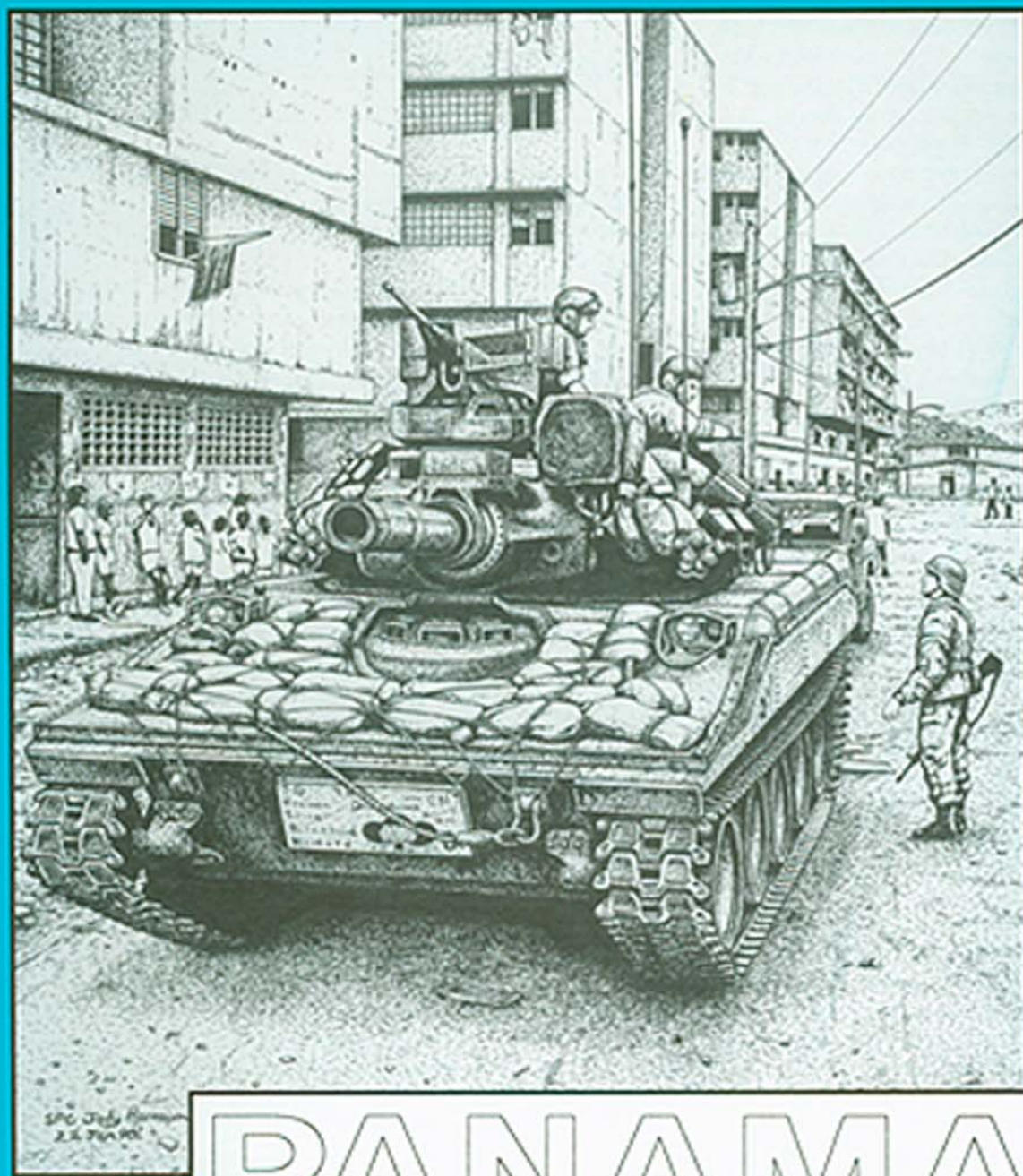


# ARMOR



# PANAMA



50th Anniversary U.S. Armored Force



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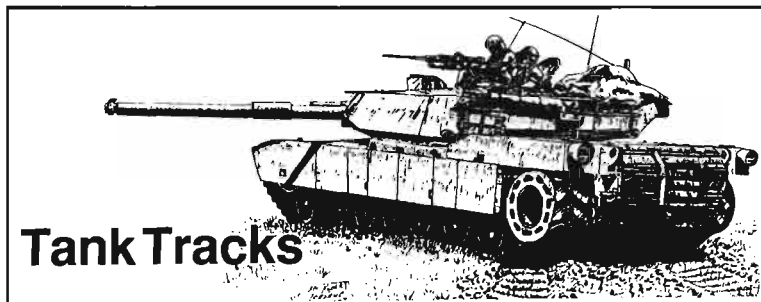
It's spring. That means basketball and the road to the Final Four. I feel an analogy coming on.

Some basketball teams can kill you with the three-point shot, while others are devastating underneath. The better teams have capabilities both outside and inside, so if you take away one threat, they'll get you with the other. But it is excellence in the transition game that can put a team out front. It's the fast break, the steal, the scramble for a loose ball, the blocked shot that not only leads to points on the board, but demoralizes the opponent.

Doesn't all of this sound exactly like what we do in cavalry and armor? Firepower, mobility, shock effect.

MG Foley states in his "Commander's Hatch" that we are now in transition. How we play this transition game over the next five years will determine whether we pull ahead or fall hopelessly behind. We have spent the past decade or so working on our heavy, long-range shooters. We've built up and trained the finest heavy force in the world, only to be on the verge of losing a substantial portion of the team to graduation. It now appears that future games will be won on the inside. (If you think this analogy is beginning to stretch thin, note in the article that begins on page 8 that the Sheridans' engagements in Panama were all between 100 and 460 meters.)

What we need now are good coaches to help recruit the new batch of organizations, equipment, and weapons systems we will need for the new style game we are to play, not a bunch of Dick Vitales spewing their opinions in high-pitched voices from the sidelines. The tank is not dead. The need for firepower, mobility, and shock effect in contingency operations was unscored in Panama. LTG Stiner has said we learned little new on Operation JUST CAUSE, but we verified a lot of what we already knew. Let's put that to use. A recent seminar at Fort



Knox on armor support to light forces highlighted a glaring need for more work in that arena.

We must replace the Sheridan. It has done its duty well, but it's time to go to pasture. We need a system that can move and shoot well once it survives its heavy drop. It must be light enough to traverse bridges in non-industrial nations. (See again "Sheridans in Panama.") It must be able to carry as much of its own supplies and fuel as possible. This will not be an easy task. If it was, we would have replaced the Sheridan years ago.

And to cap it off, we can't afford to spend the next 15 years in R&D, testing, and production. We need something soon. Developing countries represent 82.2 percent of the total world market for arms imports. That is likely to worsen as the major powers rush to unload suddenly available surpluses.

Despite the recent events in Eastern Europe, the Soviet Union, and Nicaragua, it is unreasonable to expect a lengthy period of peace everywhere. It hasn't happened since the Pax Romana, and wishful thinking won't make it happen now.

Armor must not play the part of the red-headed stepchild. We must reach in and grab our place in the Army of the 1990s. We must ensure that we are in the championship game of the Final Four — and that we win it.

— PJC

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

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# ARMOR

*The Professional Development Bulletin of the Armor Branch PB-17-90-2*

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## Features

- 8 Sheridans in Panama**  
by Captain Kevin J. Hammond and CPT Frank Sherman
- 16 Marines Add Reactive Armor To M60A1s**  
by Greg Stewart
- 18 U.S. Armor Between the Wars**  
by Major Patrick J. Cooney
- 22 An Assessment of the Soviet T-64 Premium Tank**  
by Captain James M. Warford
- 29 Brilliant Battalions**  
by Colonel Len Hawley
- 32 Task Force Smith: A Revised Perspective**  
by Captain Robert J. Kmiecik
- 37 The "Fort Knox" of the Germany Army**  
by Lieutenant Colonel Phillip J. Linn
- 42 Death and Destruction in the Desert**  
by First Lieutenant Mark E. LaDu
- 45 Captain, The Truth Changes!**  
by Lieutenant Colonel Pat Knutson

## Departments

- 2 Letters
- 2 Contacts
- 4 Commander's Hatch
- 6 Driver's Seat
- 7 Crossword Puzzle
- 48 Armor Conference Schedule
- 49 Bustle Rack
- 51 Crossword Puzzle Solution
- 52 Books

# LETTERS

## Time to Reorganize USAREUR On Air Cav Brigade Model?

Dear Sir:

The articles by General Wagner and Major Cooney on cavalry, historic and current, in the September-October issue coincided with the remarkable transformation of power in Eastern Europe.

However misguided the euphoria of the television network news staffs, et al., there can be no question that Moscow's decision to cut its erstwhile comrades of

Eastern Europe adrift marks the end of an era. In essence, as I read it, the Soviets are admitting that whatever chance they may have had for a quick victory in Europe has slipped away, and the cost of continuing to support the illegitimate regimes it established during 1945-48 is too great.

We have our own economic problems. The Bush Administration has made plain that means taking the loosening of Soviet control in Eastern Europe as a golden opportunity to begin the phase-out of most U.S. forces in Europe. Let's face it, once

out of Europe, heavily armored American formations will not return, peace or war.

What would return, if needed, is the American cavalry, either the present cavalry brigade (air combat) or some future derivative.

Sad to say, neither ARMOR nor any other official or quasi-official publication connected with the Army ever reported, to the best of my knowledge, the speech by Gen. F. M. von Senger und Etterlin, then commander, Central Army Group, calling for reorganization of all NATO armies on

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the Sixth Cavalry Brigade (Air Combat) model.

Hopefully, we are not going to see an attempt to hang on to and past the point of irrelevancy the familiar structures of the past 45 years, as happened in the old Cavalry Journal.

The Soviets, I think, are shedding a substantial part of their heavy forces because they got Gen. von Senger und Etterlin's message. What a pity it would be if, once again, having produced an imaginative and effective solution to a major strategic problem, we let someone else develop it, to our ultimate sorrow.

WILLIAM V. KENNEDY  
COL, Armor, AUS (Ret.)  
Wiscasset, Maine

## Use Obsolete Chassis For Engineer Vehicles?

Dear Sir,

A number of recent articles in *ARMOR* have either dealt with the use of engineer assets in maneuver warfare or with special problems found on the battlefield which need the attention and assistance of engineers.

Although numerous references pertaining to the use of American and German engineers are listed as supporting material for the articles, it would seem that the most innovative use of specialized engineer AFVs has been ignored. Perhaps the lessons of the British 79th Armoured Division and its use of specialized armor should be re-examined.

For those who may feel that the multitude of vehicles developed during World War II by the 79th (also known as "Hobart's Funnies") should only be considered as relative to specific problems faced by the Allies in the invasion of France, a cursory glance at the current AVLB and CEV vehicles will show their direct origin from the Valentine Bridgelay and Churchill AVRE AFVs used by the 79th during the war in Northwest Europe.

It would seem that the same problems exist now as existed some forty years ago. How does an attacking force breach a defended obstacle, clear a minefield, cross an antitank ditch, cross a blown bridge, ad infinitum? While the AVLB and CEV are very effective vehicles, there

does seem to be at least one vehicle type missing.

From my knowledge, there is no current equivalent to the Churchill AVRE or Sherman "Crab" mine clearing AFV. While it could be argued that the CEV is the modern AVRE, the CEV does not appear to have the extensive versatility which the AVRE possessed with its numerous brackets for fitting engineer equipment. The Crab, which used chains attached to a driven rotor drum to beat a path through a minefield, was a highly developed weapon by the war's end. Although I am aware of the new Abrams mine-plow, is it as effective over as a many types of ground as the Flail?

What I would like to propose is another engineer-specific vehicle. With the introduction of the M1, I expect that a number of M48A5s and early M60 models will be considered redundant and ultimately be scrapped. Instead of wasting this resource, would it be possible to develop a vehicle on a modular principle which could be fitted with numerous engineer fixtures? Remove the turret, mount a power take-off from the engine — or an auxiliary engine, either one positioned in the previous turret basket space and used to power the detachable equipment. With the basic vehicle in place, a drum-type mine flail could be developed using some of the same principles as the wartime Crab. With the removal of the turret, place a stationary rack over the hull on which fascines could be delivered to breach antitank ditches. Other brackets could be developed for removable bulldozer blades or bridging units.

Although it would be very tempting to add so many attachments and tasks that the result might make Rube Goldberg proud, some common sense could hopefully prevail through the development phase so as to keep the concept relatively simple.

I would think that the greatest benefits of using the redundant hulls is a vehicle armored to MBT standards, the removal of the turret, giving the tank an increased power-to-weight ratio, and simply that a very versatile vehicle is available to fulfill the engineer mission.

My comments are offered not as a professional, but as an interested observer and "armchair" historian. In addition, I would like to thank you for providing a very informative journal.

Kerry J. Brunner  
Milwaukee, Wis.

## Editor's Note:

As we approach the 50th anniversary of the Armor Force, we note the passing of Herbert H. Burr, a WWII tanker who was a recipient of the Medal of Honor for his heroic acts near Dorrmoschel, Germany, on 19 March 1945. Burr died February 8 near his home in Urbana, Mo.

In August 1945, President Harry S. Truman presented the Medal of Honor to Burr for driving his flaming tank into a German 88-mm gun position and destroying it, then returning through a hail of gunfire to rescue a wounded crewman.

Burr served in the Army from 1942 to 1945 and was discharged as a staff sergeant. He was a PFC bow gunner in the 41st Tank Battalion, 11th Armored Division, when his tank was hit by an enemy rocket, severely wounding the platoon sergeant and forcing the remainder of the crew to abandon the vehicle.

According to the citation: "Private Burr immediately climbed into the driver's seat and continued on the mission of entering the town to reconnoiter road conditions. As he rounded a turn he encountered an 88-mm antitank gun at point-blank range. Realizing that he had no crew, no one to man the tank's guns, he heroically chose to disregard his personal safety in a direct charge on the German weapon. At considerable speed, he headed straight for the loaded gun, which was fully manned by enemy troops who had only to pull the lanyard to send a shell into his vehicle. So unexpected and daring was his assault that he was able to drive his tank completely over the gun, demolishing it and causing its crew to flee in confusion.

"He then skillfully sideswiped a large truck, overturned it, and wheeling his lumbering vehicle, returned to his company. When medical personnel who had been summoned to treat the wounded sergeant could not locate him, the valiant soldier ran through a hail of sniper fire to direct them to his stricken comrade. The bold, fearless determination of Private Burr, his skill and courageous devotion to duty, resulted in the completion of his mission in the face of seemingly impossible odds."

Burr was a member of the Congressional Medal of Honor Society and a life member of the Veterans of Foreign Wars and the 11th Armored Division Association. He was employed as a painter for the General Services Administration until he retired in 1986.

*Letters continue on Page 51*

# COMMANDER'S WATCH

*MG Thomas C. Foley*  
*Commanding General*  
*U.S. Army Armor Center*



## **A Small, Highly Lethal, Quality Total Armor Force for the 1990s . . . Still the Centerpiece of Mobile, Combined Arms Operations**

As pointed out in our last issue, Armor can be very proud of the large part we played in the decisive Cold War victory. Armor can also be very proud of the role we played in the stunning, quick victory in Panama. The 3-73 Armor did an outstanding job, as is described elsewhere in these pages.

Now the Army is moving into a period of transition and significant change. Many mistakenly believe there is no longer a threat — they are mesmerized by intentions and not capabilities, and they fail to acknowledge the potential regional armored threats to our national interests. Another major reason for change is the desire to cut the national deficit. As a result, most of the services will decrease in size, beginning this year. This is continued in the President's FY91 budget, which he submitted to the Congress. While the budget is subject to Congressional change and approval, it does reflect the President's position, and also gives clear signal of what the future holds. What follows is our assessment of what this means for Armor. Our intent is to keep you updated.

The Army's plan is to make balanced reductions in both the Active and Reserve Components and reshape itself into a smaller, yet highly lethal, quality force that is able to meet the needs of our national strategy. Doctrine and war-fighting requirements are the drivers. The end result could be a Total Army with 270,000 fewer soldiers five years from now.

Armor will be greatly affected by these reductions, which could remove 27 battalions and squadrons from the Total Armor Force over the next five years. This would leave 41 tank battalions and 18 cavalry squadrons in the Active Component. There would also be five recon squadrons, two separate cavalry troops, and one light tank battalion. All this equates to a reduction of roughly 19 percent from where we are today.

In the Reserve Components — again this is predicated on Congressional approval of the President's budget proposal — we would have 44 tank battalions, 13 cavalry squadrons, and 21 separate cavalry troops. This is about a 17 percent reduction from today.

Yet, our branch will play an indispensable role in the Army of the 1990s. We will continue to be the centerpiece of mobile combined arms operations as part of our nation's forward-deployed, contingency, and reinforcing forces. Let us not forget that contingency forces require a combination of heavy, light, and special operating forces. It would be unwise for the nation to send light forces into a contingency or reinforcing situation where heavier forces are required. Nonetheless, one of our aims must be to lighten the Armor Force so that both contingency and reinforcing forces can get more quickly to where they are needed. Indeed, even the forward-deployed forces can benefit from such an effort because both their tactical and operational mobility stand to improve. A major challenge will be to avoid the temptation to lighten our fighting systems to the point where they will be ineffective against those hostile nations that are equipped with modern main battle tanks.

There are some promising technologies that could result in future weight reductions without sacrificing survivability. We must pursue

these. Another way to accomplish the goal of achieving force lightness is to reshape our armor and cavalry organizations into smaller, yet highly lethal and very agile formations capable of meeting and defeating the likely threats. As part of this, we need to relook our current mix of heavy versus light organizations. For example, is there a need for more than one battalion of light armor? Why not three — one at Fort Bragg, one at Fort Lewis, and one at Fort Knox with a regimental headquarters?

Questions like these are a major thrust of our ongoing combat and training development studies and analyses that we will report on in subsequent issues.

In the meantime, we will begin reducing this year. Fewer soldiers will enter the Army, and others will leave earlier than originally anticipated. Some units will stand down. All of this can be very painful and must be accomplished with great care. We will be guided by the following principles:

- Protect quality.
- Shape the force for the future and preserve our historical ties.
- Sustain readiness.
- Use common sense.

We are closely examining the leader development challenges associated with these reductions. Let me discuss this in some detail. First, some background. As you may know, Armor comprises only about four percent of the current Total Army force structure. While we are one of the smallest branches, we man almost 30 percent of the Army's weapons systems and 60 percent of the heavy maneuver battalions. In short, we are an all-

weather, ground-gaining, and ground-holding, high-leverage fighting arm.

Despite the proposed structure cuts, mentioned above, our officer professional development system of schools will remain, as will the non-commissioned officer education system. Our preliminary analysis indicates that the following leader development goals for Armor and Cavalry leaders will be achievable:

- We should be able to branch-qualify every Armor lieutenant as a platoon leader during his first assignment.
- There should be sufficient opportunity for all captains to command a company or troop, although the opportunity for a second command will decline.
- Although the Reserve Component portion of the Total Armor Force will be reduced, the impact on professional development should not be great, but will vary based on structure cuts from state to state.
- It is too early to predict the S3/XO opportunity for majors until we get better information on officer inventory adjustments. Our goal will be to continue to afford 18 months of S3 or XO experience to deserving majors. This is a key part of preparation for battalion command.
- About one-fourth of qualified Armor lieutenant colonels should command battalions. Selection for brigade-level command will also continue to be very competitive, with about one-fifth being selected.
- Every qualified staff sergeant should continue to have the opportunity to command a tank or a scout section.
- There should be sufficient opportunity for qualified sergeants

first class to be a tank or scout platoon sergeant.

- The first sergeant opportunity should continue to be great — almost 92 percent.

- Competition for selection as CSM will continue to be tough.

- DA will continue to conduct annual promotion and school selection boards. It is too early to state what the opportunities for selection will look like.

More will follow in later issues of *ARMOR*. All this will be part of the information that we will provide to you as the defense program takes final shape, and we are able to refine our vision of the future. To help chart our course into that future, we have established an organization called the Directorate of Total Armor Force Readiness (DTAFR). This small office combines the present Directorate of Evaluation and Standardization and the Office Chief of Armor. It will take the lead at Fort Knox in shaping the Total Armor Force. See page 49 for a more detailed description of DTAFR.

In summary, by 1995, we will have transitioned to a much different Total Army than we have today. The shift to a smaller, yet capable force will require the very best of our efforts. Teamwork and careful, thorough planning will be a must. One of our most important jobs at the Home of Armor and Cavalry will be clearly to define and articulate the role and structure of the Total Armor Force. Our challenge is to insure that Armor remains the centerpiece of the combined arms team, essential to the successful execution of the Army's warfighting doctrine. With your help, I'm confident we can do that.

Forge the Thunderbolt!

# DRIVERS SEAT

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



## Getting Their Attention!

Over the years all of us have had to reach back in time to reconstruct a proactive situation that led to a cohesive effort to solve a problem or to institute a new program.

Leadership problems can be solved with little or no effort, or may require detailed planning and preparation to execute. As with most problems, you will probably not find the solution anywhere but in your past experience. Most experienced leaders have a ready supply of solutions gleaned from past situations.

Fortunately, I have had the opportunity to serve a number of outstanding leaders. In each and every case, the most important quality that stood out to me was that they "had my attention."

What do I mean by leaders' responsibility to get someone's attention? One example that always comes to mind involves an interesting order General James K. Polk issued while commanding the 4th Armored Division. "The M60 tank does not get stuck!," At least, that's the way we received it! We were in the process of drawing new M60 tanks. In those days, the general was the division commander, but to a sergeant, the division commander was a long way off. Sometimes soldiers, including leaders, can be hard to control, especially when they get a new weapons system, vehicle, etc.

It's like a new toy! Evidently, some of the tank commanders thought the M60 could swim. They would maneuver where no one would maneuver a tank: Frankenhohen Creek in Grafenwohr. And they got stuck.

After General Polk gave the order, everyone made a cohesive effort to ensure a tank did not get stuck. The use of reconnaissance, AVLBs, and a lot of common sense did the trick. A simple order by a no-nonsense commander had everyone's *attention!*

I mentioned the story because there are problems occurring at the tank, platoon, and company levels directly related to the leadership getting someone's attention.

One tank commander decides not to boresight his tank today, even though the rest of the platoon has taken the time to do so. After the point is discussed during the AAR, it is passed off with a "the hell with it" attitude. The platoon sergeant has not gotten the sergeant's attention. More important, the incident occurs during a live fire evaluation. This means the tank commander was allowed to do the same thing during practice, the leaders of the organization did not know the unit SOP, or there was no SOP. Nobody got the NCO's attention! After the platoon leader has received his orders and informed the platoon

about its role in the operation, he decides he has time to spot check the vehicles. On one particular vehicle, he notices the .50 cal is filthy, and the turret floor is covered with trash. Who does he have a problem with? The tank commander? The platoon sergeant? He has a problem with both of them, but he should focus his immediate attention on the platoon sergeant because he has not done his job. And the platoon sergeant has not gotten the TC's attention!

These are two basic problems that most leaders say do not exist in their organization...until they check.

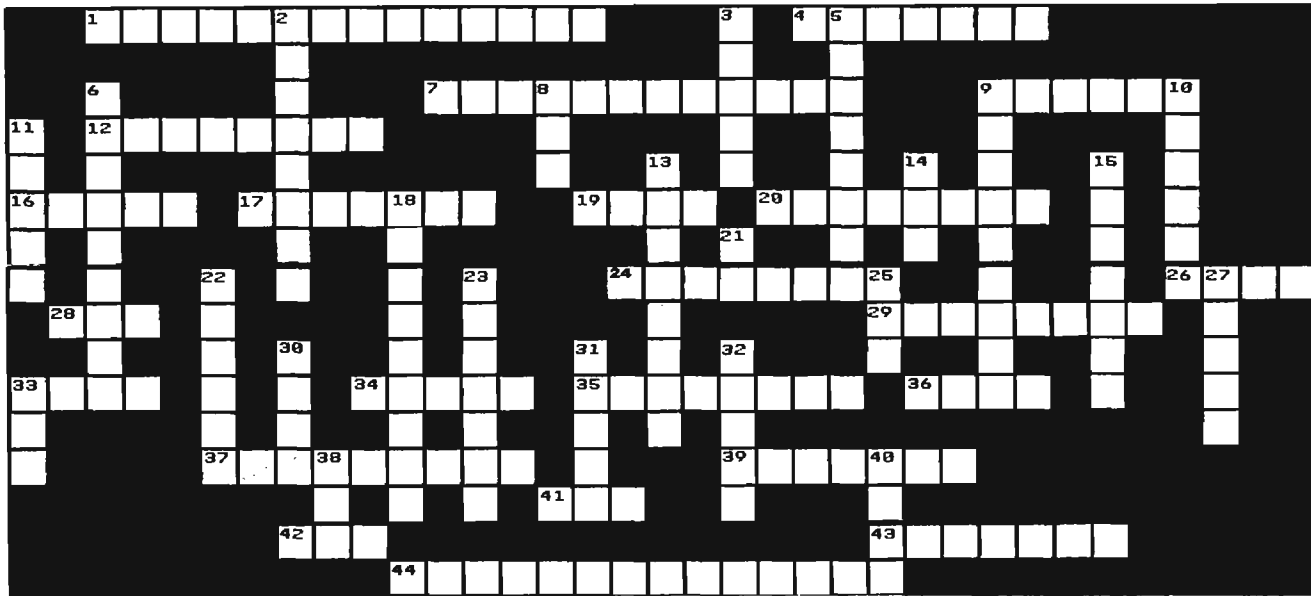
Simple orders should be all that is needed to execute an operation. He who stands in the way or jeopardizes mission accomplishment should not be allowed to exist as a leader. Using excuses like: he is new, I am breaking him in, or some other tale only prolongs the problem. If he can tank in CONUS, he should be able to do so overseas, and vice versa. It takes more than time in grade and service to be a combat leader. Leaders should identify the weak early, assist, and if leaders can't get their ATTENTION, remove them.

