to faith, and decency.

The legend of St. George's defeating the dragon perpetuates the might of the mounted warrior over

the forces of evil. It is an Italian legend dating from the 12th Century, and the story goes like this:

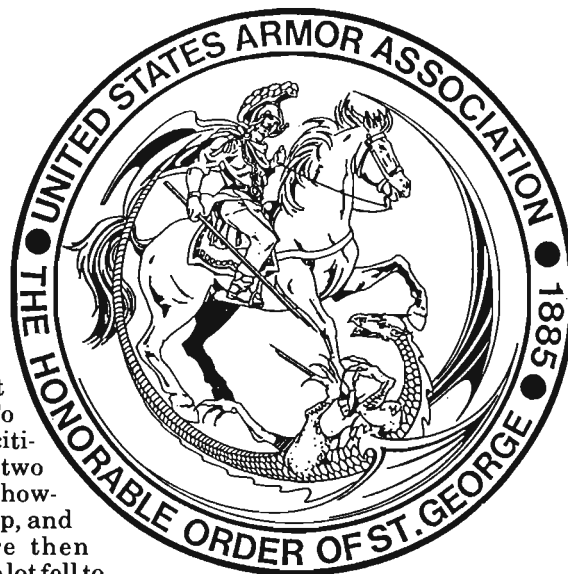
Near the city of Silene, a frightful dragon came to live in a marshy swamp, and its breath poisoned all who attempted to drive it away. To protect themselves, the citizens offered the dragon two sheep every day. Soon, however, they ran out of sheep, and human sacrifices were then drawn by lot. One day, the lot fell to the king's daughter. She was left in the swamp to face the dragon, and this is where St. George finds her during his travels. In a fierce combat, George defeats the dragon but does not kill it. Instead, he ties the princess' waistband around the dragon's neck and has her lead it back to the city. There he promises to slay the dragon if the people will embrace the Christian faith. This they agree to do, and he kills the dragon.

Later, of course, the dragon came to represent the embodiment of evil and hatred rather than an animal, but the moral remained. The heroism and faith of St. George became bulwarks to all warriors.

The association of St. George's name with the exploits of mounted warriors extends through the Crusades. In 1098, St. George was credited with a mystical appearance and a resulting victory of the Crusaders over the Saracens. His fame continued to spread through the ages.

One of the oldest and most noble of knightly orders, the Order of the Garter, was founded in England in the 14th Century to honor St. George. Its members were chosen by the king and had to be of "gentle birth, courageous and free from all reproach." Annual ceremonies are conducted in St. George's Chapel at Windsor Castle on 23 April, St. George's Day, and the knighting ceremony contains the phrase: "By the Grace of God and Saint George."

Almost 50 years ago, in 1937, Pope Pious IX declared St. George as the Protector of the Italian Cavalry. St. George's colors are red and white, and it is no coincidence that



The St. George medallion was designed by Mark Irwin, the artist who recently painted "The Centennial of Armor."

the colors of the United States Cavalry are the same.

Today, St. George still abides as the patron of mounted warriors throughout the world. The Italian Armor Force celebrates St. George's Day with battalion ceremonies. Several years ago, the French Armor Force also adopted St. George as its patron. Within the next year or so, the West German Armor Force may also adopt St. George as its patron. He is a common thread among the Armor and Cavalry forces of most of the NATO nations. His memory lives on today in the spirit of the armored knight who helps soldiers in need, who is the epitome of selfless service, and who is the archetypal mounted warrior.

The Order of St. George

In keeping with this heroic order, the United States Armor Association will, this year, formally adopt St. George as the Patron of the United States Armor/Cavalry force. The Armor Association will serve as the sole manager for three awards of the St. George Medallion that not only recognizes service to the Armor/Cavalry Force, but also establishes demonstrable standards of professional excellence throughout the Armor/Cavalry Community.

There are actually two levels of membership in the Armor Association's St. George Program: The Or-

Order of Saint George (Silver and Gold Medallions)

Nominee	Nomination Procedures	Approving Authority	Armor Association Actions						
Active and Reserve component military personnel with an Armor chain of command. (regimental cavalry commander, divisional brigades, separate brigades).	<ol style="list-style-type: none"> 1. Prepare a nomination packet consisting of a <i>detailed letter of justification and a fully completed order form.</i> 2. Obtain the concurrence of the entire Armor chain of command. 3. Forward the endorsed nomination packet along with <i>payment in advance</i> (\$20), to the Executive Director, U.S. Armor Association, P.O. Box 607, Ft. Knox, KY 40121. The packet should arrive at Ft. Knox <i>NLT 5 weeks</i> prior to the date of presentation to allow for administrative handling and mailing time. Special mailing arrangements may be made with the Association staff, (502)942-8624, but postage costs will be borne by the requestor. 	The approving authority for all accessions to the Order of Saint George is the Commanding General, USAARMC. The Commanding General may approve, disapprove or downgrade the nomination to the Honorable Order, as he deems appropriate.	<ol style="list-style-type: none"> 1. The Executive Director will review the nomination packet, prepare an appropriate decision paper, and forward it to the Commanding General for decision. 2. Upon receipt of the Commanding General's decision, the Executive Director will either prepare the award package and mail it <i>IAW</i> the instructions provided on the order form, or return the packet and repayment to the nominator. 3. The Association staff will post the recipient's name to the Order of Saint George master file. 						
Active and Reserve component military personnel without an Armor chain of command.	<ol style="list-style-type: none"> 1. Same as procedure 1, personnel with an Armor chain of command. 2. Same as procedure 3, personnel with an Armor chain of command (except no endorsement required). 	Same as for personnel with an Armor chain of command.	Same as actions for personnel with an Armor chain of command.						
Active and Reserve component U.S. military and foreign military personnel at USAARMC.	<ol style="list-style-type: none"> 1. Same as procedure 1, personnel with an Armor chain of command. 2. Obtain the concurrence of the USAARMC or USAARMS chain of command. 3. Obtain the approval of the appropriate individual indicated below: <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;"><i>Agency to which the nominee is assigned</i></td> <td><i>Final concurring officer</i></td> </tr> <tr> <td>USAARMS</td> <td>2d Armor Tng Bde Cdr or Deputy Asst Cndt</td> </tr> <tr> <td>Armor & Engr Board</td> <td>President, AEB</td> </tr> </table> 4. Forward the approved nomination packet, along with <i>payment in advance</i> (\$20), to the Executive Director, U.S. Armor Association, P.O. Box 607, Ft. Knox, KY 40121. The packet should arrive at the Association office <i>NLT 4 weeks</i> prior to the desired date of presentation to allow time for administrative handling. 	<i>Agency to which the nominee is assigned</i>	<i>Final concurring officer</i>	USAARMS	2d Armor Tng Bde Cdr or Deputy Asst Cndt	Armor & Engr Board	President, AEB	The approving authority for nominations in this category are identified in Step 3 of the preceding column.	<ol style="list-style-type: none"> 1. Same as action 1, personnel with an Armor chain of command. 2. The Association's Secretary will prepare the award package and notify the nominator that it is ready for pick-up, or return the nomination packet and repayment to the nominator. 3. Same as action 3, personnel with an Armor chain of command.
<i>Agency to which the nominee is assigned</i>	<i>Final concurring officer</i>								
USAARMS	2d Armor Tng Bde Cdr or Deputy Asst Cndt								
Armor & Engr Board	President, AEB								
Other (retired, civilian, and foreign candidates, regardless of stationing).	<ol style="list-style-type: none"> 1. Same as procedure 1, personnel with an Armor chain of command. 2. Same as procedure 4, personnel with an Armor chain of command (except no endorsement required). 	The approving authority for all nominations in this category is the Commanding General, USAARMC, or his designated representative.	<ol style="list-style-type: none"> 1. Same as action 1, personnel without an Armor chain of command. 2. Same as action 2, personnel without an armor chain of command. 3. Same as action 3, personnel with an Armor chain of command. 						

der of St. George and the Honorable Order of St. George.

The Order of Saint George is the most distinguished of the levels of the military society. It recognizes the select few who stand above their brethren in the Honorable Order. *The specific criteria for accession into the Order of Saint George is to have performed conspicuous, long-term service for, or on behalf, of the United States*

Army Armor Force or the Marine Corps Armor Forces. This Order is reserved for an elite few whose careers have embodied the spirited dignity and sense of sacrifice and commitment epitomized by Saint George. The quality of the contributions and the length of service should govern the level of the award (Gold or Silver). A certificate verified by the Executive Director of the Armor Association, and signed by

the Chief of Armor, who serves as an officer of the Armor Association, constitutes the basic awards package. Members of the Order of St. George are entitled to wear the Order's gold or silver medallions (which accompany the awards package) with red and white neck-ribbon at all appropriate functions (e.g. social functions such as a St. George dining-in or induction ceremony, an Armor/Cavalry unit din-

Honorable Order of Saint George (Bronze Medallions)

Nominee	Nomination Procedures	Approving Authority	Armor Association Actions						
Active and Reserve component military personnel with an Armor chain of command (cavalry regimental commander, divisional brigades, separate brigades).	<ol style="list-style-type: none"> 1. Prepare a nomination packet consisting of a detailed letter of justification and a fully completed order form. 2. Obtain the concurrence of the entire Armor chain of command. 3. Obtain approval of the approving authority. 4. Forward the endorsed nomination packet, along with payment in advance (\$20), to the Executive Director, U.S. Armor Association, P.O. Box 607, Ft. Knox, KY 40121. The packet should arrive at Ft. Knox NLT 5 weeks prior to the desired date of presentation to allow for administrative handling and mailing time. Special mailing arrangements may be made with the Association staff, (502)942-8624, but postage costs will be borne by the requestor. 	The approving authority for all accessions to the Honorable Order of Saint George is any Armor commander in the field in the rank of full colonel or above.	<ol style="list-style-type: none"> 1. The Association's Secretary will review the nomination packet for completeness. 2. The Association's Secretary will prepare the award package and mail IAW the information provided on the order form, or return the packet and prepayment to the nominator. 3. The Association staff will post the recipient's name to the Honorable Order of Saint George master file. 						
Active and Reserve component military personnel without an armor chain of command (individuals, separate troops and companies).	<ol style="list-style-type: none"> 1. Same as procedure 1, personnel with an Armor chain of command. 2. Same as procedure 4, personnel with an Armor chain of command (except no endorsement required). 	The approving authority for all nominations in this category is the Commanding General, USAARMC, or his designated representative.	<ol style="list-style-type: none"> 1. The Executive Director will review nomination packet, prepare an appropriate decision paper, and forward it to the Commanding General, or his designated representative, for decision. 2. Upon return of the decision paper, the Association's Secretary will either prepare the award package and mail IAW the instructions provided on the order form or return the nomination packet and prepayment to the nominator. 3. Same as action 3, personnel with an Armor chain of command. 						
Active and Reserve component U.S. military and foreign military personnel at USAARMC.	<ol style="list-style-type: none"> 1. Same as procedure 1, personnel with an Armor chain of command. 2. Obtain the concurrence of the USAARMC or USAARMS chain of command. 3. Obtain the approval of the appropriate individual indicated below: <table border="0" style="width: 100%;"> <tr> <td style="text-align: left;"><i>Agency to which the nominee is assigned</i></td> <td style="text-align: left;"><i>Final concurring officer</i></td> </tr> <tr> <td>USAARMS</td> <td>2d Armor Tng Bde Cdr or Deputy Asst Cdr</td> </tr> <tr> <td>Armor & Engr Board</td> <td>President, AEB</td> </tr> </table> <ol style="list-style-type: none"> 4. Forward the approved nomination packet, along with payment in advance (\$20), to the Executive Director, U.S. Armor Association, P.O. Box 607, Ft. Knox, KY 40121. The packet should arrive at the Association office NLT 4 weeks prior to the desired date of presentation to allow time for administrative handling. 	<i>Agency to which the nominee is assigned</i>	<i>Final concurring officer</i>	USAARMS	2d Armor Tng Bde Cdr or Deputy Asst Cdr	Armor & Engr Board	President, AEB	The approving authority for nominations in this category is identified in Step 3 of the preceding column.	<ol style="list-style-type: none"> 1. Same as action 1, personnel with an Armor chain of command. 2. The Association's Secretary will prepare the award package and notify the nominator that it is ready for pick-up, or return the nomination packet and prepayment to the nominator. 3. Same as action 3, personnel with an Armor chain of command.
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USAARMS	2d Armor Tng Bde Cdr or Deputy Asst Cdr								
Armor & Engr Board	President, AEB								
Other (retired, civilian, and foreign candidates, regardless of stationing).	<ol style="list-style-type: none"> 1. Same as procedure 1, personnel with an Armor chain of command. 2. Same as procedure 4, personnel with an Armor chain of command (except no endorsement required). 	The approving authority for all nominations in this category is the Commanding General, USAARMC, or his designated representative.	<ol style="list-style-type: none"> 1. Same as action 1, personnel without an Armor chain of command. 2. Same as action 2, personnel without an armor chain of command. 3. Same as action 3, personnel with an Armor chain of command. 						

ing-in, or party, etc.).

The second level of the award is The Honorable Order of St. George. This award recognizes those individuals who have demonstrated the highest standards of integrity and moral character; displayed an outstanding degree of professional competence; served the United States Army Armor/Cavalry Force and Marine Corps Armor with selflessness; and contributed to the

promotion of Armor and Cavalry in ways that stand out in the eyes of the recipients' seniors, subordinates, and peers alike. A certificate similar to that given with the gold and silver medallions constitutes the basic awards package of this award also. Members of the Honorable Order of St. George are entitled to wear the Order's bronze medallion with red and white neck-ribbon at all appropriate occasions.

Armor and Cavalry commanders in the rank of full colonel and above are responsible for ensuring that the nomination of individuals for all awards are deserving and for ensuring that the wearing of the award does not conflict with uniform standardization guidelines.

Nomination procedures for these awards are shown in the accompanying tables.

What Would You Do?

Fighting With Degraded-Mode Gunnery

This problem was prepared by Captain F. Galgano, instructor, Weapons Department, USAARMS.

Situation

You are a member of Company A, 1st Battalion, 10th Armor, which is equipped with the M1 Abrams tank. For the past two days the battalion has been defending from a battle position against the determined assault of a motorized rifle regiment. As a result of a series of violent engagements, the opposing regiment has been nearly shattered. The battalion has just occupied the well-prepared new battle positions and is now waiting for what is expected to be the final lunge of the nearly exhausted enemy offensive.

Situation 1

Your M1 is hull-down and well camouflaged. You are observing your assigned sector when two T72s emerge from the woodline approximately 1900 meters to your direct front. The T72s are moving laterally across your position and do not see you. You report them to your platoon leader, and he instructs you to engage and destroy. You issue your fire command to the gunner to engage the trailing tank. Just before the gunner lases, the Gunner's Primary Sight (GPS) reticle disappears, but a range of 1910 meters appears in the symbology. You rapidly determine that this is a legitimate malfunction of the GPS reticle. The Thermal Imaging System (TIS) is in the Standby (STBY) position. What would you do?

Solution

This is not a most dangerous situation. You instruct your gunner to switch the THERMAL MODE to ON from STBY and place the Filter (FLTR)/CLEAR/Shutter (SHTR) switch to SHTR, then continue the engagement using the TIS. Remember the GPS reticle is produced in the Laser Rangefinder (LRF) and the TIS reticle is produced in the TIS Electronics Unit (EU). By switching to the TIS, as opposed to going to the Gunner's Auxiliary Sight (GAS), you have still retained the advantage using the full fire control system.



Situation 2

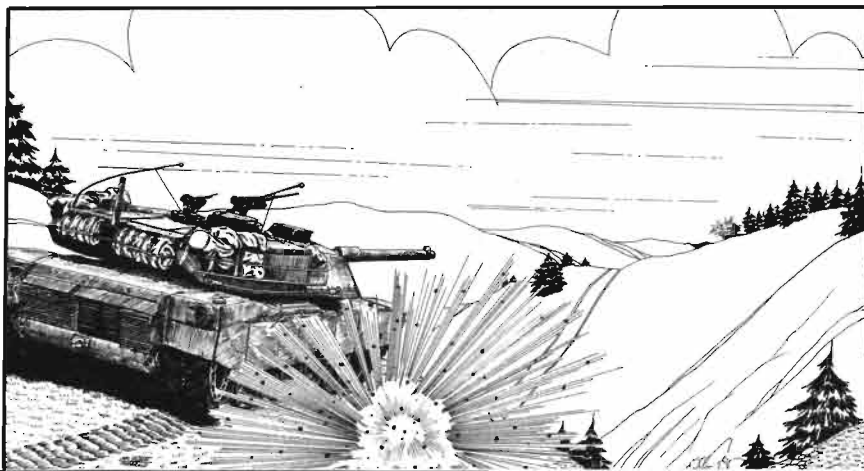
It is now several hours after you destroyed the T72s and their comrades from what remained of the motorized rifle regiment. In front of your position is the carnage from the last-ditch attempt of the failed Red offensive. Initiative must now be seized quickly, and your company is preparing to participate in a brigade-sized counterattack.

Your tank's fuel and ammo have been replenished, but you still have no reticle in the GPS. However, your laser is still functioning and is set for last return logic. The TIS is still operational. Your tank moves out, with a battlecarry of SABOT with 1000m entered as your battlesight range. As your tank moves along the side of a hill, a T72 emerges from some trees at about 1500 meters to your direct front and opens fire on you. The 125mm projectile explodes to the right rear of your tank. You are still using your

TIS. You immediately issue your precision fire command. As your gunner lases, the TIS symbology disappears, but the reticle remains. The T72 is fully exposed. What would you do?

Solution

This is a most dangerous situation. Your gunner has already layed center of mass of the T72 and lased. You tell him to fire from the TIS, NOW! You made this decision based on two facts. First, this tank is going to destroy you if you don't do something fast. Second, a loss of symbology does not mean that the LRF has malfunctioned. Your laser was still functioning and more than likely a correct range was indexed in the computer (you were using last return logic). An aside: A battlesight engagement will not work with this situation. With 1000m in the computer and the target 1500 away, the round will strike short.





Two views of the mortar-howitzer variant of the BMD reveal points of difference: the longer hull, extra roadwheel, and new turret. View of top of the hull, at right, shows driver's central position in the hull. The author notes the asymmetric blister on left front of the turret, possibly part of the vehicle's fire control.

The 120-mm SP Mortar/Howitzer: Its Impact on NATO Rear Area Defense

by Glenn T. Johnston

Introduction

The following article examines the threat presented to NATO rear areas by the mechanized Soviet airborne force. It begins with the recent observance of a 120-mm self-propelled mortar/howitzer (hereafter called a 120-mm SP M/H) mounted on a BMD chassis. The weapon system is initially studied as an end to itself. The weapon's organization within its parent unit is examined, as well as probable employment patterns. The results of the initial analysis are used as a springboard to gain an overview of the threat. In this instance, the threat is the mechanized Soviet airborne force in the NATO rear area.

The Problem

NATO commanders in central Europe have long been familiar with the possibility of a Soviet airborne assault into their corps and theater rear areas. Therefore, the inclusion of the airborne threat has become an obligatory event listed in many NATO exercises. A scenario often portrays Soviet airborne forces seizing an airfield in preparation for a major airland operation. The typical reaction of the friendly force commander is to attempt to determine the extent of the enemy operation at the airfield. Once the threat has been defined, the commander will dispatch se-

curity and/or combat forces to destroy the airhead. There is often a deprecating attitude as to the actual threat presented by such an airborne unit. A common belief is that the threat is tied to one location and that it can only move as fast as the legs of its infantry.

Events of the last five years have proven that Soviet airborne capabilities far exceed this expectation. In fact, the Soviet airborne BMD regiment is more mobile, has greater firepower, and is more heavily

Soviet Airborne Armor

armored than any of the combat support or combat service support units it can expect to encounter in NATO rear areas. In addition to the BMD infantry fighting vehicle (IFV), NATO forces can expect a number of other BMD variants to be in their rear areas. These will include a stretched version of the BMD, the BMD-1979, which can be configured to carry two AGS-17 automatic grenade launchers or a command vehicle version.¹ The most recent BMD variant has been observed in parade photos and is configured as a 120-mm SP M/H.²

The 120-mm SP M/H

The mortar variant differs from the basic infantry vehicle in length,

number of roadwheels, turret armament, and mission.

