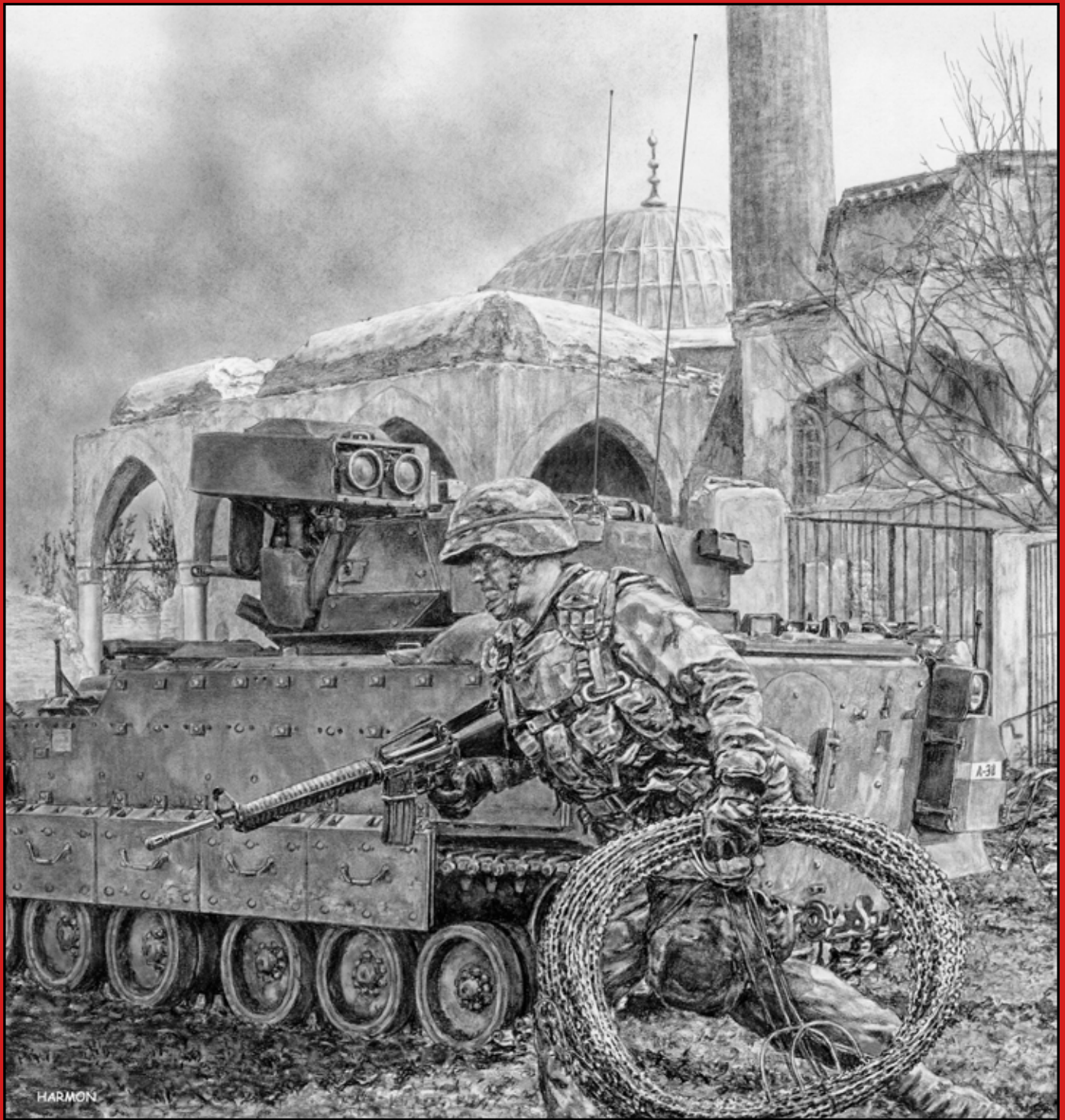


# **ARMOR**



**Cavalry in Built-Up Areas**



## Saddle Up... Tonight We Ride

*"Anybody can sympathize with the sufferings of a friend, but it requires a very fine nature... to sympathize with a friend's success." — Oscar Wilde*

July is here, and with its heat comes another list of majors who are to move on to lieutenant colonel (Congrats). This list marks my seventh or eighth look and final opportunity. While I resist the urge to purchase champagne, I anxiously await the list's arrival with crossed fingers for some combat buddies whose chances are significantly better than mine.

I won't use this forum or release of a promotion board's results to rant and rave about the injustices of the OER system, promotion boards, or PERSCOM. Quite frankly, I was pleasantly surprised to attain the rank of major and thoughts of a subsequent promotion caused me to think of an old quote by Groucho Marx along the lines of not wanting to join any club that would have him as a member. Rather, I'd like to point out that, sooner or later, no matter who you are or what heights you scale, the Army is going to tell you, "Thanks very much." One of my previous pass-overs occurred roughly when GEN Wesley Clark, Supreme Allied Commander Europe/Commander-in-Chief U.S. European Command, and the last American general to wage war, was invited to step down early to accommodate his successor's arrival. Sure, all of us feel that we should have made this rank, commanded at this level, or attained this job; it's the nature of the beast, and reflects the traits of the people we want in the Army. However, the cruel reality is that few of us will reach the rank, command, or job we believe we should, and this fact should not be viewed as abject failure (easier preached than accomplished).

Blinding flashes of the obvious gleaned from my experience include:

**"There's a big difference between having a career and having a life.** Be sure not to confuse the two," said Barbara Bush, speaking at Wake Forest's 2001 commencement. I recall my own day of infamy, that being the year in which I had vested the most hope in getting selected for promotion to LTC. Once the results were out, I dreaded going home and telling my wife that I was not selected. Fortunately, I was met outside the stairwell by running hugs delivered by two of my children (apparently, it did not matter to them that I had been not been selected for promotion). This spurred an epiphany — my life had not ended. One's career is important, but a better gauge of worth is one's performance as a parent or spouse. I'll set a good example for my kids, working hard in a noble profession, but raising them to be worthy adults takes precedence.

**Ride hard and enjoy the ride all the way to the objective.** Life ain't always fair; get over it! Many take the disappointment hard, slipping into a "woe is me" self-pity or bitterly angry mode. They let these sentiments impact both their performance and remaining time in the Army. Don't define success by a job title; define success by doing your job well.

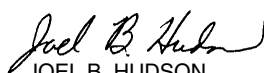
July also marks many **changes of command.** I'd like to remind speakers now diligently drafting and polishing speeches that Abraham Lincoln used a mere 267 words and little over two minutes to deliver the Gettysburg Address, not a bad benchmark. So if you find yourself stammering away past the 10-minute threshold and see soldiers in formation with eyes glazing over, wrap it up. People rarely complain about a short speech.

— D2

By Order of the Secretary of the Army:

ERIC K. SHINSEKI  
General, United States Army  
Chief of Staff

Official:

  
JOEL B. HUDSON  
Administrative Assistant to the  
Secretary of the Army

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# ARMOR

*The Professional Development Bulletin of the Armor Branch PB 17-01-4*

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July-August 2001, Vol. CX, No. 4

## Features

- 8 The Cavalry Paradigm**  
*"We Aren't Training as We Intend to Fight"*  
by Captain William E. Benson
- 11 Airborne Light Cavalry Gunnery**  
*The Army's only airborne ground cavalry troop deploys to Fort Knox*  
by First Lieutenant Brian W. Oertel and Captain Francis J. H. Park
- 14 Train As You Fight**  
*Light cavalry gunnery in the 82d Airborne Division*  
by Staff Sergeant Jack Tripp and Sergeant First Class Leo Clark
- 16 Mountain Cavalry Recon in Built-Up Areas**  
by Captain Rich Rouleau
- 19 Modifying the Abrams Tank for Fighting in Urban Areas**  
by Sergeant First Class Ira L. Partridge
- 25 Some Russian Tankers' Experiences in the Second Chechen War**  
by Adam Geibel
- 29 Evolving Army Armor Structure in the Late 1920s**  
by Brigadier General Raymond E. Bell Jr.
- 35 Some Thoughts for Junior Officers on Making a Career Decision**  
by Lieutenant Colonel James F. Pasquarette
- 38 The Poor Man's GUARDFIST**  
by Captain Todd A. Scattini
- 40 The Joint STARS Common Ground Station:  
A New Tool for the Maneuver Commander**  
by Captain Mike Monnard
- 44 Division Capstone Exercise Verifies the Effectiveness  
of Army's Tactical Internet**  
by Armor Staff

**Back Cover** New TSM-Soldier Office Established at Fort Knox

## Departments

- 2 Contacts**
- 3 Letters**
- 5 Commander's Hatch**
- 7 Driver's Seat**
- 50 Reviews**

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## LAV III Fails to Meet The Army's Own Requirements

Dear Sir:

Cheers to Mr. Stanley C. Crist. He is the first *ARMOR* magazine contributor that I've seen who has had the guts to report the true facts about the LAV III. His discussion of the LAV III's deficiencies and his alternate solution for the Interim Armor Vehicle (IAV) in the May-June 2001 issue hit the nail right on the head. The selected IAV, the LAV III, manufactured by the contractor team of GDLS and GM of Canada, does not meet three prime requirements established by the Army for the IAV program.

The first prime requirement is that GEN Shinseki said in October 1999 that the Army needs a light armored vehicle that will permit rapid deployment by C-130 transports. He's offering to solve a problem that doesn't exist: The Army has had such a capability since 1960, the M113 armored personnel carrier, and the Army has approximately 13,000 of all models, all fully deployable by C-130 transport aircraft. It can do better anything the LAV III can do, except for high road speeds, and with a good band track it may be able to greatly improve on that.

The second prime requirement is that the selected IAV was required to be an off-the-shelf vehicle. The LAV III does not meet this requirement. Extensive engineering is planned by the contractor team, particularly for the mobile gun variant, to obtain the vehicle configurations and capabilities required by the Army. This engineering effort is probably reflected in the fact that the winning contractor's price was twice that of the runner-up's, 4 billion dollars vs. 2 billion dollars, and that their scheduled fielding dates are over one year later than the fielding dates requested by the Army.

The LAV III Mobile Gun variant is a rehash of the Teledyne Continental Motors turret, now owned by GDLS, that lost out in the Armored Gun System (AGS) program. It is highly unlikely that this turret-LAV III combination will ever match the firing performance of the United Defense's winning AGS, the tracked M8.

Another armament feature of the LAV III that appears questionable is the use of the externally mounted .50-cal. machine gun on the squad carrier variant. This type of weapon mount was probably selected because it saves weight and space over a normal turret. However its external mounting, with little or no armor, makes it highly vulnerable to artillery fragments and small arms fire. Reloading and clearing a stoppage under fire would also appear to be quite dangerous for the crew. One would also question whether its elevation capability is adequate for engaging targets in the upper floors of buildings. Its mounting location and limited depression travel will also produce a large dead fire zone around the vehicle's perimeter.