Leaving them in position only hinders the success of the organization and the safety of the men under them!



# Soviet Army Operations and Tactics

All words in this puzzle appear in FM 100-2-1 on the page shown following the clue. The puzzle was created by Thomas Hammett of the Threat Division, USAARMS.



1. \_\_\_\_\_ is one of the most important artillery missions because it helps achieve fire superiority. 9-12
4. Mi-2 light observation helicopter. 9-12
7. In the defense, the Soviets emphasize dispersion into company-sized \_\_\_\_\_. 6-9
9. Dismounted troops travel \_\_\_\_\_ tanks. 5-11
12. Smallest fully combined-arms Soviet ground force maneuver element. 5-22
16. The combat power of Soviet ground forces resides mainly in tanks and motorized \_\_\_\_\_ divisions. 1-1
17. Attack frontage of a motorized rifle \_\_\_\_\_ is 500-800 meters. 5-25
19. Artillery command and reconnaissance vehicle (Abbr.). 9-6
20. The forward \_\_\_\_\_ element engages lead enemy forces. 5-32
24. Frontal, flank, and envelopment are basic forms of \_\_\_\_\_. 5-13
26. The Soviets consider the \_\_\_\_\_ to be the main ground force weapon. 5-27
28. Soviets use the \_\_\_\_\_ to deliver strikes at decisive moments in a battle. 9-7
29. The AT battery, engineer company, and a tank or motorized rifle platoon form the motorized rifle regiment's \_\_\_\_\_ reserve. 6-6
33. The main Soviet ATGM vehicle. 10-1
34. Soviets normally breach minefields using \_\_\_\_\_ fitted to the lead tanks. 14-2
35. The BM-21 is a \_\_\_\_\_ rocket launcher. 9-11
36. Most probable Soviet attack formation. 5-23
37. Defense is a \_\_\_\_\_ form of combat. 6-8
39. To assist movement and enforce march control, each regiment has a \_\_\_\_\_ control platoon. 5-5
41. Smoke rounds make up \_\_\_\_\_ percent of all artillery units of fire. 13-1
42. Soviet infantry fighting vehicle. 5-11
43. The Soviets consider the offense to be the only means to achieve decisive \_\_\_\_\_. 6-1
44. Collection of information on enemy location, size, activity, composition, readiness, armament, and intentions. 7-1
2. To achieve depth in the attack, Soviet forces attack in \_\_\_\_\_. 2-6
3. Ammunition consumption is based on \_\_\_\_\_ of fire. 9-8
5. A Mobile \_\_\_\_\_ Detachment provides protection for advancing columns by laying minefields. 5-7
6. An attack from the march is the \_\_\_\_\_ method of attack. 5-13
8. The \_\_\_\_\_ is a tailored high-speed exploitation force. 2-7
9. The primary unit for execution of maneuver. 3-16
10. Soviet artillery plans for antitank operations in a \_\_\_\_\_ fire mode. 10-1
11. Soviet performance standards, expressed in numerical form. 2-11
13. Artillery battalion firing positions are generally laid out in this shape. 9-8
14. Combat Reconnaissance Patrol (abbr.). 5-32
15. Prepared and hasty are the two types of \_\_\_\_\_. 6-1
18. Neutralization of antitank weapons is primarily the responsibility of the \_\_\_\_\_. 5-28
21. Soviet tanks carry more of these rounds than any other kind of munition. 5-27
22. The Chief of \_\_\_\_\_ Troops and Artillery is responsible for the divisional fire plan. 5-17
23. Road junctions, bridges, command posts, and communications sites are typical objectives for a \_\_\_\_\_ detachment. 5-22
25. Regimental artillery group (Abbr.). 5-17
27. Tanks on line generally go \_\_\_\_\_ of BMPs. 5-11
30. Antitank guided missile (Abbr.). 10-1
31. Blinding, camouflaging, and decoys are methods of employing \_\_\_\_\_. 13-1
32. Soviet air and artillery prep fire may last up to \_\_\_\_\_ minutes. 5-22
33. Wheeled Soviet armored personnel carrier. 5-11
38. Precision Guided Munitions (Abbr.) 8-3
40. The regimental reconnaissance company travels about twenty-\_\_\_\_\_ kilometers ahead of the main body of the regiment. 5-31

Puzzle solution appears on Page 51

# Sheridans In Panama

by Captain Kevin J. Hammond and  
Captain Frank Sherman

*In their first combat drop,  
The aging Sheridans of 3-73 Armor added  
firepower to Operation JUST CAUSE*



*This article is a chronological account of the employment of armor in Operation JUST CAUSE and provides observations made throughout the operation.*

## 14 November to 4 December

Just after 3-73 Armor's fall gunnery period, the battalion received a task to deploy four Sheridans, a command and control element, and a support element to Panama. There they would be attached to the 193d Separate Infantry Brigade, specifically 4-6 Infantry (Mech). The alert went to C/3-73 Armor on 14 November 1989. On 15 November, the platoon (+) loaded onto one C5A Galaxy. The troops arrived in Panama during the early morning hours of the 16th. The presence of Sheridans and the small armor support team in Panama was classified. The tanks moved from Howard AFB to their "motor pool" under cover of darkness and canvas. The Sheridans remained under cover during daylight with access limited to the crews and the command group of 4-6 Infantry. Crews conducted PT and individual training six days a week. They performed maintenance seven days a week. Once each week, they took vehicles out of their concealed locations and drove them around the motor pool,

normally between 2200 and 0200. Crews checked and rechecked all vehicles, weapons, equipment and ammunition to ensure that the unit would be ready for any alert. Before the sun came up, the Sheridans were back under cover and guard.

For the next few weeks, CPT Frank Sherman and LT Andrew Kozar developed a battle plan for employment of the team. Team Armor, 4-6 INF (Mech) was to consist of four Sheridans and a platoon of Marines equipped with LAV-25s. They conducted reconnaissance of the area of operation and gathered intelligence. They also coordinated with LT Brian Colebaugh, the Marine LAV platoon leader, routes and plans for link-up, frequencies and call signs. Detailed preparations continued.

## 4 to 16 December

On 8 December, CPT Kevin Hammond took command of Team Armor from CPT Sherman, who returned to Ft. Bragg to prepare the remainder of his company for mission responsibilities. In this capacity, C Company was designated as the "armor ready company" in support of the 504th Parachute Infantry Regiment (PIR). Fort Bragg personnel rigged four

Sheridans for low-velocity air delivery (LVAD or heavy drop). The remaining vehicles and all crews in C Company were on standby for no-notice rapid deployment and follow-on missions.

In Panama, CPT Hammond finalized a battle book for the vehicle commanders. Due to the nature of the operation and its many "be-prepared missions," leaders conducted tactical exercises without troops and refined their battle plans. The officers, in particular, needed to be completely familiar with the plan because the concept of the operation, routes, objectives, and be-prepared missions were classified above tank commander level. All crews were briefed in a generic manner and taken on day and night "tours" to gain familiarity with the area of operation. A three-man engineer team was also task organized with Team Armor during this time.

## 16 to 19 December

On 16 December 1989, members of the Panama Defense Force killed a U.S. Marine lieutenant and assaulted and abused another officer and his wife. These events initiated a unit recall and increased readiness posture for Task Force 4-6. Soldiers removed the Sheridans from

cover to mount .50 caliber machine guns, load Shillelagh missiles, and install antennas. The Sheridans then went back under cover. Task Force 4-6 conducted a show of force by moving across the Canal to predetermined assembly areas. The mechanized infantry companies remained on the east side of the Canal. This left Team Armor as the only combat force in 4-6 Infantry on the west side of the Canal. On Monday, 18 December, team commanders of task force 4-6 learned that they were in the execution phase of their contingency operation.

Meanwhile at Ft. Bragg, units of the 82d Airborne Division's ready brigade (DRB) went on alert at 0900 to conduct an emergency deployment readiness exercise. The exercise included all three infantry battalions, with CS and CSS elements in the task organization. The unit activated readiness SOPs, moved vehicles, equipment, supplies, and ammunition to the heavy drop rigging site, and prepared for heavy drop by crews and parachute riggers. All troopers from the DRB task force moved to the personnel holding area for orders, issue of individual troop items and ammunition, manifests, rehearsals, and pre-jump training.

At 2000, LTC James Reed, commander of Task Force 4-6, issued his OPORD. H-hour was set for 0100 on 20 December. When CPT Hammond returned to the Sheridans, he found that the LAV platoon had linked up. CPT Hammond briefed the entire team and then gave his OPORD to the leaders. He issued wartime CEOs and classified overlays. Rules of

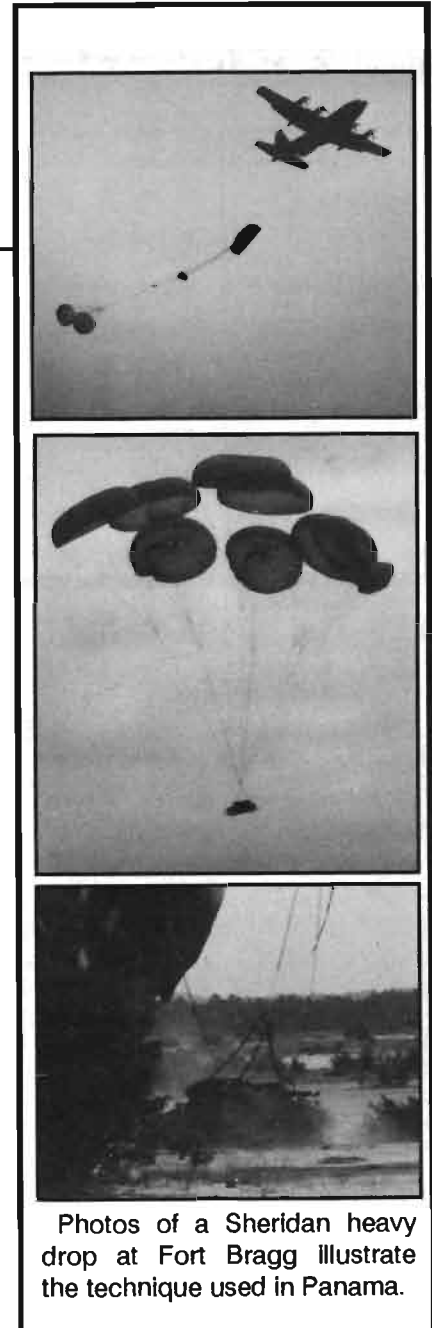
engagement were very precise. The task force commander had to approve Sheridan main gun fire because Team Armor would be firing over, and in close proximity to friendly forces. Crews were to avoid fratricide at all cost and keep damage to non-military areas to a minimum.

### 20 December

At about 0030, the companies of Task Force 4-6 reported ready at the start point. Team Armor requested and received permission to move to and cross the swing bridge, which happened without incident. There had been radio reports of enemy fire in the vicinity of Albrook Airfield, which we had to pass, but we encountered none. Team Armor moved to and occupied Bull 1 and Bull 2, its two positions on Ancon Hill. The Team's three engineers immediately began placing demolition charges to clear fields of fire for the vehicles in Bull 1. Vehicles in Bull 2 had adequate fields of fire. However, visibility at both positions was obscured by smoke and flames from the burning buildings in the vicinity of La Comandancia. Occasionally a crew could identify a particular target, but because the crews could not be 100 percent sure that rounds fired would not cause friendly casualties, no fire commands were given. Additionally, since the effort to isolate the headquarters complex was well in hand, Team Armor was advised not to open fire.

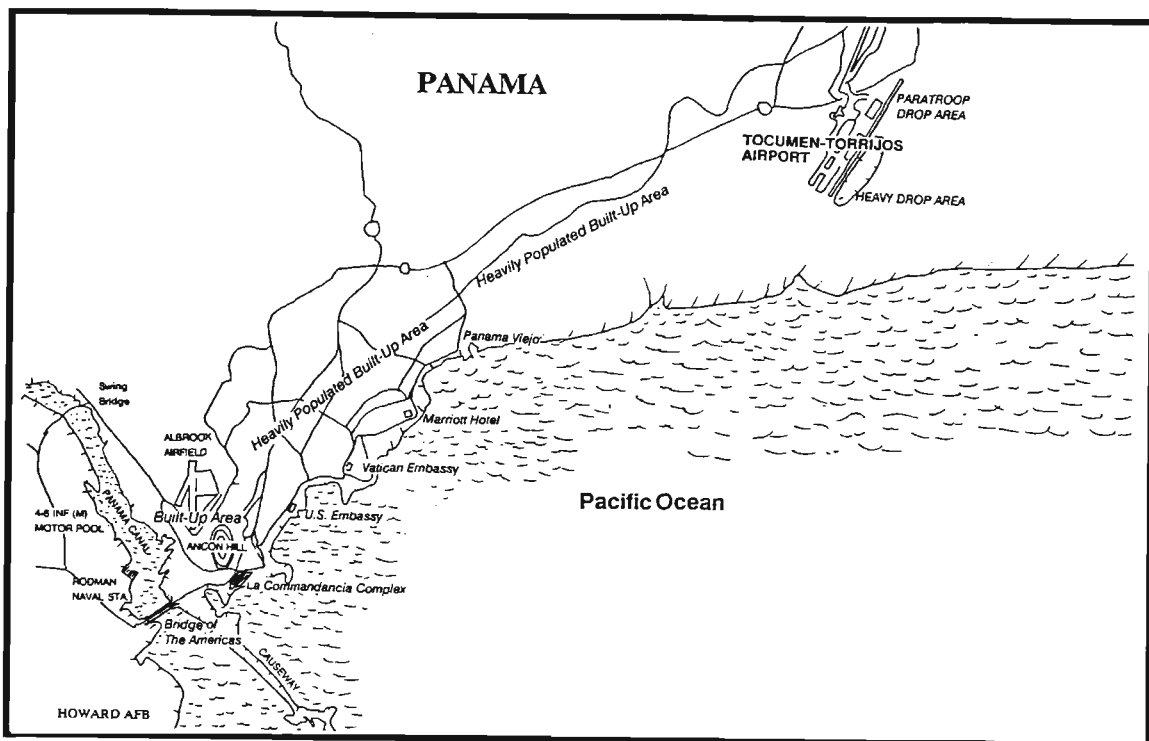
### 0135

The massive airdrop of heavy equipment began as the C-141Bs released hundreds of tons of equip-



Photos of a Sheridan heavy drop at Fort Bragg illustrate the technique used in Panama.

ment and supplies onto the drop zone. C/3-73 Armor established a historical precedent by being the first U.S. unit to heavy drop light armor into combat. The Sheridans landed somewhat east of their intended points of impact in a swampy area overgrown with elephant grass. Immediately after the heavy drop, 82d Airborne Division troopers began their personnel drop. The concept of the airborne operation was for 2,200 paratroopers, with supplies, to be



on the ground in one pass. However, a severe ice storm in North Carolina delayed takeoff of some aircraft from Pope AFB. As a result, Sheridan crewmen arrived in the first two of three waves of aircraft.

Three separate drops took place on Torrijos DZ. The plan called for the eight Sheridans to be task organized, in pairs, to each of the three infantry battalions. The remaining two Sheridans, a platoon of infantry, and an engineer sapper squad were to establish a blocking position at the Highway 1 entrance to the Tocumen-Torrijos Airport under the control of CPT Sherman.

#### 0215

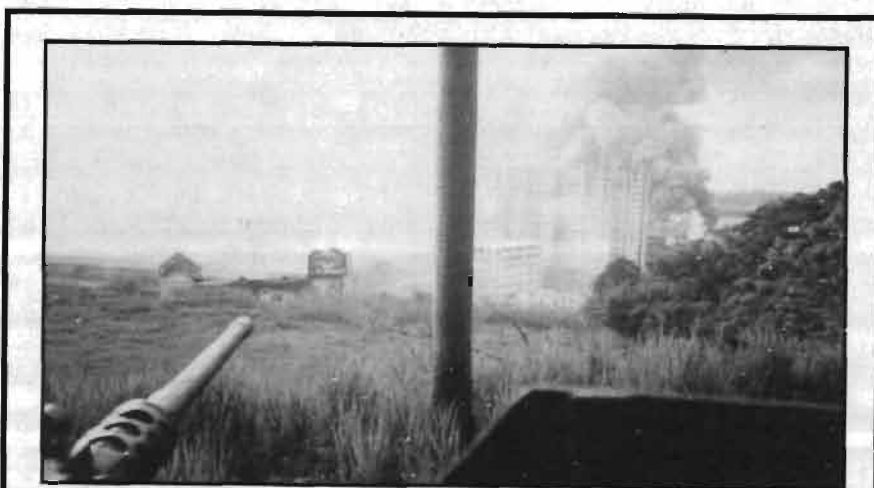
Back at Ancon Hill, one Sheridan and two LAV-25s, with other elements of Task Force 4-6, came under the operational control of the S3, 4-6 INF (M). We saw the package again a week later as part of the cordon around the airfield. Shortly after this, LT Kozar's Sheridan and an LAV-25 were placed OPCON to

D/4-6 INF (M). They were to reinforce a mechanized infantry platoon that had sustained a number of casualties. LT Kozar and the LAV-25 moved to the southeast corner of the Commandancia complex where they destroyed a wall and overwatched a possible PDF escape/reinforcing route. They fired two 152-mm rounds at this location. Both of

these linkups were made in darkness and under enemy fire.

#### 0700

As daylight broke, the smoke and fire west of La Comandancia cleared enough to allow observation of all buildings in the headquarters complex. The remaining vehicles in



Tank Commander SSG Anthony Woodham, C33, took this photo from his overwatch position at BP Bull 2, on Ancon Hill. The Comandancia complex is hidden in the smoke in the distance.



At left, the Comman-  
dancia complex be-  
fore Operation JUST  
CAUSE. Photo was  
taken from BP 2 on  
Ancon Hill. At right,  
closeup of damage  
done by 152-mm  
HEAT rounds.

Photos by Captain Sherman



Team Armor moved to Bull 2 because it offered adequate fields of fire without blowing down trees. Engineers removed the demolition charges on the trees in Bull 1. At about 0700, SSG Kevin Hamilton and his gunner on C31, SGT Gregory Krumme, sighted a PDF soldier with an RPG-7 in the west end of La Comandancia. LTC Reed ordered C31 to engage, and the crew fired four 152-mm HEAT rounds into that end of the building. The crew did not fire machine guns because of the possibility of ricochets hitting friendly forces.

At Tocumen drop zone, two of CPT Sherman's Sheridans were ready for action and received the mission to escort a convoy to Panama Viejo. Snipers ambushed the convoy, under the control of 2-504 PIR, at a roadblock three kilometers west of Tocumen airfield. The roadblock consisted of cars and propane tanks piled across the road. Two more tanks were dispatched to assist the convoy. U.S. troops returned fire with small arms as the Sheridans fired HEAT and .50 caliber. Two Sheridans provided covering fire as the convoy withdrew to find a more secure route. Crews towed a Sheridan disabled by engine problems back to the Tocumen airhead, where it was repaired the next day.

#### 0955

Following assembly on the drop zone, two Sheridans under the leadership of LT Randy Jennings

received the mission to escort a convoy of HMMWVs to Ft. Cimarron (home of Panama's Battalion 2000, Ranger, and Airborne Schools). During the road march, the convoy received sniper and small arms fire. The main body of Task Force 4-325 conducted an air assault operation to positions south of Ft. Cimarron. That night, elements of TF 4-325 held their positions while an Air Force AC-130 fired at designated targets in the complex.

#### 1400

Two Sheridans under the control of LT John Bunn were ordered to escort a convoy to Panama Viejo and link up with 2-504 Infantry. During movement, PDF soldiers in a POV fired on C21. The Sheridan crew engaged the POV with .50 caliber fire. Back in the area of La Comandancia, clearing of the headquarters complex was about to begin. Team Armor would provide preparatory fires on La Comandancia from 1445 to 1455, followed by brief fires from Army Aviation elements. A reinforced Ranger company and C/1-508 INF (ABN) would then clear buildings, while Bravo and Delta Companies, 4-6 INF (Mcch) maintained their isolation positions around the complex. At about 1400, Team Armor's engineers received permission to clear fields of fire for three firing positions in Bull 1. Team Armor occupied Bull 1 at 1430.

The Sheridans engaged La Comandancia at 1445 and fired ten

rounds of 152-mm HEAT with devastating results. The HEAT rounds penetrated the 10-inch reinforced concrete walls and caused extensive damage to the interior structure of the building. The commander's intent, to expend a few well placed main gun rounds rather than to risk the lives of infantrymen to clear the buildings, was accomplished. When Army Aviation assets were delayed, Team Armor's remaining LAV-25 provided suppressive fires with 25-mm HE-T. The USMC crew fired more than 100 rounds into the windows of La Comandancia. By the time aviation assets finally arrived, their preparatory fires were quickly checked due to the proximity of friendly ground forces. The two infantry companies promptly moved in and cleared the Comandancia complex. By nightfall, the area was "secure." That night, Team Armor moved into Quarry Heights and assisted in providing security to US-SOUTHCOM HQ and the adjacent family housing area. For the next four days, Team Armor remained in this vicinity. Sheridans and LAV-25s were at the gates of Quarry Heights and at locations around the Comandancia in a counter-sniper role. Just after dark on the 21st, the LAVs returned to their parent unit.

#### 21 December, 0300

C11 received the mission to escort a resupply convoy from Tocumen airfield to Cerro Tinajitas. 1-504 PIR had conducted an air assault to



Cerro Tinajitas, home of the 2d PDF infantry company, the day before. Enroute, the column received sniper and mortar fire. After arriving at Tinajitas, SSG John Troxell, TC for C11, received the mission to pick up 18 soldiers from the 1-504 Infantry who were pinned down by sniper fire at the LZ. When the Sheridan arrived, sniping stopped, and all soldiers mounted the Sheridan and returned to Tinajitas.

#### 0800

C20 and C21, the two M551A1s that had moved to Panama Viejo the day before, escorted a gun HMMWV and troop transport vehicles to the Marriott Hotel and participated in the extraction of U.S. civilian personnel. Although they received small arms and sniper fire as they approached the hotel, this soon stopped.

#### 2200

SSG Troxell was again pressed into convoy escort duty. As his Sheridan led the convoy of hard shell and logistics HMMWVs from Tinajitas back to Tocumen airfield, it was ambushed at two different points. SSG Troxell returned fire with his main gun and M2. Other vehicles in the column also returned fire. C11 received fire but took no casualties. Both ambushes were eliminated or suppressed, and the convoy continued to Tocumen. Convoys moved at high speed (approximately 30-40 mph) and at an extremely close interval. This provided security and prevented non-military vehicles from entering the column. Sheridans led the column. If there was a second Sheridan available, it was usually the third vehicle in column (behind a gun HMMWV).

On 21 December, 4-325 AIR conducted its attack on Ft. Cimarron.



Near the Vatican Embassy, where Panamanian strongman Manuel Noriega sought refuge, C 23 takes up a blocking position.

The two supporting Sheridans fired approximately 30 152-mm HEAT rounds in support of the attack. PSYOPS teams, attached to 4-325, announced on loudspeakers terms of surrender to occupants of the buildings. In accordance with "measured response" criteria, PDF refusal was met by Sheridans firing one or two rounds into each structure to neutralize enemy positions.

Dismounted infantry then cleared the building of any remaining resistance. A squad of infantry remained with the tanks to furnish local security. Infantry forces operated two or three buildings ahead of the Sheridans to prevent ambushes and close range attacks.

#### 22 December, 0900

C10 and C12 moved to 4-325's new sector and assisted in clearing Panama City.

#### 23 December, 0800

C12 and C20 provided convoy escort to 4-325 AIR. As the column approached the 2-504 PIR sector, both the stationary and moving forces came under small arms and sniper fire. In the ensuing firefight, the Sheridans received small arms and heavy machine gun fire.

In addition, a rocket-propelled grenade was fired at a Sheridan. The round missed. Sheridans took several hits from small arms. This passage of lines reinforced the need to plan all passage of lines operations in detail. Both the stationary and the moving force must understand duties, responsibilities, and control measures.