The stretched body and the addition of a sixth roadwheel are reminiscent of the BMD command variant.³ The addition of a roadwheel when an indirect fire system is mounted on an infantry vehicle chassis can also be observed on the M-1974 122-mm SPH. When the Soviets mounted the gun on a PT-76 chassis they also added an additional roadwheel.⁴ These changes are evolutionary and reflect attempts to maintain mobility parameters when additional weight is added to the armored vehicle.

The turret, armament, and associated equipment are interesting in that they reflect the synthesis of several proven subsystems into a previously unproved mortar/howitzer concept. The conical turret is clearly not designed to protect the crew from high velocity, direct-fire weapons. The lack of muzzlebrake, fume extractor, or other howitzer-associated externals leads to the conclusion that the system has more in common with a mortar than a howitzer. The external blister on the left hand side of the turret is reminiscent of a similar blister on the U.S. T-95 tank which housed components of the OPTAR fire control unit. OPTAR gave the T-95 a fire control system based on a light beam transmitter/receiver and an offset sighting system.⁵



Due to the change in mission from prime infantry mover to carrier of a mortar/howitzer, the following characteristics which are tied to the BMD's infantry mission would likely also change. If we assume the mortar/howitzer crew to number four, there will be a loss of four passengers and their associated infantry equipment which were on the BMD-1973.⁶ The lack of an antitank missile launch rail seems to negate the carrying of Sagger missiles.⁷ The removal of the 73-mm gun would also delete the requirement to maintain a basic load of 40 73-mm rounds.⁸ The total weight reduction due to the vehicle's change in mission would be on the order of 1,050 lbs. If it were assumed that this weight could serve as a sizing element for what the 120-mm SP M/H could carry as a basic load of ammunition, the 1,050 lb would equal approximately thirty 120-mm rounds.⁹

The remaining question is whether the vehicle is crewed by three or four personnel. While there is probably room for four people, the Soviets have also been attempting to automate as much of the firing sequence as possible on weapons such as the BMD, BMP, the M-1974 122-mm SPH, and various main battle tanks (MBT).¹⁰ The introduction of an automatic 82-mm mortar with a cyclic rate of 120 rounds per minute has already been reported.¹¹ By way of substantiation, Viktor Suvorov claims that BMP battalions may be accompanied by self-propelled automatic mortars.¹² In light of the above, it must be realized that the BMD mortar/howitzer might employ an automatic loader and could operate with a crew of three. Based on multiple sources, and induction,

Table 3 lists the probable characteristics of the 122-mm SP M/H.

Weapon System Capabilities

The mounting of a 120-mm mortar/howitzer on a BMD chassis provides the Soviet airborne commander with a dual purpose weapons system capable of a high rate of fire and a mobility equal to that of his mechanized airborne infantry. The maximum range of the weapon may exceed nine kilometers when a rocket assisted projectile (RAP) is used.¹³ The variety of ammunition available provides an overmatching capability against several forms of defense mechanisms. The development in the West of "smart" 120-mm mortar rounds, which can sense and destroy armored vehicles, adds another dimension to the threat posed by the mortar. The burst radius of the 120-mm HE round and the mortar's ability to kill in dead-space makes the weapon a natural for the attack of antitank positions. These qualities are appreciated by the Soviet commander.¹⁴

The capability of the weapon system is tremendously increased if one assumes that the armored blister, in conjunction with other observables on the system's turret, contains an integrated fire control system. A ballistic computer in conjunction with an automated super-elevation mechanism could lead to increased accuracy and precision in fire control. Supplemented by an automatic loader, the fire control subsystem would allow for a greater number of rounds to be fired, in a shorter period, with greater accuracy, than before. The inclusion of a relative position locator in the system would allow for a more survivable system. Employing highly

mobile "shoot and scoot" tactics, the weapon could rapidly go into and come out of action. The overall synergism of the position locator, fire control system, and automatic loader would be to allow the weapon to fire as many rounds as possible in a very short time, and for the vehicle to be gone when the inevitable counterbattery fire arrives. The above description dovetails neatly with the Soviet view of the firepower equation.¹⁵

Organization

The introduction of the 120-mm SP M/H has apparently not decreased the number of mortar tubes in a battery. The current battery organization for mortars in an airborne regiment allows for six 120-mm mortars. There is one mortar battery in support of each airborne battalion with an additional battery located at the regimental level in a BMD organization.¹⁶ This would give a BMD regiment a total of 24 120-mm mortars.

There is no indication that a BMD surveillance/target acquisition or fire direction center variant has been produced. However, the Soviets have provided such vehicles in their BMP organization, and it would be in character for them to do the same if the 120-mm SP M/H were to fire as a battery in the indirect role.¹⁷

Logistic Support

It is unknown how the BMD-equipped force is resupplied when it is away from the airhead. Soviet forces have never been famous for their logistical infrastructure, and it may be assumed that the mechanized force will carry as much of its own resupply as possible onboard its individual vehicles. Aerial resupply is always a possibility, but the air corridor security required cannot be assured. If the resupply effort were to be mounted from the airhead and shipped forward on resupply vehicles to a rendezvous, the vehicles would have to run a gauntlet of NATO forces. In all probability, the resupply of a forward detached BMD element would be handled through overloading the individual vehicles and by including a number of pre-packed vehicles carrying nothing but resupply within the mechanized force itself.

Methods of Employment

The high mobility of the vehicle can be translated into a more survivable weapon system through its ability to perform shoot and scoot missions. The overall mobility of the battery also provides a clue as to how the BMD force will receive its indirect fire support when it is outside the protective fires of the airhead.

By their very nature, airborne units are expected to fight behind enemy lines. In that environment, they are open to attack from any direction. Under these circumstances, it can be assumed that the mortar battery will remain in close proximity to its supported elements. While all airborne operations involve a certain amount of risk, it would be beyond reason to separate the mortars from those vehicles which protect it from ground and air attack. Instead of firing from a hide position, it can be expected that the guns will travel with the maneuver force while firing from short halts, or on the move, as the situation allows. Individual guns might be assigned in the direct-fire mode to support individual BMD companies in order to suppress AT defenses.¹⁸ The limited numbers of rounds carried on board would constrain the rate of fire.

The conclusion reached is that the 120-mm SP M/H will travel as an organic part of the mechanized airborne force. Due to the weapon's inability to counter aerial attack, or close-in direct fires, the tubes will operate within the protective range of overlapping fires of the infantry force. Limited supplies of ammunition will call for the conservation of fires. A common sense approach to this would be for the BMD force to receive its indirect support from the mortar/howitzer only when out of range of those guns at the airhead. When within range of airhead artillery, the 120-mm SP M/H will be used in the direct fire role.

Impact on Tactics

Having outlined the provisional characteristics, performance parameters, and methods of employment of the 120-mm SP M/H, it is now relevant to show this vehicle's effect on the American soldier. Until now, the 120-mm SP M/H has been examined as a system unto itself. The mortar/howitzer will now be examined as to its possible

impact on Soviet tactics at the operational level.¹⁹ The 120-mm SP M/H, with a mobility equal to the rest of the BMD force, has allowed the Soviet mechanized airborne unit to operate away from the airhead. The relatively minor development of designing an indirect support vehicle to accompany a mechanized force has tremendous implications.

The Overall Threat

Soviet doctrine calls for the execution of offensive combat operations throughout the depth and zone of the enemy defense. Speed, maneuver, and massive firepower will be employed to ensure the rapid disintegration of the enemy force.

Once the attack has met with success, the Soviet commander will search for promising areas of weakness. When found, the operational maneuver group (OMG) will exploit that weakness, break through the NATO defense, and drive for the rear areas. The mission of the OMG will commonly be to outflank, envelope, and destroy the enemy forces in its zone of operation.²⁰ The key to success for the OMG is speed and firepower focused on one objective — unhinging the enemy defense.

The most common conventional response to the OMG is the timely counterattack with heavy forces drawn from other areas. With large amounts of firepower, high mobility, and good communications, such a counterattack force could turn, if not destroy, an OMG. The counterattack would not need to be aimed at the leading elements of the OMG; rather, it would seek to strike the unprotected flanks of the enemy penetration.

The above defense against Soviet breakthroughs was employed by the German Army on the Eastern front in WW II.²¹ From this, the Soviets learned that a mobile defense against a breakthrough was only as good as the armored force that conducted it and the road net on which the counterattack force was to travel. Through the effective use of partisans and airborne forces, the Russians were able to either tie up German armored counterattacks through diversionary actions, or block critical road junctions, and the Soviet breakthrough was usually successful. Applying this idea to the use of the OMG against NATO forces, we must assume that the Soviets will employ

some means of performing these tactics when operating in NATO rear areas. If the Soviets can determine a way by which our available forces for counterattack can be tied up or prevented from receiving movement orders, the OMG will be successful.

The OMG Support Role of Airborne Mech Troops

Let us assume that the Soviet attack has located several places where an OMG might be committed. On order, one of the OMGs smashes into a small section of the front, opens a breach in the NATO defense, and gains access to a high-speed route into the NATO rear area. The Soviet commander knows that a favorite NATO tactic will be to counterattack and cut off the OMG, after which the OMG will be destroyed in detail. The way in which to stop, or weaken, the counterattack will be the insertion of airborne forces into the NATO rear within the same zone of action as the OMG.²² The Soviet mechanized airborne regiment has the full capability to be dropped, or landed, in the enemy's rear area. The enemy (NATO), already tied down across the forward line of troops (FLOT), and penetrated by at least one OMG, would now need to turn its attention toward a mechanized force rampaging through its service support and command areas.

While the NATO commander would attempt to block and destroy this force, the Soviet mechanized airborne commander would attempt to bypass all centers of resistance. Once landed, the BMD battalion would either commence its mission immediately, or if follow-on forces were to arrive, it would act to protect the DZ/LZ until other Soviet security forces could be delivered.

Once the mechanized airborne force is allowed to depart on its rear area mission, it would be like a fox in a hen house. Attacking various rear supply areas, nuclear delivery systems, and command areas, the BMD force would attempt to paralyze any response to its activities. With a top road speed of 85 km/hr, fully amphibious, and having a ground contact pressure far below many other armored vehicles, the BMD force would be difficult to stop. Much like a cavalry raid, the Soviet airborne force would attempt to hit hard and move fast — literally out-running the ability of NATO forces

to report and track its movement. With combat trains overrun, communications in shambles, and reports of enemy activity, both real and false, pouring into NATO headquarters areas, the Soviets would present a threat much larger than it actually was.²³

The view from the NATO commander's standpoint would be one of chaos. He would find himself in a dilemma calling for a timely decision. However, any decision he made would lead to the success of at least one of the Soviet initiatives. To withdraw at the FLOT would give success to the Soviet commander at the front. To mobilize available forces in an attempt to cut off and destroy the OMG would leave a marauder in his rear and an airhead growing by the hour. To attack the BMD unit, or the airhead, would tie up forces required to stop the OMG. To attack all of the rear area threats would lead to a diffusion of strength and eventual defeat of those counterattack forces. Needing more time, in order to gain better intelligence as to the primary Soviet threat, the commander would be under pressure to make any decision before he had no rear left to protect. The NATO commander finds himself faced with making a "no win" decision, which is the ultimate enemy goal.

The Soviets have worked hard at perfecting a mechanized infantry force for use in the assault, an armored force for the breakthrough and pursuit, and an airborne force

for use in the enemy's rear. While the dangers of the first two formations are readily apparent, those of the airborne mechanized force are not. If NATO is to defeat the Soviets, it must first realize the increasing dimensions to which minor penetrations and lodgements can grow when not destroyed immediately.²⁴

The Soviets have designed a multi-dimensional combat force that is trained to take advantage of four dimensions. The fourth dimension, time, has always been a factor in war. However, with each increase in Soviet mobility, the risk inherent in an opponent not making a timely decision increases exponentially. The delay in a decision at the FLOT of one hour could cause the loss of 10-15 square kilometers. If the enemy is in the division rear, a loss of one hour would give him access to up to 300 square kilometers. If loose in the corps zone, he could go anywhere in a 2,700 square kilometer area. If dropped into the corps or theater rear, his circular expansion capabilities in one hour, if left alone, will be up to 20,000 square kilometers, using BMDs. While several intelligent things could be done to determine his location through terrain analysis or reporting procedures, one senses the magnitude of the problem.

Conclusions and Recommendations

The Soviet threat to the NATO rear area has been greatly increased through the introduction of a 120-

mm SP M/H into Soviet airborne units. The indirect fire support offered by this system allows the BMD regiment to roam away from the protective fires of the airhead. The NATO commander must be prepared to repulse and destroy armored formations at all levels and locations within the NATO zone of operations. It becomes clear that the mobility of Soviet mechanized forces has become almost as dangerous as the direct threat from their weapons. A future war may turn into a situation with which many commanders of the past felt comfortable. The battle now goes not to the strongest, nor to the most swift. Instead, paraphrasing Nathan Bedford Forrest, it goes to the military force that get there "first-est with the mostest."

This paper has attempted to shed some light on the potential of the Soviet mechanized force in the airborne division. Although imperfectly understood, it presents a major threat in one mission area. Future studies need to be made in order to understand the synergistic effects of various subsystems when employed as a coordinated whole in an overall military operation. The idea of the four dimensional battle needs to be addressed when evaluating future systems. Above all, the index of mobility of a combat unit needs to be developed as a quantitative expression and applied as a factor in threat analysis.

Footnotes

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GLENN T. JOHNSTON is a 1978 Distinguished Military Graduate of St. Lawrence University. He served for three years with the 2d Armored Cavalry Regiment as a platoon leader and assistant operations officer with the Regimental S3. He also served with the 525th Military Intelligence Group in the XVIII Airborne Corps All Source Intelligence Center as an operations officer. He is a graduate of the Cavalry Officer's Basic Course (M-551) and the Military Intelligence Officer's Advanced Course and is employed by Bell Aerospace Textron as an analyst of military operations. He is currently studying for an advanced degree in computerized cartography.



Bastogne: A Fascinating, Obscure Vignette

by Brigadier General Albin F. Irzyk, Ret.

Just before dark on the day after Christmas, 1944, elements of General George S. Patton's 4th Armored Division, attacking from the south, succeeded in making contact with "the beleaguered, battered bastards of Bastogne." The encircled 101st Airborne Division had occupied the critically vital Belgian town for several days, categorically refusing German demands for surrender.

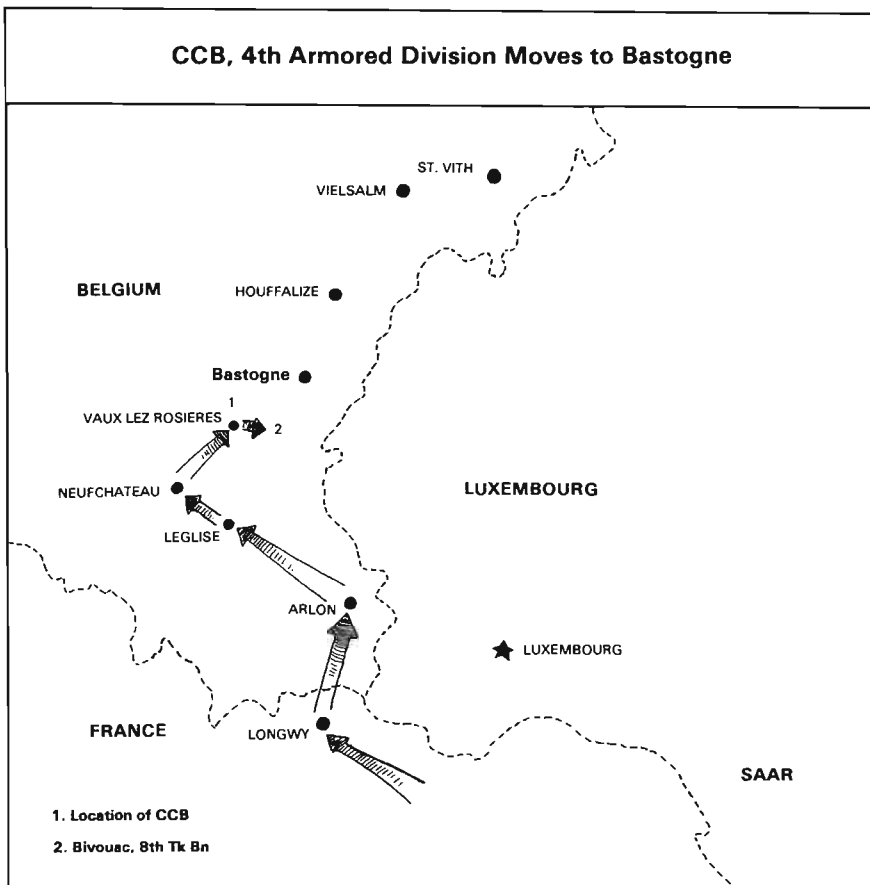
The dramatic linkup of the two forces, an emotional, historic moment, broke the siege of Bastogne and was one of the great turning points in the Battle of the Bulge. This legendary event has often been described in histories and biographies of World War II, but there is a sub-plot to this story — a fascinating and exceptional story in itself, but one that is little known.

It took the 4th Armored Division five days of bitter, costly fighting to break the ring of German units encircling the 101st, but only six days before, elements of this same 4th Armored Division *had actually been in Bastogne*. In fact, during their earlier movement into the town, these forces had come within one kilometer of the same spot where they would return, six days later, after heavy fighting.

How could this be? How could this happen?

Setting the Stage

To understand this enigma, one must go back 18 days to 8 December, 1944, the day the 4th Armored Division was pulled back from heavy fighting in the Maginot Line for rest and refitting. The move to the rest area was not only welcome but richly deserved. The men and vehicles of the division were exhausted after incessant fighting during steady, heavy November rains. The weather, the enemy, and the gummy mud had taken their toll of men and tracked vehicles. Now there would be time to pull worn engines, break and repair tracks, service the weapons, train



replacements, and even fire small arms and tank guns. Spirits were high; such extended breaks in the fighting were rare.

The story now focuses on Combat Command "B" (CCB) of the 4th Armored Division, commanded by Brigadier General Holmes E. Dager, and its 8th Tank Battalion, which was my command.

During the rest period, our command post was in Domnon Les Dieuze, a tiny, muddy, wet, and depressing little French village about 40 miles northeast of Nancy. Within three days, the town was littered with tank parts and equipment as the repairs continued. Then the atmosphere brightened: General Patton had stopped for a visit. He arrived in his jeep with a big grin and all his stars ablazin'. He was jolly, animated, interested

in how we were doing, and his visit raised the spirits of all of the troops. But neither the troops nor Patton himself realized the portentous events lying just ahead.

Rumors from the North

Our first inkling that the rest period might be coming to an end came late on December 16. Stories began making the rounds that the enemy was counterattacking somewhere north of us. Spirits were immediately dampened, but the rumors spurred the men to complete the servicing and maintenance of their vehicles, weapons and equipment in case we had to move on short notice.

The speculation and uneasiness ended abruptly at 1045 hours, December 18th. Combat Command "B" was placed on one-hour alert

and told to be prepared to move north in anticipation of an enemy attack into the XII Corps sector. But the concern, uneasiness, and puzzlement returned when the alert order was cancelled at 1700 that day.

Three and a half hours later, the alert was restored, this time with firm instructions to be prepared to move north to the III Corps sector to assist in stopping a strong German counterattack. At 30 minutes after midnight, CCB was rolling.

There was no information about the situation ahead or about the enemy. CCB's orders were to move to an area in the vicinity of Longwy, France, many miles to the north. The combat command had been relieved from XII Corps and was now assigned to III Corps. Combat Command "A" (CCA) was the next to move out, nine hours behind CCB, along the same route.