The third prime requirement that the LAV III selection did not meet is C-130 aircraft transport. The LAV III was initially developed for the Canadian Army, which had no requirement for C-130 aircraft transport. After selection of the LAV III as the IAV, a review of the Army's Transportation Agency's web site showed that the LAV III was not capable of transport in C-130 aircraft. Why then was it selected? Is it because that part of that engineering effort associated with that "off-the-shelf vehicle" is also planned to redesign its configuration to meet the C-130 aircraft transport requirement? This seems extremely bizarre and wasteful, that the Army should pay for this effort when one considers the facts that both the M113 and the M8 tracked vehicles proposed by United Defense for the IAV are fully qualified for air transport in all USAF transport aircraft. Both have been tested by the Army to validate it. Also, everyone knows there are a lot of other worthwhile things in the Army wish list that the 2-billion dollar saving the UDLP bid provided could be used for and, on top of this, the IAVs would be fielded much sooner.

In addition to the selected LAV III not meeting detail IAV requirements, the basis for the IAV program was highly flawed from its beginnings. The white paper entitled "Wheels vs. Tracks," written by Mr. Don Loughlin and available at [www.defensedaily.com/reports/wheelsvtracks.htm](http://www.defensedaily.com/reports/wheelsvtracks.htm) presents a clear and detailed explanation of why the IAV program is ill-founded. Mr. Loughlin is a world-recognized contributor to *ARMOR* Magazine and other defense publications. His paper clearly notes the numerous omissions and errors contained in the Army War College report that possibly led to the selection of a wheeled vehicle to meet the IAV requirements.

In the process of guiding the IAV Program to reach the selection of a wheeled vehicle, the Army has disregarded all those hard learned facts about wheeled combat vehicles in their previous combat operations — the mobility and survivability problems of armored cars of WWII and the hard lessons we learned in Vietnam when we tried to use wheeled armored vehicles as convoy support in a guerrilla war environment.

Just think about the soldier who tries to traverse a city street roadblock of rubble and abandoned cars with an LAV III and fails because of its suspension vulnerability and poor traction. He will then spend a long time in the kill zone, trying to back up and turn around to find a new route. A tracked IAV's pivot-steer feature and its rugged track system with superior traction would sure sound good then. Ask the Rangers and Special Forces what they thought about the wheeled armored cars sent to rescue them in Somalia.

In my opinion, the selection of the LAV III as the IAV is a decision that will prove to be not only shortsighted and costly but one that, in the future, will give our soldiers in harm's way a poor way to accomplish both their

peacekeeping and wartime missions and survive.

I would like to hear some comments and opinions on the LAV III from the guys that are really going to use it, not the managers of the IAV program and not the high-level staff officers who merely executed the Army Chief of Staff's desires, most of who will be long gone when the LAV III rubber finally hits the road.

A. WILLIAM CRISWELL  
via email

## Defining Victory and Defeat In Korea and Vietnam

Dear Sir:

The United States of America (with some credit to Britain and our NATO allies) won the war that encompassed Korea and Vietnam. In a recent book review in *ARMOR*, the critic indicated the USA "lost" in Korea. This is so sadly mistaken and wrong-spirited that it must be loudly and repeatedly corrected.

If war is the advancement of political ends by military means (or any other related definition) then the war in Korea was a resounding victory for the United States and allies. The political goal was to reestablish a free South Korea. Our Army, Air Force, Marines, and Navy performed heroically to accomplish this. Today, our South Korean ally is one of the world's advanced nations, compared to the international basket case of North Korea. The U.S. and our allies in that war led the advance of freedom and economic prosperity in the world today, compared to the retarded, repressive, and backward China. The political ends of Korea were met and the war was won, even if you consider Korea an isolated war unto itself.

If you consider Vietnam an isolated war unto itself, I would suggest that people look hard at the facts (pushing aside the smoke of the peace movement). Our nation entered into another north/south fray with no political goal in mind. When the political goal was finally established to hand over the battle to an enhanced and militarily strong South Vietnam, the U.S. military had won every battle, seized every objective, defeated the enemy at every turn. The conditions of the hand-over were a defeated and demoralized North Vietnam and a well-armed and prepared South Vietnam. We left on our own terms. That South Vietnam's politicians blew it and their army crumbled does not change the fact that our political system set goals and the military of the United States of America met every goal. The political ends of Vietnam were met and the war was won, even if you consider Vietnam an isolated war unto itself.

Yet I do not consider either of them to be isolated wars. I believe and will teach my children that these long and painful events were major campaigns in the much longer and more wide-reaching Cold War. The Cold

War began before WWII even ended with the Russian and Chinese incursions into previously Japanese territories and holdings. The Cold War included Korea, Vietnam, Grenada, perhaps Panama, and smaller events like the Libyan bombings and support of Israel against Soviet-supplied opponents. The total collapse of the Soviet Union and the inability of China to do anything except saber-rattle are proofs of the victory of freedom and democracy over totalitarianism.

Don't buy into the liberal spew of the "wars we lost." Our military men and women accomplished the missions and won the campaigns in the theaters assigned them, and the result was ultimate victory over the Warsaw Pact and the aimless flopping around of the Chinese. To suggest anything less dishonors those warriors living and dead who fought and won their nation's wars and is dishonest to history. Perhaps yet in our lifetime, a good historian will write coherently about the 20th Century War (like the 30-Year and 100-Year Wars of earlier centuries) that the United States of America and its allies won.

MAJ ROGER T. AESCHLIMAN  
Cdr, 105th Public Affairs Detachment  
Kansas Army National Guard

### Some Background About "Beehive" Tank Rounds

Dear Sir:

The subject of canister rounds for tank main armament discussed in the Nov-Dec 2000 issue and expanded in the "Letters" column in the Mar-Apr 2001 issue deserves further discussion.

First, a bit of history. The requirement that resulted in the 105mm M494 APERS round, known as the Beehive, was generated when the firm developing a flechette 105mm APERS artillery round for the Army approached the Armor Board in the early 1960s, suggesting that there might be a tank gun application for their projectile. The company adapted its artillery projectiles to the 105mm tank gun and demonstrated its performance at Fort Knox. The result against both direct and indirect fire silhouette targets was awesome. This demonstration was the genesis of the 105mm tank gun Beehive round, as well as the requirement for a similar 152mm round. (Life was simpler in those days!)

As noted in the LTC Pride's article, there was concern in Korea when the arrival of the M1A1 tank cost the tankers their main gun APERS capability. The first response to the developing requirements for a 120mm APERS round came from Israel. The IDF had expressed an urgent requirement for such a round during its 1983 Lebanon operations. Responding quickly, Israel Military Industries (IMI) adapted the existing 105mm APERS (Beehive) round for use in the 120mm gun. The adaptation consisted of placing a "sleeve" around the 105mm projec-

tile, adding fins from the 120mm HEAT projectile, and using a standard 120mm shell case. In addition, a new electronic fuze replaced the earlier fuze, which had always been a weak point of the 105mm round. The IDF accepted the round and uses it in the 120mm Merkava tank.

In 1997, IMI offered the production round to the U.S. Army for test. In its subsequent evaluation, as noted in LTC Price's article, Army tankers concluded that the round was "too heavy, awkward to fuze, and difficult to quickly load during engagements." As a consequence, the Korea requirement has remained unfulfilled while awaiting the U.S. Army's canister development and production.

IDF urban terrain experience, much of which is probably similar to what the U.S. Army can expect to face in the future, has resulted in further ammunition requirements. A unique Israeli development, now in production by IMI for the IDF, is the 105mm APAM (Anti-Personnel/Anti-Materiel) round. The APAM is a multipurpose round that can function as an air burst munition against dismounted troops in the open or dug in, or as a unitary HE round against point targets such as bunkers, light armored vehicles, and other materiel targets. As an APERS round, the electronic fuze receives range information from the fire control computer and expels its controlled fragmentation submunitions at optimal height over a long, wide lethal area. As an anti-materiel round, the APAM acts as a rigid HE round, capable of blowing holes in structures and destroying point targets.

Combat-proven, the APAM seems to offer the Interim Brigade Combat Teams' Mobile Protected Gun an excellent solution to the APERS requirement, while providing a unique flexibility to the ammunition stowage challenge. The design appears to have the potential for a similar round for the M1A1 tank, as well.

PHILIP L. BOLTÉ  
BG, USA, Ret.

### The Swiss Experience With Three-Tank Platoons

Dear Sir:

I wish to contribute a few personal thoughts to the article, "The Three Tank Platoon," by MAJ Stringer and MAJ Hall. I am a graduate of ACCC at Ft. Knox and am now a tank instructor at the OCS of the Swiss Armed Forces.

Regarding their comment, "The tank platoon is organized to fight as one maneuver element, not as two separate sections," I would say that this doctrinal definition is correct as long as we are talking about a classic tank battle. But if we are talking about MOUT, a concentration of armor is no longer possible. Either a tank platoon is operating alone, or it is organized with panzer grenadiers (mechanized infantry). If operating

alone, the platoon must be able to cover 360 degrees, and this is only realistic with four tanks, or even five.

If operating with dismounts, the force must be mixed: one panzer grenadier platoon (-) with a section of two tanks. The mech infantry can cover the flanks and rear of the tanks during the approach within urban terrain. But one tank is not enough. With two, the section is capable of providing mutual fire-support and one tank can recover the other if necessary.

The authors note that, "With three tanks, the platoon leader can better control movement and fire of his unit." No doubt, this is a fact. But I think with good TTP standards, it doesn't matter one tank more or less, as long as the platoon leader leads by example. If someone thinks a tank platoon leader should lead his platoon by not directly engaging with his tank during the fight, then we should consider having five tanks in a platoon instead of three.

I agree that the digitization of command and control will be used mainly before the direct fire fight. It will allow operation without visual contact within the platoon. This would be a great advantage during MOUT or within restricted terrain. Again, the future of operations at platoon level will be in sections.

Another questionable area is the availability of tanks. If only one tank of the three-tank platoon is out of order, the platoon cannot be considered as operational.

The Swiss Army XXI will be transforming its combat organization back to a tank company with 14 Leopard IIs and with four tanks per platoon.

HANNES M. HAURI  
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### Soviets Adopted Three-Tank Platoons As a Desperation Measure

Dear Sir:

I must strongly disagree with the article, "The Three Tank Platoon, A Consideration For Army XXI," in the March-April issue of *ARMOR*. The authors' proposal to reduce combat capability in order to reduce training, manpower, and logistic shortcomings is simply a plan for defeat.

Contrary to the authors' claim, there is nothing *revolutionary* about the three-tank platoon. The Soviet Red Army adopted it at the beginning of WWII due to its tremendous shortages of trained leaders, radios, and effective tanks. They likewise fielded many two-company battalions (21 tanks) and, for critical equipment like their JS-series heavy

*Continued on Page 47*

## Armor Branch's "Way Ahead" Advances on Four Thrust Lines

by Major General B. B. Bell, Commanding General, U.S. Army Armor Center

Our branch is decisive and healthy, and remains at the core of America's ability to fight and win wars. In this, my final "Commander's Hatch" article, I want to give you a quick rundown on the state of our branch as it integrates with the Army's other branches to provide a decisive, combined arms war-fighting capability. Armor Branch is advancing along four major axes: the Objective Force, the Interim Force, the Legacy Force, and manning the Armor Force. All four avenues are extremely important to the Army and each of us.