#### 24 December

C10, 21, 23, and 34 moved to secure the area around the Vatican Embassy, C11 and C12 moved to Cerro Tinajitas and provided support to 1-504 Infantry. C20 moved to the Cuban Embassy to assist in securing that area. During this time, C11 and 12 in the vicinity of Tinajitas took 120-mm mortar fire.

It became routine for Sheridans to button up any time Army helicopters approached, because their arrival normally drew enemy mortar fire. These vehicles and crews remained in position until 1 Jan 90.

#### 25 December

Team Armor was detached from 4-6 INF (M) and task organized with 1-9 INF (L), 7th LID (with the exception of LT Kozar's vehicle, C30).

C30 was to provide direct fire support to Task Force 4-6's attack of the causeway south of Fort Amador. Team Armor refueled and conducted an uneventful link-up with 1-9 INF. Although a threat to U.S. forces still existed, sniping and contact in Panama City were now sporadic, and rules of engagement for Team Armor were tightened (fire only if hostile intent and imminent danger were present).

The mission of Team Armor was to conduct show-of-force operations; let the PDF, dignity battalions, looters, and Panamanian civilians know that Sheridans were there to establish order. That night and early the next morning, the team conducted night mounted patrols along Luis F. Clement Avenue. The order of march during the patrols was Sheridan, C<sup>2</sup> HMMWV, Sheridan.

The Sheridans moved back and forth down the street with searchlights providing white light to control crowds and illuminate possible enemy positions. The patrols coordinated with friendly units along the route. They observed no fire, nor were looters or civilian mobs seen violating curfew. Before the arrival of the Sheridans, troops had dealt with mobs and sniper fire in the area.

#### **December 26**

As A/1-9 INF began clearing buildings in the vicinity of Luis F. Clement Avenue, the Sheridans were again in a show-of-force role. Crews placed them in position to support the infantry by direct fire and where anyone in the area could see them. 1-9 INF provided a dismounted squad for local security of the Sheridans. The crews of Team Armor had a tense but uneventful day. That night, they conducted three more mounted patrols, again employing searchlights.

C30's mission to support the clearing of the causeway never came to pass. Near sunset, CPT Hammond told LT Kozar to link back up with Team Armor the next morning.

#### **27 December**

CPT Hammond learned that the Sheridans in Team Armor were to link up with 504th PIR, 82d Airborne Division. Once C30 returned to Team Armor's location, the team (consisting of three Sheridans and two HMMWVs), moved across Panama City to Panama Viejo. After a week of combat, CPT Sherman finally saw the Sheridans and crews that had been predeployed on 16 November. Team Armor was reconfigured.

CPT Sherman used the CSS HMMWV for command and control. One Sheridan, C33, would remain at Panama Viejo, and CPT Hammond would take two tanks to Cerro Tinajitas to augment 1-504 PIR. Later that night, LT Kozar and his wingman were placed OPCON to 1-75th Rangers 15 kilometers northwest of Tocumen airfield.

#### **27 thru 31 December**

During this period, the disposition of forces remained the same. Sheridans conducted show of force operations and augmented infantry and military police road blocks and checkpoints. There was very little action. However, the crews and leadership remained tense and alert because the vehicles had to sit in exposed positions to conduct the show of force mission. To sit in stationary exposed positions was necessary, but contrary to training, and crews felt somewhat "naked." During New Year's Eve, all nonessential movement was stopped and checkpoints were pulled in. This prevented soldiers from firing at civilians (who

were celebrating by firing weapons and fireworks).

#### **1 January 1990**

C/3-73 Armor, minus 1st platoon, moved to Tocumen and began preparations for redeployment. 1/C/3-73 remained at the Vatican Embassy.

#### **2 January**

The unit prepared for customs inspection and redeployment.

#### **3 January**

Preparations continued, and at 1700, customs inspected the crews and vehicles. Late that night, crews loaded two C5Bs and the majority of C/3-73 Armor for redeployment to Ft. Bragg, N.C. That night, General Noriega surrendered to American authorities.

The 1st platoon and CPT Sherman remained at the Vatican embassy until 6 January, when they moved to Tocumen airfield and prepared for redeployment.

On 9 January, the remainder of C/3-73 Armor returned from Panama, its mission accomplished with only one crewman slightly wounded by fire.

### **Observations\***

#### **Command, Control, and Communications**

- External phones on tanks are invaluable in MOUT operations. They permitted infantry leaders to communicate with the crew and direct fires and movement.

- To receive and disseminate orders and information on the move is a must for armor leaders. Informa-

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\* These are authors' observations, not official lessons learned.

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tion must flow up and down, left and right, and to the front and rear.

- Explain "why" whenever you can; but troops must realize that there is not always time for an explanation.

- Set and follow priorities of work and effort.

- Focus on the mission, maintain an offensive spirit, don't lose momentum, and don't give the enemy time to react.

- Encourage troops to become semi-proficient in other languages. There is a lot of real-time information available to those who can converse with the local populace.

- Use appropriate operational terms and graphics. A common language is very important when operating with different units, branches of service, or in unfamiliar terrain.

- Have a workable plan for prisoners, detainees, and refugees. Without one, command, control, and communications can be severely hampered.

- Have a plan for working through "hot mikes." They exist in combat, too.

- Make good use of maps. Don't cut them to fit your current situation. You may not be in the same area tomorrow.

- Talk with attachments that are not accustomed to working with you (e.g., Marines), make sure you understand each other. Your terms, jargon, and slang may not convey your intent to soldiers who are not familiar with your unit.

- Learn the capabilities and limitations of supporting and supported units and equipment as well as any special requirements that they might have (e.g. LAV-25s need 25-mm ammunition).

- Make sure everyone is using the appropriate CEOI (and that they are using it the same way). There is nothing like finding out that the unit

you are linking up with "froze" the sign/counter-sign three days ago and you are using the current ones.

## **MOUT**

Sheridans were absolutely critical to fighting in built-up areas by providing direct fire support to infantry, as well as surgical fires capable of penetrating reinforced concrete buildings.

- Strip maps, with individually numbered buildings (all buildings in the area), are a must for operations in built-up areas. Maps do not provide enough detail and may not adequately represent the area.

- In built-up areas, the M2 .50 caliber machine gun on a flexible mount is superior to the weapons station found on M60- or M1-series tanks. Yes, the TC is exposed, but it is easier for him to acquire targets and bring the .50 caliber to bear on those targets.

- The M3A1 submachine gun is useless as a weapon for the loader. The loader needs a pintle-mounted machine gun (or an M16 at a minimum).

- Large numbers of refugees will likely be encountered. Be ready for them.

- Crews frequently used day sights during night operations because city lights, fires, and background illumination washed out the AN/PVS-7As and M44 night sights.

They used night sights and night vision devices when the lack of other illumination permitted.

## **Low-Intensity Conflict (LIC)**

- Soldiers must know the rules of engagement.

- Soldiers must have enough discipline to apply rules of engagement in the absence of supervision.

- Be prepared to task organize within platoons. It is not unusual to operate in pairs or as single tanks.

- Junior officers and NCOs must know and understand the capabilities and limitations of their troops and vehicles. It is not unusual for a tank commander to be the armor expert and advisor for an infantry battalion. Be assertive; let the infantry know what you have and what you can do for them. Do not forget to let them know your logistical requirements.

- Dismounted security is extremely important. Let the supported infantry know that you need 360-degree dismounted security.

- Be familiar with "show of force" operations. Armor can do a lot without firing a round. This goes hand-in-hand with executing rules of engagement.

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

- Have someone dedicated to CSS. It is nearly a full-time job for key leaders to sustain an armor force that has been task organized across several sectors.

- Effective medical support and evacuation are key in maintaining morale. The combat lifesaver program is invaluable. Every tank should have a school-trained combat lifesaver and medical kit, because of the likelihood of piecemealing Sheridans throughout the sector. Although no serious injuries occurred, medics and lifesavers provided assistance to the combined arms team and civilians.

(After medics jumped in to the Tocumen airhead, they had to ride on the back decks of Sheridans. These soldiers displayed tremendous courage under fire and provided on-the-spot care for wounded soldiers.)

## Airborne

- A homing device is needed to find equipment that cannot be seen.
- Everyone must know the assembly and evacuation plans.
- Sheridans retained their boresight and zero after heavy drop.

## Other

- To prevent fratricide, don't "acquire" POVs or enemy weapons unless they are essential to the mission. Impounded civilian vehicles and troops with strange weapons make target identification difficult for troops with itchy trigger fingers.
- Pre-positioned Sheridans and the APCs of 4-6 Infantry added sand bags to the exterior of vehicles for additional protection.
- Train troops on what they can expect to see in combat. Actual combat is a lot different than it is depicted in the movies. Soldiers fight the way they train.
- Use PT to build stamina; flak jackets and ammunition-laden web gear are heavy. Rapid deployment troops must also have the stamina to go from winter to summer conditions in a matter of hours.
- Stocks, pistol grips, and bipods should be available for dismounting the M240 coax machine gun. The loader of one Sheridan fired a dismounted M240 using asbestos mittens (to prevent burns).
- All engagements occurred between 100 and 460 meters.
- The 152-mm HEAT-T rounds penetrated reinforced concrete walls from six to ten inches thick. This round created up to eight-foot holes in walls and caused extensive damage to the interior structure of buildings.
- Sheridans did not encounter any V300 armored cars although the Sheridans were equipped with Shil-

leagh missiles, HEAT-T, and .50 caliber API-T for this eventuality.

- Once derigged, heavy drop Sheridans had little problem moving off of the swampy drop zone. In addition, they recovered several HMMWVs and other equipment that was stuck on the DZ. Once clear of the drop zone, there was very little cross-country movement. Vehicles in Team Armor traveled 100-150 miles, while those with the 82d Airborne moved 280-350 miles.

- All bridges in the area were rated at 30 tons, with the exception of the Bridge of the Americas, which was rated at 50 tons.

- M551A1s were used to drive over or eliminate enemy roadblocks that were constructed of cars, trucks, buses, concertina wire, and rubble.

- Wheeled vehicles experienced flat tires from glass, jagged metal, wire, downed poles, and bullets.

- Sheridans completed 100 percent of assigned missions. However, the vehicle is old and has several shortcomings. Even though the Sheridans performed well in this operation, there is an urgent need to develop and field a replacement for the Sheridan.

- Establish and maintain a positive mental attitude. ENDEX may be a long time coming.

## Summary

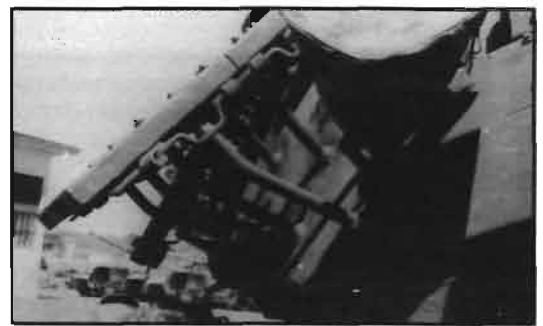
While this article focuses on the employment of armor in Operation JUST CAUSE, armor supported infantry in a combined arms effort. The outstanding efforts and achievements of other units have been omitted simply because time and space do not permit a full account of their actions. Without the gallant efforts of the individual infantrymen, combat engineers, and other soldiers working as a team, Sheridan crews would not have suc-

cessfully accomplished their missions and would certainly have suffered casualties.

Units must continue to train as combined arms teams. This operation has also reinforced the importance of combined arms training at the tank crew, section, and platoon level. Operation JUST CAUSE was a success because of the highly-trained soldiers at small-unit level.

Captain Frank Sherman is a 1983 graduate of the Citadel. As a lieutenant, he served as a cavalry platoon leader and company executive officer in the 3d Squadron, 11th ACR. Following AOAC, he was assigned to the 3d Battalion (Airborne), 73d Armor, where he served as the S1. He is currently the C Company commander, which participated in Operation JUST CAUSE with the 82d Airborne Division.

Captain Kevin Hammond is a 1981 graduate of the U.S. Military Academy. As a lieutenant, he served as a tank platoon leader, executive officer, and scout platoon leader with 4th Battalion, 40th Armor at Ft. Carson. Upon completion of AOAC, he was assigned to the 3d Battalion (Airborne), 73d Armor where he served as the battalion maintenance officer and commander of A Company. In Operation JUST CAUSE, he served as the commander of Team Armor, 4-6 Infantry (Mech).



At left, Marine M60A1 with reactive armor array on hull and turret. Close-up, above, shows detail of attachment points for turret side panels.

## Marines Add Reactive Armor To M60A1s

by Greg Stewart

Explosive reactive armor tiles once destined for U.S. Army tanks in Korea have now been fitted to many of the Marine Corps' M60A1s to increase their survivability against shaped-charge (HEAT) warheads.

The tiles were purchased to improve the protection of the Army's M60s in Korea, which do not have the protection of the newer M1's special armor. Instead, the Army decided to replace these tanks with M1s. The M1's special armor serves much the same purpose as the reactive armor panels; it disrupts the HEAT round's "slug" before it can form to penetrate the tank's armor.

Following the lead of the Israelis, who added reactive armor to older tanks before the 1982 Lebanon invasion, many nations have experimented with the reactive armor tiles on cast armor turrets and hulls. While the modern armor of newer MBTs, those with depleted uranium or layered armors like "Chobham," offer a great degree of protection

against shaped-charge warheads, MBTs with homogenous, rolled steel armor are candidates for the reactive armor arrays. This is especially the case as more and more armies field effective light weapons with HEAT warheads, such as antitank guided missiles and rocket-propelled grenades.

While the battlefield appearance of reactive armor on Israeli MBTs in Lebanon caused some excitement in both civilian and military publications as something new and unique, better-informed individuals were already aware that the United States Army had been working intermittently on reactive armor since the 1950s.

When the Soviet Union first equipped its vast fleet of MBTs in Central Europe with reactive armor in 1984-85, many assumed that they had merely copied reactive armor, from Israeli MBTs captured by the Syrians during the 1982 Lebanon conflict. But this would be selling

Photo on facing page illustrates how reactive armor tiles are layered on turret front, above gun mantlet.

the Soviets short; they had been working on their own reactive armor program for many years.

The United States' efforts in its own reactive armor program are now becoming visible. Since the end of 1988, the U.S. Marine Corps has added reactive armor to M60A1 MBTs.

The tiles became available when it was decided to replace the 2nd Infantry Division's M60A3 MBTs with M1A1s. The reactive armor sets that had been earmarked for the 2d ID's tanks went to the Marines instead.

Fifty-seven M60A1s of the 1st Tank Battalion/1st Marine Division at Camp Pendleton, California, were the first to receive the reactive armor sets, in September to December 1988, followed by 58 M60A1s of the 2nd Tank Battalion/2nd Marine Division at Camp Lejeune, North Carolina, in February to April 1989. The 34 M60A1s of the 1st Armored





Assault Battalion, Okinawa, were equipped in July-August 1989, and the tanks of one of the three squadrons stored on Maritime Pre-positioning Ships (MPS) were to be fitted in February.

Teams from Anniston Army Depot, Alabama, mounted the hardware and tiles to all MBTs in each battalion, with the exception of tanks due to be rebuilt. They will receive their reactive armor at Marine logistic bases when they are rebuilt.

The tiles, which come in only two sizes, do not cover the tank as completely as the Israeli design, which includes many different sizes and shapes, but they do have the advantage of being easier to maintain, replace, and resupply. Each M60A1 MBT has 42 of the larger M-2 tiles (each weighing about 28 pounds and measuring 11-1/2 by 17-1/2 by 2 inches thick), and 49 of the smaller

M-1 tiles, each weighing 19.9 pounds and measuring 11-1/2 by 11-1/2 by 2 inches. The tiles are bolted to rails, which are bolted to 111 studs welded to the turret and hull. The system adds about 3,000 pounds.

Inert (dummy) tiles will be used on all MBTs currently fielded, until they are to be deployed in an environment where enemy antitank weapons would necessitate replacement with live tiles. Until needed, these are stored on MPS ships.

The dummy tiles weigh much less than the live ones, except the dummy tiles on the main gun mantlet, which must equal the live tile weight to keep the gun in balance. The gun mantlet tiles also have to be removed for installation of any subcaliber device during training. To remove the power pack also requires removal of five turret tiles.

Tanks equipped with dozer blades can't accommodate 12 of the tiles normally located on the front of the hull.

While the Marines will soon start to receive the new M1A1 tank, it is likely that the M60A1s will supplement the Abrams for some time to come. With the vast array of shaped-charge warhead antitank weapons available today, reactive armor on the M60A1s should enhance their survivability and increase their useful life.

Greg Stewart is a freelance photographer specializing in U.S. Army and USMC armor and artillery. He contributes photographs to defense-related domestic and foreign publications.



At left, U.S. tankers in French-built tanks roll toward the front line in World War I. Their commander was BG Samuel D. Rockenbach, at right.



## U.S. Armor Between the Wars

by Major Patrick J. Cooney, Editor-in-Chief

The use of armored vehicles during WWI was a grand experiment to reintroduce mobility to a stagnant battlefield. But the gasoline engine was too new, and the war ended too soon after tanks were employed for the majority to see their value on future battlefields.

Each main belligerent of the First War could claim a handful of visionary thinkers during the interwar years who put to paper their thoughts on employment of armored vehicles. But, except for the Germans, who steadily moved toward formalizing doctrine, organizations, and tactics heavily reliant upon the characteristics of armored vehicles, the remainder tinkered with the idea once or twice, and eventually gave it up. For the most part, they didn't take up the idea seriously again until late 1939, when the Germans unveiled their "Blitzkrieg."

The story of the United States Tank Corps was typical. Within six months of signing the Armistice, a certain disdain for the war just fought and for anything connected with the military was firmly rooted in America's consciousness. In the face of Congressional purse tightening, military opinion was itself divided over the future role of ar-

mored vehicles. "How could one include in cut-and-dried war plans a vehicle that had a tendency to break down when it was most needed and to outrun the infantry when it was in good condition?" one historian wrote.

The post-war Tank Corps' home was at Camp Meade, Md., commanded by Brig. Gen. Samuel D. Rockenbach. Even before redeployment was complete, cuts began to take their toll. Congress passed a law on 11 July 1919 that cut Tank Corps strength to 154 officers and 2,508 enlisted men.

A War Department board, convened in 1919 to study tank employment, supported General Pershing's view that tanks should be under the control of the Infantry Branch, as was the case in the French Army. The board concluded that "Tank Service should be under the general supervision of the Chief of Infantry and should not constitute an independent service."

Rockenbach was in position to fight for the existence of the tanks as a separate arm, but "the methodical, hidebound general was not the right man for the job. He was more interested in maintaining the status quo than in promoting research,

development, and training - three essentials for the creation of a vigorous, improving force."

It fell to men like Maj. George S. Patton Jr. to argue the case. Writing in the May 1920 *Infantry Journal*, Patton said, "The tank is new and, for the fulfillment of its destiny, it must remain independent, not desiring or attempting to supplant infantry, cavalry, or artillery, it has no appetite to be absorbed by any of them.... The tank corps grafted on infantry, cavalry, artillery, or engineers, will be like the third leg to a duck - worthless for control, for combat impotent."

Such voices and arguments aside, Congress passed the National Defense Act on June 2, 1920, which abolished the Tank Corps as an independent arm and assigned all units to the Infantry. Comensurately, all officers reverted to prewar ranks by the end of June.

As one might expect, morale in the tank units plunged. Rockenbach reverted to the rank of colonel and took up duties as Camp Meade commander and symbolic leader of a branch of service that was no longer independent. Patton and Mitchell, commanders of the 304th and 305th Tank Brigades at Meade, both lost



LTC George S. Patton, Jr. during WWI.



A Christie tank - It ran on tracks or wheels



M1 "combat cars," tanks for the Cavalry.

their eagles and pinned on captains' bars at the end of the month.

By late 1920, everyone saw that there was no future with tanks and they all began to bail out, returning mostly to the cavalry. Left at Meade was only the 16th Light and 17th Heavy Tank Battalions and a maintenance company. The rest of the force was carved up. A tank company was assigned to each infantry division across the country, and a battalion went to the Infantry School at Fort Benning.

By 1927, the British were experimenting with mechanization, largely through the urging of Gen. J.F.C. Fuller. Dwight Davis, U.S. Secretary of War, returned from observing a demonstration and directed the chief of staff to organize a mechanized force of our own.

On 1 July 1928, the Experimental Mechanized Force was born at Fort Meade and consisted of the light and heavy tank battalions at Meade and various smaller infantry, artillery, engineer, and signal units from Forts Eustis and Hoyle. From Ft. Myer came the Cavalry's one and only armored cavalry troop. All told, the force, commanded by Col.

Oliver Eskridge, amounted to about 3,000 men.

The project was doomed to fail at the outset. There was no money to fix up the already decrepit vehicles and equipment, and the force was disbanded on September 20.

The War Department decided further study was required and tasked its G3 Training Section to take up the study. Thus, this small group suddenly had the power to set the future course of mechanization in America.

Enter one "lean, hawk-eyed, high-goal polo-playing cavalry officer," named Major Adna R. Chaffee, who was a staff officer in the G3 Training Section since 1927.

Though Chaffee was not one of the old tankers, he could see mechanization's capabilities and battlefield applicability as an independent force. His report of December 5, 1928, for the first time set down a definite program leading to the creation of an Armored Force. He outlined a four-year, \$4-million plan for a completely mechanized, self-contained, highly mobile regiment, which would be the test bed for future similar units that would compose "a great part of the highly

mobile combat troops of the next war." The backbone of this force would be a fleet of new, fast tanks, supplemented by support troops in armored cars, personnel carriers and trucks. He envisioned a combined arms team - each element carried to battle on tracked or wheeled armored vehicles.

Immediately there arose cries of "expensive gadgetry." Because there was no money in the FY 1928 budget, it didn't matter anyway, but the proposal did give rise to a dogfight between the Chief of Ordnance and the Chief of Infantry over what kind of tank the Army was to buy. Ordnance wanted a 37mm-gun tank of 7.5 tons (T-1) from Cunningham and Sons, and the Infantry wanted an 8.6-ton Christie design.

Congress appropriated \$250,000 in the next budget to buy six to eight T-1s for test by the Infantry. But a change in Infantry Branch chiefs brought a change in the budget provision to buy six to eight Christies instead. The new Chief of Ordnance, however, disliked Christies, so they only bought one for \$62,000, and the rest of the money went back to the Treasury. Chaffee must have taken great delight in



At left, MG Guy V. Henry, one of the Chiefs of Cavalry in the 1930s



At right, two tanks ford a creek in support of infantry maneuvers at Fort Benning, Ga., in 1939.

seeing his plan come together like this.

Chaffee tirelessly refused to let the mechanization idea die, when lesser men would have tossed in the towel in frustration.

Perhaps as a tribute to Chaffee's persistence, the FY31 budget contained \$285,000 for mechanization. But, where to start? In 1930, the War Department was looking to close Ft. Eustis. Thus, one of Chief of Staff General Summerall's last directives before leaving office in October was, "Assemble that mechanized force now. Station it at Fort Eustis. Make it permanent, not temporary."

Chaffee had recommended a general officer to command the mech force, but none he approached wanted the inherent risk involved. So, Chaffee picked and recommended Colonel Daniel Van Voorhis of the 12th Cavalry on the border. His organizational and administrative abilities were well known in cavalry units. Among the other first officers were Major Sereno E. Brett, and Major Robert W. Grow.

From Chaffee's position on the general staff, he continued to argue for better tanks and equipment and

spoke at the Infantry, Cavalry, Field Artillery, and Engineer Schools; at divisions and at the War College in support of a combined arms, mechanized force. His typical speech ended with this challenge: "The main point is that we, as soldiers, must recognize the tremendous strides which our automotive industry has made since the last war. If we neglect to study every possible usage of this asset in our next war, we should not only be stupid, we should be incompetent."

In fall of 1930, Chief of Staff General MacArthur ordered yet another study of all War Department policies regarding mechanization. Petty branch jealousies surfaced again. Infantry wanted control of mechanization, citing the Defense Act of 1920. Cavalrymen wanted to be a player, but had the jitters about losing their beloved horses. Writers became prolific in support of their own parochial views.

But Chaffee began to see a mechanized force as a natural extension of the historic cavalry missions of reconnaissance, screen, guard and hit-and-run tactics. He quietly worked behind the scenes, gently but firmly pushing mechanization into the cavalry domain. This drew unexpected opposition even from people like Van Voorhis, who

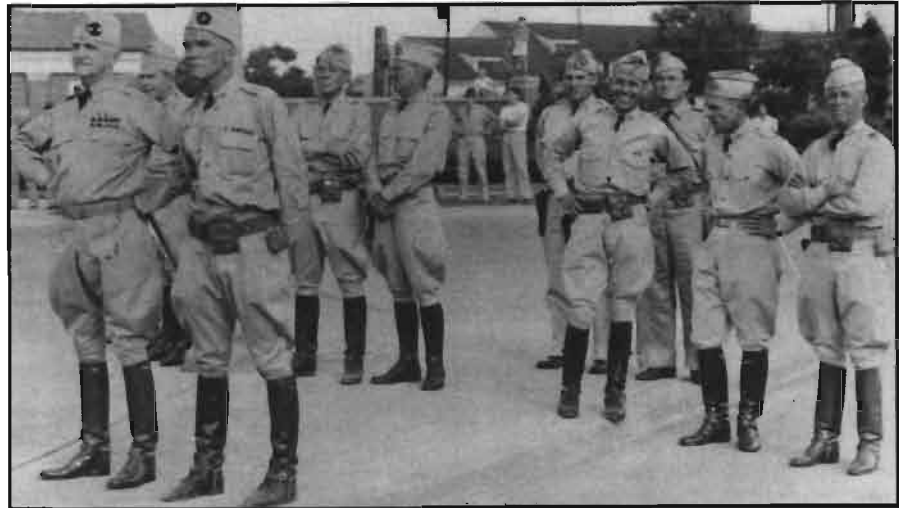
stayed firm in his belief that a mech force should not be part of any branch.