Leading the odyssey north into the cold, black night was the 8th Tank Battalion, cross-reinforced with the halftracks of the 10th Armored Infantry. One factor that made this move unique was the fact that the combat command had only one map — and it was in the hands of General Dager. During our rapid movements across France that summer and autumn, we had occasionally run off of our combat maps and had to rely on Michelin road maps for direction. But for our tankers to be completely out of maps was a new experience, indeed.

At the head of CCB, my tank leading the way, we rolled mile after mile into the great unknown. I was guided and directed by General Dager in a variety of ways: he radioed instructions from his jeep; his staff relayed radio messages; he rode alongside to shout directions at me in my turret; and at tricky intersections, he personally dismounted to point the way.

The hours and miles passed, and Longwy loomed closer. The end was in sight. But then spirits were dashed again as we reached Longwy and were waved on, rolling through the city without slackening the pace. Our tank guns were still pointed north, and now, for the first time in the war, we were in Belgium. We reached and passed through Arlon, then changed direction to the northwest, with no slackening of speed or purpose.

We began our journey in darkness and were to end it in darkness, as night came upon us again. We traveled in blackout, with no idea of what lay ahead, reconciled to receiving enemy fire at almost any moment.

Neufchateau, another milestone, came and went as we continued to roll, still without enemy contact. Again, we changed direction slightly and were soon moving northeast on the Neufchateau/Bastogne road, enroute to Bastogne, another new and unfamiliar town name.

Bivouac in Belgium

Near the village of Vaux Les Rosieres, we were at last told to stop for the night and find a bivouac area. I selected a spot about two kilometers east of the road. It was now 2300.

Except for brief halts, we had traveled unceasingly for over 22 hours — half of one night, all day, and half of another night under blackout conditions. Remarkably, we had traveled 161 miles over frequently difficult roads without maps and without confusion. Such endurance was a tribute to both men and vehicles, and spoke well for the work we'd accomplished during the recent rest period. Happily, there had been no enemy contact.

That evening, none of us realized that we had been in the vanguard of what President Nixon, a Patton admirer, later called the greatest mass movement of men in the history of warfare. Patton's troops had been poised to attack the Saar. He then abandoned this plan and ordered the major part of the 3d Army to make a gigantic 90-degree wheeling movement and then drive north at full speed. Involved in this spectacular achievement were probably a quarter of a million men and thousands of vehicles operated in damnable weather over often-icy roads.

Once we'd reached the bivouac area, there was still no rest for many of the weary. As soon as we closed into our positions, as exhausted as some of the men were, we sent out strong patrols of light tanks and armored infantry to protect against enemy movements from the north.

Task Force Ezell's Mission

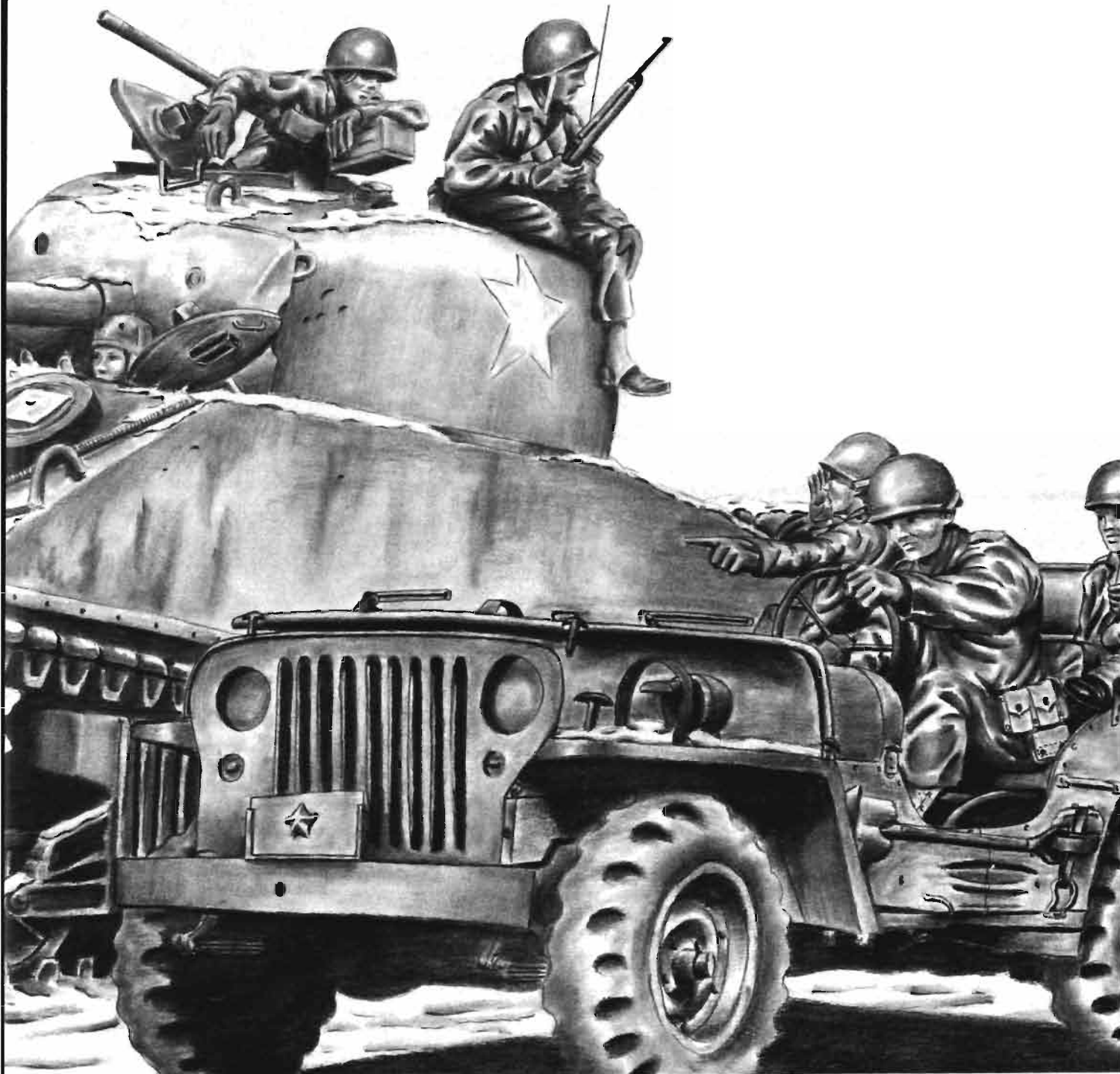
The following morning, I was hit by a thunderbolt: General Dager



called and ordered me to send a task force into Bastogne.

I protested vehemently, reminding him that the situation up ahead was unclear, terribly confused, and that this was no time for a piecemeal commitment of my forces. General Dager agreed wholeheartedly. He said he had been having the same kind of tug of war that morning with General Middleton of the VIII Corps. General Middleton had ordered him to take CCB into Bastogne and he had hotly resisted, insisting that General Middleton wait until General Gaffey arrived with the rest of the 4th Ar-

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mored Division. Middleton had agreed not to commit the entire combat command, but only after General Dager offered instead to send in a task force.

I formed the task force — "A" Company, 8th Tank Battalion; "C" Company of the 10th Armored Infantry Battalion; and "C" Battery, 22d Armored Field Artillery Battalion — and placed my executive officer, Captain Bert P. Ezell, in command of what was to be called Task Force Ezell. His mission was to report to General McAuliffe, commanding the 101st Airborne, to learn the situation, receive instruc-

tions, and render support, if so ordered.

The task force moved northeast on the Neufchateau/Bastogne Road and reached Bastogne without encountering any resistance or seeing any enemy troops.

Upon entering the town, Captain Ezell was told to report for instructions — not to General McAuliffe, but to Colonel William Roberts, commander of the 10th Armored Division's Combat Command "B".

While these events were taking place in Bastogne, I received a division order to recall the task force at once. I reached Captain Ezell short-

ly after noon to tell him to return. He was, at that moment, receiving his instructions for employment from Colonel Roberts. Within a short time, Task Force Ezell was on the road again.

Wide Tracks in the Road

Sometime later, Ezell's task force returned to our bivouac area with many more vehicles than it had when it pulled out — and with a strange story to tell.

As the troops had moved away from Bastogne, they had encountered an American 2½-ton truck in a ditch on the right side of the road. The truck was otherwise undamaged; the driver was still sitting behind the wheel, but the top of his head had been blown off above the eyes, apparently by an armor-piercing round.

Moving a little further down the road beyond the ditched truck, the task force noticed two tank tracks running across the asphalt pavement, the largest tracks Captain Ezell had ever seen. They had to have been made by a German Panther or Tiger.

The task force moved out again and after traveling a short distance came upon another strange sight — about two battalions of U.S. artillery stopped along the road.

The equipment seemed intact, but there was no sign of any American troops. Some of the vehicles were still idling.

It wasn't clear whether the American artillery units had been attacked and their positions overrun or they had been "spooked" by the sight of German tanks crossing the road just to the north of them. But from the evidence, there was no question that a German force in strength had moved rapidly west and had cut across the Neufchateau-Bastogne road just prior to Ezell's return. Perhaps the Germans had been moving so fast that following forces had not yet closed up on the vanguard. Ezell's return trip could well have been a well-timed fluke, but certainly, Ezell's unit had managed to slip through a gap in the enemy echelons driving west. This must go down as one of the most remarkable incidents of the war, considering the bitterness of the battle which was immediately developing.

"...Ironically, the battle at Chaumont was fought just four kilometers east of the quiet bivouac area we'd occupied three days earlier..."

Ezell's task force hauled back as much of the abandoned artillery equipment as they could handle — trucks, jeeps, and artillery prime movers. The task force ran into no resistance the rest of the way back to the bivouac area.

After Captain Ezell's task force returned, events continued to move swiftly. At 1400 on 20 December, CCB was released from attachment to VIII Corps and reassigned to III Corps, along with the rest of the division. We were ordered to move southwest to Neufchateau, then southeast to Leglise, arriving after dark. The next day, while at CCB headquarters, I received orders and details for the attack that was to take place the following morning.

We moved out from Leglise at 0430 so as to arrive at the initial point (IP) at 0600. The 8th Tank Battalion and the rest of CCB — plus the 80th and 26th Infantry of III Corps — would be part of the 4th Armored Division's coordinated attack.

The slow, costly, painful return to Bastogne began. The following day, upon reaching Chaumont, the 8th Tank Battalion received one of the most powerful tank-led counterattacks of the war. Ironically, the battle at Chaumont was fought just four kilometers east of the quiet bivouac area we'd occupied three days earlier.

The relief of the 101st Airborne took five days, and by 28 December, the woods had been cleared of the enemy and all our positions had been consolidated. When Captain Ezell walked into the 8th Tank Battalion command post at Assenois, he was just one kilometer southeast of where his unit had been eight days earlier as it rolled into Bastogne.

Those of us who participated in this operation could not help but note the many ironies and incongruities. They raised many questions:

- Why did CCB, a III Corps unit whose original destination was the vicinity of Longwy, continue on until it reached a position in the VIII Corps sector, only nine kilometers from Bastogne?

- Why did General Middleton of VIII Corps seem to exert such an "ownership" of CCB, a III Corps unit?

- Why didn't the rest of the 4th Armored Division close up behind CCB instead of leaving CCB near Bastogne, by itself, while the rest of the division assembled well to the rear in the Arlon/Longwy area?

- Why was CCB's Task Force Ezell recalled from Bastogne right after it arrived, especially considering how General Middleton had argued so strongly for its commitment?

- Should higher commanders have exploited Task Force Ezell's rapid progress to Bastogne, once they knew Task Force Ezell had entered the town without a fight and returned? Shouldn't Middleton have been allowed to hold on to CCB and to use it to keep the Neufchateau-Bastogne highway open, perhaps preventing the encirclement of the town?

- And once CCB had moved into its bivouac at Vaux les Rosieres, shouldn't the rest of the 4th Armored Division have capitalized, moving up to attack from the bivouac location — only a short distance from Bastogne — rather than consolidating for the attack further south and then fighting their way north again along the difficult forest axis from Arlon to the encircled city?

* * *

With the passage of years and the publication of histories and memoirs, some of those questions can now be answered, adding to the fascination of this tiny, puzzling episode.



Initially, as the Battle of the Bulge was intensifying, General Patton met with General Bradley at his headquarters in Luxembourg on 18 December. General Bradley called off General Patton's planned offensive into the Saar, thus making units available to him. Without hesitation, General Patton told General Bradley that he would concentrate the 4th Armored Division in the vicinity of Longwy, would pull the 80th Infantry Division out of the line, and would get the 26th Infantry Division moving within 24 hours. Later the same day he issued the order that got CCB moving just after midnight.

General Patton met with his staff at 0800 the next morning, December 19, as CCB was already well on its way to Longwy. His plan, he told the staff, was to strike due north and hit the underbelly of the German penetration where it would hurt. During the next hour, General Patton and his staff planned, in outline, three distinct operations. Arrangements were made for a simple code to indicate, with a brief

telephone call, which operation would be implemented.

Later that same morning, General Patton met at Verdun with General Eisenhower and a distinguished gathering of higher commanders. All agreed that there should be a counterattack at the earliest possible moment and that General Patton was the man for the job.

General Patton told the group that he could attack with three divisions of the III Corps on 22 December. A stronger force, he said, would take several more days to assemble and would forfeit surprise.

The group was astonished at his rapid response to the situation and was more than satisfied with the proposal. It should be emphasized that at the Verdun meeting on 19 December, in front of all of the senior commanders, General Patton had pledged a three-division counterattack with the entire 4th Armored Division as the key division in the Corps. With their agreement, he called his chief of staff to implement one of the three plans

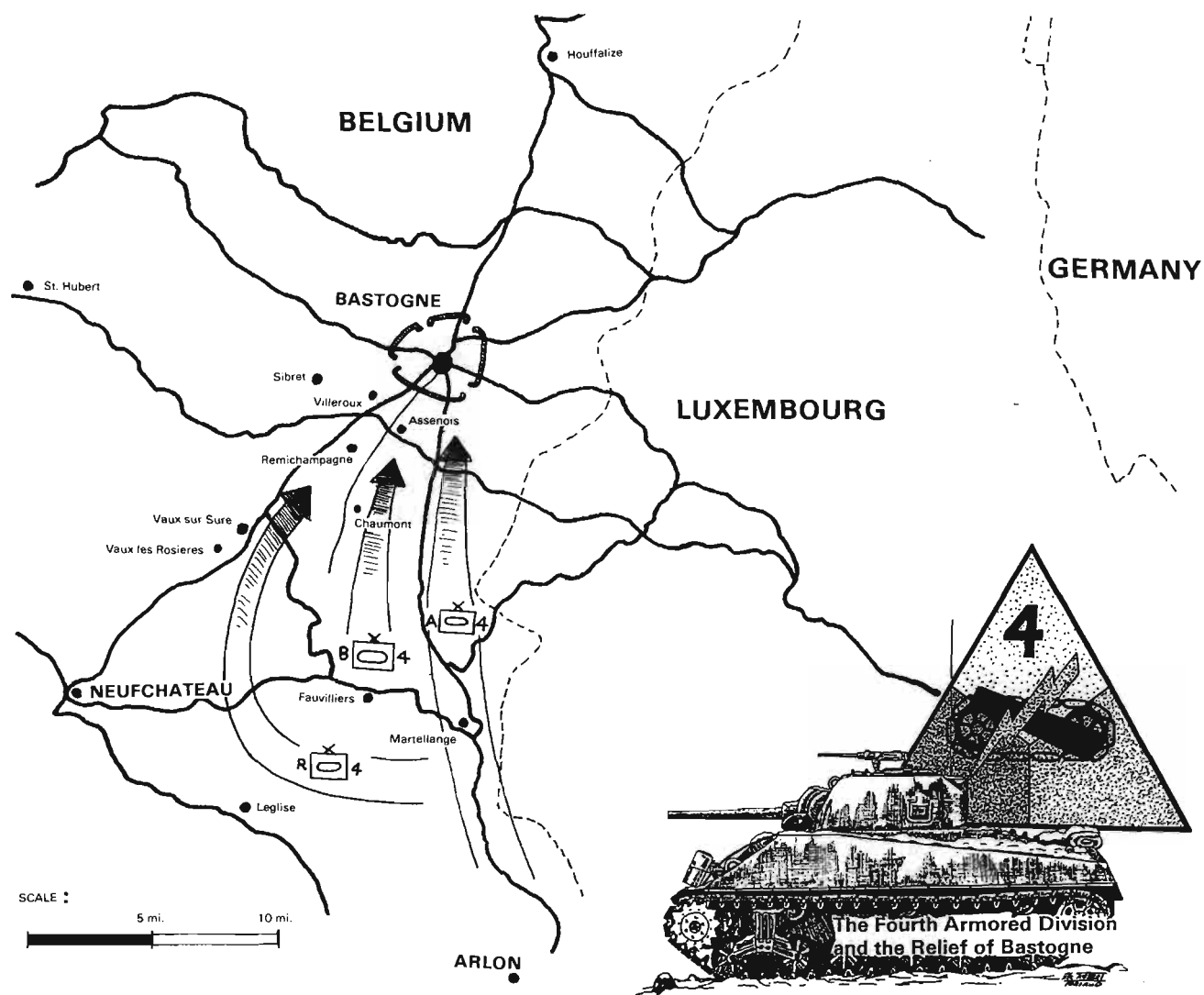
he'd discussed with them earlier.

General Patton explained the events of the following day in his memoir, "War As I Knew It":

"...The next morning, I arrived at Bradley's headquarters in Luxembourg and found that he had, without notifying me, detached Combat Command "B" (Brigadier General H. E. Dager) of the 4th Armored Division from Arlon to a position southwest of Bastogne. Since the Combat Command had not been engaged, I withdrew it to Arlon..."

Historian Martin Blumenson, in the second volume of "Patton Papers", quotes from General Patton's diary entry of that same day, December 20:

"In the morning, I drove to Luxembourg, arriving at 0900. Bradley had halted the 80th Division at Luxembourg and had also engaged one combat command of the 4th Armored Division in the vicinity east of Bastogne without letting me know, but I said nothing..."



The Fourth Armored Division and the Relief of Bastogne

(Patton was clearly wrong in his diary entry when he placed the unit "east" of Bastogne, according to the author. Apparently, his memoir was correct. Ed.)

This map of the road network around Bastogne shows the route 4th Armored's three combat commands took in relieving the city. Minor roads, many of them used in the attack, are not shown in detail here. At left, a few days after the relief of the 101st Airborne Division, a smiling General Patton receives General Bradley's congratulations at Bradley's headquarters in Luxembourg.

General Patton then drove to Arlon, to the headquarters of General Middleton's troubled VIII Corps for a first-hand picture of the situation in the Bulge. When he arrived, he found General Gaffey of the 4th Armored Division, General Paul of the 26th Infantry Division, and General Milliken of the III Corps already there.

There is considerable speculation, and some differences of opinion of what actually took place at that meeting. However, subsequent events lead one easily into certain assumptions.

General Middleton undoubtedly was still anxious to send CCB into Bastogne behind Task Force Ezell, and surely requested permission to do so. Elements of his Corps were

already scattered and his armor, especially, had been badly piecemealed.

This employment simply would have been more of the same. To commit CCB into Bastogne would have been to lose it.

General Gaffey obviously wanted his Combat Command returned. With an attack in two days, he needed his division at full strength, and the 4th Armored Division would have been severely handicapped without CCB.

General Milliken also knew that the key to his III Corps attack was the 4th Armored. So at this meeting, he surely must have supported General Gaffey's argument to have his CCB returned.

As the attack developed, CCB shouldered an extremely heavy share of the 4th Armored fight, acting as the powerful left flank of III Corps all the way to the encircled town.

In retrospect, General Dager's resistance to committing CCB into Bastogne may have saved the unit. If he had not protested, CCB would have probably been in Bastogne before General Patton was aware that it had been given away by General Bradley.