### The Objective Force

The Army is moving out in achieving its vision, and at the spear point is the Objective Force. Armor branch is, and will remain, deeply engaged in the Objective Force development process. The Objective Force represents a holistic approach to our future combat capability, and at the center of this effort will be the fielding of the Future Combat System (FCS). While we pursue science and technology solutions for the FCS, we already know the Objective Force's key operational concepts and we know the defining characteristics of the FCS. This system will:

- Be rapidly deployable
- Be combat capable off the ramp
- Have a decided stand-off advantage
- Possess lethal overmatch against future advanced armors
- Possess an advanced survivability suite that includes active and passive protection systems, networked lethality overmatch, signature management, dominant situation awareness, and that will leverage unmanned systems capabilities
- Achieve unsurpassed tactical and operational mobility
- Enable dominant situational understanding

- Operate with ultra reliability

The Objective Force's primary close combat formation will be the FCS Battalion, the unit of action for future Army operations. All of the Battlefield Functional Areas will be represented across FCS common platforms and will be found in the combined arms FCS Battalion. The Army and TRADOC are in pursuit of a prime directive to establish responsibilities and proponencies for the FCS Battalion. As always, Fort Knox and Armor Branch stand ready to take on any role in the combat developments process for the FCS battalion.

### The Interim Force

Armor Branch has two major pursuits within the Interim Force: the Initial Brigade Combat Team and the Interim Cavalry Regiment. First is the IBCT. The IBCT is an infantry-centric combined arms organization supported by direct fire from 105mm Mobile Gun Systems (MGS).

The IBCT is optimized for small-scale contingencies in complex and urban terrain, but possesses the ability for full spectrum early entry force operations. All of the vehicles in this organization are built on the LAV III interim armored vehicle (IAV) common platform, and all possess superior situational awareness and understanding (SA/SU) capability. The IBCT is light enough to be strategically deployable and battlefield mobile, yet heavy enough to bring battlespace dominance into an austere theater.

The IBCT is built around the Combined Arms Company. The company contains three infantry platoons and an MGS platoon. This MGS platoon provides the close supporting assault gun fires needed to defeat enemy personnel, bunkers, weapon emplacements and medium armored vehicles. When needed, the mobile guns will punch structures open to support infantry operations in urban environments. With

each platoon containing three mobile guns, there will be a total of 27 mobile gun platforms in each IBCT. The MGS vehicles will be fought by 19K armor crewmen with an appropriate ASI.

Providing the eyes and ears for each IBCT is a Reconnaissance, Surveillance, and Target Acquisition (RSTA) Squadron of over 400 troops, dominated by the 19D cavalry scout. This squadron has NBC reconnaissance capability, organic mortars, unmanned aerial vehicles, inter-netted sensors, and GSR capability. These systems, combined with the LRAS3 systems onboard the recce platforms, allow this unit to conduct sustained R&S operations over extended areas.

Clearly, Armor and Cavalry soldiers bring key competencies to the IBCTs and an assignment to one of these units is going to be an exciting and rewarding opportunity. We will be leading the way in these outfits and providing the heavy firepower and reconnaissance to ensure their success — the Armor community has reason to look at the emergence of these units with pride and anticipation. These organizations are good for our Army and our branch.

One initiative that we are continuing to work is the development of an Interim Cavalry Regiment which we hope will result in the near-term reorganization and re-equipping of the 2ACR. We refer to the design as the Second Interim Cavalry Regiment — 2ICR. While the Army has yet to give its final blessing to the 2ICR, through a blue ribbon panel process and in coordination with FORSCOM and XVIII Corps, we have constructed an operational and organizational plan for the organization. We are continuing to develop the framework for an organization that will be able to provide the full range of corps cavalry requirements. We see this organization as the harbinger for Objective Force cavalry. The 2ICR will be optimized for reconnaissance but will

include sufficient firepower to conduct security and economy of force operations. We envision that this unit will have a strong air and ground team that is capable of operating over a 90km by 60km battlespace. This unit will have embedded engineer, signal, MI, UAV and CSS support. It will employ Interim Armored Vehicles with a basic cavalry capability provided by a mix of recce and MGS platforms. You'll see more on this initiative over the next several months.

### The Legacy Force

Our current armor force provides the nation with a strong and decisive war-winning capability. This force will continue to provide the bulk of our warfighting capability for at least the next 15 to 20 years, while we bring FCS battalions into the force. We will sustain our current force through selective upgrade and recapitalization. In this *ARMOR* Magazine is an article on the recently completed Division Capstone Exercise (Phase I) that highlights the enormous enhancements made to the 4th Infantry Division (see Page 44). The Ironhorse Division is the first step in the move to create a Counterattack Corps that will serve as the nation's decisive counterattack force for any major theater war. As the Counterattack Corps, III Corps will be modernized by FY05 and 3ID will be modernized by FY09. These forces will serve as the nation's premier counteroffensive defeat mechanism for the next 15-20 years.

Other formations within our current force are the Contingency/Containment and Reinforcing Forces. The elements of the Contingency/Containment forces will be linked to Army Prepositioned Stocks (APS) and serve as first deployers. The reinforcing forces consist of our Enhanced Separate Brigades and our ARNG mechanized divisions. These forces are absolutely critical for any sustained combat scenario.

While I have laid out the Mechanized Force Modernization Plan for you in the July/August 2000 "Commander's Hatch" article, I want to highlight some key areas again. First, we are upgrading the Counterattack Corps units with M1A2 SEPs and M2A3 Bradleys. Additionally, we are going to rebuild our Contingency/Containment force's vehicles, giving them M1A1Ds and M2A3 ODS. Both forces will have state of the art equipment. Both forces will remain extremely lethal and will retain overmatch capability against any force in the world. We also intend to outfit our

reinforcing forces with M1A1Ds and M2A3s to ensure their lethal overmatch capability.

We are aggressively pursuing other enhancements for our armor forces. We need items like the 120mm canister round and the Tank Extended Range Munition (TERM). The 120mm canister round is funded in the POM and will be essential in combat in close/complex and urban terrain. The TERM round is proceeding through the approval process and we will continue to work this issue. I cannot list every project that we are pursuing to make our force better prepared to support the nation's objectives, but let me list our priorities for the future:

1. Recapitalize through upgrade III Corps, three mechanized/armored divisions and 3d ACR with M1A2 SEP and M2A3 Bradleys.
2. Fully digitize III Corps with three divisions and 3d ACR.
3. Develop and procure munitions that dominate the expanded close combat "red zone."
  - a. 120mm TERM
  - b. M829E3
  - c. 120mm Canister
  - d. Maintenance of TOW II inventory
  - e. TOW fire-and-forget
4. Recapitalize through rebuild (M1A1D/M2A2ODS-D) the remaining mechanized Containment/Reinforcing Force (AC/RC).
5. Match APS with appropriate early entry containment force equipment.
6. Invest in adequate institutional, home station, and CTC training upgrades to ensure mechanized force readiness.
7. Ensure adequate obstacle reduction (Grizzly) and gap crossing (Wolverine) capability in III Corps.
8. Develop and procure long-range indirect fire system (Crusader) and munitions to enhance non-line of sight effects.
9. Study acquisition of recce platform to provide III Corps with inter-netted ISR/target acquisition capability.
10. Invest in operation and sustainment cost reducers (e.g. common engine, built-in diagnostics, reliability improvements).
11. Transform 2ICR to empower XVIII Corps with appropriate RSS cavalry capability.

12. Procure adequate battlefield recovery capability (Hercules) to outfit III Corps counterattack force.

### Manning the Armor Force

By far the most important axis for our branch is the maintenance of our high soldier quality. The greatest technological innovations and the best equipment are useless without skilled soldiers, competent leaders, and cohesive/motivated teams. The DCX (Phase I) was just the latest demonstration of the quality and dedication found in the soldiers of our branch. Fort Knox is moving forward on its main training and leader development mission by pioneering some unique changes in the way we train soldiers. We have implemented Gauntlet training here at Knox that teams soldiers from different officer and NCO grades and skill levels into experiential-based virtual, constructive, and live training events. Our Armor and Cavalry OSUT programs are superb, and are improving almost daily.

We continue to pursue distance learning which allows soldiers away from the institutional base to reach back into the school house for the most current training and information. We are leading the way in providing training support packages and assisting field units in reaching their training and leader development goals. The Armor School remains committed to serving the field commander; we want your input and we need you to help drive the training here at the Center. Our soldiers and leaders are and will remain the centerpiece of our formations and we are dedicated to their training excellence.

### Conclusion

Our branch is as decisive, healthy, and relevant today as it has ever been in its proud history. Armor soldiers and cavalry troopers have a bright future at the lead of the Army's warfighting formations, both today and with our future Objective Force. As I turn over the reigns of the Armor Center to the very capable hands of MG Steve Whitcomb, I want you to know that I have been honored to serve as your Chief of Armor and to represent you and the branch in the training and combat developments part of the Army. I thank each of you for contributing so much to the Armored Force, to the Army, and to the Nation.

FORGE THE THUNDERBOLT  
AND STRIKE FIRST!



CSM Carl E. Christian  
Command Sergeant Major  
U.S. Army Armor Center



## Some Things Should Never Change

The DCX I is complete. The new technologies and equipment have proven to be as good as we imagined they could be. There was a tough battle on the desert floor at the NTC. The BLUFOR did a really good job against the traditionally tough OPFOR. I watched as M1A2SEP tanks identified and engaged OPFOR vehicles at ranges never heard of, much less thought of, at the NTC. Formations maneuvered with “visualization” of the operational area unprecedented before now. The BLUFOR units, from battalions down to individual platforms, were very successful. But this success cannot be attributed solely to modern technology. If you have read or heard any senior leader in the Army talk about transformation, you know the focal point for the revolution of the future. **It is the soldier who is the centerpiece of the transformation.**

I went to an AAR shortly after a battle and, instead of seeing a lot of soldiers “kicked back” and enjoying the thrill of victory, I saw a staff sergeant checking the maintenance being pulled by his tank crew. I saw a platoon sergeant going around and making corrections on the uniforms that his warriors were wearing — or not wearing, I should say. The company commander moved from platoon to platoon, inspecting items from the SOP. The 1SG was chasing down the LOGPAC, and even the battalion commander came pulling up to “see” his troops. I saw what I knew to be true, that leadership was the real key to success for this unit — lead-

ership which was, no kidding, taking care of the centerpiece of this transformation, the soldiers.

All the great new devices that have made us even more flexible, sustainable, survivable, and lethal cannot hold a candle to **competent leadership**. There have been many articles written about this, but I feel it bears hearing one more time as we search for the right way to bring new technologies into our formations. When I see a unit really clicking, one of the most obvious reasons is because of great **communication** going on at all levels. As our environment changes, communication is the one thing that keeps everyone moving forward towards the same objective in an organized fashion. Soldiers need leaders to tell them the whats, hows, whens, wheres and even the whys. Effective communication builds trust up and down the chain of command and support channels.