Chaffee gained the support of the Chief of Cavalry, MG Guy V. Henry, who in time convinced MacArthur to assign mechanization to the cavalry. The results of the War Department study had a mixed result. The Mechanized Force at Eustis was disbanded, its elements assigned to the cavalry for reorganization. But each branch was authorized to pursue its own mechanization agenda, this leaving the Army with no clear unified direction.

Chaffee knew that some of his fellow cavalrymen would feel threatened by mechanization, which they perceived as a death knell for the horse, but he was unprepared for the bitter, deliberate opposition he would encounter for the next decade. The prominent view was mechanization taking a parallel role with horsed cavalry, assisting, supplementing, supporting — but never operating independently. But Chaffee's goal was clear — only an independent armored force could get the job done.

On June 15, 1931, Chaffee left Washington and reported to Fort Eustis as XO. He and Van Voor-

Two of the founders of the U.S. Armored Force, MG Daniel Van Voorhis, far left, and BG Adna Chaffee, beside him, with members of the command group at Fort Knox in the 1930s.



his agreed that the Virginia post was too small to test and experiment with new equipment and tactics, so they began to search for another post. The Chief of Cavalry and the Cavalry School wanted the force moved to the border where the bulk of the cavalry regiments were stationed. But Chaffee wanted Camp Knox with its 33,000 acres of rugged terrain.

The War Department approved the choice, and on 1 January 1932, Camp Knox was permanently re-established as Fort Knox. The Tank School itself, however, moved to Fort Benning as part of the Infantry School.

The remnants of the disbanded Eustis force arrived at Fort Knox in November 1931 and formed the nucleus of a new mechanized cavalry unit, the Detachment for Mechanized Cavalry Regiment.

In December, the War Department ordered Fort D.A. Russell closed and its 1st Cavalry Regiment to Fort Knox, another skirmish won by Chaffee.

Through 1933 and into 1934, Chaffee scratched out a civilized existence at Fort Knox, which was dilapidated and had no paved roads when he arrived in late 1931. He

turned down the chief of staff's job with the 1st Cavalry Division at Bliss to stay with the force. He fought for money and gave new meaning to the word improvisation. At the same time, he trained his new force. Invited to participate in the spring 1933 maneuvers, Chaffee declined, "We have too big a job in front of us to get the regiment organized and trained in a basic way to be able to afford to go out and show it off. There is no use making concert engagements until you can play the piano."

In the meantime, the banter about mech versus horse increased in tempo. The typical view, expressed by Major George S. Patton, Jr. in the September-October 1933 *Cavalry Journal* called for a mix of horse and mech units. No cavalry officer wanted to go on record as saying replace the horse with a machine. The way we have come to associate Patton with sweeping tank action makes this view all the more surprising. "It is my opinion, however, that such operations [machines acting alone] will be the *exception* [emphasis in original] rather than the rule and that in general mechanized and horse cavalry will operate *together*....Armored fighting vehicles are...costly machines with no commercial use. Hardly a part of them is standard. Also, they become ob-

solescent before they are finished. For this reason, no nation will ever start a war with many machines."

Interestingly, in the same issue, Captain F.T. Bonsteel saw the future, along the same lines as Chaffee, in "The Employment of a Mechanized Cavalry Brigade." [pp. 19-26] "Mechanized cavalry will enable a commander to extend his powers beyond the sphere of activity of the other arms, and tactically to influence the course of events by striking a dynamic blow in a vital direction. Mechanized cavalry will achieve its greatest results when concentrated in large masses, under direct control of higher commanders, and employed in decisive action to exploit fleeting opportunities."

While the discussion heated up, the last *Cavalry Journal* issue of 1933 unceremoniously showed the 1st Cavalry (Mechanized) at Fort Knox, Ky., having assigned Colonel Daniel Van Voorhis, commanding; Lt. Col. Adna R. Chaffee, XO; and Majors Robert W. Grow and William G. Simmons. And they were involved in something more than discussion. They were struggling against preconceived ideas, branch jealousies, and lack of assets to forge a new thunderbolt for the battlefield.



## T-64s In the Field



Above, early T-64s without either "gill armor" plates or non-metallic skirts reveal suspension details. Note that the T-64 suspension, unlike that on earlier Soviet tanks, includes track return rollers. Also note shorter 125-mm gun tube on this model.

At right, this T64A has the early optical rangefinder with "ear" on right side of turret. Smoke dischargers are mounted on turret front; they are moved back on later models to make space for reactive armor array. Front slope armor on this tank has been upgraded with applique plates: note oval cutouts that permit access to mine-plow attachment



Gunner's sight "dog house" details help identify the T-64 variants. On the T-64A, at left, the gunner's "dog house" is smaller and narrower, and there is a second "ear" in front of the commander's station on the opposite side. Note also the infantry handrail and "gill armor" plates on this model. In photo at right, the larger, wider gunner's "dog house" identifies the laser-rangefinder-equipped T-64. Non-metallic skirts replace the "gill armor" plates, and the front slope has additional armor plates added. Also note early smoke discharger location, later moved to rear.

The Tank That Could Have Won the Next War:

# An Assessment Of the Soviet T-64 Premium Tank

By CPT James M. Warford



T-64B with reactive armor attachment points

Historically, the Soviets have managed to successfully surprise their enemies on the battlefield by keeping their most advanced armor technology secret.

In his book, *Panzer Leader*, about the early days of the German armor force, General Heinz Guderian tells about a Russian military commission's visit to various German tank factories and schools in the spring of 1941. Germany and Russia were still allies, bound by the Russo-German Non-Aggression Treaty of 1939, a situation that would continue until the German invasion of Russia a few months later.

Hitler had ordered that the visiting Russians see all of the latest German tank production facilities and his army's best tanks, insisting that nothing be concealed. According to Guderian, "We could reckon on our tanks being technically better than all known Russian types; we thought that this would more or less cancel out the Russians' vast numerical superiority."<sup>1</sup>

When the Russian officers viewed the Panzer IV, they did not believe it was Germany's best tank. They were convinced that the Germans were hiding their newest tanks from them, and complained that they were not seeing everything.

When the Russians were so insistent that they were not shown the best the German Army had to offer, the German ordnance office came to an unfortunate realization: "...The

Russians must already possess better and heavier tanks than we do."<sup>2</sup>

This eleventh-hour realization became battlefield fact a few months later, at the end of July 1941, when the Russian T-34/76 medium tank made its appearance in battle. It forced the German Army into the dangerous position of having to react to a technically superior enemy tank.

This may have only been the first example of the Soviets' ability to beat their adversaries to the draw in tank technology. This Soviet ability - to develop technically superior armored vehicles and then keep these vehicles secret until they appear on the battlefield, or until their remaining a secret is no longer required - has been an increasingly dangerous threat to the armies of NATO. It has been demonstrated, not once, but twice in recent history.

In addition to the example of the T-34/76 described above, the Soviets started to produce another very powerful and innovative tank in 1965. The T-64 was not only superior to Western tanks of the same period, but also forced the Western armies into the position of having to scramble to react to Soviet innovations. Even in peacetime, the T-64's appearance caused a massive reaction by the armies of the West. Yet this was only a fraction of the impact this tank would have wrought on the battlefield, had a war been going on at the time.

We must be prepared to identify and counter whatever develops as

the next tank in the line that started with the T-34/76 and continued with the T-64. We must avoid any future "eleventh-hour" battlefield scenario that could translate into the same kind of strategic surprise that ultimately defeated the Germans on the Eastern Front.

A close examination of the Soviet T-64 suggests what could have happened if war had broken out prior to the appearance of the American M1 and West German Leopard 2, as well as what might happen if the next innovative Soviet tank is allowed to surprise the West.

## Origins of the T-64

When the Soviet T-62 main battle tank entered production in 1960, work had already started on a newer tank, and by the time the T-62 was first seen in public in 1965, this still-newer tank had gone into production. While Western intelligence sources knew of the existence of this new tank, they did not appreciate how radically it differed from earlier Soviet designs. Before identification of the tank that would become the T-64, the Soviets had developed tanks in a series of progressive, evolutionary steps, from the T-34 series, through the T-54 and T-55, and finally to the T-62, essentially an improved and up-gunned T-55.

The T-64 was a much more daring evolutionary step, incorporating major changes in several areas. In addition to improved armor and a bigger gun, the T-64's flat, opposed,

5-cylinder diesel was a major departure from the diesels that had powered the earlier designs, and its much more sophisticated suspension – incorporating "live" tracks and return rollers – bore little resemblance to the earlier Christie-type suspensions that had been perfected in the T-34 design of the 1930s.

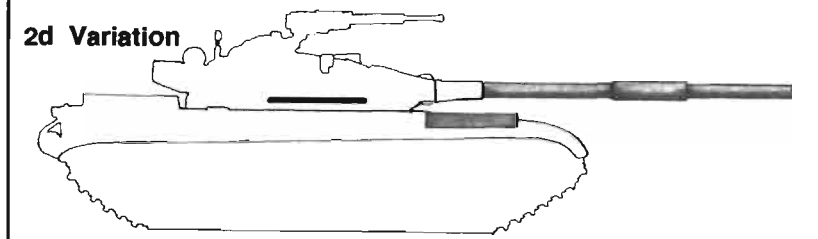
The production models of the first T-64s were preceded by a number of prototypes that differed primarily in turret and hull front shapes. Several sources identified a prototype that was used for tests and was known as the T-67, but what they may have actually seen in some very grainy films of a winter exercise in 1970 was the base model T-64. This new tank was given the provisional designation of M1970, and has since been referred to as both the "T-70" and the "Dvina" tank (after the March 1970 Dvina exercise in the Byelorussian Military District). Because these first views of the T-64 were of very poor quality, (the tanks were most likely misidentified as developments of the T-62), various speculative designations were attached to the new tank. Once better quality photographs became available, it became obvious that the tank in question was clearly not a modified T-62, but was in fact the new T-64.

The Soviet Army fielded the T-64 for operational trials in 1967 with the 100th Guards Tank Training Regiment.<sup>3</sup> Shortly after the start of these trials, the tank was subsequently issued to the 41st Guards Tank Division. Since its initial fielding, the Soviets have continued to develop and modify the T-64. To date, Western intelligence sources have identified seven different variants of the T-64. The variants and their major identifying features are summarized in the illustration.

## Evolution of the T-64

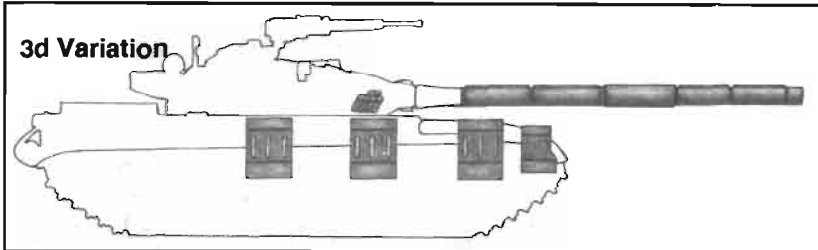
**1st Variation** - Several prototypes were apparently tested with different turret configurations and hull fronts. At first, Western analysts identified them as variants of the T-62, some calling the tank the T-67. In grainy movies of a 1970 winter exercise, the tank the analysts were seeing may have been the base model of the T-64.

### 2d Variation



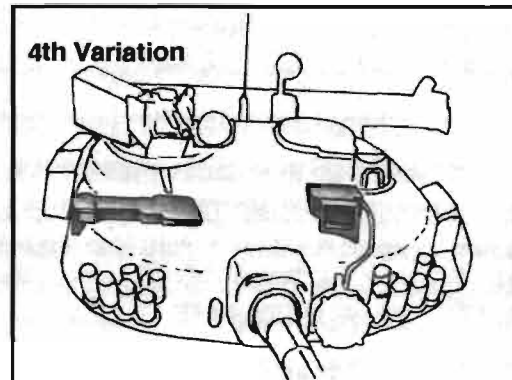
Also called the "base model," "T-70," and "Dvina Tank," it was first seen at the March 1970 maneuvers near Dvina in Byelorussia. Actually fielded for trials in 1967. Identifying features include a shorter version of the 125-mm main gun, infantry handrails along the lower part of the turret, and tool stowage box on right front fender (replaced by a fuel tank on later models.)

### 3d Variation



The T-64A, or "standard model," produced in very large numbers, continued to use an optical, coincidence rangefinder. Identification features include a longer, thermal-sleeved 125-mm main gun, elimination of the infantry handrails, and replacement of the tool box on the right front fender with an additional fuel tank. Smoke grenade launchers were added to the turret sides. Four spring-loaded armor plates protect each side of the running gear from HEAT warheads.

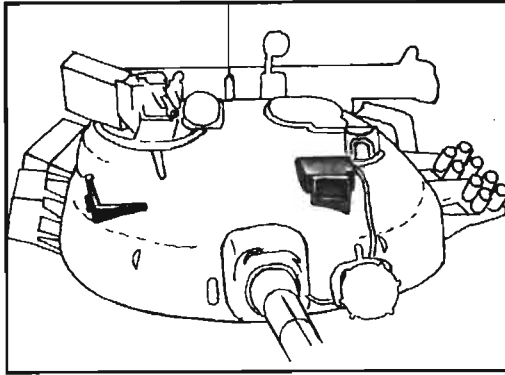
### 4th Variation



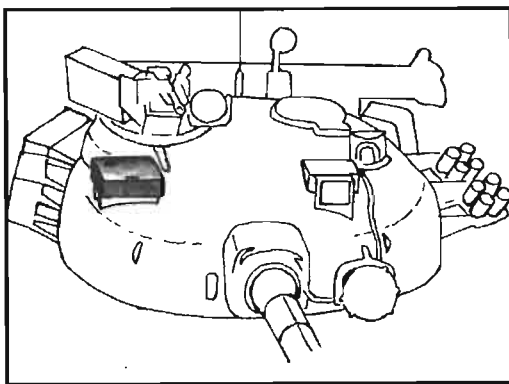
Called the T-64A LRF, the coincidence rangefinder is replaced by a laser rangefinder. Gunner's primary sight "dog house" is wider and larger. Optical rangefinder "ear" is covered and sealed, no longer necessary with the LRF. Non-metallic, full skirts also replace gill armor on chassis.

### 5th Variation

Called the 1981/1, this was the early T-64B, first seen on parade in Red Square in May 1985. There is an L-shaped bracket in front of the commander's hatch, perhaps to add the guidance control box for the AT-8 "Kobra" missile, if required.



Like the 4th Variation, this one also has the larger gunner's "dog house." Smoke grenade launchers have been moved back to accommodate later addition of reactive armor. The right-hand "ear" for the earlier optical rangefinder is now deleted.



### 6th Variation

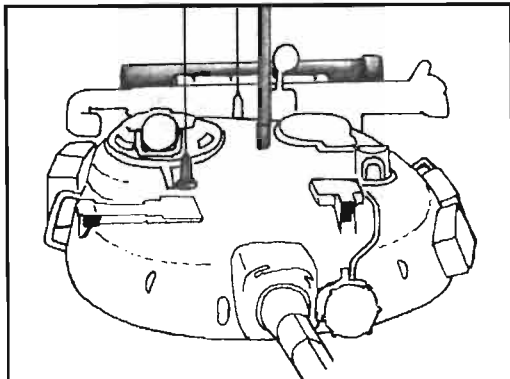
On this T-64B, the guidance box for the AT-8 missile is mounted in front of the commander's station on the turret roof. The missile, stored in two parts in the autoloader carousel, can be loaded and fired like a conventional round.

Also fitted for reactive armor.

### 7th Variation

The T-64K command tank variants are assigned to battalion and regimental commanders and are not seen below battalion level. These models are converted T-64As, and have the smaller "dog house" and right-side rangefinder "ear" of this earlier model.

There are several obvious identifying features: The K version does not mount the antiaircraft machine gun at the commander's station and carries an additional storage tube at the turret rear.



The tube contains an additional antenna mast which can be mounted on the turret roof. The telescopic mast, 10 meters high when elevated, has to be guyed in place, so the tank is immobile when the mast is set up.

There is an additional antenna base in front of the commander's hatch.

The T-64 was the first tank in the world to be fielded with multi-layer composite armor. This innovation, which I will discuss in detail later on, changed the face of modern tank warfare. The many teething problems that have been associated with the T-64 over the years probably became apparent with the base model of the tank. There were reports that the T-64 was plagued by poor automotive performance. There were also reported problems with the innovative automatic loading system, a new development that permitted reduction in crew size to three men. According to these reports, the automatic loading system occasionally "ate Soviet tankers" and that "few gunners are excited by the prospect of having their arm fed into the breach of the cannon..."<sup>4</sup> More recent information indicates that these early reports were exaggerated and that the majority of these problems had been solved in later variants.

### Armament Innovations

The T-64 is fitted with the 2A46 D-81TM Rapira-3 125-mm main gun. It is the largest main gun mounted on any tank in the world, and its destructive power is enormous. There are, however, some reports of dispersion problems with the gun's ammunition. These problems were probably caused by poor quality control in ammunition manufacture in early generations of 125-mm rounds.

The gun's maximum effective range is somewhere between 1,500 and 2,000 meters. For engagements beyond this range, the T-64B can fire the AT-8 antitank guided missile interchangeably with the conventional HVAPFSDS, HEAT-FS, and FRAG-HE ammunition. The gun is fed by a "korzina" (basket) autoloader that allows the vehicle crew to be reduced to three, and

enables the tank to fire six to eight rounds per minute. One drawback of this main gun was identified during the Iran-Iraq war, in which the 125-mm was fitted to Iraqi T-72s. According to the Iraqis, the main gun had a barrel life of only 120 rounds.

Later models of the T-64B also incorporated a major technical innovation in the armament system: the 125-mm gun could fire not only the normal range conventional ammunition, but could also launch and direct the AT-8 "Kobra" antitank missile, which uses radio-frequency guidance and can be loaded directly from the autoloader carousel like a conventional round.

The AT-8 ATGM is a two-piece missile carried in the tank's ammunition carousel alongside the conventional 125-mm rounds. When the automatic loader loads the missile, the two sections are joined in the breech and the missile is fired. A boost motor apparently launches the missile to a designated range, then a cruise motor ignites and carries the missile to its target. The cruise speed of the AT-8 is probably 500 meters per second, with a maximum effective range of 4,000 meters.

The secondary armament of the tank consists of a coaxial 7.62-mm PKT machine gun and a 12.7-mm NSVT antiaircraft machine gun. The NSVT machine gun, mounted at the commander's position, can be fired when the tank is buttoned-up.

### Innovations in Fire Control

Another dramatic change in the T-64 was a modern fire-control system, based on the TPD-2 coincidence rangefinder. It gave the T-64 capabilities that previously had been reserved for Soviet heavy tanks. It is very likely that the deployment of a tank with the

capabilities of the T-64 convinced the Soviets that the highly regarded heavy tanks were no longer required. Accurate, long-range fire could now be provided by a true main battle tank. These capabilities evolved further as the T-64 was fitted with a laser rangefinder on later models.

### Improved Armor Protection

The M1981/1 was also the first photographed T-64 variant to be modified for the future application of reactive armor. When elements of the 141st Tank Regiment, 13th Guards Tank Division were photographed leaving Hungary as part of the reduction of forces in the Soviet Southern Group of Forces (SGF), M1981/1s were fitted with reactive armor.

The T-64B, produced in large numbers, included innovative new multilayered armor on the turret front and sides, according to *International Defense Review*. The later hulls are reinforced at the front, while earlier models are being progressively retrofitted with additional armor plate.<sup>6</sup>

Any examination of the T-64 will uncover the most controversy in the area of armor protection. According to *Soviet Military Power, 1986*, the latest models of Soviet main battle tanks (to include the T-64) are fitted with improved armor incorporating laminates and composites. This innovation should not have been a surprise, because the Soviets had been working on composite steel-ceramic laminate armor since as long ago as 1940. The U.S. Army had also experimented with composite armor and tested it during the same period in the T-95 prototype from 1958 to 1960. These U.S. developments apparently were non-conclusive, while the Soviets' work was successful enough to be included in the T-64's design and

fielded with the tank in 1967. While the exact design and composition of the T-64's armor is classified, the defense press has published enough unclassified information to make a discussion of the armor possible.

Several sources agree that, in order to limit weight to 38 tons, the inherently heavy composite armor was limited to the turret front and glacis plate. The use of a cast turret design, as opposed to the slab-sided, welded construction of more modern composite- or laminate-armor-equipped tanks, does not in any way rule out the use of composite armor. According to *Weapons and Tactics of the Soviet Army: Fully Revised Edition*, "The turret is reported to be cast with a frontal cavity that could accommodate a variety of fills, most probably alternating layers of ceramic or other material with steel."<sup>8</sup>

In 1985, The Japanese magazine *TANK* also published a drawing of a sectioned view of a modern Soviet tank turret. The drawing included large squares or boxes (not to be confused with reactive armor) inside the turret frontal armor on either side of the main gun.

With the exception of the missile capability, the T-64B is very similar to the M1981/1; and with both tanks fitted with reactive armor, they are very difficult to tell apart. The T-64B is the last and most modern variant of the T-64 to go into production.

It is interesting to note that the shape of the turret fronts of the different variants of the T-64 (like the members of the T-72 series), has undergone a subtle reshaping and redesign since the tank was originally fielded. It seems likely that as the T-64 evolved, the tank's original turret composite armor was modified to meet more powerful threats. As



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far as the glacis armor is concerned, most sources agree that it consists of some kind of composite armor. According to *Soviet Tanks and Combat Vehicles, 1946 to the Present*, "the hull glacis plate incorporated a layer of ceramic armor beneath the initial layer of conventional steel armor."<sup>9</sup>

*International Defense Review* also published a copyrighted drawing of a sectioned view of the Soviet T-80 and T-64B glacis armor in February 1987. This drawing clearly shows the armor to consist of an outer layer of steel, a middle layer of glass-fiber, and an inner layer of steel. The actual thickness of this composite array is given as 200 millimeters. The T-64's glacis armor, like the frontal armor of the turret, has gone through some subtle changes over the years. Most likely the original base composite armor has been upgraded to increase the tank's capabilities against improving potential enemies.

The T-64 was also the subject of a continuing applique armor program, a high priority effort designed to increase the level of protection of tanks already in the field. To date, four different types of applique armor have been identified, although only three have appeared on the T-64. While the mounting of non-metallic blanket armor and the various patterns of reactive armor are well known, the most recently observed applique is still a bit of a mystery. It consists of passive "face plates" added to the tank's original glacis plate. These "face plates," also fitted to T-72M1s and T-80s, add an additional 30-40-mm-thick layer of armor to the T-64's original glacis plate. The new applique armor can be identified by the "cookie cut-out" holes cut in the glacis to allow it to be mounted over tow hooks and mine plow attachment points. Such modifications and improvements have enabled the

aging T-64 to remain a potent threat on the modern battlefield.

### **T-64K Command Tank Variant**

The T-64K command variant, has an additional radio antenna base mounted in front of the commander's position, the lack of an anti-aircraft machine gun at the commander's position, and an additional tube fitted to the turret bustle box and containing a special antenna mast. When the 10-meter-tall mast is mounted on the turret roof, the tank is immobilized by the mast support cables required to hold it in place.

### **Initial Deployment**

The T-64 was first seen in the West when it was deployed to the Group of Soviet Forces Germany (GSFG), now known as the Western Group of Forces (WGF), in 1976. NATO's surprise at the appearance of this innovative and very powerful tank is amplified by the fact that it was already 11 years old. The reaction this deployment caused in the armies of the West was massive. Suddenly, NATO tank forces faced a Soviet tank, which, in spite of some well-publicized shortcomings, was better than anything NATO had to offer. The T-64 was superior to its potential adversaries in firepower, mobility, and protection.

### **The T-64's Unusual Engine**

The engine is one of the most radical aspects of the tank's design. The 5TDF flat, five-cylinder, horizontally-opposed, 750-hp diesel has been the subject of speculation since the tank went into production 24 years ago. There have been reports that this engine was plagued by problems and subject to frequent breakdowns. These problems were reported to be so severe that the T-

64's initial deployment, with the 100th Guards and 41st Guards, was dictated by the units' proximity to the T-64 tank plant at Kharkov.<sup>7</sup> These problems, like other reported serious deficiencies, most likely refer to the base model of the tank and have been exaggerated over the years. However serious these automotive problems actually were, they were not severe enough to stop production and forward deployment. If the T-64's performance was not up to the standards set for it, *i.e.*, below the level of its new stablemates, the BMP-1 and BMP-2, it surely would not have been allowed to proceed. Apparently, the Soviets were satisfied with the combination of this engine and the new suspension system, which incorporated both track support rollers and small stamped road wheels.