It was fortunate, too, that Task Force Ezell had returned unscathed. The loss of a tank company, an armored infantry company, and a field artillery battery would have weakened CCB considerably.



Patton's Plan

At the Verdun meeting, General Patton had committed himself to a coordinated attack with three full divisions. The situation at Bastogne was confused and chaotic and did not warrant a major commitment at that time. It was not the time to change plans, reinforce a failing situation, and risk having major elements of the 4th Armored committed prematurely. Once committed to Bastogne, CCB would have been caught up in the chaos and confusion — perhaps never to be retrieved. General Patton's decision was revealed when Task Force Ezell was ordered out of Bastogne shortly after noon and CCB was ordered to move to the rear, which it began to do by mid-afternoon.

General Patton chose as his ultimate course of action a well-planned, well-coordinated, orderly attack in strength toward a known,

specific, vulnerable objective. He jumped off from ground firmly in his hands. His plans and execution were sound and professional. Undeterred by the panic around him, he kept his eye on the ball.

General Patton's plan not only broke the ring enclosing Bastogne, but destroyed the German penetration with his stroke north, eliminating hundreds of enemy vehicles and thousands of troops. The rapidly organized and well-executed counterattack snatched the momentum from the Germans and seized the initiative. He had done what he'd promised his commanders he would do several days earlier, and while his plan had raised skeptical eyebrows, he delivered.

In the eye of history, the story of Task Force Ezell is an extremely minor episode in the Battle of the Bulge and in the war. It had no significant impact on any engage-

ment or event. Yet by knowing the story, some puzzling aspects of the Battle of the Bulge are revealed, clarified, and enriched. We learn even more about how and why things happen in combat, and a great deal more about the men who make these things happen.

Although I was a participant in much that happened there, I still find the story of Task Force Ezell most unusual and certainly fascinating. My purpose in writing about it is to share the episode with others and in doing so, dislodge it from its long-occupied perch of obscurity.



BRIGADIER GENERAL ALBIN F. IRZYK was commis-

sioned in the Cavalry Reserve after graduation from the University of Massachusetts, Amherst, in 1940, and was called to active duty with the 3d U.S. Cavalry. After brief service in the 10th Armored Division, he was reassigned to the 4th Armored Division, then at Pine Camp, New York, in August, 1942, and later in the Tennessee Maneuvers, the Desert Training Center, and Camp Bowie, Texas. In December, 1943, the division sailed for Europe, where it fought in five campaigns: Normandy, Northern France, the Ardennes, Rhineland, and Central Europe. In December, 1944, when the experiences in this story took place, he had just assumed command of the 8th Tank Battalion. He remained with the 4th Armored Division during the postwar occupation of Germany, spending 44 months overseas before returning to the United States in 1947. His long and illustrious military career later included service at numerous CONUS stations, USAREUR, and the Pacific.



The French Army has long been committed to wheeled armor vehicles, like these EBR armored cars seen here on maneuvers.

Modern Use of Wheeled Armored Vehicles

by General Andre' Sciard

The author of this article is a vice-president of the French Panhard firm, a major supplier of wheeled armor vehicles.

Despite the increase in the power, range, and accuracy of today's weapons, and despite the increase in efficiency of surface-to-surface and air-to-surface antitank missiles, the main battle tank (MBT), used in conjunction with the attack helicopter, is the decisive offensive weapon for ground combat. There are, however, many offensive and defensive operations that require armored vehicles, but not necessarily the sophisticated and expensive MBT.

Lower-cost wheeled armored vehicles could be used for certain operations, given the quality and density of the road network systems (particularly within the European Theater) and advances in technology. This would in turn save the MBT for the critical jobs it does best. Alternatives to the MBT should be considered for operations that do not involve frontal engagements of enemy MBTs, or assault of heavily fortified positions.

Alternatives should be considered also because current and future con-

straints on the military budgets of Western countries force them to maximize efficiency at the lowest possible cost. Further, concepts proposed by the U.S. Army's AirLand Battle 2000 and exercised by the Soviet Operational Maneuver Groups indicate the need for armored protection for quick heliborne thrusts to the enemy's rear and protection in depth for one's own rear. Wheeled armored vehicles are part of the solution to these issues.

The Historical Position of MBT

Historically, the MBT was developed as the only combat vehicle capable of combining firepower, protection, and cross-country mobility. MBTs became tracked vehicles.

As time passed, three factors have strengthened the reliance on the MBT. The first is residual. The WWII campaigns demonstrated the superiority of the tank, and people are reluctant to question lessons learned from history.

The second comes from the trend toward increasing the weight of tanks because of the increase in

gun calibers and the use of laminated armor for increased protection. For heavy tanks, tracks seem to provide the optimum weight/ground pressure ratio and, therefore, the best cross-country mobility.

The third results from current habits. The large national military training centers of Western countries have terrain that is unique. This terrain is typically muddy in winter, dusty in summer, and does not allow the cross-country travel of heavy vehicles, except those equipped with tracks. This terrain provides an argument for military officials who believe that tracked vehicles are the only option.

Wheeled Vehicles Reconsidered

There are several recent trends that provide arguments for reconsidering wheeled armored vehicles.

● **Highway infrastructure:** Most industrial economies are oriented toward the maximum development of highway infrastructures. Wheeled vehicles are better than tracked vehicles for exploiting these infrastructures. Only tires allow long distance travel at low cost and high speed.

“There are several recent trends that provide arguments for reconsidering wheeled armored vehicles...”

● **Larger guns on lighter vehicles:** Lower turret silhouettes, low/long recoil mechanisms for 90-, 105-, and 120-mm guns, the development of lighter composite armor platings, and the increase in the use of hydraulic suspensions now enable heavy-caliber guns to be mounted on light vehicles (15 to 20 tons).

● **Realistic training:** Training of modern units requires conducting maneuvers on more realistic terrain than military training centers. Emphasis on Rapid Deployment Forces in non-European scenarios has accelerated this trend.

There are several features of wheeled armored vehicles that distinguish them from MBTs. They are more cost-efficient in terms of purchase price and maintenance costs. Wheeled armored vehicles are multipurpose and can be used for conventional combat operations as well as for rapid deployment or antiguerrilla warfare. Wheeled armored vehicles also have greater primary and secondary road mobility, easier maintenance, and smaller crew requirements than MBTs.

The Combat Zone of the 1990s

Within the European Theater in the late 1990s, the air/ground offensive component of the Allied Forces is anticipated to be based on the MBT/attack helicopter team. It is planned that this team will include up-to-date technologies and will be able to move and hit targets between 2,000 and 4,000 meters in less than five seconds during day and night, under any weather conditions. This team will be expensive and, therefore, used only in small quantities.

The MBT in this team will be vulnerable because of its size. Likewise, the attack helicopter — whatever its speed and its low altitude capabilities — will be vulnerable to forward area air defense systems. Both would be prime tar-



Above, the Marines maneuver with their new LAV, an 8-wheel armored vehicle with 25-mm cannon.



At right, U.S. military police made wide use of wheeled Commando armored vehicles in Vietnam.

Below, the French VBC-90 6-wheel armored vehicle is one of many newer designs capable of carrying large-caliber gun despite their low overall weight.





The U.S. made widespread use of wheeled armor during WWII, which paid off during high-speed exploitations in Europe. The M8, at left, mounted a 37-mm gun. The heavier (26 tons) Boarhound heavy armored car, seen below, was designed for desert fighting, but too late. It was never produced in large quantities or used by U.S. troops.

World War II US Armored Cars



gets for a number of ground-to-ground, air-to-ground and ground-to-air weapons having an always-increasing lethal power. Therefore, it can be anticipated that offensive actions of the MBT/attack helicopter team, which are aimed at the center of gravity of the hostile forces, will be limited in terms of space and time. The Middle East conflicts of the past decade emphasize this point.

Offensive actions, therefore, will have to be prepared and covered by highly mobile units to prevent slowing down the main action. These units should be capable of carrying out extensive reconnaissance operations well forward and into the rear of hostile forces, as demanded by AirLand Battle 2000.

These highly mobile units should be able to "charge to reconnoiter", to use an old expression. These units would screen the battlefield and have features to protect themselves against an NBC threat and the presence of infiltrated or parachuted units behind friendly lines.

Wheeled armored vehicles under 15 tons, capable of being transported by planes or helicopters, can provide forces with protection, firepower, mobility, flexibility, and increased efficiency. Existing wheeled armored vehicles with 4-, 6-, or 8-wheel drive have the capabilities

needed by these highly mobile units and would complement the MBT/attack helicopter team. Wheeled vehicles could provide screening and reconnaissance forward of the MBT and on the flanks as well as rear area protection against Soviet MBTs.

Further, wheeled armored vehicles can be rapidly transported to distant points for intervention and peacekeeping operations. Wheeled vehicles are especially suited for urban environments where jeeps cannot provide the needed protection and tracked vehicles cannot provide the needed flexibility.

Conclusion

In spite of history and habit, it seems that, under the pressure of technical improvements, doctrinal changes, and budgetary constraints, the military is obliged to reconsider some of the concepts of employment of its ground forces. If the MBT/attack helicopter team is to be kept until the end of this century as the principal weapon of decision, it is important to include, for the purpose of greater cost efficiency, the maximum number of complementary wheeled vehicles. By using existing products, the military can increase its combat capability without increasing its budgets.



LIEUTENANT GENERAL ANDRE' J. F. SCIARD joined the Panhard firm in 1984 after a long career in the cavalry branch of the French Army. His combat record includes service as a tank platoon commander during WW II and as a squadron commander in the Algerian and Indochina campaigns. He also served as commander of the French armor/cavalry school and of St. Cyr, the French military academy in western France, and he was Army schools Commander at Paris headquarters prior to his retirement. A graduate of his nation's National War College, he also holds a law degree and served as commander of the French 5th Armor Brigade in the FRG in the mid-1970s.

Trunnions on the Move, Part II

Creating the 'Gun-Over-Hull' Tank

by Robin Fletcher

The previous article proposed that the gun trunnions should be removed further rearward and centered over the vehicle's hull. A variety of different gun mountings moved further rearward and centralized over the vehicle's hull. A variety of different gun mountings can be interposed between the tank gun and the hull of the vehicle, but those that hold the gun permanently raised above the level of crew direct-view surveillance vision devices have been judged unsuitable for the MBT and have been rejected. Acceptable gun mounting configurations will be further reduced in number if all-around traverse is judged to be essential.

This concluding article examines developments which will have to be undertaken if these 'gun-over-hull' configurations are to be created. Finally, two different methods of installing the gun on the Main Battle Tank in 'gun-over-hull' mountings are suggested.

A New Gun System and Automatic Loading

The reasons for abandoning the conventional tank turret and moving to gun-over-hull mountings are to reduce the forward projection of the gun muzzle, which has now become excessive, to improve the mounting's balance, to reduce its rotational inertia, and to prevent the gun from intruding downwards below the ring and dividing the fighting compartment. Such gun-over-hull mountings will place the gun centrally over the hull — actually within the hull in the case of the Swedish S Tank, in a shallow cleft in the hull roof in the case of a UDES-17 type vehicle, in the central cleft of a cleft turret, or finally, above the level of crew surveillance vision devices when raised up on a raisable gun mounting.

With the exception of the first of these methods of gun mounting, the breech end of the gun will extend to the rear outside armor protection, raising problems of the re-



More "gun-in-hull" than "gun-over-hull," the Swedish S-Tank design was revolutionary in its time.

liability of its remote operation, of its automatic loading and of its protection from attack from at least small arms fire and shell splinters.

This may require the development of a new tank gun and ammunition system specifically designed for this new situation, with a breech which is power-operated and self-protecting and with its center of gravity much further forward. It has also been suggested that the gun might be closed at its rear end and divided at the front of the chamber so that parallel-sided, telescoped combustible-cased rounds might be loaded rearward into it.

If this new gun system is to differ so fundamentally from current conventional tank guns, a decision will soon have to be taken as to whether our next new tank gun should be configured along conventional lines, to be installed within a turret, or whether it should be designed to agree with the requirements of the suggested new gun system because it will be carried in gun-over-hull mountings. The same projectiles might be used and similar internal ballistics employed in both cases, but the configuration of the gun, and probably that of the ammunition, will need to differ substantially. There is thus a parting of the ways in tank gun design, with a decision having to be taken prior to any design work being started, as to whether the MBT will continue to be turreted or whether it will adopt some form of gun-over-hull mounting.



Model illustrates the Swedish UDES configuration with gun in raised position.

If a wrong choice is made and the gun is wrongly configured, it could — in its conventional form — be enclosed and counterweighted by an armored box and placed in a cleft turret above a hull roof that runs horizontally. This is far from being an ideal arrangement, although height can be reduced by inclining the suspension, but it does allow the continued employment of conventional tank guns and may allow the extended use of existing hulls which are rear engined. And it is certainly possible for a conventionally configured tank gun to be installed in a raisable gun mounting, although the result might not be as satisfactory as could be expected from the use of a "purpose built" gun system.

A gun configured to the new gun system could be forced into a conventional turret, although the forward location of its center of gravity would make this very difficult. The possibility does exist of using a divisible gun within an enclosed turret, allowing rounds to be loaded rearward directly into the chamber.

This could even be looked upon as being an advance on the present method of loading conventionally turreted tank guns.

These articles maintain that the conventional tank turret has reached the end of its development and that a change to gun-over-hull mountings is now needed. The gun and ammunition system is the key to this changeover and it can either delay or assist this revolution in gun mounting.

Front Engined Hull

If the gun is to be mounted centrally over the vehicle's hull without front or rear projection, its center of gravity and trunnion position will lie to the rear of the center of the vehicle, which suggests the adoption of a hull which is front-engined. And the rear of the gun — especially if the new gun system is adopted — must be able to swing down to below ring level when the gun is elevated, which again indicates a front-engined vehicle. This might even include the provision of trailing rear idlers to lower the top run of the tracks at the rear of the vehicle. This approach, in fact, was used in the indirect-fire Swedish 155-mm SP *Bandkanon IA*¹ which was built with a gun-over-hull layout.² These idlers could be locked while firing to increase the vehicle's stability.

Allied to these reasons, which stem directly from the adoption of gun-over-hull mountings, is a growing conviction — now realized in the case of the Israeli Merkava MBT — that a front-engined layout should be adopted so as to use the engine compartment to provide additional protection, to allow rear stowage of ammunition, and to provide an entrance door at the rear of the vehicle. A final argument in favor of a front-engined layout is that obsolescent MBT hulls could be easily converted into heavy APCs or self-propelled mountings once their life as gun tanks had been exhausted.

With a front-engine design, the increased heat at the front of the vehicle might cause it to be spotted by thermal detectors, and might even interrupt its gun sighting by convection. This could be avoided by circulating coolant to the rear of



The Swedish *Bandkanon IA* self-propelled artillery piece has movable rear idlers which drop to stabilize the vehicle in firing position. Engine is in the front.

the vehicle (e.g. Marder and the Swiss NKPz)³ and possibly by superimposing a masking skin, kept at ambient temperature, over the front of the hull.

Unfortunately, the protection which will be afforded to the crewmen in the fighting compartment by having the engine compartment at one side of the front of the vehicle will be compromised by the presence of the driver's station at the other side. This will take up part of the width of the vehicle and interrupt the armored bulkhead separating the two compartments. The driver's station in its present position thus presents a problem to the tank designer. If it could be removed, the engine compartment — particularly if the engine were to be mounted transversely — could extend from one hull sideplate to the other and the bulkhead could remain intact so as to provide full protection.

The experimental MBT 70 relocated the driver in a counter-rotating station in the turret of the vehicle, but failed to produce a satisfactory answer.⁴ An alternative might be to provide driving facilities to both turret crewmen, who would have an excellent view forward over the front of the turret and could see directly rearward to reverse the vehicle. Gun-over-hull mounting will have eliminated forward projection of the muzzle so the turret can remain locked forward for driving. To improve endurance in continuous operations,⁵ a third crew member will be needed to ro-

tate to the two principal turret crew stations and relieve the other two crewmen. If this third man were able to lie and sleep at full length in the lower part of the fighting compartment, or with his feet against the rear entrance door, he would then be available to adopt a prone position and take over the driving function, using remote vision, should fire on the move become necessary.⁶ In this way, increased survivability and extended endurance in 'round-the-clock combat' would be gained while removing the driver from the front of the vehicle.

The changeover from rear to front engine will not be welcomed by the engine designer. Over the years, he's been able to install the engine within comparatively thin armor which can easily be modified. A front engine would have to be confined within fixed hull dimensions and placed under heavy armor where conditions will be far more demanding. But 50-ton front engined test bed vehicles have been constructed already — as witness the VTF which started trials two years ago in Germany.⁷

Suspension System

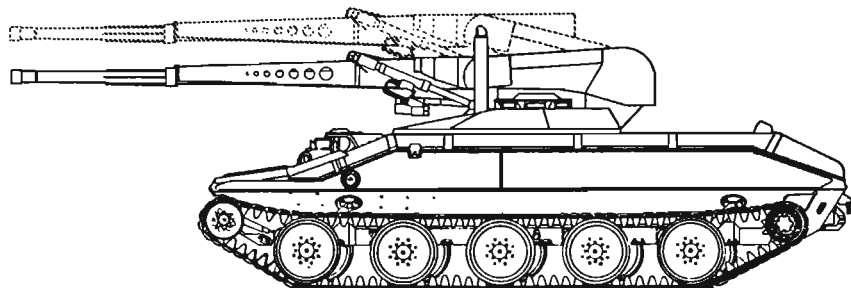
Earlier, suspension control was discussed as one means of overcoming the height penalty of first moving the gun rearward over the ring and then using contact between the gun and the top run of the tracks to establish the position of the gun trunnions. As already mentioned, this could be pursued to the ulti-

mate; at least with the vehicle stationary, it would be possible — though not necessarily practical — to transfer all depression and elevation to a controllable long-travel suspension system with a consequent simplification of the gun mounting.

But the suspension has as its primary function the support of the vehicle during cross-country movement. Following the success of the hydrogas suspension of the British Challenger MBT, it is doubtful whether future tanks can afford to forego the use of similar systems. With more design effort being devoted to the suspension to raise cross-country speeds, automatic variation of suspension porting might be introduced to effect some degree of hull stabilization which would ease the task of stabilization at the gun mounting.⁸ This could be extended as an 'active' and possibly 'forward-looking' suspension⁹ which might, again in the ultimate, assume full responsibility for gun stabilization. But it would also stabilize the crewmen and their vision devices and can be compared with the possible stabilization of the upper part of an oscillating turret, which has already been mentioned.

With ride and attitude control being two of the functions of the suspension system, height control would be the third, allowing the vehicle to crouch down for best concealment or to rise up to move or to engage. But this function, as already noted, may not be able to be achieved with sufficient rapidity to be used during an engagement. The target which the vehicle would present when raised would remain large when compared to that of a raisable gun, which would reveal only its gun mounting. Although future control of the suspension will probably be exerted through a hydrogas system, both at the halt and also while moving, it can be applied immediately to existing torsion bar or hybrid system for use only at the halt or while moving slowly.¹⁰

It would be a mistake if work on suspension development were to slow down once hydrogas suspension has been adopted. There is a clear need now to move on to include at least control of the vehicle's attitude. This should be



U.S. ELKE prototype drawing shows the vehicle's raisable 75-mm automatic cannon in raised and lowered positions. Prototype was built on a Sheridan chassis.

done in a series of test bed vehicles with increasing degrees of sophistication until a fully stabilized system is finally created.

Gun Raising

The raisable gun has so far only been used in the American ELKE test bed vehicle, carrying an ARES 75-mm automatic cannon above a Sheridan hull. The Improved TOW Vehicle (ITV) raises a TOW launcher to fire from the protection of defilade, and ELKE has been designed to do the same, but with a high-velocity kinetic energy gun.