At the NTC, and everywhere else I see successful units, the small unit leaders who take the time to **teach, coach, and mentor** create the units that act and operate as a synchronized team. New technical enablers may provide the ability to see first, understand first, and act first, but we, now more than ever, need leaders to share some of the “old ways” because they still work. If fact, some of these new technologies become extremely potent force multipliers when used with tried and proven methods of operation. Leaders need to embrace

new technology while showing soldiers the tricks of the trade.

Our Army is the best, not just because of the awesome power and lethality of the equipment, not just due to the ability to field the equipment across the force, and not even just because of the capability to continue to develop new technologies from our technology laboratories. Our ability to be the best is due to our leadership. The leadership that will protect, serve, and care for the centerpiece, the soldier.

Effective and productive units have leaders who also recognize that soldiers are not on the field of battle all the time. In these units, the soldiers believe their leaders **know the families** and will do what they can to watch out for those families. The soldiers know they have leaders who are willing to get involved and discuss personal issues like finances with them. Great units are the ones where leaders create an environment that is **saturated with dignity and respect** for all soldiers and families.

So, what is the “**SO WHAT**” of all this? The future of this Army is going to be exciting, challenging, and well worth being a part of. The new technologies will provide us exponential gains on and off the battlefield. Our soldiers will be prepared to execute their missions anytime, anywhere because leadership is a paramount ingredient in making them the centerpiece of the future. Leadership is what makes “**TODAY the BEST DAY to be a SOLDIER.**”

# The Cavalry Paradigm

## “We Aren’t Training as We Intend to Fight”

by Captain William E. Benson

### Introduction

The cavalry is in a struggle for legitimacy and recognition in today’s transitioning Army. This struggle is highlighted by inadequacies and inconsistencies in cavalry doctrine, TO&Es, and training opportunities throughout the force. Even the word “cavalry” connotes different meanings across the Army. In many, if not most, aviation units, the term cavalry is synonymous with aviation. Battalion scout platoons consider themselves cavalry organizations. The OPFOR regiment at the NTC calls itself cavalry, as does an armored division in central Texas. These seemingly innocuous designations tend to dilute and confuse the real and significant role of cavalry organizations.

The fact is that designated cavalry units (ACRs, LCRs, armor- and aviation-based division cav squadrons, and the new brigade reconnaissance troops) do represent a myriad of TO&Es and capabilities that are misunderstood by many in today’s Army, as is apparent by their misuse. The Army, as well as the armor and aviation communities, promulgate these misunderstandings through lack of branch recognition, lack of coordinated and detailed doctrinal development and understanding, lack of appropriate TO&Es, and lack of adequate training opportunities. These issues will be discussed below, setting aside the issue of branch recognition.

### Doctrine

*FM 100-5* lists cavalry as a separate tactical unit. Unlike the five types of infantry forces (light, airborne, air assault, Ranger, and mechanized) that are listed as subparagraphs to the tactical unit infantry, cavalry is not listed as a subparagraph under armor or aviation. Army doctrine recognizes the unique role of cavalry as separate from armor and aviation units because of its unique missions. *FM 100-5* goes on to state that “the basic missions of cavalry units are reconnaissance, security, and economy of force.” The missions (the terms mission and operation seem to be used interchangeably throughout these manuals) of reconnaissance and security are

discussed in detail in *FM 17-95* and *FM 17-97*. These are the missions for which most cavalry units train most of the time. The purpose of cavalry units is defined in *FM 17-95* as “to perform reconnaissance and to provide security for close operations.” It also clarifies the use of cavalry units in an economy of force role during offensive and defensive operations, but does not refer to economy of force as a mission unto itself. The primary role of cavalry units is to:

- Provide fresh information
- Provide reaction time and maneuver space
- Preserve combat power
- Restore command and control
- Facilitate movement
- Perform rear operations

While *FM 17-95* does a decent job outlining the fundamental role of cavalry, there are several omissions and inconsistencies that need to be addressed. Some omissions from the mission profile include tank platoons, the tank companies, aviation scout platoons, and attack companies. (The mission profile is outlined in Figure 1-4 of *FM 17-95* and cross-references cavalry units with their respective missions. Missions are listed as doctrinal, non-doctrinal but capable, and doctrinal with additional assets.) Every cavalryman knows that these elements are as much a part of their respective cavalry organizations as the scout platoons, ground cavalry troops (GCT), and air cavalry troops (ACT). As the weighted edge of the cavalry saber, tanks and attack helicopters are essential to the accomplishment of security operations and to the success of economy of force missions (e.g., hasty attack, defend in sector), particularly in a heavy environment. The omission of these units from the cavalry mission profile is a glaring oversight.

Another problem with *17-95* is its inconsistency with the MTP manuals it supports. *FM 17-95* lists “recon in force” as an appropriate mission for a

regimental cavalry squadron. However, “recon in force” is not listed in the regimental cavalry squadron’s MTP (*ARTEP 17-485-MTP*) and is not a term used in the lexicon of any modern cavalryman. *FM 17-95* also lists the general mission “attack” under the broad umbrella of missions associated with economy of force. While it goes on to say that cavalry units seldom perform deliberate attacks, it does not rule them out. This is a mistake. The deliberate attack mission does not appear in any of the related cavalry MTPs and should not be considered a viable mission for cavalry units. The hasty attack section of the FM is slightly more extensive but does not make it clear why hasty attack is considered a mission conducted in an economy of force role. This is a potentially dangerous association if not clearly defined and articulated.

The missions outlined in the *Cavalry Troop FM 17-97* are also not in step with related doctrinal manuals. For example, *FM 17-97* discusses a raid mission for heavy and light cavalry troops, but the Regimental Armored Cavalry Troop MTP (*ARTEP 17-487-30-MTP*) does not list raid as one of the troop collective tasks. In practical terms, a raid is a type of attack, I would argue a type of deliberate attack; *FM 100-5* refers to it as a limited-objective attack. Regardless, without support in the MTP and without a more in-depth discussion of raid execution in *FM 17-95*, not to mention dedicated training resources, this task does not accurately reflect current cavalry capabilities (with the possible exception of air cavalry units). At the scout platoon level, *FM 17-98* gives paltry reference to platoon defensive operations despite the fact that “conduct a platoon defense” is a platoon collective task listed in the scout platoon MTP (*ARTEP 17-57-10-MTP*). In fact, heavy scout platoons are routinely given the mission to defend a battle position and I would argue may even be asked to conduct a defense in sector in restrictive terrain as an economy of force. Retrograde or delay missions are identified as METT-T dependent for all scout platoons in *FM*



*"While I agree that neither the M3 CFV nor the HMMWV are ideal reconnaissance vehicles, I don't agree that there exists or will ever exist a vehicle that answers the competing cavalry mission requirements of reconnaissance and security."*

Photos by  
Robert L. Stevenson



17-95, but again, *FM 17-98* as well as the scout platoon MTP are deficient in addressing these missions.

These are just a few of the readily identifiable doctrinal deficiencies that cloud the already murky waters of cavalry operations. Tank, scout, and air cav platoon leaders need to have a doctrinal reference for all appropriate missions. Troop commanders must have the references to train their platoon leaders and to find a logical progression of tasks to properly develop their METL. Cavalry leaders at all levels must have a congruous set of doctrinal manuals that simply define the roles and missions of cavalry organizations across the spectrum of the Army. Our non-cavalry brethren need to have an accurate understanding of the *real* capabilities and limitations of cavalry units throughout the Army as well as an understanding of the doctrinal terms associated with cavalry missions.

## Equipment

There has been much discussion in *ARMOR* Magazine and other publications on the deficiencies of the various cavalry MTOEs. One continuing observation is the lack of a dedicated ground reconnaissance vehicle in both the light and heavy cavalry forces. While I agree that neither the M3 CFV nor the HMMWV are ideal reconnaissance vehicles, I don't agree that there exists or will ever exist a vehicle that answers the competing cavalry mission requirements of reconnaissance and security. In fact, I believe it is dangerous to discuss the development of a pure reconnaissance vehicle without taking into account the security aspect of cavalry operations. As previously discussed, cavalry units are supposed to be able to conduct the basic missions of reconnaissance and security. Instead of

trying to develop the ultimate cavalry vehicle to meet these competing missions, it may be wiser to integrate various platforms that accent their inherent strengths while minimizing their weaknesses. An existing example of this type of cavalry organization is the heavy cavalry troop mixture of CFVs, M1s, and mortars. In fact, tanks were reintroduced to heavy division cavalry squadrons during the Gulf War to make up for the limitations of the CFV-pure cavalry troops.

The old ACT mixture of OH-58s and AH-1s also took advantage of this approach. At a more macro level, the mixture of air and ground assets in the ACR/LCR and divisional cavalry squadrons also represent a good integration of complementary vehicles. Unfortunately, this mixture of vehicles is not carried over to the brigade reconnaissance troops (BRT), the LCR ground troops, or to the battalion scout platoons. The fact that the HMMWV is not a good platform to conduct security operations in a heavy environment is beyond argument and its use as a reconnaissance platform is limited in all environments. Again, these issues have been discussed on numerous occasions in this and other publications and need not be addressed here. The fix to these deficiencies is a mix of vehicles with complementing attributes. Planners need to consider the integration of HMMWVs, M113s, LAVs, and M3s in any number of combinations to meet operational requirements. With the exception of the LAV, today's scouts are already expected to be cross-trained on this equipment.

The doctrinal and TTP changes needed to execute under these configurations are negligible. While reconnaissance and security platforms mounted on a common chassis may diminish the

need for integration of vehicle types in the "Army After Next," this future solution does not meet the mission requirements of today's cavalry organizations.

The most apparent and potentially show-stopping shortfall in today's cavalry TO&Es is the lack of dismounts. Ask any ground scout platoon leader or platoon sergeant what he wants more of, and the answer, 8 out of 10 times (unscientific survey), is more 19Ds to put on the ground. This would immediately improve the mission capability and sustainability of all cavalry units in their security, reconnaissance, and economy of force roles. It would also provide the necessary soldiers to do the ancillary work that was not taken into account by the MTOE gods. Work like processing EPWs, evacuation of casualties, digging fighting positions, maintenance and laying wire, not to mention manning long-duration OPs and conducting dismounted patrols.

The basic load of ammunition for the CFV also prevents an addition of ground scouts to the heavy scout platoon. This basic load was developed for the economy of force missions associated with the defense of the Fulda Gap and the German plains. As a scout platoon leader, I would gladly have traded eight to ten TOW missiles for an additional two 19Ds per CFV. At a minimum, platoons could be equipped with only two or three M3s, with the remainder made up of M2s.

Heavy scout platoons are not the only units with a dismount shortage. HMMWV platoons, for all their maneuverability and flexibility, can readily dismount only one soldier per vehicle. It becomes virtually impossible to consolidate enough dismounted personnel to sustain long-term, dismounted

OPs or foot patrols. At the regimental level, we find another drastic shortage of dismounted soldiers. Dismounts are the only way to secure, defend, and recon restricted terrain, but the Army's regiments do not have a consolidated dismounted force to perform these missions. Assembling such a force from internal regimental assets while deployed is difficult at best. Once these dismounts are assembled, there would be serious C2 and training issues if they were expected to perform a mission. The obvious answer to this shortfall is to equip the regiments with a 19D or, better yet, an 11-series company. This would provide the regiments with the dedicated, trained, and consolidated dismounted force it needs to defend the "iron triangle," secure or recon a built-up area, or seize a constricted defile.