### **Strategic Surprise**

We can still see today the impact the T-64's fielding on NATO. As soon as the capabilities of this new tank became known, the Western armies initiated crash programs to develop and field weapons to counter it. This effort has not only continued over the years, but has increased in intensity with the appearance of T-64s fitted with reactive armor in 1984. This 24-year-old tank, still mistakenly referred to as a failure by some sources, remains dangerous enough to help drive the U.S. Army's current high priority armor/antiarmor program.

Had the T-64 come as a surprise in combat, as did the T-34/76 of World War II, NATO tank crews would have been faced by a truly innovative and previously secret weapon. These same NATO tankers might have fought valiantly from their inferior tanks with gloomy results. Today, however, NATO main battle tanks like the M1, M1A1, and Leopard 2 are certainly superior to the T-64. This com-

parison, however, is one of apples and oranges.

A more accurate comparison would be between those same NATO tanks and the next Soviet innovative and secret premium tank. This still-secret tank, known as the Future Soviet Tank-2 (FST-2) was surely what the Soviets were working on while the M1 and Leopard 2 were being developed in the West. The FST-2 has been described as "representing a radical leap forward in the destructive power and survivability of Soviet tanks."<sup>10</sup> According to unclassified sources, the FST-2 should be fielded in the mid-to-late 1990s. This time frame, however, should be kept in perspective. As stated above, when the T-64 was deployed to the WGF in 1976 it was already 11 years old. This precedent could be maintained with the FST-2, and this new tank might actually become a threat years before the anticipated time frame.

Several sources on both sides of the Atlantic will probably argue that the Soviets are simply not capable of producing a tank with the very sophisticated characteristics attributed to the FST-2. We should keep in mind, however, that the same sources once believed the combination of a large caliber main gun, an innovative engine, and the use of composite armor was too sophisticated for the U.S. Army to field at the same time the Soviets fielded the T-64. While the technology is very different from some of the claimed capabilities of the FST-2, the combination of new main gun technology, engine designs at least equal to those of the West, and truly innovative armor developments have already been accomplished by the Soviets. There is, therefore, no reason to assume that the Soviets are suddenly incapable of achieving what they have already achieved twice before.

Several sources claim that NATO has underestimated Soviet tank technology. According to *Soviet Military Power 1989*, Soviet tank technology is not only equivalent to that of the United States, the relative technology level is in fact changing significantly in favor of the Soviet Union. "We discovered...that things we had predicted they would have 10 years from now, they already had."<sup>11</sup>

Whatever the actual capabilities of the FST-2, it appears that the U.S. Army has already started to react to the possibility of it carrying a new 135-mm main gun. Unclassified sources reported in 1988 that a new type of tank armor incorporating depleted uranium has been developed. U.S. M1A1s fitted with this new armor, unofficially referred to as "heavy metal tanks," may be the first reaction to the appearance of another technically superior Soviet tank.

The historic appearance of the T-34/76 seems to mark only the first example of the Soviet Army surprising its enemies with a new and very innovative tank. This capability was seen a second time with the fielding of the T-64. Had the T-64 gone into battle against the NATO tanks of the '60s and '70s, it would have certainly ruled the battlefield. Although the fielding of the T-64 was directed at only the potential enemies of the Soviet Army, its impact was even more dramatic and is still being felt today. The fielding of the FST-2 may represent the third time the Soviets have been able to surprise their adversaries by fielding a technically superior tank. We must identify this new threat, counter and beat it, before it is allowed to surprise and defeat its potential adversaries on some battlefield of the future. If we are surprised again, as the Germans were with the T-34/76, and the NATO armies were with the T-64,

the Soviets may achieve an advantage that is non-recoverable. Like the T-64, the FST-2 may be the tank that can win the next war.

## Footnotes

<sup>1</sup> Guderian, General Heinz, *Panzer Leader*, November 1957, p. 143.

<sup>2</sup> *Ibid.*

<sup>3</sup> Zaloga, Steven J. and Loop, James W., *Soviet Tanks and Combat Vehicles 1946 to the Present*, 1987, p. 61.

<sup>4</sup> Warford, Captain, James M., "T-80: The Soviet Solution," *ARMOR*, January-February, 1987, p. 32.

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

<sup>6</sup> Schneider, Wolfgang, "T-64 Update," *International Defense Review*, September, 1989, p. 1146.

<sup>7</sup> Isby, David C., *Weapons and Tactics of the Soviet Army Fully Revised Edition*, 1988, p. 140.

<sup>8</sup> *Ibid.*, p. 149.

<sup>9</sup> Zaloga and Loop, p. 61.

<sup>10</sup> Donnelly, Tom, "Soviets Plan Exotic Tank for the '90s," *ARMY TIMES*, October 10, 1988, p. 31.

<sup>11</sup> "A Failure Of Intelligence," *Newsweek*, May 16, 1988, p. 21.

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# Our Need to Develop...

by Colonel Len Hawley

*"Initiative and battlefield aggressiveness come not from some intangible, heroic virtue; but spring forth when soldiers and leaders know what is happening and can anticipate what likely will happen."*

Today, we rely on "smart" bombs and bullets to do the job on the battlefield and to give us the qualitative edge over our enemy. We also use "intelligent" networks and "expert" systems to do jobs with greater speed, consistency, and precision. Perhaps it is time to explore the concept of "brilliant" battalions — combat maneuver units that get the job done by collecting better information, by making better estimates of the situation, and by minimizing the chaos and confusion on the modern battlefield.

This article examines why our current combat maneuver battalions may fail in battle and suggests ways to reduce the chance of failure. This subject is not glamorous: information movement and management. For the muddy boots types, call it C<sup>3</sup>I and remember all the times that a tactical exercise didn't go right because someone didn't get the word, someone should have reported something but didn't, or someone didn't sufficiently address a critical factor (METT-T) in planning the operation. We've all been there and learned, but most of us are still in the Dark Ages when it comes to streamlining our C<sup>3</sup>I processes in combat maneuver battalions.

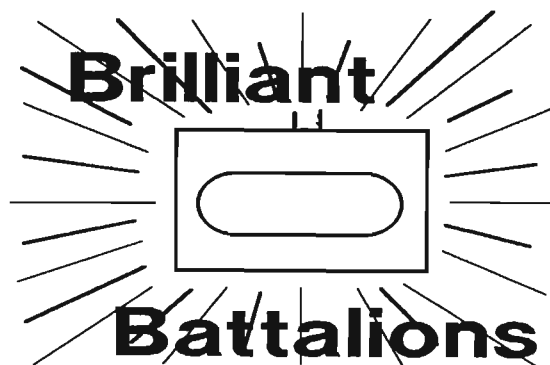
## Common Battlefield Failures

Our experiences in fighting the OPFOR at the Army's National Training Center at Fort Irwin, California, highlight common battlefield failures of U.S. Army maneuver battalions. The most persistent weaknesses are shown here:<sup>1</sup>

- Lack of initiative and a failure to take risks.
- Failure to see the battlefield.
- Insufficient analysis of the situation.
- Failure to plan in detail and use time effectively.
- Poor coordination of plans between higher, lower, and adjacent units.
- Poor land navigation. Inaccurate reporting of friendly or enemy locations.
- Weapons not positioned according to terrain to maximize their lethality and survivability.
- Fratricide by direct and indirect fire.
- Lack of information concerning unit status and requirements.

These serious problems lead to defeat on the battlefield. What is disconcerting is that they don't seem to go away. The fundamental cause of these problems is a failure to manage and move vital information within the maneuver battalion.

Look at the weaknesses listed above — they all center on the collection, transmission, analysis, assessment, and communication of information. This assertion drives home one of Sun Tzu's maxims: "The power of estimating the adversary, of controlling the forces of victory, and of shrewdly calculating the difficulties, dangers, and distances constitutes the test of a good leader. He who knows these things, and in fighting puts his knowledge into practice, will win his battles. He who knows them not will surely be defeated."<sup>2</sup>



## Information: A Combat Resource

As Sun Tzu indicates, you can't get the job done in battle without good information. That is why information must be considered a decisive resource — perhaps more important than bullets, fuel, medical supplies, or repair parts. Moreover, information provides more than just facts, statistics, and intelligence. In S.L.A. Marshall's words, a soldier's spontaneous initiative and fighting spirit for aggressive action depends on keeping him informed with real battle information.<sup>3</sup> All combat is exploratory. Fighting an undefined enemy on unknown terrain without good information is like groping around blindfolded in a room full of vipers — no one would be aggressive. Initiative and battlefield aggressiveness come not from some intangible, heroic virtue; but spring forth when soldiers and leaders know what is happening and can anticipate what likely will happen. Hence, the decisive power of information.

Those who manage information best will win. In nature's most fundamental competition of survival of the fittest, man dominates all other species because he uses information better. He collects, he analyzes, he learns, and he reasons. So it is with fighting units — those that acquire and manage information best will dominate an adversary in combat. We see this every day at the National Training Center, where the OPFOR wins about 80 percent of the battles. While American com-

manders cite many excuses for repeated OPFOR success, the fundamental advantage the OPFOR enjoys is that it manages battle information better than American units. We've got to turn this around.

### **Brilliant Battalions Vs. Stupid Legions**

Historians cite many great battles where smaller, but better trained and more intelligently led forces defeated larger, but poorly trained and dogmatically led forces. In recent times, the successive Israeli victories on the Golan Heights and in the Sinai are strong evidence that fighting battalions, using intelligent tactics and highly-trained soldiers, can defeat numerically superior forces. Clearly, there is a strong argument for investing in "brilliant" battalions.

What is the potential return on that investment? What is the payoff in investing in "brighter" battalions rather than more battalions or more firepower? What are the relative merits of "intelligence" versus "force?" While such comparisons are hard to measure, one Army Research Institute study provides insights into the potential payoffs: Increasing "force" ratios from low to high increases a unit's chances of success about threefold, while increasing "intelligence" ratios from low to high increases a unit's chance of success about thirty-fold! The payoffs can be significant. The leverage provided by "brilliant" battalions significantly increases our chances of battlefield success.<sup>4</sup>

### **The Path to Brilliance**

What must we do to field "brilliant" battalions? Obviously, tactical training focused on intelligent tactics and skillful employment of weapons is essential. Moreover, leader development of young officers is critical to provide com-

petent, credible, and caring leadership. Competent battle leaders know the effects of battle information on a unit's initiative and fighting spirit, and they practice good communications as a matter of discipline and routine. However, many units have good communications by virtue of the way they operate, but don't solve the information management problems that cause defeat.

We must address the battle information management problems up front, rather than relegating them to one of several issues under the title of command and control. Here is what we need:

- Solve the intra-unit communications problems. Make "chatter" informative and meaningful, rather than formal, irregular, and unproductive.

- Let commanders "see the battlefield." Narrative descriptions over the radio net don't cut it. They are slow, incomplete, or inaccurate, and probably don't help in making key decisions.

- Provide comprehensive analysis of the situation as it develops. The data is there; we must find a way to move and display it faster. Help the staff develop better assessments for the commander. Don't rely on guesses or "what the boss wants to hear."

- Help the battle staff develop detailed plans for air defense coverage, fire support, barriers, or resupply and evacuation. Stubby pencil plans written by exhausted staff officers usually don't work or arrive too late to affect the battle.

- Fix the land navigation problems. In rapid maneuver warfare, accurate day and night navigation is absolutely critical for tactical success.

- Solve the weapons positioning and fratricide problems. We need to figure out how to tell our crew leaders not to shoot at our own guys.

- Make updates of unit status (fuel, bullets, personnel, sleep) an

automatic function. Why should an exhausted, frightened tanker have to count and report how many tank rounds he has on board? Whatever he says is probably inaccurate.

When we solve these challenges, we will enjoy good battle information management, and we will field "brilliant" battalions.

### **The Technology of Brilliance**

Technology can partly solve these challenges. We are on the threshold of an information revolution, and the Army can possess the results of technical progress by bringing that technology to combat maneuver battalions for competitive advantage. Our strategy with regard to battle information management should center on these technologies:

- Neural Networks: These networks aid in the automatic diagnosis of weapons, vehicles, and systems. The primary uses would be to give automatic updates on combat readiness and status, including ammunition, fuel, maintenance, etc. The same approach can extend to the soldier: we can automatically measure and report fatigue, emotional stability, and physical fitness to withstand combat. Commanders no longer have to grope around, wondering, "Is my unit ready to fight?"

- Digital Information: Information can be transferred faster, more securely, and in greater quantity using digital data transfer. Today, we can send not only voice, but also pictures and data using digital systems. The staff no longer has to rely on verbal reports or messengers to say "10,000 words."

- Graphic Display: A picture is worth "10,000 words." TV screens supported by digital information transfer enable commanders and staffs to get the big picture quickly and accurately. With some good thinking, we can provide the com-

mander just what he needs to know to make good decisions. He can see the battlefield and react quickly.

● **Position Locating Systems:** The most vital piece of information on a chaotic battlefield is: "Where am I?" Today, the answer to that question is usually wrong. But now we can provide the answer to the commander automatically, with eight-digit-coordinate accuracy. The benefits are significant: no one gets lost, we reduce fratricide, and the commander knows exactly where his forces are, so he can execute skillful fire and maneuver.

● **Expert Systems:** Computer software can take the errors, delays, and incompetence out of detailed planning. Expert systems are accurate, fast, and skillful — why have a fire support plan that is late, or doesn't support the scheme of maneuver? In addition, expert systems can monitor critical task accomplishment during battle preparation, including changes in task organization, movement of supplies, and completion of minefields. Further, they can aid staff officers in resource allocation and scheduling. Every commander wants to go into battle with the best staff support, and expert systems can make a good staff into a great staff.

● **Artificial Intelligence (AI):** AI software can provide the commander comprehensive situation assessments of enemy and terrain (METT-T). The commander can save the precious time used for terrain recon by using AI-developed recon plans. Further, AI can produce enemy attack options (or defense options) that integrate enemy capabilities and enemy commanders' styles. An AI system can probably "think like the enemy" better than the S2, to provide the commander a thorough picture of the enemy's options. An AI system can integrate terrain and weapons capabilities to maximize weapons effects on the enemy. Lastly, an AI system can help the commander an-

ticipate major problems in his distribution, timing, and concentration of combat power, and can focus the commander's attention on the key information he needs to control his units on the battlefield.

The technology of battle information management is emerging and being applied within many competitive environments, from professional and college sports, to financial markets, to even illicit drug trafficking. All these competitive environments employ leading-edge information technology at the lowest level — on the front line — to win each "battle." We must do the same: generate informed soldiers led by intelligent officers to fight and win.

### **Obstacles to Brilliance**

There will be naysayers, and they will be the greatest obstacle to the initiative to field "brilliant" battalions. Here are some common arguments:

*"You can't replace the commander."* True, you can't replace the commander, but you sure can help him with accurate and timely information. Napoleon used messengers. Grant used the telegraph. Rommel used the radio. Today, we have much more technology available. Tomorrow's winning general will use the computer, digital comms, and visual displays.

*"This is a substitute for cohesion and leadership."* Absolutely not! Human cohesion and credible leadership can't be replaced or substituted. But good battle information can enhance cohesion and enable warrior-leaders to be more skillful on the battlefield — thereby enhancing a soldier's fighting spirit.

*"The Army's too complex already."* This is a bias against progress and change. The modern battlefield is complex and chaotic. Timing, dis-

tances, enemy capabilities, weapons effects, etc. have forced complexity upon us. Good battle information systems can reduce the complexity and focus attention on key variables, making commanders' decisions easier. The important point is to do it right. The warfighter's requirements must be clear and accurate, and the combat development community must give the warfighter what he wants, rather than what it think he needs.

The key to countering the obstacles of brilliant battalions is to overcome our strengths — perceptions of tough, hard-nosed, warriors who beat the enemy with brute force and more firepower. In reality, winning wars is a thinking process — giving our soldiers the best warfighting support (i.e. cohesion, leadership, training, discipline) and good and timely battle information so he can defeat the enemy.

### **Notes**

<sup>1</sup>Samuel C. Endicott and Earl Pence, NTC Leadership Lessons Learned, Combined Arms Training Center, Ft. Leavenworth, Kan., July 1986, pp. 8-18.

<sup>2</sup>James Clavell, ed., The Art of War by Sun Tzu. Delacorte Press: New York, 1983, p. 53.

<sup>3</sup>S.L.A. Marshall, Men Against Fire, p. 48.

<sup>4</sup>Roland J. Hart and Robert H. Sulzen, "Comparing Success Rates in Simulated Combat: Intelligent Tactics vs. Force," Armed Forces and Society, 1988 Winter, pp. 272-284.

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# Task Force Smith: A Revised Perspective

by Captain Robert J. Kmiecik

## Foreword

*I propose to lead you on a short journey through my historical world. In my world, politicians don't make mistakes and military operations always seem to run smoothly for the good guys.*

*The italicized notes explain the actual way things occurred. If a particular event came solely from one or two sources, I've noted that. Otherwise, the information comes from the composite of sources in the bibliography. Unless I tell you something different, the events stand as presented.*

Congress was not easily lulled into believing the threat of a renewed war did not exist. They had learned from their mistakes and did not dismantle the mighty war machine that had sprung up during World War II. The military situation of the United States in June 1950 proved far superior to that of December 1941.

*The Armed Forces were no better off than they were before World War II. The government had demobilized us once again. Besides, we had The Bomb. Who needed an army?*

The U.S. Eighth Army, under the command of General Walton H. Walker, consisted of the 7th, 24th, 25th, and dismounted 1st Cavalry Divisions. These divisions remained at full strength with well-seasoned and highly-motivated troops, and the newest and best equipment the Army had to offer. Although serving constabulary duty in Japan, their

level of training remained high, keeping them set for combat at a moment's notice.

*The regiments had only two of the three authorized battalions. Artillery battalions had only two of their three firing batteries. Only units in the European theatre remained at full strength. As for the combat readiness, the 24th had the lowest combat efficiency rating: 64 percent. Not that the others ranked so high; the 1st Cavalry, rated only 84 percent, scored highest. The best equipment and effort went to Europe. Appleman, Roy E., South to the Nakdong, North to the Yalu, United States Army in the Korean War, (Office of the Chief of Military History. Washington: U.S. Government Printing Office, 1961, reprinted 1986). p. 49. Hoyt, Edwin P. The Pusan Perimeter. New York: Stein and Day, Inc., 1985. p. 48.*

At approximately 0400, 25 June 1950, the North Koreans commenced their attack. U.S. forces, although surprised by the sudden nature of the onslaught, had adequately prepared for such an event. The United States quickly put into effect its well-planned and rehearsed contingency operations to delay the advancing communist hordes.

*Surprise reigned! The U.S. would take days to unravel the political red tape prior to attempting even the simplest coordinated actions.*

Task Force Smith, composed primarily of the 1st Battalion, 21st Infantry Regiment, 24th Infantry Division, commanded by LTC Charles B. Smith, received orders to

deploy immediately. COL Stephens, Smith's regimental commander, told Smith to take his battalion, less A and D Companies, to Itazuke Air Base. They would fly to Korea immediately. General Dean, newly appointed commander U.S. Army Forces in Korea (USAFIK), would meet Smith at the airfield to brief him on the mission. At the airbase, General Dean told him:

"When you get to Pusan, head for Taejon. We want to stop the North Koreans as far from Pusan as we can. Block the main road as far north as possible. This packet contains the most current enemy situation we have. General Church will give you further guidance and details once you have landed. That's all I've got. Good luck to you, and God bless you and your men."

*Appleman, p. 60. Italics actually read, "Contact General Church. If you can't locate him, go to Taejon and beyond if you can. Sorry I can't give you more information."*

At the time of departure, Smith's unit consisted of two fully strengthened rifle companies, B and C; the headquarters company; a communications platoon; a 75-mm recoilless rifle platoon of four guns; and four 4.2-inch mortars. The organization of B and C companies included six 3.5-inch rocket launchers and four 60-mm mortars. Each man had 360 rounds of .30 caliber rifle ammunition and three days of C-rations.

*Both companies were under-strength; it had only one half each of*

*the headquarters and communications platoons; he brought only two of the 75-mm recoilless rifles and only two out of the four 4.2-inch mortars; the bazookas were the outdated 2.36-inch version; each man had only 120 rounds of ammo and two days' rations.*

The airlift occurred with no problems. The remainder of Smith's battalion, principally A and D Companies, would travel by ship to Korea and link up on the perimeter if time permitted. Upon landing in Pusan, Smith's contingent quickly boarded trains and traveled to its staging area in Taejon.

*Travel to his forward positions became one of Smith's greatest problems. The airlift proved inadequate and slow due to weather and availability of C-54s. On the trip north through Korea along rail and road, Smith had to contend with refugees fleeing south, and South Korean drivers who refused to go north toward the fighting.*

With his men in bivouac, Smith and his principal officers got into jeeps and proceeded forward to recon their position near Osan. They found a highly defensible position about three miles north of Osan, where the main road ran through a low saddle, with hills that commanded both the approaches on the road and on the railroad tracks to the east. From this position, Smith could see the highway and the railroad almost the entire distance to the town of Suwon, eight miles to the north.

Having returned from the recon, Smith moved his task force initially to P'yongt'aek where it united with part of the 52d Field Artillery Battalion, consisting of A Battery with six 105-mm howitzers, and one-half of each the Headquarters and Ser-

vice Batteries. LTC Miller O. Perry commanded this contingent of 73 vehicles and 108 men. Task Force Smith arrived at its defensive positions north of Osan at approximately 0300 on 4 July. The highly-trained soldiers quickly began moving their supplies up the hills from the roadway. By the next evening, the soldiers completed excellent fighting positions with overhead cover and communication trenches.

*Task Force Smith pulled into its positions at 0300 on the 5th, just four hours before the start of the North Korean attack.*

Work began simultaneously on the barrier plan to aid in delaying and destroying the expected armored force. Task Force Smith had received a large portion of the antitank mines the government had so wisely stockpiled in the event of an armor-heavy attack from North Korea. They placed these in a series of close belts to the rear of the saddle, forming a kill sack between the infantry and the artillery. Smith also placed a minefield approximately 1500 meters to the front of the infantry and had the artillery, 2000 meters behind the infantry, register their guns out to 4000 meters, giving him a 500-meter kill zone.

*Smith had no mines. He surely needed them though. He did, however, register his artillery.*

Perry placed two of his 105-mm howitzers in overwatch, covering the fire sack to the rear of the saddle. Of his 1,200 rounds of ammunition, 200 consisted of high explosive antitank and the remaining 1,000 high explosive. Perry gave 25 rounds of antitank munition to each of the two overwatching howitzers for use in the direct fire mode. The remaining ammunition went to the rest of the

firing battery set up about a kilometer farther down the road.

*Only six of his 1,200 rounds were antitank. He placed one howitzer, instead of two, to the rear of the infantry, and gave the six AT rounds to that gun.*

Smith placed one platoon of B Company on the high ground to the west of the road with the remaining two platoons immediately to the right of the road. C Company occupied the remainder of the high ground to the right of the road over to a position where they could cover the railroad tracks to the east. Each company placed one 75-mm recoilless rifle toward the forward engagement area and one to the rear covering the southern kill sack. They dug alternate positions for each to allow Smith the option of using all four at one time. Smith placed the 4.2-inch mortars on the reverse slope of the ridge about 400 meters behind the center of B Company's position.

*Because he had only two 75-mm rifles, Smith chose to employ them both to the front of the task force. The gunners dug no alternate positions.*

The communications platoon established redundant wire connections to all the fighting positions. Positive communication with both wire and radio existed between Smith and Perry. The forward observers with each company had little problem communicating with the field artillery and mortars.

*In actuality, communications remained poor. The wire, old and spliced from past use, worked intermittently at best. The radios, wet from the constant drizzle, proved ineffective. Later in the battle, the enemy tanks blew through the initial defen-*

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ses and cut all wire communication to the artillery.

With the preparation for the defense complete, Task Force Smith had only to wait for the enemy, if he dared to come its way, and make small improvements on its excellent defensive positions. Within a day, the remainder of the battalion should arrive to strengthen the line.

*From the time Task Force Smith pulled into its positions, there were only four hours of preparation before the North Korean attack commenced.*

"In the early gray dawn of July 5, SGT Loren Chambers yelled, 'Hey, look over there, lieutenant. Can you believe!' Looking down the road toward Suwon, I made out a column of tanks. Seems like there were eight of them. I couldn't believe my eyes. 'What are those?' I asked. Chambers answered, 'Those are T34 tanks, sir, and I don't think they're going to be friendly towards us.' The company commander was called. Everybody got really excited about them. The day was beginning in earnest."

*Quote from ILT Philip Day, Jr. Knox, Donald, The Korean War, An Oral History, Pusan to Chosin. New York: Harcourt Brace Jovanovich Publishers, 1985. P. 19.*

The T34s, the first eight only the spearhead for the main body, rolled up and ground to a halt at the first minefield. Although only surface laid and easily spotted by the enemy tankers, the mines produced the desired effect. The tanks stopped in the open. This served as the signal for the artillery to begin firing.