The variable geometry raisable gun mounting was originally introduced as a means of lowering the height of the turret and reducing the overall height of the vehicle following the adoption of the gun-over-hull configuration. It is only after this step has been taken that the full tactical value of such a system becomes apparent: the gun being raised temporarily above crew vision devices to display only a minimum target for the shortest time possible. This is the same small target once assumed to be the sole prerogative of the overhead external gun. In contrast, the raisable mounting exposes it without any vehicle movement and with only a momentary sacrifice of top vision. The tactical advantages of the raisable gun are unique and most valuable. They soon overshadow height reduction, which was the original reason for its introduction.

There does not appear to be any particular difficulty in designing a

raisable gun mounting and applying it to a cleft turret, to a traversable mounting of smaller diameter, or even to configurations based on vehicles of the casemate type. High-pressure hydraulics would be outside the armor and the whole gun mounting should be able to be lifted off as a unit for repair or replacement. It may be found beneficial to arrange the three separate functions of elevation and depression, gun recoil, and gun raising in an unorthodox fashion, and some integration may be possible between them. It must be remembered that the gun should be able to be fired without being raised from its fully lowered position and should also be able to remain fully raised when required to fire while moving.

A development program for a raisable gun mounting might start by raising and firing a tank gun from a fixed test stand and then transferring the complete assembly to the turret ring of an existing tank hull to be fired tactically. With traveling, raising, and firing loads transmitted directly to the hull through the raisable mounting, the shell of the turret could then be constructed in canvas or in wood. Only then would the design of a plate turret and automatic loading system be undertaken. The same raisable gun mounting should be able to be installed in a variety of different turrets, which may be either lightly or heavily armored.

If suspension inclination and gun raising are rivals in the reduction of the height of gun-over-hull configurations — employing different

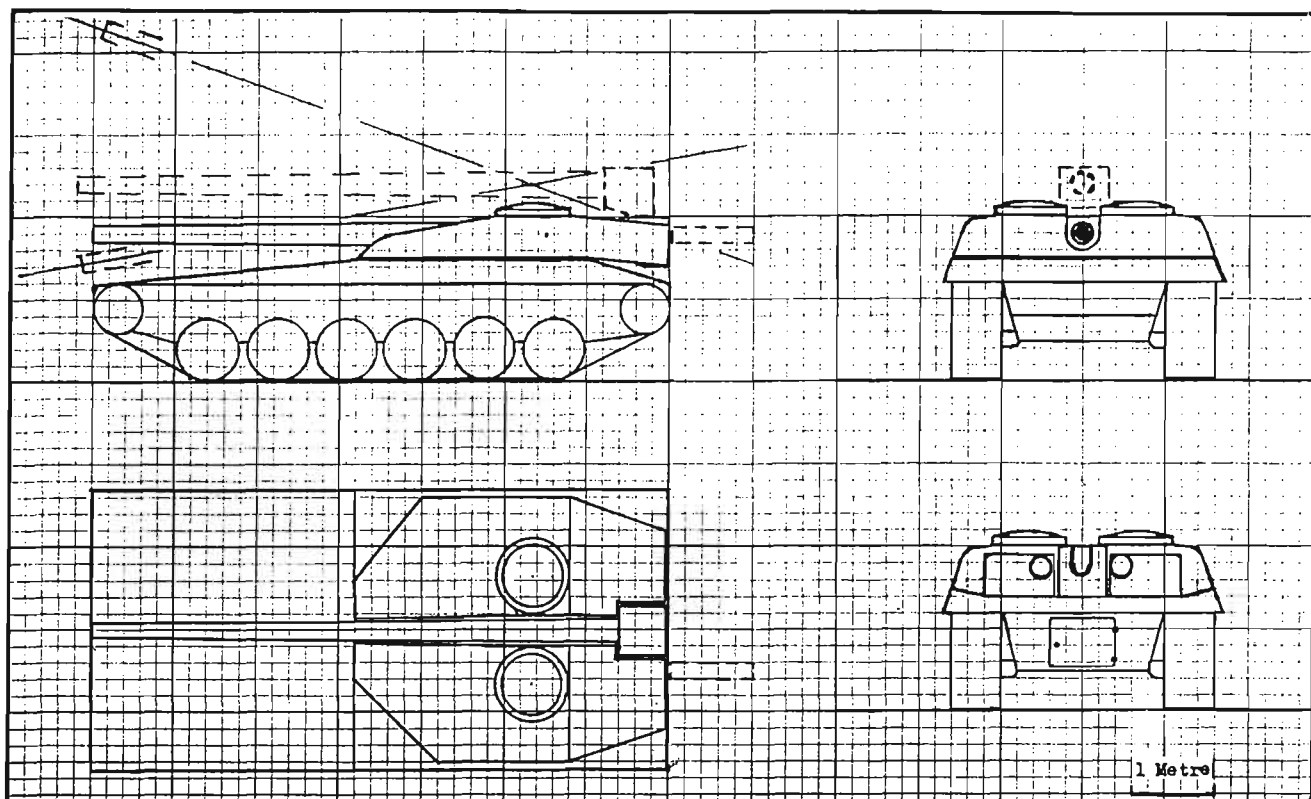


FIGURE 1. One of the author's two conceptual MBTs, this one has a conventional tank gun carried in a cleft turret with raisable mounting giving all-around traverse of both gun and crewmen.

types of variable geometry to achieve somewhat similar effects — which should be preferred and should any combination of the two be attempted? Clearly the raisable gun mounting is superior because of the small size and the small time of exposure of its target, but suspension control — particularly that which can be used only at the halt — could be comparatively simple and could act at least as a low-cost standby system. For instance, if a raisable gun mounting in a cleft turret were to fail in action, the gun would remain in the lowered position but might then be laid onto targets in any direction by inclining the suspension. Should a mounting of the UDES-17 type fail and remain lowered, the vehicle could engage by means of its suspension control but in one direction only.

Suspension control and gun raising are both able to reduce the height of the vehicle; they are rivals, but they may also be comple-

mentary. Both techniques should be further developed and both streams of technology should then be made available for the creation of gun-over-hull mountings.

Asymmetry

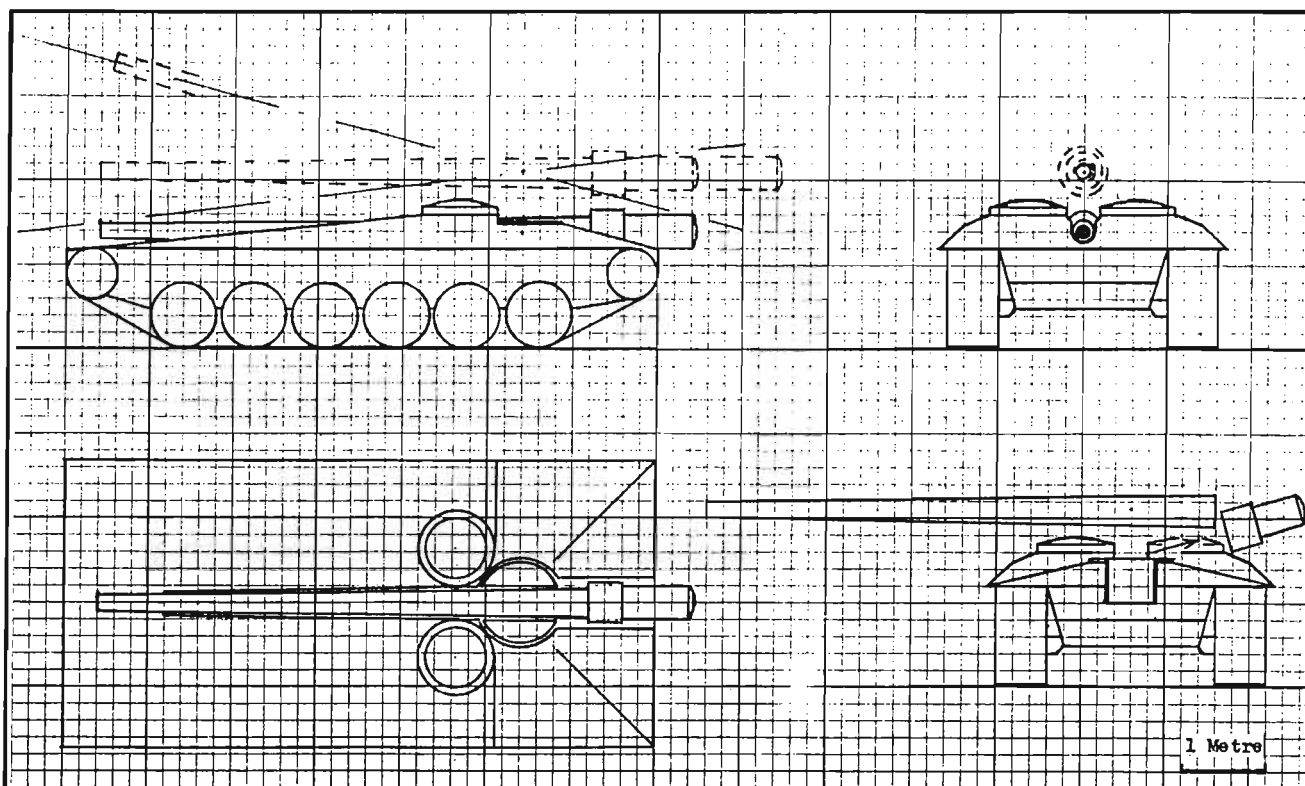
So far, the gun has been considered as being on the center line of the turret or the hull with crewmen located on either side of it. This can be criticized for tending to present a large target to enemy return fire. But on the other hand, the rear of the gun is given good protection against fire directed at it from a considerable arc over the front of the vehicle.

However, an alternative approach is to seat the two crewmen in tandem on the same side of the gun mounting (e.g., FMC Armored Gun System) in which case they can be better protected behind a reduced width of frontal protection. But at the same time, they will lose the advantage to be gained from the full duplication of their crew stations. This configuration might be modified by moving the gun off center, as has already been done in the case of a number of cannon turrets,¹¹ which would move the two crewmen towards the turret center and give them more room. The process could be carried further by moving the two crewmen right

to the center line of the turret, offsetting the gun. While the gun would then be less well protected, there should be not loss of accuracy from such an arrangement. The shot would be out of the muzzle before buffering and rotation of both turret and vehicle had time to take place. The subsequent awkward motion of the vehicle might be uncomfortable for the crewmen, and a muzzle brake might be needed to prevent a light vehicle from being moved round by recoil.

If two crewmen were to be seated in tandem, one might be at the center of rotation of the turret where he could drive from a counter-rotated crew station without difficulty. A small thick block of armor would then give protection to both crewmen and to a ready round magazine to their rear. An armor skirt might even be extended downwards, within the turret ring, to provide increased protection, particularly when firing over the sides of the vehicle.

Considerable emphasis has been placed in these articles on engaging the enemy from behind a crest-line, since most of the vehicle will then be protected and only the vision devices and the gun itself will be exposed. But in the forests and cities of Europe, the enemy is more likely to have to be engaged around the corner of buildings and woods.



This would suggest that guns might be offset or even 'outrigged' from the hull or the turret as they already have been in a number of German experimental designs.¹² It would even be possible to envisage a vehicle which would follow the lead already given by certain German proposals for extendable missile launchers and to have the gun not only raised up to fire over cover but also moved over to one side or the other to fire round a left-handed or right-handed corner.

There are, however, problems in this approach. The first is that while a crestline provides cover both from view and also from fire, a wood or a building will not provide adequate protection from kinetic energy antitank projectiles. A second problem will be surveillance. Although sighting can be carried out remotely, whether the gun is raised or placed to one side, direct surveillance vision still requires the physical presence of a crewman. This can be provided at the top of the vehicle, but cannot be provided at one side or the other over its tracks.

Full implementation of firing round corners thus appears to be improbable, although a raisable gun might be swung down to one side of the turret or the other and might well be fired while it was lowered. While such a system

would avoid having to make a cleft in the center of the turret, the gun would then remain virtually unprotected. And its lateral movement while being swung up to above the turret might be expected to attract more attention than if it had simply been vertically raised.

Crewing Alternatives

It can be argued that when firing from a stationary position a gun crew should traverse with their gun, since no attention to maneuvering their vehicle will then be required. But when moving rapidly cross-country, they might be best advised to continue to face in their direction of travel, traversing only the gun when firing to a flank. In some contradiction to this, a turreted vehicle is generally assumed to be the most suitable for a war of maneuver, while a limited traverse vehicle is accepted for use in static positions, despite the fact that it may have to traverse over large arcs as the enemy closes and possibly penetrates the defense.

The advent of the overhead external gun in the 1970s gave a new means of providing all around traverse for the gun. This allowed a choice to be made between the crew being "gun-oriented" and traversing in some form of turret and being "hull-oriented" and being seated

FIGURE 2. The second proposal incorporates a UDES-style lift-and-turn mounting for a divisible gun which must be raised to allow traversing. The crew remains at fixed stations in the hull.

down in the hull. Disenchantment with the overhead gun followed later as the disadvantages of the loss of direct top vision were more clearly realized.¹³ Perhaps a solution may be to accept the overhead gun for use in defensive positions while at the same time producing MBTs as fully traversing designs.¹⁴

But the situation changes yet again when the potentials of raisable gun mountings are clearly understood. The use of a raisable gun in a cleft turret confers advantages a conventionally turreted tank has so far never possessed. The UDES-17 configuration, which provides the gun with all round traverse when raised to above the level of crew vision devices, could be considered in the MBT role. If all-around traverse for the MBT is demanded, then casemate designs, including those with limited traverse, must be passed over and only two designs for the MBT remain. One will have the crew seated in a

cleft turret to face towards the target. The other will be based on the UDES-17 design, with the crewmen seated down in the hull.

In the UDES-17 case, the crew will have to raise its gun before traversing while the cleft turret can traverse discreetly and then raise the gun. The fact that the gun of a UDES-17 type vehicle cannot be lowered while it remains traversed detracts from the survivability of that design. But this is counterbalanced by the fact that the vehicle is not divided into two quite separate parts by the presence of a turret traverse race and so should be better able to withstand high levels of attack. In effect, the compactness and strength of the casemate type vehicle is carried forward into a design capable of all-around traverse.

Two alternate designs for a future MBT are shown here (see Figures 1 and 2), based on drawings which originally appeared in December 1984 in *Soldat und Technik*.¹⁵

The turreted design (Fig. 1) adheres to the conventional as far as possible, employing a raisable gun in a cleft turret. It provides lateral protection for the breech of the gun by twin bustles, each containing ready rounds. Twin loaders transfer rounds from the bustles and swing over to ram the rounds forward into the gun. Driving is normally from the turret top, with the turret locked forward, although a third crewman, resting in the lower fighting compartment, can take over driving should this be required.

The lift-and-turn mounting of the UDES-17 type vehicle (Fig. 2) is considerably more radical. It carries the gun on a raisable mounting on a pedestal drum which does not itself move up and down. The drum would have both top and bottom bearings and would contain a number of ready rounds. This design uses a divisible gun system to accept rounds loaded directly upwards and rearwards to the chamber from the drum. Although full all-around traverse will be available, reloading may only be possible while the gun is within a 180-degree arc over the front of the hull.

These two vehicles are very different from the conventional main battle tank. They are front-engined, both for better protection and also to agree with the gun-over-hull theme. And they raise their guns to gain the tactical advantages that only such raisable gun mountings can confer. One tries to stay as close to the conventional as possible and uses a more or less conventional gun, while the second is deliberately more extreme in adopting a crew-in-hull layout and also a divisible gun.

Conclusions

These articles have been based first on the rearward relocation and then on the vertical adjustment of the gun trunnions of the main battle tank. Rearward relocation has been first with respect to the turret ring and then, in a wider context, with respect to the top run of the vehicle's tracks. Height reduction will be effected either by inclina-

tion of the vehicle on its suspension or, preferably — and with exciting tactical advantages — by the use of a raisable gun.

This overall rearward movement of the tank gun will eliminate forward projection of the muzzle and also gun intrusion into the vehicle but will lead to the breech being remote and no longer accessible to the crewmen. A new, better protected, externally-powered gun system is, therefore, now needed and this may be further developed into a divisible gun.

The need to retain direct top vision will lead to both internally and externally mounted overhead guns; hence, the French MARS turret, would be eliminated as a gun mounting. The requirement for all-around traverse will then rule out casemate configurations, even though they are compact and able to offer increased protection to their crews. A third requirement for a reduction in the size of target exposed by the vehicle when firing over a crestline will not permit — except in the case of light armored vehicles — the use of oscillating or cleft turret designs.

The two main battle tank configurations proposed here are both of the gun-over-hull type. In one, two crewmen traverse in the turret, while in the other, they remain in crew stations fixed in the hull. In both designs, the targets exposed when firing over a crestline are merely the silhouettes of their raisable guns. The times for which they are exposed are much reduced — and this is particularly so in the case of the turreted design.

Footnotes

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¹¹Christopher Foss, "FMC 25-mm One-man Turret for AIFV," *Jane's Armour and Artillery*, 1984-85, p. 822.

¹²Hans-Rudolf Lembecke, "A Tank of the Future in the Context of German Defense Technology," *Krupp MaK Defense Journal No. 5*, November 1980.

¹³Brigadier Richard Simpkin, "Room at the Top," *ARMOR*, January-February 1985, p. 18.

¹⁴Wolfgang Flume, "The Combat Vehicle Family of the Future," *Military Technology MILTECH*, April 1985, p. 76.

¹⁵Robin Fletcher, "Die Hublafette — ein neues Konzept für einen zukünftigen Panzer," *Soldat und Technik*, December 1984, p. 622.

ROBIN FLETCHER was commissioned in the Westminster Dragoons in 1941 and later served in the Special Operations Executive and 2d Special Air Service Regiment. After the war, he attended the technical staff officer's course at Shrivenham, spent two years on tank design at Chobham, and returned to Shrivenham to lecture on tank armament. After leaving the service, he raised crops in Kenya and cattle in Ireland. His articles on armor have been published in *International Defense Review*, *Soldat und Technik*, *TANK*, and other journals.

Armor's Heritage

Lieutenant General Daniel Van Voorhis



LTG Daniel Van Voorhis

Daniel Van Voorhis was born in Zanesville, Ohio, in 1878 and died in Washington, D.C. in 1956, at the age of 77. In his military career, he was the key figure in the mechanization of the Army and the creation of the Armored Force as we know it today.

During the 1920s and 1930s, "Billy" Mitchell, an Army Air Corps general, made national headlines as he expounded his vision of an air corps as a separate branch of the nation's defense forces. General Mitchell was court-martialed for his vociferous efforts and retired soon after to private life. But his dream was realized early in WW II with the creation of the U.S. Army Air Force.

General Mitchell was not alone in his "cry in the wilderness" for much-needed doctrinal and equipment improvements for a specific branch of the armed forces. There was yet another band of officers — mostly horse cavalry officers at that — who were equally, but more quietly, at work to create what they foresaw as a vital need for the Army. They called for a mechanized force that would forever banish their treasured horses to pasture.

One such cavalry officer was Lieutenant General Daniel Van Voorhis, who was named "Grandfather of the Armored Force" by no less a personage than General Creighton Abrams, the Army chief of staff from 1972 to 1974.

Van Voorhis began his military career in 1898 as a corporal in the 10th Pennsylvania Volunteer Infantry. Later that same year, he was appointed captain and sent to the Philippines where he took part in the War of Insurrection. Two years later, he was appointed a 2d Lieutenant, Cavalry, in the Regular Army.

During WW I, Van Voorhis served as chief of staff, Port of Embarkation, Newport News, VA, and later as assistant chief of personnel at the Base Section, Brest, France. Both of these positions were of a highly administrative nature and gave Van Voorhis a solid grounding in the intricacies of Army procedures.

After the war, Van Voorhis served in the office of the Chief of Cavalry and in 1929, he graduated from the Army War College. In 1930, now a full colonel, Van Voorhis was given command of the 12th Cavalry and was selected by the Army chief of staff to command the experimental Mechanized Force that was being organized at Fort Eustis, VA, not far from Yorktown.