The legacies of both the 3rd ACR ("Regiment of Mounted Rifleman") and 2nd ACR ("Dragoons") attest to the fact that the infantry do have a place in a cavalry regiment's force structure. Of course another option is to cross-attach an infantry company or battalion task force to a regiment in order to meet specific operational requirements. This eventuality is even mentioned in *FM 17-95*, p. 4-33. Unfortunately, today's regiments are not prepared to integrate the infantry into their operations because they do not train with the infantry — ever! This brings me to my third area of discussion.

## Training

With the possible exception of the battalion scout platoons, cavalry organizations are often short-changed during externally evaluated training events. The reason behind this is simple; the majority of the Army's officers (armor officers included) have no cavalry experience and do not understand the capabilities and limitations of cavalry organizations.

While cavalry officers receive institutional training in battalion task force operations, the average armor or infantry officer receives no institutional training in cavalry operations. The result becomes apparent during collective training events at all levels. For example, GCTs and squadrons are repeatedly given the mission to conduct a zone reconnaissance in order to "clear all enemy in zone." Reconnaissance missions should be focused on finding the enemy or evaluating terrain. If you want a cavalry unit to "clear all enemy

in zone," give it a movement to contact mission. Security operations are discussed as offensive and defensive, as opposed to stationary or moving screens, guards, and covers. Units are asked to guard "in order defeat the enemy" in a specific EA rather than to protect (secure) a given friendly unit. These types of mission statements and doctrinal miscues taint the learning process and the effectiveness of externally evaluated events at places like the CTCs. Those writing the orders must understand that there is a difference between asking a unit to conduct a stationary guard and asking it to defend. These problems are sometimes perpetuated by officers from within the armor community who have no prior cavalry experience or training and do not fully grasp the nuances of cavalry doctrine and TTP. The fact that there is no school devoted to teaching and developing this doctrine also perpetuates the problem. (The Cavalry Leaders Course and Scout Leaders Course are excellent, but are not resourced to fully address these shortcomings.)

Most company and field grade officers who are placed in cavalry units without any cavalry experience or training are not capable of "growing" junior cavalry leaders effectively. Even worse, they are often a detriment to the growth of the unit. The warrior studs of the Army will always excel, but the rest of us are limited by our training and experience. The old adage among the armor community is that it is important for cavalry officers to be cross-trained in battalion task force operations to make them well rounded and keep them competitive for ranks above O5. This trend belies the need for highly trained leaders who understand the nuances of their units and their missions. This need may be greater today than at any other time as the rapid introduction of technology complicates the battlefield.

Reconnaissance and security missions make up the primary battle tasks of squadrons and regiments and are normally the focus of training. Unfortunately, squadrons and regiments rarely get to train as they are intended to fight. Heavy division cavalry squadrons are normally deployed to the CTCs as part of brigade combat teams instead of as a division asset. Heavy division cavalry squadrons never train in their primary role of conducting reconnaissance and security for the division they support, because divisions do not deploy to the field for training exercises. (Warfighters are not field exercises!)

The relationship and battle handover between the BRTs and the division cavalry squadrons have really only been discussed in theory. The TTP of how a heavy squadron delaying in contact conducts a battle handover with a light cav troop (the BRT) escapes me. The BRT was created as a result of a need for brigade-level reconnaissance to fight at the NTC. It was not created out of a need identified in the Gulf War or in any series of division training exercises. (In the past decade, the 3rd ACR has repeatedly formed and then abolished HMMWV-equipped regimental reconnaissance platoons in a similar attempt to win the deep reconnaissance fight at the NTC.)

I am not arguing that brigades don't need reconnaissance. I would argue that brigades probably need a robust reconnaissance and security unit, especially if we finally dismantle the division monolith and continue to deploy brigade-size elements to conduct real world missions. An example of this type of brigade cavalry organization is the proposed RSTA squadron of the medium brigades. Under its current TOE, however, it is particularly unable to conduct security operations beyond a limited screen, and it seems that the Army has forgotten or dispensed with the notion of fighting for reconnaissance.

Will a more robust brigade cavalry organization make the heavy div cav squadron obsolete? Maybe. Unfortunately, we can only speculate until the Army conducts training at a level that allows for an accurate assessment. The same arguments can be made for the need for training the regiments in support of their respective corps. (The last time the Army changed its operational paradigm was when it transitioned into a primarily mechanized force. This development only came about after extensive maneuver training and testing just prior to WWII in what became known as the "Louisiana Maneuvers." The current round of testing and training involving a BCT(-) at the NTC falls far short of this standard.)

Poor training opportunities for cavalry organizations extends to real world deployments as well. Cavalry units at all levels are repeatedly bastardized for significant training events and missions that prevent them from optimizing their complementary weapons systems. For

Continued on Page 15

# Airborne Light Cavalry Gunnery

The Army's only airborne ground cavalry troop deploys to Fort Knox

by First Lieutenant Brian W. Oertel and Captain Francis J. H. Park

While many believe that Armor's presence at Fort Bragg, North Carolina ended with the inactivation of the 3d Battalion (Airborne), 73d Armor in July 1997, there is still a ground cavalry troop within the 82d Airborne Division. In February, these 66 paratroopers of Troop A, 1st Squadron, 17th Cavalry, the Army's only airborne ground cavalry troop, jumped into Fort Knox, Kentucky, where they conducted their light cavalry gunnery.



**Soldiers of Troop A, 1st Squadron, 17th Cavalry parachute into Fort Knox's Godman Army Airfield. The Fort Knox visit took advantage of the post's multi-purpose ranges with computerized target arrays.**

The troop's primary mission is to execute forced entry, reconnaissance, and security missions in support of the division (air) cavalry squadron, or as part of its habitual infantry regimental combat team. The troop consists of three scout platoons with a headquarters platoon. Each scout platoon of six HMMWVs is armed with two Mk19 grenade launchers, two M2HB heavy machine guns, and two M41 TOW Improved Target Acquisition System launchers. Each Mk19 and TOW system in the platoon also has a secondary M240B medium machine gun which can engage close-in targets, essential in the light and dismounted environments where the troop usually fights.

Every weapon in the troop also has a night vision capability. The machine guns are equipped with AN/PVS-4 and AN/TVS-5 night vision sights, and there is an AN/PAQ-4C aiming light for every rifle in the troop.

Most significantly, the entire troop is capable of airborne assault. All 65 troopers, 23 vehicles, and mission-essential equipment can be loaded on an aircraft for parachute drop within 18 hours of notification. Coming in FY 2002, the troop will also field an 81mm mortar section with the same airborne assault capability.

One of the limitations of training at Fort Bragg is a lack of adequate multi-purpose ranges. While the range complex at Fort Bragg supports dismounted training well, it is unsuited for anything beyond a Level II gunnery density. In addition, because of the lack of available ranges, the troop becomes extremely familiar with the existing target array, which greatly decreases the training value of home station gunnery. The other option available to the troop is to conduct gunnery off-post. Last year, the troop conducted an off-post gunnery at Fort Pickett, Virginia, but the range facilities at Fort Pickett are so primitive that the troop itself had to establish and run the ranges on which it shot, diminishing the training value of gunnery there.

One answer to this lack of range facilities was to fire gunnery at Fort Knox, which has true multipurpose ranges with a computerized target array. In addition, the movement to Fort Knox would provide outload and deployment training to the troop. Finally, it provided the opportunity to conduct an airborne assault onto unfamiliar terrain.

This off-post gunnery would not have been possible without the support of the

Air Force to outload and deploy the troop. The Air Force allows Army units to use Air Mobility Command aircraft under the Joint Army/Air Transportability Training (JA/ATT) program. Indeed, JA/ATT is the primary method by which the 82d Airborne Division resources its airborne operations. It allows Army units to request Air Force cargo aircraft to conduct unit movements and airborne operations, with transportation costs at Air Force expense. The benefit to the Air Force is collateral training on landing and drop zones. JA/ATT missions are typically sched-

uled three months out from the requested date, and are dependent on aircraft availability. Sometimes, real-world missions have preempted JA/ATT requests in the past, but the infrequency of such missions means that JA/ATT is the airborne division's usual method of deploying units to an off-post training event, to include CTC rotations.

The usual timeline for an airborne operation on Fort Bragg is measured in hours. However, for an off-post deployment, particularly one involving transportation of vehicles, the timeline increases significantly. February 2, the day prior to the actual deployment, saw the troop line-hauling six of the 12 vehicles it would take to Fort Knox from Fort Bragg's Central Receiving Point. In addition, a Tactical Airlift Control Element (TALCE) from Pope Air Force Base conducted a joint inspection of the other six vehicles to ensure that they met the shipping and preparation requirements required for air movement.

The troop, under direction of its own jumpmasters, also conducted personnel manifest and sustained airborne training the day prior to flight.



Troopers fired the machine gun tables at Baum Range and later at Cedar Creek MPRC. Moving to a different range ensured a more realistic assessment of the gunners' and truck commanders' target acquisition and engagement skills.

Photos by Robert L. Stevenson



The troop's advance party deployed to Fort Knox by a 15-passenger rental van. That group included the drop zone support team, required for the troop's airborne assault into Roszov South Drop Zone, located on Godman Army Airfield.

On the morning of 3 March, the troop's 54 jumpers conducted mock door training and jumpmaster personnel inspection. Then the jumpers and their vehicles loaded onto a C-17 Globemaster III aircraft for the short flight to Fort Knox. Part of the collateral training for the Air Force included low-level flight into Fort Knox starting approximately 30 minutes from drop, which may be necessary in actual combat if the troop jumps an assault zone defended by hostile air defense systems.

One of our major concerns was the small size of Roszov South DZ. Compared to the large drop zones at Fort Bragg, which offer some 30-60 seconds to exit a pass of jumpers, Roszov South is a small DZ that allows only a mere seven seconds of "green light." This meant that the troop would have been exiting jumpers over the Armor Inn, Patton Museum, and Highway 31W, so the troop planned for four passes of 11 jumpers each. The other hazard at Fort Knox is the runway surface itself. In peacetime, most drops are made into a sandy area to reduce the possibility of injuries upon landing. Yet in combat, all airborne assaults conducted since 1983 have been onto hard-surface airfields. The opportunity to train on a realistic DZ is rare, particularly outside of airborne or ranger infantry battalions.

The troop took approximately 30 minutes to mass its five jumpmasters and 49 jumpers in a textbook jump, which was followed by an airland of the vehicles on part of the runway at

Godman AAF. From marshalling, the troop conducted onward movement to the Fort Knox garrison area. Life support in garrison was generously provided us by 5-15 Cav. This arrangement was made through direct liaison from the troop's reconnaissance party and 5-15 Cav itself. In addition, the troop had the support of other senior NCOs at 5-15 Cav and 1/16 Cav who had been former members of the troop or 3-73 AR, and their assistance was priceless.