*No mines. The tanks kept rolling.*

The combination of both HE and AT rounds worked well. The mass

of HE artillery dramatically slowed the dismounted attempts to clear the minefield although it had little effect on the armored vehicles. The AT rounds, however, took their toll of T34s, resulting in five kills before the enemy breached the obstacle and continued to advance.

*Although massive artillery fire rained in on the enemy tanks, the standard HE round had little effect, even with direct hits. No enemy losses reported. The tanks kept rolling.*

The 75-mm recoilless rifle teams held their fire, as ordered by Smith, until the advancing tanks were within 700 meters. The chance of missing the T34s at this range proved slim, and the rifles immediately scored direct hits. These frontal shots produced little damage though, and the T34s continued to roll toward the American defenses.

Seeing the situation rapidly getting out of hand, Lieutenant Philip Day and one of the 75-mm recoilless rifle teams moved its piece to a predetermined alternate position that afforded good flanking shots on the T34s as they approached. The team fired two well-placed killing shots before falling farther back to another position covering the southern engagement area.

*ILT Philip Day — "We picked up the gun and moved it to where we could get a clean shot. I don't know if we were poorly trained, weren't thinking, or if it slipped our minds, but we set the gun on the forward slope of the hill. When we fired, the recoilless blew a hole in the hill which instantly covered us in mud and dirt. The effect wasn't nearly as bad on us as it was on the gun. It jammed and wouldn't fire..." Knox, p. 20.*

As the T34s crested the road through the saddle and began down

the other side, the two 105-mm howitzers greeted them with direct AT fire from the front. In the saddle, Lieutenant Ollie Conners effectively used the Army's new 3.5-inch rocket launcher on the grill doors of the T34s. Conners fired 22 rounds, single-handedly killing 15 enemy tanks. The howitzers firing the AT rounds accounted for six kills, and the remainder of the T34s became targets of opportunity for the bazooka teams of Task Force Smith.

*As noted earlier, there was one howitzer placed to the rear of the infantry. The 2.36-inch rockets proved useless even against the rear armor of the T34s. Conners fired 22 rounds within fifteen meters without scoring even a mobility kill. The howitzer killed one tank with the direct fire AT rounds and succeeded in stopping one other. The third T34 through the saddle knocked out the ambushing howitzer. Appleman, p. 69-70. Alexander, Bevin, Korea, The First War We Lost. New York: Hippocrene Books, Inc., 1986. p. 58-59.*

In all, 33 enemy tanks were destroyed. Task Force Smith suffered few killed or wounded and retained its key defensive position along the saddle. Morale rose to new heights as the soldiers realized the war had actually begun and the first victory belonged to them.

*The final tally stood at four tanks killed (including mobility kills) and three tanks damaged but operational. Twenty-nine T34s made it through Task Force Smith's position and continued south. American morale sank to a new low. Appleman, p. 72.*

The North Koreans, stunned by what they thought would be an easy victory, delayed six hours before pressing the offensive. This allowed time for a quick resupply of Task Force Smith and, at 1100, the sol-

*"Several important lessons jump out. First, as long as the United States remains a democratic nation, politicians will make decisions not necessarily militarily sound. Second, never underestimate your enemy. Third, if you don't have the necessary equipment to kill your enemy, or it's broken from lack of maintenance, don't expect to win."*

diers of A and D Companies arrived. Although tired from the long journey, this new addition of fresh manpower to the Task Force Smith defense helped in the next battle.

*The North Korean infantry followed about an hour after the tanks had passed. A and D Companies never made it forward in time for this battle.*

At about 1500, LTC Smith observed a long enemy column moving south out of Suwon. The column consisted of three tanks followed by trucks loaded with soldiers, then columns of marching men stretching back several miles. In total, two full regiments of Korean infantry, the 16 and the 18th, steadily approached the American forces.

*Adjust time to approximately 1100.*

Smith patiently awaited the approach of the enemy, holding fire until they reached within 1,000 meters of the friendly positions. Smith attacked with every weapon he had. Machine guns raked the dismounted enemy. Mortar rounds rained down upon them as they tried to exit their trucks. The HE fired from the 105-mm battery caused the most damage, landing in the closely-knit columns of marching infantry.

By the time the North Koreans could reassemble their forces, the artillery and direct fire had killed nearly 50 percent of their force.

*Smith had no communication with the field artillery at this point. Without the howitzers in support and*

*short on men, Task Force Smith became overwhelmed by the advancing Korean infantry. Its defense quickly turned into a disorganized rout. Task Force Smith suffered over 150 men killed, wounded, or missing, and failed even to slow the advance of the North Korean Army.*

The North Koreans had little chance now of gaining passage down the road. Task Force Smith, defending in nearly equal numbers at this point, occupied easily defensible terrain from well dug in and prepared positions. The North Koreans, having faced the most determined foe they had ever seen, already began formulating doubts as to their continuance of the war.

*We got kicked all the way back to Pusan.*

#### Afterword

Hopefully you have learned something from this little peek into history. Several important lessons jump out. First, as long as the United States remains a democratic nation, politicians will make decisions not necessarily militarily sound. Second, never underestimate your enemy. Third, if you don't have the necessary equipment to kill your enemy, or it's broken from lack of maintenance, don't expect to win. This includes both weapons and support equipment, such as radios and wire.

To the fighting men of Task Force Smith, although this essay may appear at times a bit irreverent, you have my deepest respect for at least attempting to accomplish an impossible mission.

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Captain Robert J. Kmiecik is a 1985 graduate of Davidson College, N.C. Currently assigned as S3 Air of 2-10 Cavalry, he previously served in 1/11th ACR as a tank platoon leader, scout platoon leader, S3 plans officer, and troop XO. He received the AOAC 4-89 Award for Writing Excellence for this article.



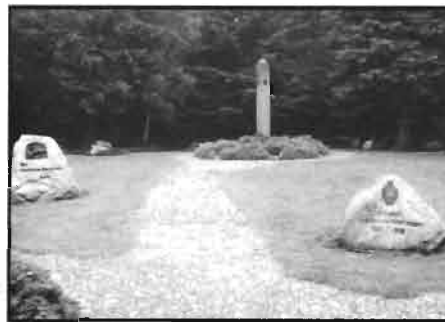
Finale of demonstration by Panzerlehrbrigade 9



Panzermuseum adjacent to school



New academic facility nears completion



Memorial to German armored forces

## The "Fort Knox" of the German Army

by Lieutenant Colonel Phillip J. Linn

Nestled deep in the heather country of northern Germany, almost midway between the port city of Hamburg in the north and the Lower Saxony state capital Hannover in the south, lies the Armor School of the German Army, *Kampftruppenschule 2*. Located in the town of Munster, Combat Arms School 2 is home to the *Bundeswehr's* four armored combat arms branches — armor, armored reconnaissance, mechanized infantry, and anti-tank.

Although the armor school's relationship with Munster dates from 1955-56, with the formation of

the Bundeswehr, the town's connection with the German military can be traced back to 1892, when the War Ministry in Berlin purchased 48 square kilometers of land southwest of the village for a training area for the 10th Hannoverian Army Corps. Colonel Paul von Hindenburg, later the hero of Tannenberg and president of the Weimar Republic, was the first commander to bring his infantry regiment here to train in 1893.

In 1916, an additional parcel of land was purchased north of Munster for a training and testing area for chemical warfare. During

WWI, more than a quarter of the chemical munitions of the German Army were produced at this facility.

Beginning in 1939, the Munster camp and training area were used to train replacements for the *Wehrmacht*, and as the war progressed, prisoners of war occupied many of the barracks facilities. The nearby chemical facility was one of several in the Reich which produced, tested, and stored chemical munitions, which were never used. After the war, some 1-1/2 million German soldiers were processed through the camp at Munster for repatriation, and count-

less refugee families from the east also used the facilities for temporary lodging.<sup>1</sup>

With the formation of the *Bundeswehr*, the Armor School and Armored Infantry School were established in Munster in 1956, later joined by the Armored Reconnaissance and Anti-Tank Schools in 1958. Looking back on the experiences of World War II, the leadership of the new army was convinced that true combined arms cooperation between the branches of the heavy ground forces had to be achieved at the grassroots level through the establishment of a school center incorporating all the armored combat branches. This was officially achieved in 1972, when all four schools were integrated into one, and in 1975, the school became Combat Arms School 2.

In many respects, the German Armor School corresponds to its U.S. counterpart at Fort Knox, but differs substantially in others. As its name implies, it is first and foremost a school; in contrast to the U.S. Army Armor Center, it is not staffed to be the proponent for most armor-related issues (which are handled by the German Army Office and Ministry of Defense).

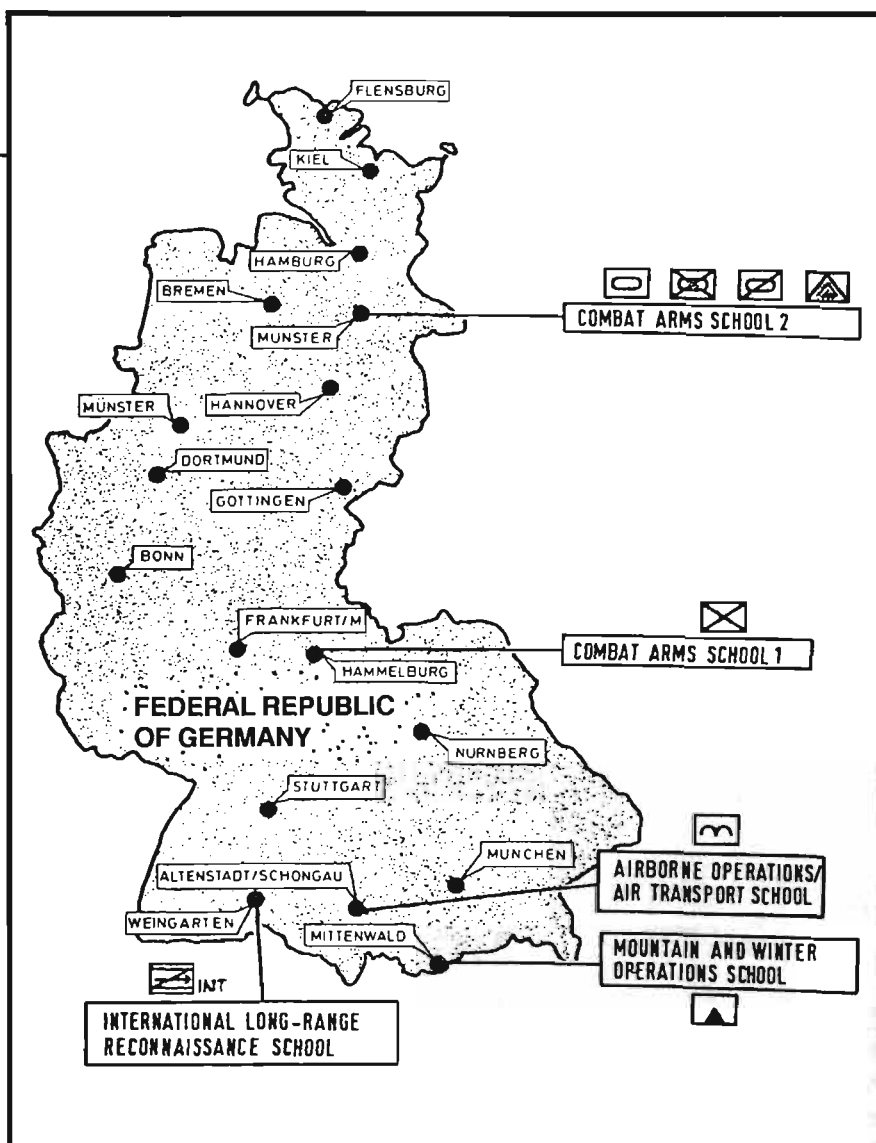
Of its three primary missions, most important is the branch-specific training of the commanders and future commanders of the four armored combat arms branches. This includes courses for NCO candidates up through battalion and brigade commanders. Unlike the U.S. Army, the *Bundeswehr* does not provide both basic and advanced individual training for the soldiers of the armored branches at the Armor School. Recruits receive this training during their initial six months in their actual unit of assign-

ment. Branch-specific training continues in the unit throughout the remainder of their 15-month obligation (an exception is drivers' training; tank drivers receive an intensive two-week driving course at special driving schools located within each of the three German corps areas). The German Armor School "trains the trainers" (officers and NCOs), who then are expected to return to their units and train the recruits.

A second primary mission is development of doctrine and improvement of weapons and equipment. This mission is accomplished by the ATV Directorate (*Auswertung, Truppenversuche, Vorschriften* - Evaluation, Troop Tests, and

Field Manuals), similar in some respects to the Armor and Engineer Board and the Directorate of Combat Developments at Fort Knox. The ATV Directorate examines and evaluates foreign military literature, tests new combat vehicles and equipment, and writes manuals to keep pace with doctrinal, organizational, and equipment changes.

The final primary mission is to provide an active public relations and information program designed to accurately portray the capabilities of the armored combat forces to the German public, the military, and to visiting foreign dignitaries and delegations. To accomplish this, the Armor School





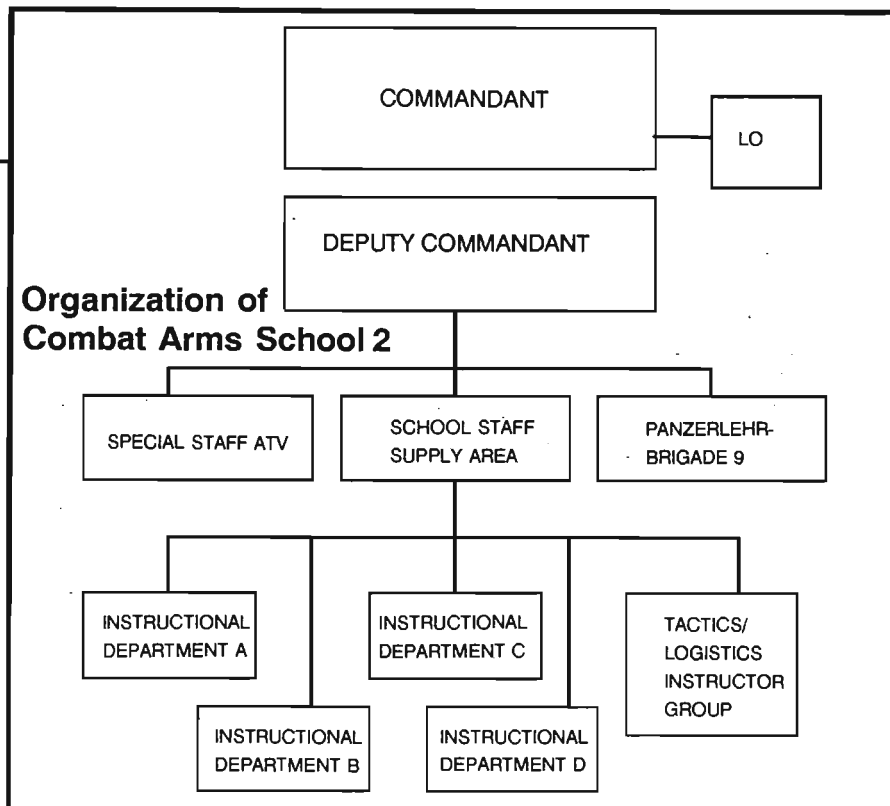
uses the expertise and units of *Panzerlehrbrigade 9*, a reinforced armor brigade of the 3d Panzer Division. *Panzerlehrbrigade 9*, also located in Munster, puts on more than 50 battalion- and company-level demonstrations a year, viewed by nearly 8,000 students and visitors annually. As a brigade in the active field army, it must also perform its normal training and GDP mission.

To assist in this public relations mission and to reinforce and complement the historical underpinnings of the school itself, the town of Munster has cooperated with the *Bundeswehr* in providing the facilities for the Panzer Museum, an ever-expanding display of German armor vehicles from World War I to the present, as well as uniforms and weapons from these and earlier periods. More than 70,000 visitors viewed these exhibits during the past year.

Combat Arms School 2 is organized as depicted in the diagram above. Department A is responsible for training both active and reserve officers and officer candidates, primarily at platoon leader and company commander level. Special courses for battalion and higher level commanders are also provided, as well as a semi-annual "civilian leadership" course for selected leaders throughout the civilian and government sectors.

Unlike the AOBC and AOAC courses at Fort Knox, the platoon leaders' course lasts three months and the company commanders' course lasts four weeks. The school welcomes allied officers to its company commanders' course, where a well-qualified and articulate foreign officer can contribute substantially to a better understanding of tactical interoperability.

### Organization of Combat Arms School 2



Department B trains NCO platoon leaders (by TOE, *Bundeswehr* line companies have only one officer platoon leader; the other platoon leaders are NCOs) as well as reserve officer platoon leaders for the mech infantry and anti-tank forces. Anti-tank officers receive their basic and advanced training here as well.

Department C offers NCO and reserve officer platoon leader courses for the armor and cavalry branches, but concentrates also on providing the weapons, gunnery, and vehicle-specific courses to supplement the tactical and logistical elements of the platoon leader courses. For example, in the armor platoon leaders' course of three months, a four-week gunnery instruction block is included, after which the platoon leader, either officer or NCO, is a qualified gunnery instructor on either the Leopard 1 or Leopard 2 tank. Mechanized infantry platoon leaders, who spend six weeks mastering all the weapons systems of the Marder infantry fighting vehicle receive similar gunnery

instruction. Department C also offers additional technical courses in communications and vehicle driving.

Department D is responsible for training NCO and reserve officer candidates. The focus here is to produce junior leaders skilled as squad leaders and tank commanders.

While small group instruction at Combat Arms School 2 differs somewhat from that practiced at Fort Knox (i.e., the U.S. principle of students teaching each other is not as widespread here), the principles of small groups, individual preparation and participation, and supervision and administration by group leaders are the norm. The teaching philosophy emphasizes four areas: tactical proficiency in combined arms combat; technical proficiency oriented toward instruction of others; leadership proficiency designed to promote the concept of the "citizen in uniform"; and finally, individual military skills which the soldier must master to survive in

## Munster:

### "Nature in the City"

Combat Arms School 2 is located in the heather-and-moor country of northern Germany, about half-way between Hamburg and Hannover, in Lower Saxony.



View of the 'Mühlenteich': Munster has integrated nature into city life.



The Ollershof, an old farm house preserved as a museum.



The Old Mill at Munster.

combat. The positive aspects of German military history and tradition receive emphasis throughout the school. The "*Gruppe Truppenfachlehrer*" (Tactics/Logistics Instructor Group), provides subject matter expertise through tailored instruction in combined arms tactics, engineer and artillery support, communications, NBC, and logistical support. Formal physical fitness instruction is also provided. Attached to this group of subject matter experts, but responsible to the school commandant, are the foreign liaison officers – French, British, and U.S. (The U.S. liaison slot to the Armor School is one of thirteen such school slots throughout the German Army.)<sup>2</sup>

In an era of limited resources, environmental concerns, and skyrocketing costs, the German Armor School plans to meet the challenge of the 21st century with numerous training devices and simulators. In fact, simulators are not new to Combat Arms School 2; for several years it has used a driving simulator to help train its tank drivers. Its tank drivers' course is superb, and has been emulated by other schools, including Fort Knox.

For tank gunnery training as well as small-scale, force-on-force maneuver training, the Germans use the AGDUS device (SAAB BT 41, which will correspond to the U.S. TWGSS). This laser trainer, unlike MILES, allows the gunner to consider lead, superelevation, range, and type of ammunition and gives him a hard copy evaluation of his performance.

For both dry firing and live fire gunnery training, the through-the-sight video device allows a control station to monitor the gunner's sight picture throughout the firing sequence; the controller may even

override the gunner's attempt to fire, if the gunner has not attained the proper sight picture. This device, already used to prepare the German CAT teams, will be introduced at the school in 1990.

An additional gunnery aid, the 35-mm in-bore device, is a cost-effective alternative to firing tank main gun rounds. With both HEAT and SABOT 35-mm ammunition, which closely resembles the ballistic characteristics of 105-mm and 120-mm rounds, realistic gunnery training can be achieved at low cost.

With the completion of the new instructional building at the school, a platoon gunnery trainer, called ASPA, will allow both maneuver and gunnery training at the platoon level (the equivalent of a platoon UCOFT and SIMNET rolled into one). The school is also projected to receive a maneuver simulator (along the lines of SIMNET) and several crew gunnery simulators in the early 1990s.<sup>3</sup>

Combat Arms School 2, its host town of Munster, and the surrounding heather and moor country offer an interesting contrast to the areas in southern Germany normally frequented by Americans. The town hosted a state exhibition of "Nature in the City" throughout the spring and summer of 1988, demonstrating to all who visit what a town with a little imagination and enterprise can do to bring "nature into the city." Munster also maintains a sister-city relationship with Radcliff, Kentucky, which, like Munster, enjoys a special relationship with its neighboring armor school at Fort Knox.



World War II-era "King Tiger," painted in the "ambush" camouflage scheme, on display at the Panzermuseum, part of the German Armor School at Munster. This 70-ton tank was the heaviest to fight in WWII. Its long-barreled 88-mm gun could penetrate four inches of armor at 1,100 yards.

The German Armor School, like its U.S. counterpart, has an important training mission and is justifiably proud of its record in producing highly qualified leaders for its armored combat arms branches. With its continued expansion and increasing use of simulators and other high technology training devices, combined with its emphasis on the fundamentals of combined arms combat, it is confident that it will meet the training challenges of the 1990s and into the 21st century.

#### Notes

<sup>1</sup>These historical facts and many others are available in Geschichte der Kampftruppenschule Munster, edited by Ulrich Saft, Verlag Offizierheim Gesellschaft, Munster, 1987.255P255D

<sup>2</sup>Qualifications for U.S. Liaison Officers are language proficiency (2/2 level minimum), branch proficiency (recent troop experience is helpful) and a sincere

desire to promote understanding and interoperability between the U.S. Army and the Bundeswehr. Language proficiency for wives is preferable, especially in isolated locations where the usual U.S. support base is lacking.

<sup>3</sup>Information on projected training devices for the school is in the article "Kampftruppenschule 2," by Ralf Lipke, in Wehrtechnik, 8/88.

Lieutenant Colonel Phillip J. Linn is currently serving as U.S. Liaison Officer to Kampftruppenschule 2. A German Olmsted Scholar, he has served in command and staff positions in Germany, Republic of Korea, and the United States. Before assuming his duties in Munster, he was brigade S3 of 1st Brigade, 3ID, and executive officer of 3-64 Armor in Schweinfurt.

# Death and Destruction in the Desert

by First Lieutenant Mark E. LaDu

Recent experience at the National Training Center (NTC) showed how difficult it is for a task force in the defense to stop an attacking motorized rifle regiment (MRR) moving at high speed. At times, units were unable to properly synchronize close air support (CAS) and field artillery at the brigade level, making it nearly impossible to slow down and break up the attacking regiment's mass of vehicles while fighting the deep battle. This shortfall calls for action by commanders at the task force level. One viable solution is to use one tank and one ITV platoon forward of the main battle area (MBA).

Experience shows that a linear defense does not work. The MRR need only succeed in punching one hole in the line, and it will stream through into the rear areas. What does work is a defense in depth — as much as 12 kilometers of it — forcing the MRR to run a gauntlet of engagement areas. Each engagement area presents an ambush of flank and rear shots from "keyhole positions."

"Keyhole positions" are those placed out of the enemy's direct line of sight until he passes, or placed far enough away from his axis of advance that he must look far to his flanks to observe the position. The friendly side of folds in the terrain, rocky areas, and dead-space provide excellent "keyhole positions."

Defense in depth allows the defender additional time to flex a team, if necessary, to cover more than one engagement area. Facing a

defense in depth, the attacking MRR has to fight its way through one engagement area and obstacle after another.

The defender can add needed depth by employing a special force of tanks and ITVs defending from prepared two-tiered fighting positions forward of the MBA. After being engaged by surprise from hard-to-identify forward positions, the attacking regiment cannot regroup after the deep battle for the assault on the MBA. This acts as a tremendous combat multiplier.

The mission of this force — perhaps six tanks and seven ITVs — is to slow down the enemy, create confusion, attrit enemy forces as they pass through the forward engagement area, and ultimately cause them to deploy into assault formation before reaching the task force. The force's mission is not to stop the enemy dead in his tracks. It is not to establish a blocking position, and it is not to fight the counter-reconnaissance battle.