In 1931, the experimental Mechanized Force completed a remarkable 300-mile road march from Fort Eustis to Fort Bragg, NC. Colonel Van Voorhis wrote to his daughter, Betty Bell, that the force had marched 119 miles the first day, 109 miles the second day and 76 miles the third day, an outstanding feat for the times. The infant Mechanized Force was largely equipped with badly-worn WW I vehicles and there had been neither time nor opportunity to stabilize maintenance routines in garrison, let alone for a marching unit. Due to the chronic shortage of spares, maintenance on the

3-day march was mostly a policy of fix it with spit and wire and press on. The successful completion of the grueling march proved Van Voorhis' determination to succeed in the face of all odds — and it gave him valuable, first-hand experience in handling a mechanized unit on the move.

The experimental Mechanized Force was disbanded after a year, but it was with that force, under Van Voorhis, that the basic concepts of mobile war were formulated, concepts in which the tank replaced the horse. When the force was disbanded, Colonel Van Voorhis led the cavalry portion to Fort Knox, KY, where it was redesignated the "Detachment for Mechanized Cavalry Regiment." In 1933, this unit became the 1st Cavalry Regiment (Mechanized). Three years later, in 1936, the 1st Cavalry Regiment (Mechanized) became the 7th Cavalry Brigade, Mechanized. The following year, Colonel Van Voorhis was transferred to Hawaii to serve as the chief of staff, Hawaiian Department.



1st Cav troops man "combat cars" at Fort Knox in mid-1930s.

When the 7th Cavalry Brigade was formed, a new insignia was created for it and in 1940 that insignia (the track, the gun and the lightning bolt) was superimposed on the Armor Force shoulder patch to become the patch we know today.

Van Voorhis returned to Fort Knox in 1937, and as a brigadier general resumed command of 7th Cavalry Brigade, Mechanized. There he played a major role in the formulation of the doctrine that guided the initial efforts of the Armored Force when it was organized in 1940.

In 1938, now a Major General, Van Voorhis took command of V Corps Area and a year later, as a Lieutenant General, was transferred to Panama to command the Caribbean Defense Command. In 1941, he returned to V Corps Area and retired in 1942.

Management Methods at Platoon Level

by Captain Michael D. Landers

How does a platoon leader keep track of the four areas of which all leaders must keep track? Those areas are leading, training, maintaining, and caring for the soldiers. There are no school solutions to managing them. There are no perfect guidelines to follow. There are only the experiences of others from which to learn.

These four simple areas can loom large when trying to find the methods, techniques, and aids to control them. To whittle these totem poles down to size can be difficult. During my brief Army career, I have come across several aids to help me manage these four areas. These are by no means the only methods available. Some are ones I thought were original only to see them pop up at a later date in one form or another. Some are merely an adaptation of an old idea. Whatever the case, they have worked for me, and I would like to pass them along.

Out of necessity, I developed several techniques to manage leadership, training, maintenance, and soldier care. My first company commander had each platoon leader keep a notebook with the status of hulls, turrets, and fire control systems for each tank in our respective platoons. This notebook also contained a maintenance checklist, the platoon hand receipt, and two or three training plans. Anything else we wanted to put in our little black book was left up to us. When I left this company to take over my second tank platoon, I took my book with me. My new commander promptly informed me my office was my tank and whatever I carried with me. Hello again, little black book.

About this time, the four areas of which I spoke earlier were brought to my attention. I reorganized my notebook into the four areas, and many of the ideas, techniques, and methods I will discuss later are all in what I now call my "brain." I call it that because it keeps track of quantitative management and allows me to concentrate on qualitative management. The following

ideas are only some of the means I used to help me. I hope they help you.

Leading

As in the other three areas, to discuss leadership would take more time, knowledge, and paper than I possess. A particular help to me in managing this area was my "brain." I kept a "personal assets sheet" about every soldier in the platoon. Some of the information I kept is now included in a tank platoon leader's notebook published by the Armor School. Other information I kept about each soldier is as follows: Height, weight, last APRT score, and next APRT date, birthday, number of days of accrued leave, weapons qualification score, vehicles authorized to operate, home address and phone number, combat experience, any extra skill (artist, woodworker, typist, etc.), and what he wanted to do if he could not be a tanker.

I realize the list could go on forever. Each of these items could easily be located by contacting the orderly room, maintenance platoon, and S3 section, but it would take time. This page put everything together. For example, there are numerous instances when you may be told that a qualification range is being run by another unit and asked if you have anyone who needs to qualify. Instead of waiting until you can have the platoon sergeant find out, you already have the information. This does a couple of things. First, you and your platoon sergeant have the same data, and have already discussed who needs to qualify. Second, and most importantly, you don't lose training time with the platoon tracking down the information.

Another idea is to keep a copy of General Ulmer's *Notes on Building the Chain of Command at Unit Level*. Before The Armor School put it into a pamphlet, I ran across a copy and promptly put it in my "brain." You may not agree with General Ulmer's concepts, but they are food for thought.

Although I cannot put a copy of *The NCO Guide* into my book, it is also excellent reading. You may begin to better understand your NCOs if you have read what they have to read. After all, FM 22-100 defines military leadership as "a process by which a soldier influences others to accomplish the mission," and what better way to influence him than by learning what makes him tick?

A last little aid is the "quote of the day" or "saying of the day." This is an OCS staple I borrowed. It is also very effective in transmitting a message without ever saying it. If you think you are having a problem with ethical dilemmas in the platoon, a few quotes back-to-back on ethics may break the ice for more effective communication. I posted a few of these quotes in the platoon area. While I posted the quotes, several soldiers were able to discuss some personal matters privately. Posting these quotes also forces you to go into the platoon area: a vital act in leadership.

Training

Volumes have been written about training, and I only have one aid.

"...We took a Common Skills Task, and made a miniature self-test out of it..."

Preparation for common tasks testing is typically one of these areas that is neglected until the last minute. What I did, in conjunction with my company commander, was to develop my "task of the week" board. We took a Common Skills Task, and made a miniature self-test out of it. We posted the self-test on Monday, and the company NCOs would quiz their subordinates throughout the week. This does several things. First, it lets you monitor how often the bulletin

board is being looked at by checking the wear and tear on the test materials at the end of the week. Second, it gets the junior NCOs involved in training. After I developed the first two or three quizzes and my tank commanders saw how it was done, I had them develop a few. My junior NCOs now had their chance to be innovative. You would be surprised how many times those sergeants made others look at what they had done. Having your tank commanders help gets that many more minds involved. Lastly, it covers the Common Tasks Test on a quarterly basis, and allows enough repetition to help your soldiers achieve higher scores.

One task is map reading. My "task of the week" for map reading consisted of a local map taped to the wall, a protractor, and a self-test posted next to the map. The answers to the test would be individually covered, allowing partial testing throughout the week.

Maintenance

Maintenance in a tank platoon is a "make or break" area. Several questions about maintenance periodically arise. A key problem is maintenance in the field during continuous operations, and the National Training Center is an acid test for this. One solution for continuous maintenance involves the cyclic use of the preventive maintenance checks and services (PMCS). The entire PMCS is broken down into ten sections. The before-operations PMCS and after-operations PMCS are not divided. The during-operations PMCS is not divided by days, but rather is broken into operational sections. The tank commander, gunner, loader, and driver each have these operational sections posted in their respective stations. All that is required to fabricate these checklists is to type them in item-number sequence, and cover the page with acetate. In this way, while the vehicle is in operation, any new faults can be checked off with a grease pencil, and can be recorded on the DA Form 2404 later. A critical point is to make sure you list the during-operations PMCS in item-number sequence. By ensuring the list is by item number, you get improved accuracy on the vehicle's DA Form 2404.



The Weekly, Monthly, and Quarterly PMCS are divided into 10 equal days. These lists are checked on corresponding days with the CEOI, eliminating all doubt about what is to be checked. Just like my personnel assets sheet, this checklist is also kept in my "brain." By having your tank commanders help write this cyclic PMCS, you have involved them in training and maintenance in an important manner.

Another technique is to make your gunners responsible for maintenance checking. The purpose here is not to relieve the tank commander from responsibility for maintenance, but to increase the gunner's responsibility. By assigning him to check, he is developing the responsibility he will need later. The tank commander will still check his vehicle's maintenance, but now he can teach and coach the gunner along the lines of leader and prepare the gunner for his day in the TC's hatch.

Caring for the Soldier

What have you done for Joe E. Soldier today? Caring for our greatest asset is important in any unit. In addition to the chain of command, there are agencies at every installation to help soldiers and their families. Here is where my little black book helps me tremendously. Under the CARING section of my "brain," I keep a list of all on-post agencies and phone numbers. This helps save time getting professional assistance to my soldiers.

Caring, however, is not limited to agency locations and marrying these agencies up with soldiers who

need them. It extends into other areas. I also keep a list of soldiers who need BSEP and military schools. It is important to make sure deserving soldiers are given the opportunities to further their careers and education.

One last means of caring is leave time. Leave time is a big boost for morale and must be monitored. I keep track of this on the personnel assets sheet. I do this by checking the Leave and Earnings Statement with the platoon sergeant. Soldiers who are accruing too much leave time are in danger of losing some of it, and probably need a breather.

The "brain," quote of the day, cyclic maintenance schedule, and other techniques I've discussed are only some of the methods I have used. Perhaps this article has pricked your curiosity and imagination and will help you develop your own methods of managing the leadership, training, maintenance, and the caring for soldiers within your unit.

CAPTAIN MICHAEL D. LANDERS, commissioned from Georgia Military College, Milledgeville, is a graduate of the Armor Officer Basic Course and the Junior Officer Maintenance Course. He served as a tank platoon leader in two platoons, as HHC XO, and as support platoon leader in the 2d Battalion, 69th Armor, at Fort Benning. He wrote this article while a student in the Armor Officer Advanced Course. His writing earned him the Armor Association's Academic Writing Excellence Award for AOAC 1-86.

Cavalry in Perspective

With the modernization of the Army, cavalry scouts and infantrymen are being issued a new combat vehicle, the M2/3 Bradley Fighting Vehicle (BFV). A vast improvement over the M113-series vehicle which has been in use since the 1960s, the Bradley Fighting Vehicle will serve well past the turn of the century.

To train soldiers to man and operate this vehicle, the most advanced of its kind, the Army is looking at the best method for the least cost. One method suggested is the consolidation on all BFV training at one post, perhaps Fort Knox or Fort Benning, as an add-on skill for 19D cavalry scouts and 11B infantrymen. While this may consolidate and standardize training, and have some effect on costs, it is not the best way to train cavalrymen in this weapon system.

For the past 40-plus years, since the mechanization of both the cavalry and infantry in World War II, both arms have shared a common mode of battlefield mobility, from the M3 halftrack to the M113. Each arm trained at its own "home", the cavalry at Fort Knox, and the infantry at Fort Benning. Only now, with the addition of more sophisticated weapon systems, is the concept of one-post training being considered.

The cavalry and infantry missions are distinctly different. The purpose of cavalry is to recon, using combat vehicles and aeroscout helicopters, and to find and fix the enemy so that he can be destroyed by the combined arms efforts of armor, infantry and artillery. His vehicle is an integral part of his mission, providing essential mobility. The infantry mission is to close with and destroy the enemy. The vehicle is the infantryman's method of moving to reach and seize the objective, its weapon systems providing additional firepower. To accomplish the mission, however, the infantryman, in most situations, must dismount and fight on foot as he always has.

The points of common mobility and divergent missions are best illustrated by the exploits of the British Army in South Africa, 1899-1902. Initially using the traditional tactics of the period, the British — with cavalry and dismounted infantry — suffered serious defeats at the hand of the Boers, who had mounted both scouts and riflemen. This mobility enabled the Boers to fight on their own terms. It was only after the British mounted entire brigades of infantry that they were able to defeat their opponents. Despite the move, battle tactics remained essentially unchanged. Mounted infantry used the horse as transportation, dismounting to fight on foot. The cavalry retained its traditional roles of reconnaissance, screening operations, and pursuit to cut off retreat.

Technology has advanced in the past 80 years, but the basic concepts of the cavalry and infantry have not changed. At Fort Benning, 11B infantrymen receive basic infantry training, augmented with the antitank

skills oriented on the need to close with and destroy the enemy. Only after OSUT training are selected 11Bs given the M3 add-on which awards them the MOS of 11M. The focus of the course is oriented on prefire gunnery, target engagements, and BIFV-peculiar tactics. No reconnaissance tasks are programmed in their course. This add-on training philosophy is the fundamental difference between the Armor Center and the Infantry Center programs of instruction. Cavalry training in the 1st Armor Training Brigade is evolutionary, yet remains focused on basic reconnaissance skills. During their initial training, cavalry scouts — whether mounted in M113s or M3s — are taught vehicle maintenance and proper use of the vehicle during tactical operations. The prelude to the cavalry field exercise begins in the 8th week of a 13-week course. At this juncture, instruction is geared to the field exercise. The linchpin of the 19D reconnaissance program of instruction is the 5-day cavalry field exercise which enables selected tasks to be executed in a tactical environment.

With the increased number of M3s coming into the inventory as a result of force modernization, it is logical to assume that the number of vehicles and training units needed to train soldiers will increase. Looking to the future and the full implementation of the J-series TO&E, it would not be feasible to train all infantrymen and cavalrymen on the M2/3 at either Fort Knox or Fort Benning. Obviously, a transition course could be centralized at either location, but only one center, Fort Benning, has a need for a Skill Level 1 add-on course. As previously mentioned, the M3 course at Fort Knox is a complete 19D Skill Level 1 reconnaissance course, closely paralleling the M113 19D course. The three-week CFV course is a Skill Level 1-3 course given to troopers enroute to a unit equipped with the BFV. These troopers have already completed 19D reconnaissance training.

We can discuss combined arms — and have, in fact implemented it — but the fact remains that each arm is different, and uses its weapons in a different way. To the mounted scout, the M16 is a secondary weapon; to the infantryman, whether mounted or dismounted, it is his primary weapon. Differing methods and philosophies cannot and should not be totally eliminated, due to the distinct missions of each arm. These differences in mission and concept need to be taught from the start, including the use and maintenance of the M3.

Parochialism is harmful when it is carried too far and one looks out for one's own "turf" at the expense of all else. Cooperation between the service schools is essential to solve problems of training and doctrine. The Infantry Center (historically the proponent for antitank weapons, including the TOW) and the Armor

Center (traditionally the proponent for turreted weapon systems) are working together to synthesize standards for BFV gunnery. This cooperation is the optimum method of achieving the end result.

In summary, the cavalry scout works independently, classifying bridges, calling for fire, clearing minefields, emplacing demolitions and conducting the traditional yet current missions of route and zone reconnaissance, flank coordination, security operations

and screening missions. Essentially, cavalry missions have not changed at all; only the techniques have been refined and horses replaced with more lethal and sophisticated combat vehicles. As in the past, success on the battlefield depends on each arm adapting its mobility to its own unique mission.

JOHN B. WHITEHEAD III
LTC, Armor
Fort Knox, KY

Company Level Mentoring

The process of taking brand new second lieutenants and turning them into experienced, capable company grade officers is a critical one. Yet surprisingly little attention is paid to developing lieutenants once they reach their unit. In many cases today, it occurs on a hit or miss basis.

The responsibility of training new lieutenants in units falls clearly to the company commander. A recent article in *Infantry* provides evidence that commanders and lieutenants have conflicting views on how well this critical task is being accomplished. Commanders have the perception that they provide sufficient feedback, but lieutenants are almost universally critical of their commanders in this regard. New lieutenants are often left to flounder on their own, even though commanders have good intentions and may believe they are giving enough guidance and attention to their subordinate officers. When questioned, most commanders confirm that they had the same problems when they were lieutenants. It is almost a parody of the vicious cycle of child abuse: the commander perpetuates the system under which he was developed.

Why is the system apparently perpetuating itself? There are two reasons, from the commander's perspective: That's the way he was trained and, secondly, he is usually so busy with daily requirements that he doesn't recognize the need to work with a system which doesn't usually have command emphasis.

From the lieutenant's perspective, examine some of the difficulties that he faces:

- Not only is he new to the unit, he is new to the system. Even the simplest tradition, the most basic task, and the regulations can be perplexing. Virtually everything is being done for the first time.

- Many tasks are taught only once in the basic course, or covered only minimally. Resource and time constraints do not provide excess training time for the new officer. It is, therefore, unrealistic to expect a new officer to be fully proficient as he graduates from the basic course.

- His self-esteem and confidence are continually assaulted as he copes with the difficulty of being a leader and a learner at the same time.

- He will likely be apprehensive of the "boss". Regardless of how often the commander tells him "the only stupid question is the unasked one," he is unlikely to ask a fraction of those he has. No one likes to look

dumb in front of his boss.

- His relationship with his platoon sergeant can be positive or negative. A weak platoon sergeant may cloud the new officer's comprehension of the way officers and NCOs should interface.

- Finally, he is most likely alone, without any of his previous friends, and in a strange geographic locality, often for only the second time.

As can be seen, the new lieutenant faces a demanding, complex, and (for him) uncharted environment. Yet his morale is probably high, and as Colonel Mike Malone would describe him, he could be placed in the "willing but unable" category. He is a clear slate upon which can be sketched the lines of professionalism or scrawled the graffiti of ticket-punching careerism. All depends on how the chalk is wielded. Poorly performing lieutenants can be coached, guided and developed into meeting acceptable standards. Lieutenants who perform acceptably from the beginning can be molded into outstanding officers. Some company commanders have been known to label less capable lieutenants as "hopeless" (most commanders will swear they had to put up with at least one). However, there is a danger in lumping good lieutenants with an initial poor performance in the hopeless category. The poorly performing lieutenant is the one who most desperately requires development. Immediately classifying him as a "dud" is taking the easy way out.

Obviously something more than just occasional performance counselling is needed. The concept of mentoring may prove to be at least a partial solution to the problem. Mentoring/coaching has been well received at CAS³, and is currently a subject of hot debate in the Army. But what is a mentor?

Webster's Ninth Collegiate defines it as "1 cap: a friend of Odysseus entrusted with the education of Odysseus' son Telemachus. 2a: a trusted counselor or b: TUTOR, COACH." Another definition, used by a recent survey of officers, explains mentor as "an older, more established member of an organization who establishes a *personal* relationship with a new member, and actively assists the individual in a professional way to become oriented to the organization and to achieve within the organization." This definition is fairly succinct and about on the mark for our purposes.

"Leaders as Mentors" in the July 1985 issue of *Military Review* draws on civilian management ideas and studies for one concept of mentoring, which

stresses some of the longer lasting aspects. Additionally, they cite the typical civilian age difference of 8 to 15 years between mentor and protégé, and voice concern over the lack of age differential between company commanders and their subordinates, which may hinder the mentoring effort.

For military purposes, we need to acknowledge two subcategories. Personal mentoring is more the one-on-one relationship discussed in the traditional sense. Command mentoring focuses on the development of one's immediate subordinates. At the company level, the age difference is not as critical as the experience difference. The concept of command mentoring needs to be refined for implementation at company level. It cannot be a panacea; yet it can go a long way.

Here are some specific ideas for developing subordinates (mentoring):

- Ensure that the new officer knows how he stands. Counsel him frequently, and, more importantly, coach him. The requirement for counselling via DA Form 67-8-1 is a step in the right direction, but more is needed. The new lieutenant needs feedback often, both positive and negative. Remember that one pat on the back is worth 10 kicks in the pants. Don't assume he can read your mind; he can't. Often an implied task that would be obvious to a more experienced officer or NCO will not be recognized by the new lieutenant.

- The new lieutenant needs to be constantly and increasingly "stretched" to act on his own, but based on your guidance. Just as subordinate leaders need to understand the "commander's intent" in an operations order, new lieutenants need to understand the "commander's concept" of garrison duties. This will assist his development by giving him a framework around which to base his decisions. Supervision and *feedback* will get him back on track or fine tune his actions. They key is direct, positive, and active involvement by the commander, and not just letting the new officer learn by his mistakes. Each commander's duty is to develop each of his subordinates to be better than the commander himself.