The troop deployed to Baum Tank Range to conduct Light Cavalry Tables I and VII for its machine gun crews. The troop's gunners zeroed and fired their M2HB and M240 machine guns on Light Cavalry Table I, which is against 10m paster targets from the range's baseline. Upon completion of LCT I, LCT VII trained the crews on engagements from moving and stationary vehicles on stationary and moving targets. Due its small size, the troop was able to fire LCT VII within a day. Later, the troop moved to Cedar Creek Multipurpose Range Complex. Such a change of ranges, taken for granted at most heavy installations, is rarely available at Fort Bragg. Moving to a different range ensured a more realistic assessment of the gunners' and truck commanders' target acquisition and engagement skills.

One of the limitations of this gunnery, however, was the restrictions placed on 40mm grenade fire. Due to limited range availability, the troop was limited to firing 40mm grenades at Hackett Range. Since the target array at Hackett Range consists solely of stationary hard targets and there was no movement allowed on the range, SSG David Henry, the troop's master gunner, and SFC Leo Clark, the headquarters pla-

toon sergeant, devised an alternate qualification table for both day and night fires. During the day, grenade launcher crews conducted a brief familiarization fire, then conducted un-timed and timed target designation and engagements during the day. The crews then filled out a range card as an un-graded task. After nightfall, the crews then returned to their day battle position and conducted two graded engagements based on the data on the range card.

One of the biggest restrictions on 40mm grenade fire is the lack of 40mm grenade ammunition. In addition, the light cavalry tables for the Mk19 grenade launcher are written under such restrictive time standards that the likelihood of qualifying first run is slight. *FM 17-12-8, Light Cavalry Gunnery*, dictates that "All basic gunnery tables for the Mk19 must be device-based (i.e., without expending live ammunition), due to ammunition constraints." Additionally, the lack of an Engagement Skills Trainer (EST)<sup>1</sup> means that most Mk19 crews are at a severe disadvantage to their counterparts firing other machine guns. Consequently, there is no way to adequately build competency through basic tables if there is no ammunition or simulations for them. The absence of sufficient training aids or simulations to fire basic tables through LCT IV means that, at best, crews can dry-fire those tables. Consequently, the first table that most Mk19 crews fire with any kind of ammunition is usually LCT VII. The scores of most crews shooting LCT VIII off that one table of practice are abysmally poor, and gunner confidence suffers as well. The alternate qualification table that the troop used better reflects what the troop would actually do in combat and gives gunners a far bet-



The unit's HMMWVs arrive at the MPRC for fire and maneuver exercises. Each section was able to perform a route reconnaissance on varied terrain, which was not possible at home station.

ter understanding of the mechanics of the Mk19 grenade launcher and its Mk93 Mod I vehicle mount.

The troop was able to fire LCT VIII day and night runs within a day, largely due to the drive and leadership of the troop's NCOs. In most heavy units, gunnery normally peaks at Tank Table or Bradley Table VIII. Since the field of competition in the airborne division is limited to the division's lone ground troop,<sup>2</sup> the emphasis of gunnery within Troop A is on Light Cavalry Table X, which stresses tactics over marksmanship.

At the end of LCT VIII, the platoon leaders received a troop tactical OPORD. From there, they did their own troop leading procedures and briefed platoon OPORDs to their section sergeants. LCT X was done in two phases, a live-fire phase and maneuver phase. By design, the troop's execution of LCT X allowed the section sergeants the latitude to do their own intelligence preparation of the battlefield, to include indirect fire targeting as well as positioning for a screen position. Each section conducted a dry-fire LCT IX at Cedar Creek before executing the live-fire LCT X. Each section conducted a screen at Cedar Creek Range, with retrograde to subsequent screen positions. On order, each section conducted a route reconnaissance with forward passage of lines, then established a hasty anti-armor blocking position at Hackett Range, where the section conducted TOW and Mk19 fires.

One of the fringe benefits of training at Fort Knox is its terrain. There is very little terrain at Fort Bragg that fits the minimum required reporting procedures for a route reconnaissance, and route reconnaissance skills are notoriously perishable. Short of the Scout

Leader Course or BNCOC, this is the only training our junior leaders normally can get in an environment that requires them to work all the elements of a route reconnaissance.

The troop spent approximately two days in recovery back at the Fort Knox garrison area and prepared to conduct a jump back to Fort Bragg, with a similar sequential airland of six of its vehicles. Due to weather and low visibility at Godman AAF, the Air Force scratched the jump and the troop redeployed out of Standiford Field in Louisville. A Kentucky Air National Guard TALCE from the 123d Air Wing assisted us in coordinating with the C-17 that brought us back to Pope Air Force Base.<sup>3</sup>

Gunnery at Fort Knox was an outstanding training opportunity for the troop, and one not often afforded light cavalry units. Scouts in the troop received quality training on ranges far better than anything they could get at Fort Bragg on a regular basis. In addition, they were able to train IPB, field planning, and collective tasks at the section and scout team levels. Each section sergeant was able to do a full MDMP drill, to include OPORD, briefbacks, and rehearsals in the conduct of LCT X, as well as training direct fire planning, distribution, and control at the section level.

At the institutional level, the range assets, support, and targetry at Fort Knox far surpass anything remotely available at Fort Bragg. The availability of multiple ranges prevented the gunnery from becoming stale, which is a hazard due to the presence of only two MPRCs at Fort Bragg. The extremely hilly terrain at Fort Knox allowed the troop to train tasks difficult to train at home station (e.g., route reconnaissance). Most notably, this off-post deployment

exercised alert, marshalling, and deployment for the entire troop, from headquarters down to individual trooper. Given the 82d Airborne Division's emphasis on deployability, the value of such training is hard to overstate.

## Notes

<sup>1</sup>FM 17-12-8, Appendix D, describes the EST.

<sup>2</sup>The antitank companies in the airborne division, while similar in composition and equipment to the light division ground cavalry troop, do not fire Light Cavalry Gunnery. Their heavy weapons marksmanship is primarily dismounted in nature.

<sup>3</sup>The TALCE served as a liaison between the control tower and the troop.

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CPT Francis J.H. Park is a 1994 Distinguished Military Graduate of The Johns Hopkins University with a BA in History and a 1999 graduate of St. Mary's University with a Master of Arts in International Relations. He was commissioned in Armor and served as a tank platoon leader, scout platoon, assistant S3, and troop XO in the 1st Squadron, 7th Cavalry, 1st Cavalry Division and as an assistant G3 Plans, 82d Airborne Division. He currently commands Troop A, 1st Squadron, 17th Cavalry, 82d Airborne Division.

# Train As You Fight

## Light cavalry gunnery in the 82d Airborne Division

by Staff Sergeant Jack Tripp and Sergeant First Class Leo Clark

Troop A, 1-17th Cavalry, the 82nd Airborne Division's ground cavalry troop, is a unique cavalry organization. The troop trains its gunnery program in accordance with *FM 17-12-8, Light Cavalry Gunnery*, but for the last two years, the troop has made numerous adjustments to its gunnery training. These adjustments have helped this training become more battle-focused while still providing the evaluation required by the current manual.

Anyone who has spent time in both heavy and light cavalry assignments recognizes that the current manual is adapted from current Bradley and Abrams gunnery manuals. While this is fine for evaluation purposes, it does not provide the light scout platoon realistic battle-focused training. The changes that were developed by Troop A's platoon sergeants and master gunner improve the marksmanship training of its crews and the combat focus of its gunnery.

Troop A is unique in the variety of its night vision equipment. The troop is equipped with the AN/PVS-7D, the AN/PVS-14, the TOW ITAS with 2nd-generation FLIR, the AN/PVS-4, the AN/TVS-5, and the AN/TAS-4B thermal sight. The troop's gunners also utilize the AN/PAQ-4C for target lay and the M145 Machine Gun Optic for daytime firing of the M240B machine gun. The troop's gunnery program does not require the gunner to utilize any specific item of equipment. The troop's leadership feels that when the bullets are flying the crews will utilize the equipment with which they are comfortable. For example, some M2HB gunners utilize the AN/TVS-5 on their MG; however, others choose to utilize the PAQ-4C and their AN-PVS-14 with an image intensifier.

Troop A has also made several equipment modifications to improve its warfighting ability. For instance, all its TOW ITAS vehicles are equipped with an M240B, mounted to the left side of the turret, independent from the TOW system. It allows the crew to defend itself in the kind of close-in fight that is so frequent in the light-fighter's operat-

**Troop A was one of the first units in the Army to receive the TOW ITAS (Improved Target Acquisition System). The TV image presented by the gunner's sight can be remoted to the vehicle commander for greater fire control supervision.**

Photo by  
Robert L. Stevenson



ing environment. We have also manufactured a secondary mount on the MK19 HMMWVs to give these crews the same ability.

Troop A was the first unit in the Army equipped with the TOW ITAS (Improved Target Acquisition System), which gives the scout platoons some unique capabilities. The ITAS gunner's sight is a video image. This has allowed the crews to tap into the system and pipe a video feed to a small monitor located in the truck commander's position, which allows the commander to confirm targets prior to his execution command. It also aids the vehicle commander in training a new gunner on thermal images.

Another training tool for the TOW ITAS is the Training Monitor Unit (TMU), a VHS-C recorder and monitor that can tape crews when they conduct either live fire or tracking exercises. A Troop videotapes all firing crews during gunnery exercises to provide after-action feedback on target engagements. Many a boastful crew has been humbled when they viewed themselves during debrief.

Current doctrine of *FM 17-98, Scout Platoon* calls for the crew of a HMMWV to occupy battle positions with the rear of the vehicle, or back hatch, facing the threat. Troop A has

adjusted its gunnery program to reflect this. The troop no longer does berm drills while firing in the defense. When a crew occupies its BP, it is exposed to the enemy. This does away with the defilade time of *FM 17-12-8*. In other words, as soon as the target or targets are presented, target engagement time begins, as the crew is already exposed. This forces the crew to improve target acquisition skills and to be quick with manipulation of the traversing and elevation unit of their respective weapon system.

The troop has also added commander's engagements for all primary weapon systems, and we also qualify all personnel on TOW tracking and both TOW Gunnery Skills Testing (GST) and machine gun GST. The troop qualifies alternate crews whenever possible. Due to Troop A's mission of forced entry, the troop could be air-dropped anywhere in the world with very little notice, and this cross-training addresses this. When the troop conducts an airborne assault and their vehicles are airdropped into an objective, the troop's personnel assemble on the vehicles. As soon as three troopers reach a vehicle, they begin derigging it. These three become the crew of that vehicle, regardless of rank or duty position. They will fight that vehicle onto its primary objective until the troop has



time to consolidate and reorganize. By training all personnel on as many weapon systems as possible, troopers have the confidence to fight all available weapons, not just the ones they are assigned.