At the NTC, we have seen the effect that an element 3-5 kilometers forward of the MBA can have on the enemy when properly employed. The task force organizes the element we call the combat reconnaissance detachment (CRD) into two platoons 3-5 kilometers forward of the MBA. Surprise is the key to the success of this operation, but this depends on attention to detail during the preparation phase, and proper execution of the CRD fire plan. The CRD can only achieve surprise through intense planning, preparation, and outstanding sol-

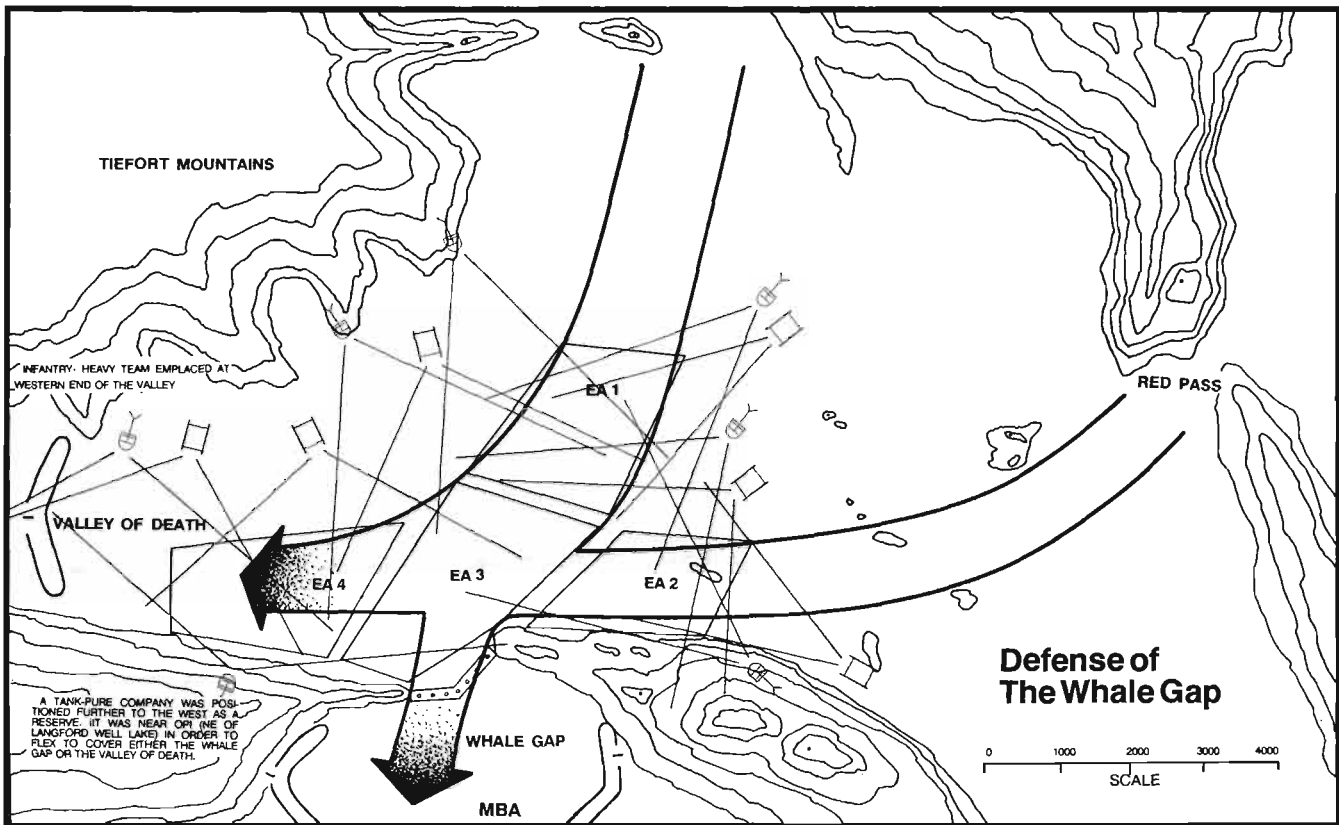
dier discipline. Crews properly execute the fire plan by adhering to the designated trigger line criteria established for each vehicle position.

The preparation phase begins, as always, by determining the possible avenues of approach and deciding where best to kill the enemy. Engagement area size depends on terrain and avenue of approach. Engagement areas of at least 3km by 3km are common.

The next step is to determine the "trigger line" criteria. The CRD commander must specifically tailor the criteria to each fighting position, with alternatives to deal with variations in the expected avenues of approach. The CRD commander must determine which TRPs each vehicle can engage.

A typical trigger line criteria might be: "Engage when 15 tanks or BMPs pass TRP BLUE." The CRD must allow the lead vehicles to pass almost entirely through the engagement area before engaging. This will provide all weapon systems with multiple targets, increase the number of grill door and flank shots, and greatly enhance surprise.

The next step is to choose battle positions. Because the CRD has no organic infantry support, avoid positions near obvious dismounted avenues of approach. Place the counter-reconnaissance screen forward of these positions to protect the CRD during the prep phase and to prevent fratricide. Position the holes no closer than 500 meters apart, and if the terrain allows, 500 to 1000 meters away from the engagement area. This will make in-



dividual fighting positions harder to detect, yet still enable both systems to range into the engagement areas. Whenever possible, position all vehicles to achieve flank and rear shots at enemy vehicles. Firing across the engagement area, or back toward friendly lines, will not cause a fratricide problem for other elements. The CRD has its own engagement area, at least three kilometers or a terrain feature away from the MBA.

You must position vehicles to avoid frontal assaults. Repositioning the systems will be impossible because they will be in decisive engagement the entire time the MRR passes through the engagement area. Therefore, the engineers will dig only one position per vehicle.

The next step is to dig the fighting positions. In an attempt to retain the element of surprise and to prevent the enemy from pinpointing the positions, the engineers must dig the holes during the task force's

first day of preparation and only under cover of darkness. This means that the commander must choose and mark each position during daylight, and mark a route from a hide position back to each hole, with the route known to all in the CRD. To prevent fratricide, it is important that the CRD inform all personnel conducting rehearsals or performing the counter-recon mission when it moves to or from its positions.

Once the engineers dig the holes, the crews stretch camouflage nets over them. After they accomplish this step, vehicles are not to occupy the holes again. Final occupation will occur the night before an attack, if possible. Vehicles should rehearse their routes, but not return to the exact fighting position. When rehearsing, try to appear to be part of the counter-recon screen.

Do not place any major obstacles in the engagement area. However, obstacles at the end of the engagement area closest to the MBA keep

the enemy from moving out of the kill sack. Because the enemy can drive through the engagement area freely, and the fighting positions are well dispersed, it is unlikely that the enemy will try to assault the 13 individual fighting positions. This would sacrifice his speed. Crew members must emplace local obstacles — consisting of AP mines, AT mines, and booby traps — to provide some security and protection against direct assaults on individual positions. They must emplace the local obstacles during the night, after final occupation of the position. If the enemy tries to assault, then the CRD accomplished its mission. It forced the enemy to slow down, deploy, and lose momentum. The enemy then becomes a better target for artillery and the other members of the CRD.

The CRD commander and the FSO must precisely coordinate the fire support plan. The task force commander must give the CRD priority of fire after the counter-recon force has withdrawn. Because

of the vast size of the engagement area, the CRD must register all target groups for accuracy. Once the attack begins, the CRD commander must be able to have rounds in the air at his command. With effective artillery fire landing on the enemy, and all weapon systems blazing into a different portion of the engagement area simultaneously, the results will be devastating.

Once the battle position preparation is complete, all vehicles will move to a consolidated hide position. At this location, crews will accomplish the following activities:

- Issue a detailed operations order to all members of the CRD.
- Make final coordination, and conduct walk-through rehearsals.
- Conduct pre-combat checks.
- Complete resupply of classes I, III, and V.
- Perform maintenance, and — time permitting — initiate a sleep plan.

At EENT on the night before an attack, the CRD will occupy fighting positions. It must maintain a passive posture and practice perfect noise and light discipline. The CRD is not to intercept any reconnaissance efforts by the enemy that pass through the counter-recon screen. No vehicle will engage unless its crew compromises its position, or it is certain that an enemy vehicle is going to pass over the fighting position. Radio listening silence is in effect except to report enemy contact.

Thirty minutes before BMNT, all personnel will upgrade their NBC posture to a modified MOPP IV in preparation for the enemy artillery prep. The protective mask will be out and ready to put on when the artillery prep begins. This will help reduce NBC casualties. Because of the dispersion between vehicles, all vehicles should conduct M256 tests once the prep begins.

All of the preparation for the battle culminates in the violent and precise execution of the fire plan. The crews properly execute the fire plan through patience, discipline, and effective fire on the enemy, once the enemy meets the trigger line criteria. Vehicles must not open fire prematurely, giving the enemy a chance to move away from the engagement area.

The advantages of such an operation greatly outweigh the disadvantages. Even though the enemy knows the engineers did some digging, he does not know how many holes, why, or where the engineers dug them. The enemy may assume the positions are for the counter-recon force. Due to the inactivity near the holes during daylight, and the lack of obstacles, the enemy may also assume that all vehicles withdrew with the counter-recon force. Or, as has actually happened, the enemy may expect the small, forward force without obstacle support to be an insignificant threat, and attempt to push through the engagement area.

In one situation like this, one tank killed 25 enemy vehicles in August 1988, during 2-77 Armor's task force defense of the Whale Gap. If even one vehicle is able to effectively engage the enemy, he must slow down and deploy to try to extract that vehicle from its hole.

By making the fighting positions difficult to identify, and by placing them off the avenues of approach and well away from the engagement areas, the survivability of vehicles is greatly enhanced.

By not engaging until the last possible minute, and by placing well-camouflaged holes in the desert floor, the CRD can achieve a tremendous amount of surprise. The surprise will cause confusion, temporarily rendering enemy weapons ineffective.

The major disadvantages are that vehicles can't be repositioned, and it takes more time to evacuate casualties. Repositioning is a problem every unit faces, no matter where it is located on the battlefield. Once the enemy makes contact, it is nearly impossible for anyone to reposition without being overrun because of the speed of the attack. One must remember that the NTC is an open desert environment, and the repositioning problem is more pronounced when fighting in an M60 than in an M1.

Units can reduce their casualties somewhat by having crews combat lifesaver qualified and using self-evacuation techniques. The only other alternative is to await evacuation after the defenders repel the attack by the MRR. Overall, the use of the combat reconnaissance detachment in the defense is an excellent idea. The survivability of the CRD is as good as anywhere else on the battlefield. The destruction the CRD can inflict on the enemy is only limited by the thoroughness of the preparation, the number of rounds on each vehicle, and the accuracy of the gunners. The surprise achieved is like a hammer striking an anvil with your fingers caught in between. It is devastating. The CRD concept will work.

First Lieutenant Mark E. LaDu is a 1986 graduate of the USMA. He served as a tank platoon leader, commander of the Combat Reconnaissance Detachment during 2-77 Armor's August 1988 NTC rotation, and HHC XO. A graduate of AOB and Airborne School, he served as commander of HHC, 2-77 Armor at Ft. Carson, Colo. He recently served as the scout platoon leader for 2-77 Armor and is scheduled to attend AOAC in January 1990.



# "Captain, the Truth Changes!"

by Lieutenant Colonel Pat Knutson

There are no time-tested shortcuts to colonel. The only "assured" road to that promotion is the operational track. The operational track mandates that an officer spend nearly all of his time with troops. This track has always been in favor with the senior leadership of our Army because it is the track most of them used to get where they are today. ORSA, other functional area tracks, project manager jobs, foreign area specialists, and less well known routes to colonel have all had their day. Personnel officers pushed them in all honesty. At the time, they were the keys to leaping to the front of the pack enroute to colonel.

In 1973, I was attending the Armor Officer Advanced Course. I was happy to be a tanker, and ready to finish the course and go back to doing great and wondrous things for Armor. Then, out of the blue, came a call from my assignment officer. He told me that I was "in the top third of the top third" of my contemporaries, and that I had a great future in Armor that would be considerably enhanced by going to a fully-funded graduate-degree program for two years to become an operations research (ORSA) officer.

It all sounded good to me, so I called him back to get his assurance that ORSA was a stepping-stone to promotion and greatness. He assured me that all was well, and that upon successful completion of my two years of graduate school and a three-year utilization assignment, I would continue on my way to keep the world safe from bad guys. He was telling the truth as he saw it on that day in 1973.

I believed him and went to graduate school.

Two years later, I called my new assignment officer to find out how he thought I was doing, and to find out where he was going to send me to pay the Army back for the two years I spent in pursuit of academic excellence. He told me that he had both good and bad news. The bad news was that I was "in the middle third of the middle third" of my contemporaries because I had been away from troops too long. Talk about a shock! His good news was that he was going to send me to HQ, TRADOC, at Fort Monroe, Virginia, to serve my utilization tour. Note that I had slipped away from my contemporaries by being away from troops and seemed now destined to slip further behind them by being kept from troops for at least another three years. It was mind-boggling.

The truth had changed.

The truth will continue to change during your career as well. It will change while some of you serve as assignment officers at PERSCOM.

"So how do I get ahead of the pack?" you ask. I do not purport to be able to tell you what to do today to enhance your chances for selection to colonel many years from now. What I do purport to know is how

you can approach the problem, and what factors are key to making you competitive for that most senior of field grade promotions.

## There Is Much to Do

To become competitive for promotion to colonel you have much to do and very little leeway in how you get it done. If we can assume that all Armor officers do generally the same jobs during their first five years of commissioned service (OBC, platoon leader, company XO, battalion staff/special staff, assistant brigade staff/special staff, and OAC), then the problem reduces down to mapping out the options you have for assignments during the next 15-16 years to be ready for promotion to colonel at about 21 years of service. Table 1 outlines your options. Note that you really don't have many if you are trying to reach the pinnacle of the field grades via the time-proven method.

What is outlined here is substantially in consonance with DA

### The Steps to Colonel

<u>Assignment</u>	<u>Years Spent</u>	<u>Cumulative Years</u>
Branch Qual. Jobs/ Schools	5	5
Company Command	2	7
Battalion S3	1	8
Graduate School	2	10
Utilization Tour	3	13
CGSC	1	14
Battalion XO	2	16
_____ (Option)	1	17
Battalion Command	2	19
War College	1	20
_____ (Option)	1	21

Table 1

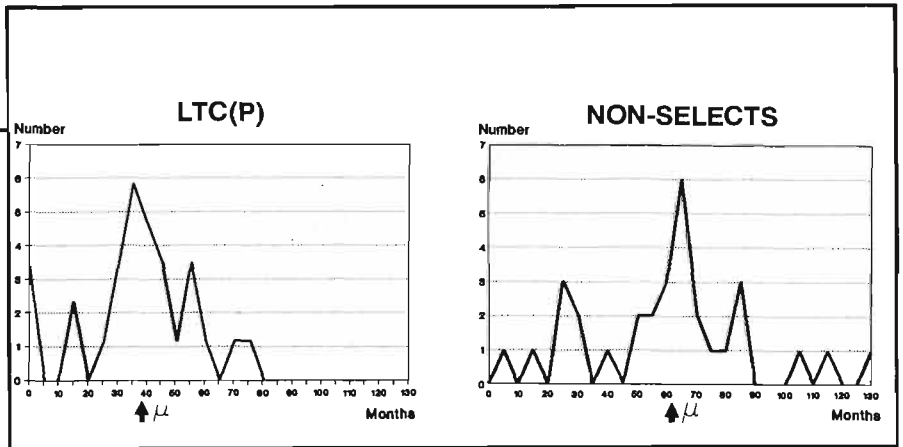
Pamphlet 600-3, *Commissioned Officer Professional Development and Utilization*, though I have identified only one opportunity for a functional area assignment. The truth is you do not have time to do more than one full-term functional area assignment and still meet all of the gates for promotion to colonel with your contemporaries. The remainder of your career is pretty much set.

If you choose to diverge from the paths (punches) shown above, it is unlikely that you will succeed. Analysis of FA49 (ORSA) promotions to colonel confirm my position: dual-trackers clearly dominate the promotion to colonel contest over single trackers, and dual trackers do so via the operational track. Every FA49 dual-track officer selected for promotion to colonel on the FY89 list had commanded a battalion-size unit.

### Joint Assignments Have to Fit In

Those in tune with today's buzzword for enhanced opportunities for promotion recognize and believe in the term "joint duty." Jointness is undoubtedly important for generals and admirals, maybe even for naval captains and colonels of the other services.

Those senior officers have few opportunities to experience and learn from the other services while serving in their advanced grades, so they must somehow do so as captains, majors, or lieutenant colonels. If you have stars in your eyes, joint duty is not optional; you must do time in the joint arena to become eligible for brigadier general, just as you must succeed as a battalion commander to become eligible for promotion to colonel.



My assertion portends simplicity: your opportunity for promotion to the grade of colonel is directly related to your level of success in company command.

Company command is the single most critical career influencing position an officer will hold in the Army. Clear success in company command establishes your future prospects for promotion to colonel. Documentation of your performance does not guarantee that promotion by any means, but you cannot get there without it. The captains who excel in this critical assignment also earn by their reputation and demonstrated performance the opportunity to serve as battalion operations officers while still captains; gain selection for resident CGSC; get selected to serve as battalion executive officers; and increase their probability of selection for battalion command to become competitive for promotion to colonel.

If you cannot convince your leadership that you can command a company with the very best, you are simply not battalion command material. Without battalion command you are not competitive for promotion to colonel.

When I was a lieutenant, success was defined as promotion to colonel. That definition still applies to those who successfully command battalions, however, the rest of the

officer corps, regardless of level of competency, cannot reasonably expect to achieve that aspiration. The truth changes. Today it is more realistic to view success as selection for promotion to lieutenant colonel. In the future, that promotion may also be threatened for those who choose to specialize in the non-operational functional areas. Decreasing force structure over the next few years will limit not only command opportunities, but requirements for all field grade officers.

The trends toward decreasing promotion rates shown in Figure 1 above emphasize what the future looks like. The figure shows the composite percents selected for promotion (i.e. those selected one or more years later than their contemporaries + those selected on time + those selected a year early). Only the most optimistic of single-trackers would believe that they are going to be selected for promotion to colonel based solely on their demonstrated technical expertise in a functional area.

### Don't Command Too Soon

Armor's few battalions and cavalry squadrons will be commanded by the best officers we can find. That is the way it should be. The best are first identified by their performance as company commanders. Younger officers, particularly lieutenants, put themselves at a distinct disadvantage by fighting for command

early in their years of eligibility. Think about that for a minute. Those who command earlier than their contemporaries are pitting themselves against more experienced officers in an environment in which all cannot "win." Battalion and brigade commanders have a responsibility to identify those officers with the greatest demonstrated potential for advancement and battalion command. They will do so. Junior officers, who could perhaps compete very favorably in a year or two, cannot expect to compete favorably against senior captains.

### Some Alternatives

Table 1 shows what you have to do in the time available. The operational assignments are virtually mandatory, and must be performed in approximately the order shown because of rank considerations. So what options exist?

Virtually all selected for promotion to lieutenant colonel have credit for graduate level education. The roughly two years tied up in graduate schooling can be almost completely eliminated by pursuing such education after normal duty hours, or while attending the resident CGSC Course via the Master of Military Arts and Science (MMAS) Program.

Either alternative can also free up the required 3-4-year utilization assignment period that goes along with fully funded programs. It certainly is not easy to get an advanced degree under other than full-time study programs, but the alternative may pay big dividends to those whose assignments allow them to do so.

If you really believe you will be competitive for general officer, you must make every attempt to get double credit for your graduate

school utilization assignment by serving in a joint duty position that is also AERB certified.

CGSC also ties up a year. The course can be taken by correspondence with the same notations and MEL 4 credit as that given for resident studies. There is much controversy over the relative value (as perceived by promotion boards) of resident versus nonresident CGSC credit.

In this area, as in many other areas of personnel management, the truth changes. Back 10 to 15 years, resident courses were clearly the only way to go. Today, PERSCOM maintains that there is no difference in future personnel actions based on the manner in which an officer attains MEL 4 credit. Several general officers have made similar statements. There are downsides to this decision, though. "The Best Year of Your Life" at Fort Leavenworth provides a welcome respite from field duty for many, time to be with your family, opportunities to develop life-long friendships, and the opportunity to do the introspective thinking and career planning each of us needs to do every few years.

To adopt any of the above alternatives provides you flexibility to better manage your available time, more opportunities to serve in key operational assignments, and more time to serve in a joint duty assignment.

### The Bottom Line

The advice given me as a second lieutenant has not changed, nor should it be expected to as long as the Army's personnel management policies are established and enforced by senior officers whose promotions were based on their demonstrated excellence in operational (command) assignments.

- You must excel as a leader. That is what the Army is all about.

- Fight for the tough operational jobs and do them well.

- Wait your turn. Trying to command early is stupid - you are pitting your limited experience against those far readier than you. Youth seldom wins over experience.

- Get TOE commands.

- Seek assignments that develop your ability to conceptualize, recognize, and understand broader issues.

- Benefit from graduate schooling and a functional area assignment, but place your emphasis on troop duty above all else.

- Avoid repetitive assignments that look like lateral transfers and do not represent increases in responsibility or knowledge requirements. You do not get credit for learning a job twice.

- You cannot expect to command a battalion unless you have completely proven yourself superior to your peers in prerequisite assignments: company command, battalion S3 and battalion XO.

Lieutenant Colonel Patrick K. Knutson was commissioned in Armor in 1968 as a distinguished military graduate from the University of Washington. He has served in Armor positions thru division level in Alaska, CONUS, Vietnam, and Germany. He is a 1980 CGSC graduate who has served in ORSA positions at HQ, TRADOC, and CGSC, and is currently assigned as the Chief of the ORSA Committee at the Army Logistics Management College, Fort Lee, Va.

# 1990 Armor Conference Schedule

8 - 10 May 1990

"Armor and Cavalry — Heavy and Light"

## Tuesday, 8 May 1990

0900-2200	Registration (Officers Club)	Regimental Room
1300-1645	Displays	Skidgel, Hill Halls, CATTC
1530-1630	Chief of Staff of the Army Address	Gaffey Auditorium
1645-1730	Retreat Ceremony (iho 50th Anniversary of Armored Force)	Brooks Field
	Dedication of Chiefs of the Armored Force Memorial	
1800-2000	* CG's Garden Party	Quarters #1
2030-2200	* Buffet and Regimental Assemblies	Officers Club

## Wednesday, 9 May 1990

0700-1000	Late Registration	Gaffey #2
0800-0805	Welcome/Admin	Gaffey Auditorium
0805-0845	Keynote Address	Gaffey Auditorium
0845-0915	Threat	Gaffey Auditorium
0915-0930	Break	
0930-1130	Presentations	Gaffey Auditorium
1140-1200	Armor Association General Membership Meeting	Gaffey Auditorium
1200-1330	Executive Council, Armor Association Luncheon	Officers Club
1200-1330	Lunch	
1330-1415	Report to the Force	Gaffey Auditorium
1415-1545	Presentations	Gaffey Auditorium
0800-1700	Displays (all day)	Skidgel, Hill Halls, CATTC
1800-2200	* Armor Association Banquet	Main NCO Club
1800	● Cocktails — Patton Museum	
1900	● Banquet — NCO Club	

## Thursday, 10 May 1990

0800-0930	Panel: Heavy Light-Light Heavy: Problems and Solutions	Gaffey Auditorium
0930-1000	Break	
1000-1200	Presentations	Gaffey Auditorium
1200-1330	* Chief of Armor Luncheon	Officers Club
1330-1530	Combat Development Presentations	Gaffey Auditorium
1530-1545	Farewell Remarks	Gaffey Auditorium
0800-1600	Displays (all day)	Skidgel, Hill Halls, CATTC

\*Attendees must purchase tickets for these events at registration.

POC for general officers' and presenters' billeting: USAARMC Protocol Office: AV 464-6951/2744

Billeting for other personnel: Housing at AV 464-3138

POC for equipment displays: DCD, CPT Hutzell, AV 464-1250/1838

Overall POC for Armor Conference: CPT Brown, AV 464-1050/1441

Uniform: Class B

## New Directorate of Total Armor Force Readiness Operational

There is a new organization at Fort Knox which will chart the course into the future for the Total Armor Force. This organization is called the Directorate of Total Armor Force Readiness (DTAFR). This new directorate combines the personnel proponent assets of the Office Chief of Armor (OCA) with the evaluation assets of the Directorate of Evaluation and Standardization (DOES). There is also a studies capability in DTAFR which will conduct and coordinate short and long-range analysis.

DTAFR will:

- Be the central Fort Knox POC for Total Armor Force readiness issues.
- Conduct or coordinate special TAF studies and long-range planning.
- Develop leadership and professional development policy.
- Identify personnel issues and initiatives for the TAF.
- Assist the Chief of Armor in dialogue with TAF commanders.

DTAFR is operational for worldwide coordination starting 5 March 1990. The Chief of Armor will describe its charter in more detail in a separate letter to TAF commanders. DTAFR will take the lead at Fort Knox in coordinating the move of the TAF through and beyond the coming transition years.