- The XO (or senior lieutenant) needs to be fully involved. He is in a non-threatening position and is the perfect springboard for the new lieutenants' questions. Make it part of his formal duties and ensure he is not just passively assisting. There is every reason he should assist in mentoring the new officers.

- Establish a company level Officer's Professional Development Program that is more than just lifting beers at the O-club. Practice, discussion, and training in technical and professional skills will be invaluable in giving the lieutenants a polish to their Basic Course training. Make time to talk with subordinates. Schedule time to leave the company/battalion area to ensure the OPD training will be uninterrupted and to lend

variety to the training site.

- Ensure a healthy "command climate" is established, so that the new lieutenant understands he will be allowed to make mistakes. The lack of such an atmosphere will kill any attempts at mentoring. The lieutenant must not be afraid of trying for fear of failing.

- Ensure that both you and your XO are good "role models" for the new lieutenants. Whether or not they accept you as such is up to them, but the example set must be positive and consistent with the ideals you verbally espouse.

Further on up the chain, the battalion commander can aid the effort by letting the company commanders know he holds them responsible for the development of their subordinate officers. As General Bruce C. Clarke said, "An organization does well only those things the boss checks or causes to be checked." This would certainly be additional motivation to commanders to pay more than just lip service to the development of their new officers.

The battalion XO's role must be one of mentoring the staff (since he is their rater). If desired by the battalion commander, he could be tasked with monitoring the companies' development programs by close coordination with the company commanders. His non-threatening position could help the company commanders better understand the battalion commander and provide an unofficial, experienced source to assist them in evaluating and implementing their own programs.

Finally, the most important aspect of mentoring — caring. As noted by others, mentoring is a two-way street. The mentor must care as a parent cares — intently, realistically, with an eye to the future of both the individual and the "family" (unit). He must be willing to take the risk of disappointment and face the reality of subordinate failure. On the other hand, the mentor may realize the satisfaction of seeing his subordinate develop and mature. The company commander must show genuine care in the development of his subordinates.

Command mentoring of subordinates is an idea which is in desperate need of implementation. New officers deserve feedback, a meaningful Officer Professional Development Program at the company level, and a healthy command climate in which they can develop. Without command emphasis and acknowledgement of the problem by commanders, the vicious cycle of poor officer development will not be broken.

The chalk is in your hands.

GREGORY M. SMITH
CPT, Armor
Fort Knox, Ky.

Command and Control

FC 71-6, *Battalion and Brigade Command and Control*, was published as a joint effort by the Armor and Infantry Schools. The purpose of this field circular was to provide the commander with methods and techniques to employ in exercising the critical battlefield function of command and control. These methods have

been validated by units of the 194th Armored Brigade ("Panzer Lehr") in the crucible of combat operations at Fort Irwin, the National Training Center (NTC).

One command and control issue described in FC 71-6 concerns the most effective location of the FSO during tactical operations. FC 71-6 shows the FSO collocated

with the commander in the commander's vehicle. This will be a more practical option for the commander when the command and control vehicle (C²V) is fielded with its enhancements. Many commanders believe that this is the best way to employ the FSO. In this location, he can provide the most timely and effective indirect fires in support of the commander's concept and intent.

Two other issues raised in FC 71-6 are where the commander should position himself to control the battle most effectively, and from what type of vehicle he should command. NTC lessons learned indicate that the commander needs to position himself where he can best "see the battlefield" *and* where he can best bring the weight of his personality to bear on the outcome of the fight. Usually, that's well forward on the battlefield in a vehicle that's hardened to survive. FC 71-6 shows the commander in a tracked vehicle — a tank for Armor battalion commanders and a Bradley Fighting Vehicle for Infantry battalion commanders. This is not intended to dictate to the commander that this should be the only vehicle that he will ever use. While the survivability of the tank or BFV make them more suitable for the commander to use, the amount of time spent in a tank or Bradley Fighting Vehicle equipped as a command and control vehicle is dependent upon the situation presented to the individual commander.

Below is a table that portrays the approximate amount of time that commanders reported spending in their C²Vs during one unit's NTC rotation. This table clearly points out the operational necessity that commanders be proficient in leading from combat vehicles forward on the battlefield. Company commanders tend to spend more time in their fighting vehicles because they are more often closer to the FLOT than the battalion commander.

Percent of Time Commander Was in C²V *

Location	Inf Bn	Tank Bn	Inf Co	Tank Co
Front/or Near Front (TOC Forward)	93%	80%	91%	97%
Rear Area (Rear of TOC)	7%	20%	9%	3%

* The data were obtained from subjective self-evaluation of time and are probably accurate plus-or-minus 10%. Of significance is that commanders don't command battles from the TOC or from ¼-ton vehicles.

In applying the doctrinal principles outlined in FC 71-6, the commander's tank or fighting vehicle must be configured to support his command and control requirements when he is operating forward. There is a recognized need to improve his command and control capability without radically altering the configuration of his vehicle. The Armor Center has configured command vehicles of the 194th Armored Brigade to provide an expanded view of the battlefield, a map holder, enhanced communications, and the ability to collocate the commander and the FSO (or FSE), should the commander so desire. This command and control vehicle concept provides access to four FM radio nets with secure capability, a new intercom system to monitor these nets as required by the commander, the introduction of a low-profile antenna to reduce vehicle signature, map holders to facilitate planning and



execution, and an extension to convert the vehicle to a mini-CP.

Other methods chosen by tank unit commanders included locating in an M113, and using a ¼-ton vehicle while coordinating critical support issues in the rear (i.e., BSA or field trains).

The Armor School currently teaches the techniques and procedures discussed in FC 71-6. Discussed are TOC organization, the role of key personnel, and techniques for effective C², which include vehicle marking, use of TIRs, standard load plans, and uniforms. Armor leaders are made aware that command is a very personal thing. The precise way that a commander chooses to command and control — and most importantly, to infuse that critical ingredient of leadership — will be decided by what he knows is best for his unit, based on experience. As always, the proper application of METT-T — i.e., a thorough analysis of mission, enemy, troops, terrain, and time — applies. The commander's ability to "see" the battlefield and infuse leadership is critical to the success of the unit. The commander must survive in order to make decisions that will be key to winning in battle. The enhanced survivability of the C²V will keep our experienced leaders forward to influence the battle.

Plans for configuration of the command and control vehicle (C²V) are tentatively scheduled to be available on or about 1 May 86 and can be obtained by sending a request to the Commandant, US Army Armor School, ATSB-CD-ML, ATTN: CPT Robert E. Ransom, Fort Knox, KY 40121-5215, or by calling AUTOVON 464-1750/7222.

LTC ALAN G. VITTERS and
CPT JAMES R. HARRISON
Command and Staff Department
US Army Armor School

REGIMENTAL REVIEW

Leadership Does Pay Off

In 1985, the Army chose leadership as its theme and conducted an Army-wide Leadership Forum to select the Army's best leaders.

Leadership success stories were solicited from the field in four categories: enlisted, officer, civilian and organization.

The winner of the enlisted leadership category was SSGT Charles P. Waters, Company D, 1st Battalion, 32d Armor, 3d Armored Division, USAREUR.

Sergeant Waters, with the other leadership winners, were honored on 27 February at the Pentagon. Sergeant Waters' story is indeed one of leadership in all its aspects.

He was assigned the worst tank and crew in his battalion and turned it into one of the best, according to his platoon leader, First Lieutenant Robert R. Naething.

Waters inherited the previous tank commander's sloppy bookkeeping and a delinquent crew that repeatedly failed inspections. The crew's tank gunnery scores were among the lowest in the brigade when Sergeant Waters took over.

The sergeant began with a thorough inspection of the tank that resulted in a 12-page DA Form 2402 Request for Repairs. He worked closely with the maintenance team chief to ensure that every broken part was either fixed or replaced and he trained every member of his crew in the proper maintenance procedures.

Waters set high standards and accepted no compromises. His positive attitudes, determination and skills have invoked a healthy spirit of competition among other tank crews and have boosted morale in general in his unit.

Since Waters took over the tank and its crew, they qualified as best tank in the brigade in gunnery, did well during Spearhead Victory, a training exercise, and have had a very successful ARTEP.

In addition, Sergeant Waters' crew passed every task tested during inspection and received the battalion's Distinguished Platoon Award. In the words of his platoon commander, Sergeant Waters "is typical of the thousands of good soldiers in Europe who took last year's challenge of Leadership and ran with it."

Well done, Staff Sergeant Waters!

1-22 FA History Assistance Sought

The 1st Battalion, 22d Field Artillery, assigned to 4th Armored Division in WW II, is preparing an organizational history. The 1-22 was also assigned to the 4th Armored Division after WW II and later to the 1st Armored Division.

Any person having historical documents, photographs, or organizational histories of the 1st and 4th ADs that would help in the compilation of the 1-22 history are asked to lend them to 1LT Richard A. Lechowich, Unit Historian, HQ 1-22 FA, APO New York 09070. Fire support information is particularly sought. Personnel in USAREUR may phone Nurenberg Military 2623-877/830.

NTC History Is You — Write!

The National Training Center (NTC) at Fort Irwin, CA, has begun researching its history, says Lieutenant Colonel Gerard J. Monaghan, the Army Reserve officer who is heading the project.

History is people and events, and people make events. If you ever served at Fort Irwin, or at any of its predecessors — the Mojave Anti-Aircraft Range, Camp Irwin and the Army Armor and Desert Training Center — or in any of the multitude of units that trained there, you are invited to contribute to Fort Irwin's history.

If you have a Fort Irwin connection, send a post card to the Public Affairs Office, ATTN: Historian, NTC and Fort Irwin, Fort Irwin, CA 92310. Include your name, address, phone number and your connection with Ft. Irwin. Also mention if you have any memorabilia or documents relating to Ft. Irwin.

Blackhorse Reunion Rescheduled

Due to unforeseen circumstances, it has been necessary to change the dates of the reunion of the 11th Armored Cavalry Regiment (BLACKHORSE). The reunion date has been changed from 9-10 to 16-17 May 1986 at Fort Knox. For reservations please contact the Secretary (Bill Squires) P.O. Box 11, Fort Knox, KY 40121 (or call 502-624-2247).

Recognition Quiz Answers

1. **M-109 Howitzer (U.S.)**. Crew, 6; weight, 23,786 kg (25 tons); hull length, 6.256 m; width, 3.295 m; height, 3.289 m; maximum road speed, 56 km/hr; maximum road range, 390 km; engine, Detroit Diesel Model 8V71T, turbo-charged, liquid cooled, 8-cylinder, 405 bhp; armament, 1 x 155-mm main gun, 1 x 12.7-mm AA machinegun.

2. **ZSU-23-4 (USSR)**. Crew, 4, weight, 19,000 kg (21 tons); maximum road speed, 44 km/hr; maximum road range, 260 km; armament, 4 x 23-mm AZP-23 cannon; maximum elevation, +85 degrees; depression, -5 degrees, 360-degree traverse; rate of fire, 800-1,000 rpm per gun; maximum effective vertical range, 2,500 m.

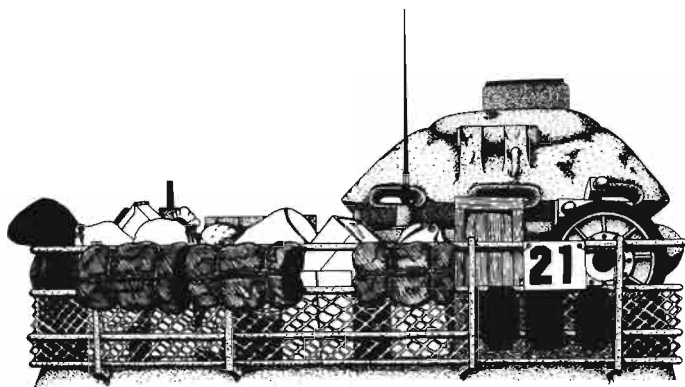
3. **GAZ-47 also GT-S (USSR)**. Crew, 2; weight, loaded, 4,600 kg (5 tons); length, 4.9 m; maximum road speed, 35-39 km/hr; maximum road range, 725 km; engine, GAZ-61 or GAZ-47, 6-cylinder, gasoline, 85 hp; tracked, amphibious over-snow vehicle.

4. **BLG-60 (USSR)**. Crew, 2; weight, 33,500 kg (37 tons); chassis, T-54/55 tank; bridge capacity, 50 tons; bridge width, 3.2 m; bridge span, 21.6 m; bridge launch time, 3-5 minutes.

5. **ASU-57 (USSR)**. Crew, 3; weight, 3,350 kg (3.7 tons) (air transportable); maximum road speed, 45 km/hr; maximum road range, 250 km; armament, 1 x 57-mm AT gun; engine, 4-cylinder, gasoline, 55 hp; maximum armor (aluminum), 6-mm at 60 degree slope on front.

6. **ZSU-57 (USSR)**. Crew, 6; weight, 28,100 kg (31 tons); maximum road speed, 50 km/hr; maximum road range, 595 km w/auxiliary fuel; armament, 2 x 57-mm S-68 cannon; maximum elevation, +85 degrees; depression, -5 degrees, 360-degree traverse; rate of fire, 70 rpm per gun (practical rate); maximum vertical range, 8,800 m.

The Bustle Rack



Armed Forces Mobilization Conference

The fifth annual Industrial College of the Armed Forces Mobilization Conference will be held on May 22-23 at the National Defense University, ICAF, Ft. McNair, Washington, D.C. The theme will be "The Future Role of Mobilization in National Security." Three subject areas will be emphasized: National Security and Mobilization, Manpower Resources Management, and Industrial Resources Management. Papers on these topics are invited.

For further information contact: Mobilization Conference Committee, Industrial College of the Armed Forces, Washington, D.C. 20319-6000, or phone (202)475-1794, AUTOVON 335-1794.

Applique Armor for M60s Tested

The testing of applique armor for the M60A3 tank has been underway at Aberdeen Proving Ground, MD, according to the Combat Systems Test Activity (CSTA).

Applique — or "add-on" armor — is designed to give the tank increased protection against gun or missile rounds. Aberdeen used three complete tank hulls and three ballistic (stripped) hulls for the tests, using real and simulated antiarmor munitions. Testing also included an assessment of the vehicle's mobility performance with the added weight of the applique armor. The testing culminates three years' work by various Army Materiel Command agencies that developed the new armor.

Armor Branch Notes

Functional Area Designation for Year Group 79

Armor Branch has completed the designation of functional areas for Armor captains in year group 1979. Results will be released through local MILPOs, the *Army Times*, and by calling Armor Branch. Designation requirements were made by projecting field grade strengths, average attrition rates and desired utilization rates. These requirements were then adjusted based on the size of the 1979 year group, proponent preferences, and DCSPER guidance.

Career managers considered individual officer education, training, experience, job performance and personal preference. In accordance with the implementation of the OPMS Study Group's recommendations, officers were not permitted to carry a branch as a second specialty (i.e., 91-Ordnance, 35-Military Intelligence, etc.).

"Armor Enlisted Professional Development" Circular Is Now Available

Field Circular 21-309, "Armor Enlisted Professional Development," should be on the required-to-read list of every officer, NCO, and soldier in the Armor force. It provides guidance to individuals, commanders, and personnel managers on how to develop and use Armor noncommissioned officers and is focused on increasing the effectiveness and professionalism of the Armor NCO.

The new FC is not intended to replace Army regulations, nor to change the Enlisted Personnel Management System. Rather, it complements both by addressing the philosophy of Armor in order to bring together information relevant to professional development and assignment of Armor NCOs.

Some 32,000 copies have been distributed to the field, with more available upon request by units.

The new circular covers such important personnel considerations as the Enlisted Personnel Management System, the Armor professional development pattern, promotions, Enlisted Evaluation Reports, reclassifications, and the very important selection and promotion criteria for the OSUT/unit Excellence in Armor Program.

Additional copies are available by writing to Commandant, U.S. Army Armor School, ATTN: Proponency Office, ATZK-AR-P, Fort Knox, KY 40121-5187.

Gowan Field Seeks Instructors

The M60A3 New Equipment Training Team (NETT) at Gowan Field, Idaho, is seeking senior armor instructors, armor instructors, a senior maintenance instructor and additional maintenance instructors. The unit will be transitioning Reserve and National Guard units from earlier M60 and M48 equipment to the M60A3 TTS tank. The transition will be conducted at Gowan Field, near Boise. Interested parties are asked to get in touch with Major Randall F. Williams, chief of the M60A3 NETT, or Master Sergeant Gregory C. Schwartz (AUTOVON: 941-5879/5882; Commercial: 208-385-5879/5882). A job announcement will be sent to prospective applicants. Mailing address for the unit is Gowan Field Training Center, NETT, P.O. Box 45, Boise, ID 83707-0045.

ROTC Assignments for Academic Year 1987-88

ROTC Assistant PMS positions for academic year 1987-88 will become available in September-October 1986. Officers who would like to be considered for ROTC duty should contact their career manager at that time. Many of the colleges and universities in the program require masters degrees prior to arrival. It is imperative that officers who have received advanced degrees keep their Officer Record Brief up to date to assist in assignments.

Armor Branch receives an annual allocation of schools in accordance with a prescribed distribution plan. Officers who solicit individual schools must understand that just because an opening is anticipated does not mean that Armor Branch will receive the allocation. Additionally, ROTC duty is a nominative process. Working through the career manager is the best way to ensure an appropriate assignment.

Points of contact at Armor Branch are CPT Benson or CPT Swan, AV 221-9696/6340.

New Patton Biography Paints the Personal Side

PATTON: THE MAN BEHIND THE LEGEND, 1885-1945, by Martin Blumenson, William Morrow & Co., Inc., New York, 1985. 320 pages. \$17.95.

Perhaps no one is as qualified to write the definitive biography of George S. Patton, Jr., the justly-renowned American Armor commander, as is Martin Blumenson. A historian on Patton's Third Army staff, author of numerous campaign studies, including *Breakout and Pursuit*, and then editor of the two-volume *Patton Papers*, Blumenson brings to his subject both intimate familiarity and professional historical detachment. It must be emphasized that this is a personal, not a military, biography. Operations are only briefly summarized, and scarcely analyzed or evaluated. Even the flavor of this colorful personality is captured more in the *Papers*, few of whose delightfully pithy and profane comments have been incorporated. In this book, Blumenson concentrates on character study.

Though born near Los Angeles, his father a successful lawyer, Patton's perceived heritage was that of his Virginia aristocratic military ancestors. This tradition, and his affluent family circumstances, generated a "sense of superiority," but also "a tinge of snobbery and racism." It also drove him to suppress a sensitive natural temperament by fostering the military virtues of leadership, bravery, and self-discipline.

Patton's personality manifested a desperate drive to excel, but also a hot temper and erratic emotional behavior that threatened his accomplishments and reputation. Blumenson attributes this first trait to Patton's determination to master a mild dyslexia, a learning disorder he compensated for by intense study. Nonetheless, even after a year at Virginia Military Institute, it took Patton five years to graduate from West Point. The author also theorizes that Patton's extremes of emotion resulted from head injuries in horse-riding accidents, which may have produced a subdural hematoma, a pool of blood pressing on the brain.

In any case, Patton aggressively pursued a military career, while cultivating social and political contacts in Washington. But he energetically created his own reputation as well, participating in the 1912 Stockholm Olympics and fearlessly attacking a Villista position in the 1916 campaign in Mexico. In WWI, Patton di-

rected the American Tank Corps school at Langres and took his (304th) light tank brigade into action at St. Mihiel. But when the tank corps was assimilated into the infantry in 1920, a disgusted Patton returned to the cavalry.

Patton was a commander, not a theoretician, and the nascent American armored force and developing doctrine owed little to him. "No strategist or theorist," observes Blumenson. While Van Voorhis and Chaffee were struggling to develop the American armored force, and European thinkers were evolving the concepts of armored warfare, Patton's influence was only "indirect." His assignments took him to Hawaii where "he went into his midlife crisis, and turned sour." Bitter over professional frustrations, "he drank too much and engaged in casual affairs." Polo served as an outlet for his explosive temperament. The author traces Patton's doctrinal development more specifically in the *Patton Papers* than in this biography. In the former work, Patton finally became "disenchanted" with the horse cavalry as a result of the 1940 maneuvers, while in the latter work the maneuvers were "invaluable" and "brought him up to date" on mechanization.