In addition to qualifying TOW tracking, Troop A's gunners also qualify modified machine gun tables. Essentially, the TOW crews fire their M240Bs and are graded on the same tables as the M2HB crews, only modifying the tables when ranges to targets are too great. Troop A also fires Table I in a different manner than called for in the FM. Rather than firing from the tripod, the troop fires Table I, which is 10M paster targets, from the top of the truck. The troop feels that this is more combat-focused; we will not generally shoot from the ground-mounted tripod. This exercise also allows the Mk19 crews to fire their secondary weapon system. One of the biggest problems new gunners have is manipulating the traversing and elevation mechanism. Troop A has designed a training tool to aid in improving this performance, a T&E manipulation board. This is a

plywood board on which scale targets are painted. The targets are 1:30 and 1:60 scale depicting frontal and flank target exposures. Then a laser borelight device is mounted on the weapon system. The borelight device allows the vehicle commander to see where the gunner is laying the weapon for initial target burst. The vehicle commander can then issue the gunner a correction and ensure the gunner makes the proper adjustment.

During the entire exercise, the gunner is gaining hands-on experience with the T&E. The vehicle commander can also have the gunner "engage" multiple targets to train him in target transition. During all this training the gunner is concentrating on his sights and only turns on the laser borelight device when he has laid on the target. Also on the board is a "worm track," used by TOW gunners to manipulate their system along an uneven track. All of the targets on the board, to include the worm track, are visible in thermal mode.

In conclusion, Troop A has taken *FM 17-12-8* and modified its training to

make it more battle-focused while better preparing the troopers of Troop A for their wartime mission.

SSG Jack Tripp is an experienced Master Gunner, one of only a handful of 19Ds to graduate from the Fort Knox Master Gunners Course. He was a Bradley gunner in the 2nd ACR during the Battle of 73 Easting, served as a tank commander in 3-73 Armor, and as a section sergeant and platoon sergeant in Troop A. He is currently serving as a drill sergeant.

SFC Leo Clark has served in task force scout platoons on both M113s and HMMWVs and served in leadership positions on M3 BCVs in 3-4 Cav and 5-17 Cav. A graduate of ANCOG, the Scout Leader Course, Ranger Course, and NTC O/C Academy, he recently completed an assignment as a platoon sergeant in Troop A.

## Cavalry Paradigm from Page 10

example, division cavalry squadrons deployed for Intrinsic Action go minus their helicopters. Conversely, the helicopters often get stripped from their squadrons to get used in places like Bosnia while the ground component remains at home station. It was many years and several real-world deployments before the aviation squadron of the 2nd ACR was finally stationed at Fort Polk with its parent regiment. The bottom line is that, when it comes to cavalry organizations, we aren't training as we intend to fight.

### Conclusion

The misuse and misunderstanding of cavalry doctrine, the inadequate TOE, and the lack of the ability to train as we fight are great liabilities within the cavalry community.

These liabilities are emphasized by the fact that there is no cavalry branch devoted to focusing development of doctrine and TO&Es, or fighting for appropriate training opportunities. Despite the fact that leaders are consis-

tently told that the winner of the reconnaissance and security fight wins the battle, little more than lip service is paid to properly developing the forces charged with executing these missions.

Some will argue that the advent of the UAV, satellite, and EW reconnaissance makes cavalry organizations anachronistic. This line of thinking is fraudulent because it only takes the reconnaissance aspects of cavalry organizations into account. A UAV cannot delay in contact, and a satellite cannot conduct the three-fold mission during a moving flank guard.

The "Army After Next" may address these concerns sometime in 2020, but until then, today's "transitional" Army needs to recognize the unique roles and missions cavalry units are expected to perform. It can do this by providing better doctrine, appropriate MTOEs, and better training opportunities. A return to a cavalry branch or, at a minimum, the creation of a distinct cavalry division within Armor branch, headed by an O6 or above (Chief of Cavalry), would go a long way toward remedying these problems.

CPT (P) William E. Benson received a Regular Army commission from the University of New Hampshire in 1990 with a Bachelor of Arts in political science. He attended the Armor Officer Basic Course, Scout Platoon Leaders Course, the Infantry Officer Advanced Course, and the Cavalry Leaders Course. He has also graduated from Airborne, Air Assault and Ranger Schools. He has served as a tank, scout, and support platoon leader as well as squadron motor officer with 1st Squadron, 3rd ACR, (Ft. Bliss) and as an S4 and troop commander with 1st Squadron, 7th Cavalry (Fort Hood). Currently serving with 2-409th TSBn as a squadron and troop trainer in support of 3rd Squadron, 278th ACR (ARNG) in Cookeville, Tenn., he is also studying to receive a Master of Arts in Instructional Leadership at Tennessee Technological University.

# Mountain Cavalry Recon in Built-Up Areas

by Captain Rich Rouleau

The mounted scouts moved forward into the edge of the town in what was supposed to be a reconnaissance mission. Aero-scouts overhead probed forward of the ground elements, two recon platoons moving along independent routes, trailed by the squadron headquarters. The right flank platoon entered the killing zone of a near ambush that eliminated half of the unit in the initial blast and fires. The remainder of the platoon was pinned, some jammed up in their vehicles, others caught in the open. Their sister recon platoon could not offer any support and the aero-scouts were not armed for that precise a mission. The platoon soon died in the street.

“Apache” Troop is the ground cavalry troop of the 3rd Squadron, 17th

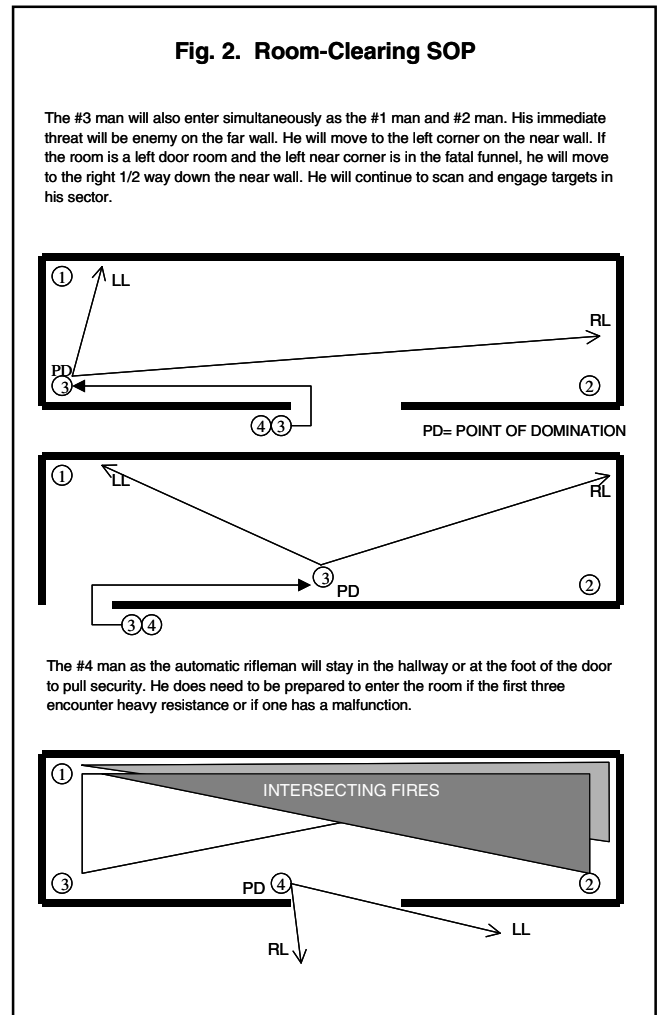
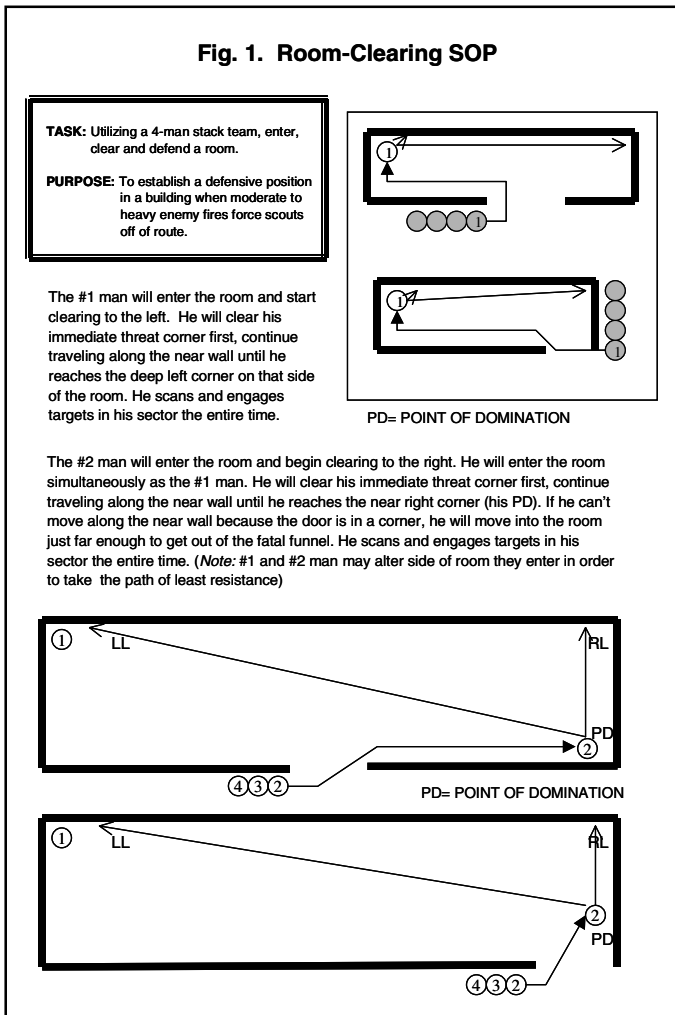
Cavalry, 10th Mountain Division (LI) at Fort Drum, New York. It is one of four divisional light ground cavalry troops in the active Army and National Guard today. The National Guard also has several separate light ground cavalry troops. In addition, there is the active duty 2nd Armored Cavalry Regiment. Each of these light, ground cavalry forces has its own specific MTOE.

Because of its unique MTOE, “Apache” troop has developed its own tactics, techniques, and procedures (TTPs) for movement and reconnaissance in built-up areas (BUAs). The TTPs that will be discussed in this article can be adopted or modified by other cavalymen. They are not intended to

be the only solution, but to illustrate how one troop gets the job done.

In addition to Apache Troop, the squadron has a headquarters troop, two OH-58D air cavalry troops, and an aviation maintenance troop. In its primary role, 3-17th serves as the division’s “eyes and ears.” If required, the squadron can be task-organized to support an infantry brigade in the division with additional corps or division aviation lift and aero-medical assets, including UH-1s, UH-60s and CH-47s.