You can reach DTAFR at the following phone numbers:

\*Director: COL D. Long, AV 464-7809 or commercial (502)624-7809

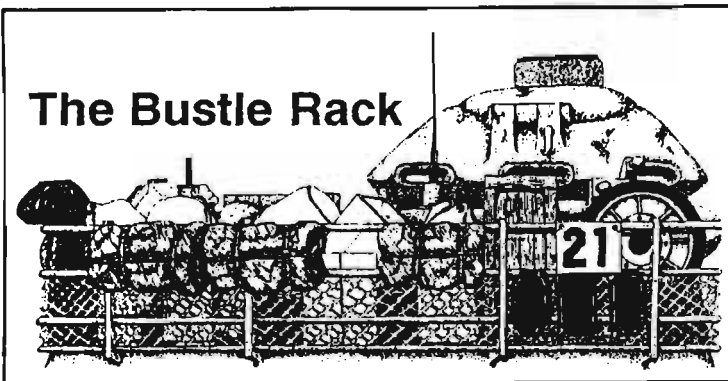
\*Personnel Proponency and Leader Development Division: LTC R. Rowlett, 464-5155

\*Readiness Evaluation and Assessment Division: MAJ(P) S. Rowell, 464-3446

### Army Chief of Staff Approves 10-HMMWV Scout Platoon

Army Chief of Staff General Carl Vuono approved the new 10-vehicle scout platoon organization on 21 December 1989.

## The Bustle Rack



TRADOC approval of revamped TOEs is expected in April 1990. The expected execution date should fall in the 2d quarter, FY 91.

Equipment issues are dependent on availability of specific items. M2 .50 caliber machine gun will stand in for Mk 19 40-mm grenade launchers, and M60 machine guns for SAWs until sufficient quantities are available.

Each scout section will receive one 254 antenna and mast, increasing long-range communications to 25 km. AN-VRC 160s and 46s will be in lieu of VRC-91 (SINGARS).

Each scout platoon will also receive 10 UAS 11 systems, consisting of one TAS-6 and GVS-5. The TVS-5 is the night sight for the Mk 19, and the PVS-4 is the night sight for the SAW. Individual optics include 10 PAS-7, two PAQ-1 (laser target designators), and six POS NAV (GPS) locators per platoon.

The training support package is under development and will be distributed in April. USAARMC will host a "Train the Trainer" seminar this fiscal year. Watch for details to be published.

The Scout Platoon Leaders Course (SPLC) will expand correspondingly. There are 10 classes of 40 students each scheduled for FY 90, 11 for FY 91. Each class will receive instruction on a mixture of regimental, divisional, and battalion scout platoon missions. The curriculum remains tough and demanding. SPLC is now open to platoon sergeants, military intelligence personnel (battalion S2), engineers, aviators, and Marines. Lesson plans are being developed for the 10-vehicle scout platoon.

USAARMC is currently looking for redistribution alternatives for the Bradley CFV.

For more information, contact Armored Cavalry Division, ATSB-CSA, AV 464-7353/4848.

## Soviet Source Confirms Modernization During Cutback

As expected, many of the tanks the Soviets will be withdrawing from Europe will be older T-55 and similar models, according to a recent report in Jane's Defense Weekly. The magazine interviewed a senior Soviet armor officer who confirmed that the reduction of 10,000 tanks by the end of this year would mainly involve obsolete models, leaving more modern T-64s and T-80s in remaining units. Motor rifle regiments are losing 40 percent of their tanks, and armored divisions 20 percent as part of the Soviets' avowed intention to restructure forces along more defensive lines.

About 3,500 of the older tanks will be modified as simulators and another 100 will have turrets and armaments removed to be used by civilian associations that give Soviet teenagers pre-induction preparation. Some of the chassis will be reconditioned and modified for disaster relief and emergency services, the Soviet general said.

He said the excess tanks will not be sold overseas; those not used will be dismantled and scrapped.

Western analysts believe all Soviet tanks remaining at the end of the year will be T-80s and T-64s, with the T-64s returned to the Soviet Union and replaced by additional T-80s when available.

## Electronic Noise Masking May Improve Tank Communications

An interesting article in the January-February issue of the Army's RD&A professional bulletin describes what the Army's Human Engineering Laboratory is doing to help armor crewmen hear commands over the din of battle. One approach being considered is an electronic system that blanks out background noise, allowing soldiers to hear the commands they need to fight and survive.

The story is based on research performed at Fort Knox that clearly shows how performance degrades as speech intelligibility gets worse. The tests included 30 experienced tank crews, each firing 10 gunnery missions under varying noise conditions. Not surprisingly, when speech intelligibility went down, so did crew performance. Fire missions took longer, and crews made more mistakes, when scientists reduced the intelligibility of commands on the intercom system.

Vehicle noise, especially sounds in the 250-hz. range, was found to be a major impediment in hearing commands through the intercom system. One solution is to reduce the noise of track and suspension systems by developing quieter designs.

Another approach, also being considered in the automotive industry for luxury cars, "erases" the noise electronically. It works on the principle of phase cancellation: when a sound is electronically inverted and fed back with the original sound, the two cancel each other. Applied to the tank communication system, noises outside the tanker's helmet are picked up by an external microphone, electronically inverted, and fed back into the earphone. The commands, which are not inverted, come through more clearly while the background noise is cancelled. The system is especially effective in the 250-hz. range that causes the greatest problems. Eliminating this annoying low frequency noise also reduces fatigue, allowing crews to remain effective longer.

### **September CAS<sup>3</sup> Deadline Looms For Year Group 81 Officers**

Any Year Group 81 officer who has not yet completed the nine-week Phase II of the Combined Arms and Services Staff School (CAS<sup>3</sup>) at Fort Leavenworth must do so by the end of FY90. Failure to attend may jeopardize promotion and staff college selection. FY90 classes are also open to captains in year groups 82 and later who have completed the Advanced Course and Phase I of CAS<sup>3</sup>. For report dates, refer to the Army Training Requirement and Resource System (ATRRS) computer network, or call the CAS<sup>3</sup> Operations Office at AV 552-2113 or 2602. Direct other questions to the senior Armor representative on the CAS<sup>3</sup> faculty, LTC Howard Kietzman, at AV 552-5611, extension 201.

Captains must report to the Fort Leavenworth billeting office in Hoge Barracks by 1200 on their report date, one day before

the class start date. Captains must bring a copy of their CAS<sup>3</sup> Phase I completion certificate. The School of Corresponding Studies (SOCS) no longer accepts hand-delivered Phase I material for scoring. Captains reporting for Phase II without a Phase I completion certificate will not be enrolled.

The Combined Arms Center commander and Command and General Staff College commandant has initiated two changes that impact on your planning for CAS<sup>3</sup> completion. First, enrollment in Phase I is now automatic upon graduation from the Advanced Course. Captains have two years following Advanced Course graduation to complete Phase I, the non-resident phase. Second, CAS<sup>3</sup> graduation is a prerequisite to enrolling in the CGSOC non-resident course. Watch for these and other changes in DA Pam 600-3, Commissioned Officer Professional Development and Utilization, as mandatory CAS<sup>3</sup> attendance becomes institutionalized in the officer professional development and selection policies.

### **Openings Develop In MANPRINT Course**

The current Manpower Personnel Integration (MANPRINT) Staff Officer Course (MSOC) and MANPRINT Senior Training Course (MSTC) have openings for students. The purpose of the MANPRINT course is to train military and civilian personnel to integrate manpower, personnel, training, human factors engineering, health hazards, and system safety considerations throughout the materiel development and acquisition process. The three-week course is for action officers, and the one-week course is for individuals who manage the acquisition process.

Participants are recruited from Army Materiel Command and Training and Doctrine Command, other services, and industry.

The MSOC is designed for active duty Army officers (captains and majors), warrant officers (CW2 through CW4), noncommissioned officers (SFC through sergeant major), civilian (GS-09 through GS-12), and industry representatives. Typical attendees are assigned or on orders to a combat development, training development, materiel development, DA staff materiel acquisition staff officer position, or industrial assignment in a MANPRINT functional area. Classes take place at Fort Belvoir, Va.

The remaining scheduled classes for MSOC in FY90 are: 30 Apr-18 May, 4 Jun-22 Jun, 9 Jul-27 Jul, 6 Aug-24 Aug, and

10 Sep-28 Sep. The MSTC is for Training and Doctrine Command/Army Materiel Command (TRADOC/AMC) senior leadership (GO/SES) positions, senior managers of industry, active Army officers (major through colonel), and civilians (GS-13 through GM-15) assigned to a combat development, training development, and materiel development position.

The course is hosted by a TRADOC or AMC command. The first day of the course is attended by TRADOC/AMC senior leaders (GO/SES) and their primary staff. The host commander and (TRADOC/AMC) counterpart commander lead the system workshop. They emphasize MANPRINT implementation using actual system development/materiel change/procurement examples for an ongoing (or recently completed) acquisition program at the proponent agency/school (host command).

The schedule and location for remaining MSTC courses in FY90 follows: 16 Apr-20 Apr, at Fort Huachuca, Ariz.; 14 May-18 May, at Fort Monmouth, N.J.; 18 Jun-22 Jun, at Fort Lee, Va.; 23 Jul-27 Jul, at Natick, Mass.; 20 Aug-24 Aug, at Aberdeen Proving Ground, Md., and 24 Sep-28 Sep, at Warren, Mich.

For additional information, please contact Mr. Ashley or Dr. Engler at AV 221-3707/3709 (Commercial: (202) 325-3707/3709.)

### **Sergeants Pass TCCT/SCCT-II; Earn Promotion Points**

Congratulations to the following units for having 10 or more of their Excellence in Armor (EIA) sergeants or sergeants (P) take and pass the Tank Commander or Scout Commander Competency Test - Level II (TCCT/SCCT-II).

Through their active EIA program, these units have helped their sergeants earn 50 promotion points. Following are the units and the number of sergeants who passed the tests:

1-1 Cav (25), 4-32 Armor (24), 3-35 Armor (21), 2-67 Armor (21), 5-12 Cav (17), 6-12 Cav (16), 2-66 Armor (16), 4-67 Armor (13), 1-68 Armor (13), 1-33 Armor (12), 3-77 Armor (12), 2-7 Cav (10),

For more information on TCCT/SCCT-II or the Excellence in Armor program (Active and Reserve), contact the Directorate of Total Armor Force Readiness, ATTN: Personnel Proponency Division, Fort Knox, Kentucky 40121-5187. (AV 464-5155/3188 or commercial (502) 624-5155/3188.



**Joachim Peiper:  
The Other Side of the Story**

Dear Sir,

In reference to your article published in the November-December 1989 issue titled "Joachim Peiper and the Deep Attack," I would like to comment briefly. The article is an excellent example of armored leadership executed in the best tradition of mobile warfare, and as such it should find its place in your journal. However, as Lt. Col. Jochen Peiper, as he then was known, became personally responsible for one of the most atrocious war crimes against American POWs in WWII, some of those facts should have been mentioned related to that particular article. Lest we forget, I would like to quote some of the sources which have dealt with this particular affair.

Lt. Col. Jochen Peiper commanded the 1st SS Panzer Regiment, spearheading Sixth Panzer Army into the Northern sector of the Ardennes. After having broken through to Honsfeld, his troops had murdered 19 unarmed American soldiers already. Then, at Bullingen, 50 Americans were killed by Peiper's men. after surrender. The climax of the slaughter was reached on 17 December 1944 when Colonel Peiper's "Blow-torch" battalion met Battery B of the U.S. 285th Field Artillery Observation Battalion advancing into the Malmedy-Bagniez intersection just as Peiper's armored vanguard approached from the other direction. After a sharp shoot-out, the Americans surrendered and were rounded up by the German panzer-men. Colonel Peiper was passing by in a captured Jeep and gave orders to hand over the POWs to 9th SS Panzer Pioneer

Company. Minutes later, the slaughter started, when on order of an SS officer, a tank gunner opened up on the assembled prisoners standing in a nearby field. He was immediately joined by the rest of the "Blow-torchers" who fired their rifles straight into the hapless Americans. Most of them died instantly after the first volley, but some survived. The Germans then stood over the wounded and shot them at point-blank range, killing the wounded and the medics with rifle butts. Some enjoyed themselves so much that they laughed during their grisly work. In all, 86 U.S. POWs were murdered at Malmedy-Bagniez that day. But this ruthless murder did not stop there and then. Peiper's Kampfgruppe left many more dead in their wake of advance. The list is staggering. At Ligneuville - 58, Cheneux - 44, at Stavelot - 8, and at Trois Ponts - 11. The last place where Peiper's henchmen struck was Stoumont where 44 American prisoners were shot in cold blood. The total "score" for Kampfgruppe Peiper in three days was over 350 POWs and over a hundred Belgian civilians. This was confirmed by the American War Crimes Branch, Judge Advocate General's Department, U.S. Army.

Colonel Peiper himself tried to clear himself at his trial after the war in placing the direct blame on one of his subordinates, a Major Poetschke, who conveniently was killed in Austria in the last days of the war. However, the fact remains, that before the attack, during the briefings held at Blesheim on 15 December by Peiper and his staff officers, explicit instructions were given to deal harshly with Allied POWs, who would hamper the speed of the advance. "Allied POWs will have to be shot if the situation compels it" was the exact

order. In another briefing at SS Panzer Regiment HQ, staff officers prescribed "special treatment" to prisoners mentioning that "Rabatz" was allowed -- this term being an SS measure used in Russia -- where troops were given free hand to enjoy themselves in the killing process. All officers and men were sworn to secrecy for these orders on SS honor.

Colonel Peiper, who was formerly adjutant to Heinrich Himmler, Hitler's chief henchman, had already excelled in ruthless killings in Russia, where his troops -- of the 1st SS Panzer Grenadier Battalion, burned two villages on their innocent inhabitants. This is mentioned in the official history of the U.S. Army on the Ardennes Campaign. Peiper, together with 43 members of 1st SS Panzer Division, were sentenced to death by firing squad by an American military court after the war. However, the sentence was later commuted to life imprisonment. In spite of sharp protests by the American Legion and many veteran organizations throughout the United States, Peiper was released from prison in 1956. However, justice reached this ruthless murderer, when 20 years later to that date, unidentified persons set his house, in Eastern France, on fire and killed him.

As your author rightly states, we should learn from historical events and through experiences of leading armored leaders.. However, in this case one should also remember the other side of the story, which is horrendous, and should not be forgotten by soldiers of today.

DAVID ESHEL  
Lt. Col., IDF, Retired  
Israel

**ARMOR Crossword Puzzle Solution**

**Clarification**

The introduction to the list of required Armor-Cavalry manuals in the January-February issue, p. 21, gave the impression that each leader is to have his own copy of each manual. Regulations prohibit this: the manuals are distributed only to units through the central distribution system.

Also, to correct some errors in the list, we will publish a new list as soon as possible. -Ed.

## Glasnost Era Illuminates Stalin's Purges, Rehabilitating Reputations of 1930s Victims

**High Treason: Essays on the History of the Red Army**, by Vitaly Rapoport and Yuri Alexeev. Durham: Duke University Press, 1985, 436 pages. \$37.50.

Within the last few years, and with the accession of Mikhail Gorbachev to the post of general secretary, there has been a stream of literature dealing with the early history of the Soviet Army (formerly referred to as the RKKA - Army of Workers and Peasants). Biographies in particular have been published, either by or with the approval of the Soviet military historical section or, as in this case, by two emigres whose insight into this early period sheds much-needed light on the history of perhaps one of the largest military machines ever assembled.

Vitaly Rapoport and Yuri Alexeev's book, High Treason, is no exception. The book covers the period from the early Civil War days (1917-1920) up through the early days of "Operation Barbarossa" in 1941. As the authors conclude, the Red Army was "sacrificed under the wheels of Hitler's locomotive" through the terrible blunders of Josef Stalin and his cronies.

The book begins with an account of the "show" trials of Marshal Mikhail Tukhachevsky, Generals I. E. Yakir, V. M. Primakov, and I. P. Uborevich. All were accused of "plotting with a foreign government (i.e. Nazi Germany) to overthrow the Motherland." Yet as history has illustrated, particularly through the speech delivered to the party faithful in 1956 by Nikita Khrushchev, denouncing Stalin and Stalinism, the latter's actions were rooted in his paranoia and his distrust of individuals he considered rivals.

Rapoport and Alexeev then discuss the "revolution" that began taking place in the disorganized bands of Red Army men when, under Leon Trotsky, the first Peoples' Commissar for War, the Red Army began to organize as one of the first "modern" armed forces in the world. Trotsky's brilliant organizational and administrative talents quickly shaped a force of five million men into a highly efficient military machine that not only defeated the various "White" armies, led by Admiral



Officers of the 339th Infantry, 85th Div., meet to discuss an exchange of prisoners with Bolshevik officers at Volgoda, U.S.S.R., in April 1919. U.S. and Allied troops unsuccessfully supported the "Whites" against the Communists after WWI.

Kolchak and Generals Denikin and Yudenich, but a combined force of British, French, and American troops sent to assist the Whites against the Bolsheviks.

As the Red Army gained the upper hand and defeated these forces, Trotsky began laying the framework for today's Soviet army, and military-industrial complex.

The authors give an excellent account of how, in 1927, Marshal Tukhachevsky called on the Soviet leadership to "develop a special defense industry" in order that the Red Army could have access to all that it needed in the way of advanced weapons. This was, of course, rejected by Stalin and his Defense Minister Kliment Voroshilov, who called Tukhachevsky's suggestion "impossible to achieve in light of the economic situation that the country presently is in." Ironically, however, this is specifically what emerged immediately after World War II. The strength of the book, however, is in the detailing of the political intrigues and

machinations that confronted the Red Army in the inter-war period, particularly the struggle between the former Tsarist officers (Voenspots) who swore allegiance to the new regime, and the Bolshevik revolutionaries who were cronies of Stalin (Budenny, Voroshilov, and Zhukov). This struggle culminated in the bloody purges of the 1930s. Rapoport and Alexeev specifically cite the first instance of "medical murder" used by Stalin to eliminate M. V. Frunze (the leading Bolshevik Military theorist), and the demotion and elimination of many former Tsarist officers who sided with the Red Army in 1917.

One such officer of importance was Lieutenant General Aleksander Andreevich Svechin, whose military genius is only now being acknowledged by the Soviet military. It was Svechin who laid the groundwork for the current revolution in Soviet military thought of "reasonable sufficiency" and the defensive doctrine now being advocated in Soviet military circles.

*"What is clear, however, is that Stalin eliminated the very men that could have prevented the disasters at Lake Khasan in 1937, and the terrible losses incurred by the Red Army in the Winter War against Finland in 1939-1940."*

Svechin's foremost field of study was that an offensive doctrine is not only impossible in this day of mechanization, but suicidal. While an instructor at the Moscow Military Academy, Svechin spoke out vehemently against a strategy of attrition. He based his thinking on German failures in World War I, and instead called for a series of "echeloned defenses," or a defense-in-depth. His belief was vindicated during the Battle of Kursk in 1943, when echeloned defenses countered a massive German frontal assault.

Svechin's writings, however, met with opposition not only from Stalin, but also from Tukhachevsky, who — like many of his young contemporaries in Germany and Britain — believed that the tank and the mechanization of the battlefield made it possible to make deep strikes into the enemy's territory (hence the origin of Tukhachevsky's theory of "Deep Battle" and the Operational Maneuver Group (OMG) concept, see *ARMOR*, July-August 1989, "The Soviet Operational Maneuver Group" by CPT Gregory Grist, p. 43). It was Tukhachevsky's following that rejected Svechin's writings as being "antiquated," yet, as the authors contend, Svechin was vindicated after 1943.

Interestingly, a number of "purged" Red Army commanders have been rehabilitated since the accession of Mr. Gorbachev to the top spot in the Kremlin. Among them is Svechin. According to Major General V. V. Larionov, of the U.S.A.-Canada Institute in Moscow, a one-volume history produced by the Soviet Ministry of Defense will be appearing on Svechin, noting his "rehabilitation."

What is even more interesting is that two men have been appointed to top positions in the Soviet Army whose own writings in *Krasnaya Zvezda* and other official Soviet military publications reflect the so-called "Kursk" school of thought.

Both Lieutenant General Stanislav Postnikov (C-in-C, Western TVD), and Colonel General Moiseev (Chief of the General Staff) are from this "Kursk" school of thought, and it is no coincidence that

Svechin is being rehabilitated after such a long period of time.

As time went by, the Red Army of Workers and Peasants slowly grew from a rag-tag organization into a professional-looking military, thanks largely to men such as Tukhachevsky and Frunze, whose dedication to the task at hand was enviously watched by Stalin. When it appeared that a new and potentially dangerous threat to his rule had emerged, Stalin began laying the groundwork for the purges against the Red Army high command.

As Rapoport and Alexeev illustrate, there was significant opposition to Stalin inside the army, yet it had not reached the proportion that the latter had envisaged. The army was the last bastion of conservatism in Stalin's Russia, and only through "cleansing" could he, Stalin, create a new "Soviet" Army. Yet, as the authors concede, his motives for the actual undertaking of the purges against the army high command remain unclear. The authors do an excellent job of sorting through the rhetoric and hypotheses that surrounded this period of Soviet history and give an excellent presentation of the facts and Stalin's possible motives in purging the top military leadership.

When all sources are combined on the actual numbers of those eliminated, the death toll from the purges reaches 100,000, and this, Rapoport and Alexeev concede, is a "conservative" estimate.

What is clear, however, is that Stalin eliminated the very men that could have prevented the disasters at Lake Khasan in 1937, and the terrible losses incurred by the Red Army in the Winter War against Finland in 1939-1940.

While Rapoport and Alexeev examine the central figures of the purges, they go into greater detail in reconstructing the fabricated case against Marshal Tukhachevsky, and offer some valuable insights into Stalin's reasons for eliminating his top marshal. Tukhachevsky represented the only real threat to Stalin, rivaling him in patronage and in prestige in

the army, creating the aura of a Bonaparte, and thus being a political rival to Stalin. This explains the suddenness of Tukhachevsky's arrest, trial, and execution. Stalin's eagerness to purge himself of all potential rivals had, of course, catastrophic consequences for the Red Army, particularly during the initial stages of the German invasion in June 1941. It is highly doubtful, the authors concede, that the German armies would have enjoyed the successes they did had men such as Tukhachevsky or Yakir survived the purges.

The authors give an excellent account of the early days of "Barbarossa," defending the bravery of the individual Soviet soldier, yet discounting the talents of such men as Timoshenko, Zhukov, and Stalin himself. As Rapoport and Alexeev write, these latter figures decorated themselves with "gold trinkets" while many Russian soldiers were pushed forward into the mouths of the German guns.

The authors refer to the superiority of the Soviet tanks, the KV-1, KV-II, and the T-34/76, over the German tanks, and are at a loss to explain why Stalin could not let the military men fight the war instead of dabbling in its day-to-day conduct. Even Stalin's bravery is discounted, particularly during the initial stages of the war when, for a whole week, he refused to come out of his apartment in the Kremlin for fear of being killed or kidnapped.

The book also contains several appendices and bibliographical notes that assist the reader in further research, but unfortunately, the lack of a few maps or photographs appears to be the only drawback in an otherwise excellent text.

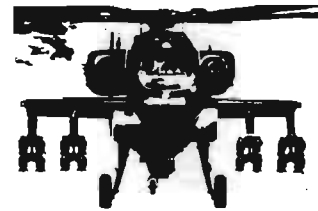
While expensive, the book fills an important gap in the history of the Soviet Red Army, and should be read by all with a professional or personal interest in the subject.

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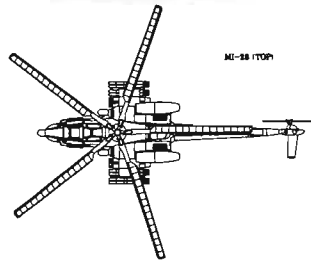


# Mi-28 Havoc

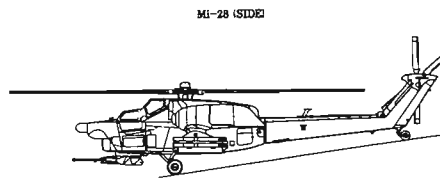
## Soviet Attack Helicopter



**AH64A APACHE**



MI-28 (TOP)



MI-28 (SIDE)



MI-28 (FRONT)

### MI-28 HAVOC CHARACTERISTICS

#### VEHICLE CHARACTERISTICS

CREW	2
PASSENGERS	0
NORMAL PAYLOAD (kg)	0
HOVERING TAKEOFF	3,400
ROLLING TAKEOFF	4,300
NORMAL TAKEOFF	10,000
WEIGHT (kg)	11,400
MAXIMUM TAKEOFF	11,400
WEIGHT (kg)	11,400
SERVICE CEILING (m)	6,000

#### SPEED (km/h)

MAX @ SEA LEVEL	300
CRUISING	280
COMBAT RADIUS (km)	240
DIAMETER, MAIN ROTOR (m)	17
LENGTH, FUSELAGE (m)	16
HEIGHT, OVERALL (m)	4

#### MAIN ARMAMENT

GUN SIZE	30mm
ROUNDS ON BOARD	300

#### SECONDARY ARMAMENT

ATGM TYPE	AT-6
ATGMs ON BOARD	16

#### AUXILIARY ARMAMENT

MISSILE TYPE	AA-8/SA-14
MISSILES ON BOARD	NA

This 24-by-27-inch poster of the Soviet Mi-28 Havoc attack helicopter is the latest in a series on Soviet tanks, armored vehicles, helicopters, and ATGMs to be produced by Threat Division, Directorate of Combat Developments, Fort Knox. Units may request copies by phoning AV-464-AWTS or 502-624-AWTS.

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