In command of the 2d Armored Division at Fort Benning, Patton energetically stimulated the confidence and enthusiasm of his men. He also cultivated the press to capture public attention, "not only for his own glory but also for the benefit of the Armored Force." (His attempt to design a tanker's uniform, however, was ridiculed as the "Green Hornet" and was discarded.) He continued, later in his career, to successfully reinforce his ability to garner publicity. "Blood and guts" was his own phrase, and his immaculate cavalry-style uniform, complete with holstered pistols ("pearl-handled" in this work), enhanced the warrior image. Patton was well-connected, and not above employing "high-powered flattery" to further his career. At the same time, his aggressive leadership and evident command competence justified the promotions he received.

Blumenson does not detail the two "slapping incidents" in Sicily, but explains Patton's outburst of "suppressed hysteria" as resulting from the stresses of the campaign, which had brought him "close to exhaustion." The author does not relate Patton's feelings about malingering versus combat fatigue, nor does he judge Patton's conduct. Patton's penchant for saying the wrong thing also got him into trouble at Knutsford, England, an



A pensive Patton during the 1941 Louisiana maneuvers.

incident the author says was "inconsequential, even silly."

Patton was denied command positions because of his intemperate remarks and conduct, yet his eloquent profanity and aggressive leadership gained him the ardent support of his men. It was as commanding general of Third Army, during the breakout from Normandy, that Patton made his formidable reputation as an armor leader. Blumenson feels Patton might have closed the Falaise-Argentan gap, bagging two German field armies, but was prevented from doing so by Bradley who — with Eisenhower and Montgomery — had been "incapable of the flat-out determination" necessary and "had botched the encirclement."

The ensuing campaigns nonetheless assured Patton's reputation as America's greatest combat leader in the ETO. He may indeed have been fulfilling a destiny and believed himself a modern reincarnation of earlier warriors. The author mentions this in passing, as Patton's sensing the Romans at Trier, "so sure of his previous presence there," but does not dwell on this. Describing the controversial Hamelburg raid, Blumenson accepts Patton's statement that he had not known for sure his son-in-law was a POW there. (The author does not defend the raid as a tactical ruse, as he has elsewhere.)

Despite the casual reference to "extramarital sorties" in Hawaii in the 1930s, Blumenson emphasizes Patton's great emotional dependence on his wife Beatrice. Patton's other sexual exploits seem to come from the extremely candid diaries of General Everett Hughes. Hughes was noted for being titillated by malicious gossip, and Blumenson is patently uneasy about using him as a factual source.

The war over, Patton's utilization of former Nazis in administrative positions and his contempt for war-displaced refugees (DPs) indicated again that, without a war, this warrior was an anachronism. In perceiving a Jewish-Communist conspiracy, says Blumenson, Patton had become "delusional." Patton died in an automobile accident in December 1945, just at the right time, "before he could destroy his reputation by absurd ravings."

Yet Blumenson remains sympathetic to the legendary Patton, perhaps even in awe of him. This biography investigates the personal forces that molded and drove the public Patton who, in spite of certain human failings, nonetheless lived up to the heroic image he had cultivated. George C. Scott's acting in the film *Patton*, notes the author, was "a remarkably accurate portrayal of the public figure." Used in conjunction with the operational studies and the *Patton Papers*, Blumenson's biography helps to round out the image of America's most famous armored commander.

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

MANEUVER WARFARE HANDBOOK, by William S. Lind. Westview Press, Boulder, CO, 1985. 131 pages. \$16.50.

Bill Lind has assembled a superb bibliography on maneuver tactics and he displays a unique layman understanding of the battlefield. His references to Rommel's book, *Infantry Attacks*, first published in 1937, are well-placed in his theoretical work. He weaves all the right buzzwords and outlines some excellent lessons learned from historical examples. Such terms as *auftragstaktik*, *augriffsziel*, *blitzkrieg*, *schwerpunkt*, as used by Rommel, Guderian, Deighton, Manstein, and other authors, are carefully translated, explained, and sprinkled throughout the book. Bill Lind is obviously bright, well-read, and his *Maneuver Warfare Handbook* is well worth your study.

This short work can be read easily in an evening's sitting, but it is not worth \$16.50, or whatever bargain price you can get it for, to put in your professional library. However, it should be read. It makes you realize that we professional soldiers should more carefully study our profession of arms and express our thoughts in public writing more often.



An Encyclopedia Worth Reading

VIETNAM WAR ALMANAC, by Harry G. Summers, Jr., Facts on Files Publications. 414 pages. \$24.95.

One's first impression of this book is likely to be negative: "This is an encyclopedia. Even if the typography is fine and the pictures good, who wants to read an encyclopedia?"

Closer examination dispels the negative impression.

This would save us from smart novices of Lind's ilk who want to tell us how to fight, but who have never heard a hostile round or smelled death.

It delights me that Lind chose the Marine Corps school system for reform vice the Army school system which teaches FM 100-5. Unfortunately, he does not seem to understand that someone still has to assault, seize, and hold beachheads and that it's a bloody business no matter how you do it. Noticeably lacking in his short work is a full discussion of air mobility and its impact on modern maneuver warfare. Marine aviation in Vietnam was noted for its ability in this indirect approach. I suggest that the Marine Corps issue copies of *Infantry Attacks* by Rommel as mandatory study material to stay ahead of Lind's proposals.

I don't recommend this book for juniors without combat experience, but then Lind seems to be one of the few, military or civilian, brave enough to write and espouse a theory about tactical warfare — a sad commentary to us senior Army leaders.

Serious students of warfare will find this book disappointing.

JOHN C. BAHNSEN
Brigadier General, USA
Fort Hood, Texas

Part I, entitled "The Setting," of itself makes the book worth your while. It is a 26-page summary, with maps, of Vietnam's long history, its culture, its geography. On reading it, one concludes that our policy makers, our soldiers, our academics, our editorial writers, and all the rest of us, approached the Vietnam War — and for the most part, finished it — without the remotest idea of what we were getting into or had gotten into. Buy the book, if only to read Part I.

Part II is a chronology of our actions from 1959 thru 1975. Valuable for researchers and students, for those who wore uniforms it is more. As you note the date of an event you will say, "At that time, I was at such-and-such," or, "doing so-and-so." For those who wish to keep their memory green, it is a high-nitrogen fertilizer.

Part III, which comprises three quarters of the book, was the hard part to write. It describes each major action, military or political, each major organization or entity, and sketches the principal military and political personalities. To keep these descriptions objective and even-handed is a mighty undertaking. Participants in the war have strong opinions and deep felt convictions. Was there ever a war in which this was not true? Part III is not a type of writing which produces a consensus. Thus the veteran will probably find the treatment of antiwar activists as bland, not to say benign. To help the reader obtain a balanced view, the author ends most items with suggestions for further reading. Here he attempts to balance writings on one side of a controversy with those on the other side.

Few will read every item in Part III. Yet, leafing through, you will be surprised at how many you will read. The veteran will surely read the actions in which he participated and will probably feel that the



The Remagen Bridge, shortly after its capture in 1945.

STORMING HITLER'S RHINE, The Allied Assault: February-March 1945, William B. Breuer, St. Martin's Press, NY, 1985. 308 pages. \$18.95.

After the heartbreaking struggle up from the beaches of Normandy, and the euphoria of the breakout with the expectation of being home for Christmas, came the near disaster of the Battle of the Bulge. It was obvious that Germany was

not going to collapse. The Allied armies would have to storm the Rhine.

This book covers the two phases of this operation, the move up to the Rhine and the actual crossings. The first phase was heavily colored by the internal squabbling of the Allies. America's preponderance of men and materiel convinced her she should be the dominant partner of the alliance. England, nearly exhausted from six years of war, was desperately maneuvering to remain a major power in the postwar world.

Decisions which should have been purely military were made under the influence of these political considerations. The British wanted Montgomery to make an immediate armored thrust toward Berlin. The American position was that all the armies should move up to the Rhine before any attempt to cross was made. The clash between George Marshall and Alan Brooke over this point is used by Mr. Breuer to illustrate how easily strategic planning could be upset by personal and political pettiness at this relatively late date. Of course, events made this exchange meaningless as Americans pushed across the Rhine ahead of Montgomery.

Mr. Breuer focuses his narrative on individual acts of bravery, stupidity, and luck, from the acts of private soldiers to the dreams of general officers. Much of this detail comes from the German viewpoint, especially in his handling of the capture of the Remagen bridge. At times, the litany of names, ranks, units, and numbers overwhelms the story. The description of Operation Varsity, the airborne assault across the Rhine, suffers from this in particular because of the scale involved. Never before had two complete airborne divisions been flown into combat at one time. Over 21,000 men were carried by airplane and glider, then continuously supplied. The logistics of this operation were mind-numbing.

This is a balanced account of the end of the European war. Mr. Breuer has used incidents from the lives of individual soldiers to advance the narrative. Sometimes the recitation of names gets in the way, or a soldier's comments seem to be quoted for no particular purpose. Still, the overall effect of the book is good. *Storming Hitler's Rhine* would serve as a sound introduction to this often neglected period.

Vietnam War Almanac (cont'd.)

description gives the fight less than its due. Those who attained senior positions during the war will know many, if not most, of the personalities sketched, and from time to time will detect an error. Many who attained no seniority whatever, civilian or military, will have encountered some of the individuals sketched and may have strong opinions on others. When the sketch does not conform to these opinions, there is always the suggestion for further readings to find others' assessments and, perhaps, what the individual has to say for himself.

Despite the diversity of the personalities and the brevity of the sketches, the author has done well. Repeatedly, one is struck by a cogent comment such as his last sentence on Secretary of Defense Robert S. McNamara, "...his strong emphasis on statistical indices of success and quantitative analysis in the decision-making process, and his belief that war should, in effect, be run like a corporation, led to grave misrepresentation about the nature of the war in Vietnam."

From the author's statistics, his sketches, and his comments, one judges that the American soldier fought ably in Vietnam. His senior officers performed their duties

well. The junior officers and noncommissioned officers did more than could be expected, considering their brief training and limited experience.

Unfortunately, Part III has no entry under ROTATION and none under PERSONNEL POLICY. Thus the author makes no mention of the one factor which impaired military effectiveness above all others: individual rotation. Individual rotation meant that each small unit was in a constant state of flux with the longest-serving and most experienced men always leaving or just about to leave. Institutional memory was destroyed. Unit cohesion could be found only where God had granted the unit a most gifted junior leader. Any assessment of the Vietnam War which fails to mention this is woefully remiss.

The fact that we had military successes in Vietnam shows that bureaucratic ineptitude is not enough to stifle our national military virtues. In the end, military virtue was overwhelmed by inadequate policy combined with bureaucratic ineptitude.

ANDREW P. O'MEARA
General (Ret.), USA
Arlington, VA

MICHAEL RICKS
Alton, Illinois

1986 Armor Conference Agenda

The 1986 Armor Conference will take place at Fort Knox on 13-15 May, with an additional day, May 16, devoted to Cavalry issues. The U.S. Armor Association will also conduct a short business meeting during this period.

The Armor Conference is an official event. Unit and agency representatives are authorized to attend in an official capacity; however, USAARMC cannot support TDY costs. Non-sponsored guests are also encouraged to attend.

Tentative Agenda

Tuesday, May 13

0900-2200 Registration (Officers Club)
 1300-1700 Displays
 1600-1700 Patton Museum Ceremony
 1700-1730 Retreat Ceremony (in honor of 2 ACR 150th Anniversary)
 1800-1900 Chief of Armor Garden Party (Casual)
 1930-2200 Buffet and Regimental Dinner

Wednesday, May 14

0700-0800 Late Registration (Gaffey Hall Library)
 0800-1100 Opening Remarks
 Keynote Address: GEN William R. Richardson, Close Combat Heavy — Combat, Combat Support, Combat Service Support
 1100-1145 Armor Association General Membership Meeting
 1145-1300 Executive Council Armor Association Luncheon
 1300-1500 Close Combat Heavy — Needs
 1500-1800 Demonstration/Displays
 1900-2200 Armor Association Banquet — LTG Saint speaker

Thursday, May 15

0800-1145 Close Combat Heavy — Initiatives (concurrent: Panels — Manning, Training, Developing, Supporting)
 (concurrent: Demonstrations/Displays)
 1200-1315 Chief of Armor Luncheon — GEN Sennewald, speaker
 1330-1530 Panel Reports
 1530-1545 Adjournment Remarks

Friday, 16 May, has been dedicated to Cavalry issues, providing additional opportunity to focus on subjects of particular importance to Cavalry.

Friday, May 16

0800-0815 Welcome
 0815-0900 Cavalry in AirLand Battle
 0900-1000 Turning Concepts into Capability: Doctrine-Mission Training Plans-SOP
 1000-1100 The Reconnaissance/Counter Reconnaissance Battle
 1100-1200 Steel on Target — Abrams/Bradley Gunnery Update
 1310-1400 The Excellence Track — 19D/19K in Recon
 1400-1500 Ground/Air Cavalry
 1500-1600 Heavy/Division Cavalry Squadron Study
 1600-1730 Cavalry Seminar



Uniform for the Conference is Army green short sleeve shirt with no tie. Estimated costs are: BOQ, \$10 single, \$6.50 double per person/night; guest house, \$18.50 double, \$20 triple per room/night (all guests may expect double billeting due to shortage of guest housing). Garden party cost is \$7; buffet and regimental dinner, \$15; Armor Association banquet, \$17; Chief of Armor luncheon, \$6.50; refreshment fee, \$4.

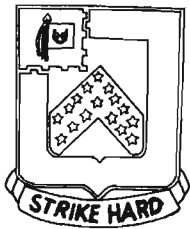
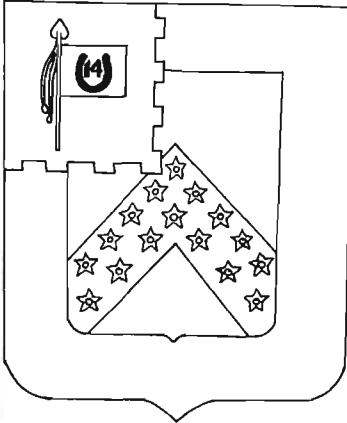
Tickets for social functions will be sold only at registration.

On-post billets are limited and will be issued on a first-come, first-served basis. For on-post billeting, contact Unaccompanied Personnel Housing Division (AV: 464-3138/3943; Commercial: 502-624-3138/3943). General officers will be billeted on-post, if desired. Contact the Protocol Office, AV: 464-2744, 6951 or Commercial: 502-624-2744-6951. The schedule for Thursday, 15 May, includes panel discussions. If you have issues which supporting panel sessions, please contact Captain Whitehead (AV: 464-1441/1050). POC for contractor displays is CPT Lacey (502) 624-5565/3962).

Transportation to and from Standiford Field, Louisville, will be available on a limited basis. Use of rental cars is suggested. (Gaffey Hall is within walking distance of BOQ.) Transportation to and from lunch will be provided.

Security clearance notifications for the conference should be received by the Directorate of Security, ATTN: ATZK-DS, prior to registration, preferably before 1 May. Notifications for civilians and DOD contract personnel should be submitted on written visit notification forms. Military personnel must ensure that their clearance is on their travel orders. POC is MSG Aker (AV: 464-2814/1425/7050; Commercial: 502-624-2814/1425/7050).

The USAARMC project officer for the Armor Conference is CPT Whitehead.



Symbolism

The regiment was organized in 1916 with personnel from the 3d, 6th, and 14th Cavalry, which are represented by the canton. (The standard is from the crest of the coat of arms for the 14th Cavalry; green was the color of the facings of the Mounted Rifles, now the 3d Cavalry; the embattled partition line commemorates the first engagement of the 6th Cavalry when it assaulted artillery in earthworks at Williamsburg in 1862.)

The shield is yellow, the cavalry color; the blue chevron is for the old blue uniform; the 16 mullets (spur rowels) indicate the numerical designation and mounted service. The green border and the rattlesnake crest symbolize the birth and subsequent service of the organization on the Mexican border. The motto has a direct reference to the crest.

Distinctive Insignia

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

16th Armor

Strike Hard

Lineage and Honors

Constituted 1 July 1916 in the Regular Army as 16th Cavalry and organized at Fort Sam Houston, Texas. Inactivated 12 November 1921 at Forts Sam Houston and McIntosh, Texas. Activated 15 June 1942 at Camp Forrest, Tennessee, as 16th Cavalry, Mechanized.

Regiment broken up 22 December 1943 and its elements reorganized and redesignated as Headquarters and Headquarters Troop, 16th Cavalry Group, Mechanized, and 16th and 19th Cavalry Reconnaissance Squadrons, Mechanized.

Headquarters and Headquarters Troop, 16th Cavalry Group, Mechanized, converted and redesignated 1 May 1946 as Headquarters and Headquarters Troop, 16th Constabulary Squadron, and assigned to 4th Constabulary Regiment. (Troops of 16th Constabulary Squadron constituted and activated 1 May 1946.) Reorganized and redesignated 10 February 1948 as Headquarters and Headquarters and Service Troop, 16th Constabulary Squadron. Relieved 1 February 1949 from assignment to 4th Constabulary Regiment and assigned to the United States Constabulary. Inactivated 27 November 1950 at Grafenwohr, Germany. Converted and redesignated 9 March 1951 as Headquarters and Headquarters Company, 16th Armored Cavalry Group. (Troops of 16th Constabulary Squadron disbanded 9 March 1951.) Activated 1 April 1951 at Camp Cooke, California. Reorganized and redesignated 1 October 1953 as Headquarters and Headquarters Company, 16th Armor Group.

16th Cavalry Reconnaissance Squadron, Mechanized, Inactivated 10 February 1946 at Camp Hood, Texas.

19th Cavalry Reconnaissance Squadron, Mechanized, inactivated 10 November 1945 at Camp Campbell, Kentucky. Reorganized 1 August 1946 at Fort Riley, Kansas, and redesignated as Headquarters and Headquarters Troop, 19th Cavalry Group, Mechanized. (Troops of 19th Cavalry Reconnaissance Squadron, Mechanized, absorbed in the reorganization on 1 August 1946.) Inactivated 6 November 1946 at Fort Riley, Kansas. Redesignated 2 January 1953 as Headquarters and Headquarters Company, 19th Armored Cavalry Group, and activated at Frankfurt, Germany. Redesignated 1 October 1953 as Headquarters and Headquarters Company, 19th Armor Group. Inactivated 1 July 1955 in Europe.

Headquarters and Headquarters Company, 16th Armor Group, 16th Cavalry Reconnaissance Squadron, Mechanized, and Headquarters and Headquarters Company, 19th Armor Group, consolidated 2 July 1955; consolidated unit designated as Headquarters and Headquarters Company, 16th Armor Group.

Former 16th Cavalry designated 1 March 1957 as a parent regiment under the Combat Arms Regimental System; concurrently, former troops withdrawn from 16th Armor Group and redesignated elements of the 16th Cavalry. 16th Cavalry redesignated 26 March 1963 as 16th Armor (Headquarters and Headquarters Company, 16th Armor Group, inactivated 15 April 1968; concurrently, redesignated as Headquarters and Headquarters Company, 16th Armor). Redesignated as 16th Cavalry, 2 September 1969.

Campaign Participation Credit

World War II
Rhineland
Central Europe

Vietnam

Defense
Counteroffensive
Counteroffensive, Phase II
Counteroffensive, Phase III
Tet Counteroffensive
Counteroffensive, Phase IV
Counteroffensive, Phase V
Winter/Spring 1970
Sanctuary Counteroffensive
Counteroffensive, Phase VII

Decorations

Meritorious Unit Citation, Vietnam 1965-1967