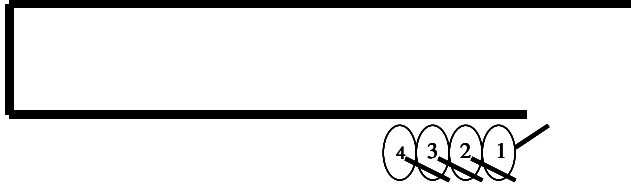
Because of these diverse requirements, Apache Troop must be a multi-functional troop capable of operating as part of the squadron or in independent missions down to platoon level. Apache



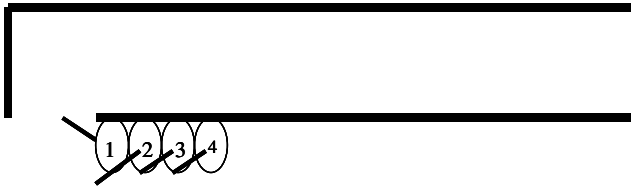
**Fig. 3. Stacking**

**Stack:** A unit, usually four men, in a posture ready to enter and clear a room, move down a hallway, up a stairwell, etc.

**STACK: LEFT SIDE**



**STACK: RIGHT SIDE**



The #1 man's weapon is always oriented on the point of entry.

Troop currently has four scout platoons and a headquarters section. The scout platoons each have three M1025A2 HMMWVs with two M2 HBs, one MK-19, and three M240s. There are also two M966 TOW HMMWVs with two TOW II Bs, two M240s, and 15 scouts. The headquarters section has an M1025A2 with an M2 HB for the troop commander, and two M998s with one M240 for the 1SG and supply sergeant. The troop also habitually gets a maintenance contact team, communication team chief, and medics with vehicles from headquarters troop. Scouts can conduct all required tactical operations. They can operate mounted, sling load vehicles into their area of operation on a CH-47, or be inserted on foot by UH-60 with OH-58Ds in support.

Since its activation in 1988, Apache Troop, as part of 10th Mountain Division (LI), has conducted real-world MOUT in Somalia and Haiti. Selected leaders have also deployed to Bosnia and Macedonia. Using this in-house experience, and lessons from the Mountain Leaders Close Combat Certification Course (MLC4), Apache Troop developed a scout SOP for reconnaissance in BUAs.

The SOP was developed with the following guidance:

**Operate within published Division MOUT SOPs.** Twice a year, the 10th Mountain Division (LI) conducts a hands-on, three-week MOUT leaders course to "train the trainers" to the di-

vision's standard. It also updates them on the newest TTPs and technology. All four platoon leaders and senior scouts attend this course. Their training serves as the foundation of the troop SOP.

**Avoid a fight, but be capable of room clearance.** Reconnaissance normally means avoiding fights, especially decisive engagements. Regardless of the type of reconnaissance being conducted, the scouts understand that they should always be ready for room clearance operations to gain and maintain contact, or bypass the enemy. If necessary, the scouts break contact and get off the streets to await relief. The intent is to take rooms for security, not seize buildings (see Figs. 1, 2, & 3).

**No more than nine scouts dismounted and one vehicle in support per platoon.** This requirement supports existing division SOPs, allowing easy integration with infantry battalion task forces and the basic stack formations trained in the MLC4 (see Figs. 4 and 5). Restricting vehicles in the area to one per platoon provides mobility and increased firepower without the congestion normally associated with BUAs. This tactic allows the troop to bound and move across danger areas or streets yet maintain basic stack formation and rear security.

**Maintain an EVAC/QRF team with OH-58Ds in support.** This allows the platoon, if compromised, to extract with adequate firepower and vehicles in

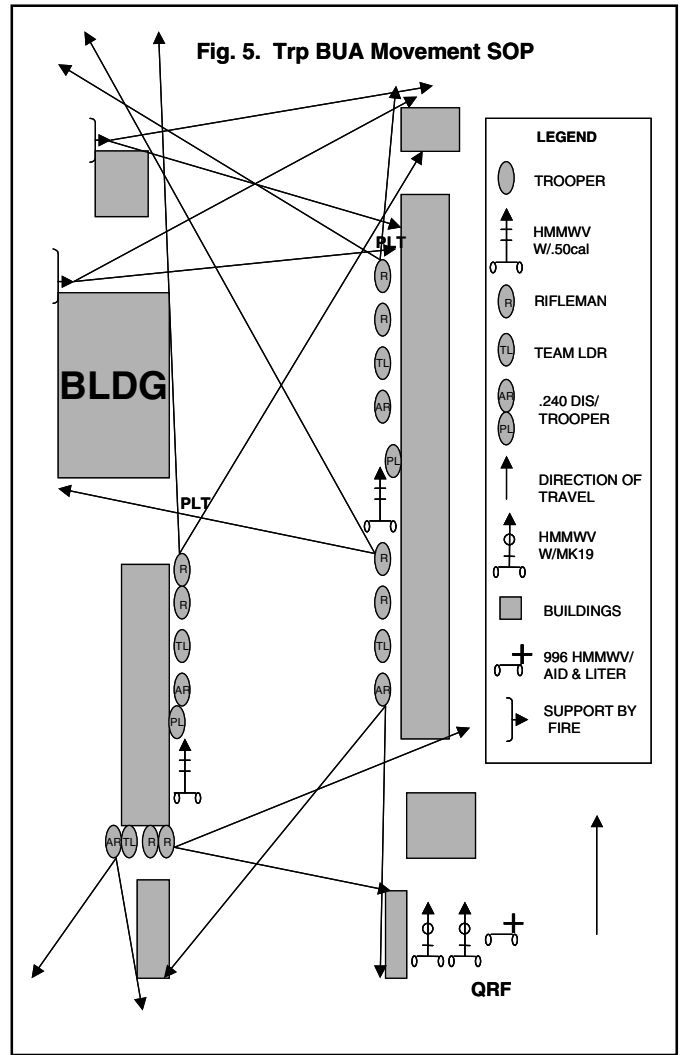
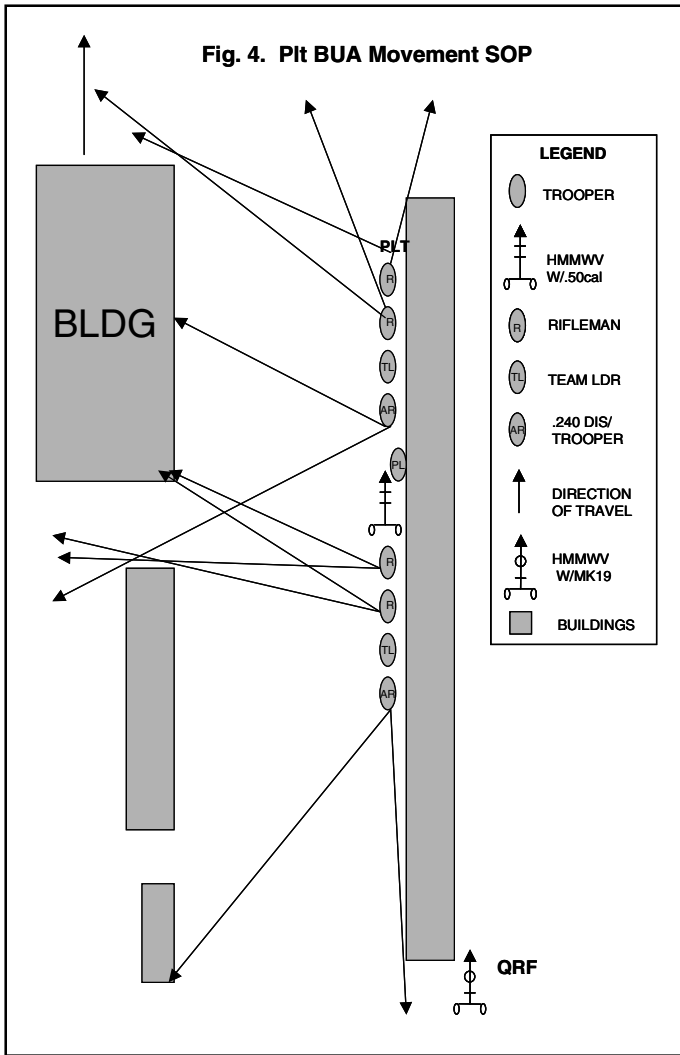
support without congesting the extraction route. This platoon sergeant leads EVAC. His vehicle is armed with a MK-19 that can deliver devastating firepower. By acting in concert with the lead support vehicle, the platoon sergeant can EVAC the entire platoon and/or casualties to the casualty collection point or platoon rally point.

Many rehearsals show that OH-58Ds best support the troop by scouting in the BUA one phase line ahead of the lead platoon. They should only engage those targets clearly marked with an AIM-1 laser or colored smoke. Using the OH-58D's weapons in MOUT is dangerous and requires great care; collateral damage is often excessive. On the other hand, OH-58Ds are great at identifying potential hazards and assisting platoons maneuvering through the BUA. They also can assist with the cordon, and when the ROE permits, isolate targets.

**Coordinate with follow-on forces.** In any reconnaissance mission, the scout platoons must coordinate battle hand-over with their follow-on forces. But in urban areas, they must maintain continuous coverage on any urban area they have just cleared. The reason is simple; the cover and concealment offered in a BUA makes contact more likely. It is also easier for the enemy to blend with the locals. People will be moving along the cleared route in an urban setting. That makes it much harder to spot enemy soldiers who might be laying a minefield, for example. Therefore, a BUA requires more constant surveillance than a semi-deserted rural area.

Urban areas are usually NAIs or at least key terrain. An infantry squad or platoon should accompany the scouts whenever possible. That will allow the cavalry to continue with its reconnaissance while the infantry holds the ground and establishes security. Such task organization benefits all. The cavalry leader has a combined arms team, adding flexibility in dealing with obstacles and direct fire contact. It also allows the cavalry to continue with its mission and not wait for follow-on forces. By participating in the BUA clearance, the infantry is much more aware of its surroundings when setting up security on the key terrain.

**Troop organization.** During a route reconnaissance of a BUA, the troop is organized into five elements. Two scout platoons (RECON 1 & 2 respectively) stagger on opposite sides of the



street with an aero-scout section in overwatch. The cordon platoon, with an aero-scout section, maintains a semi-cordon of the main avenues of approach to prevent anyone from leaving and entering the built-up area. A platoon with medics is designated as the troop EVAC/QRF. It cordons the troop's entrance and displacement route. The QRF is also prepared to occupy a support-by-fire position that would allow RECON 1 and 2 to break contact and displace. The cache element under control of the 1SG secures all the remaining troop vehicles under the protection of the troop trains (see Fig. 6).

**The mission.** There are many techniques for planning, marking, quartering, and executing reconnaissance of a built-up area. I will focus here on movement techniques and the incorporation of aviation assets into the mission, rather than the MDMP, TLPs, or IPB. The first stage is the earliest possible placement of the cordon element and a section from the QRF to watch the BUA's avenues. They identify any patterns or key areas of concern. They

should move into place without aero-scout support to avoid compromise. Once they are in place, aero-scout sections move into position. Team 1 supports the cordon on that platoon's internal net. Team 2 supports RECON 1 and 2's movement. They operate initially on troop command net but drop to the appropriate platoon net when contact is made.

RECON 1 and 2 move offset from each other by one phase line (see Fig. 6). This allows mutual support without committing the entire element. They can bypass without compromise or loss of momentum. It does not congest the area. Their positions along the buildings may mask the size of the RECON element to the enemy. As each platoon moves forward, the platoon sergeant trails a phase line behind to avoid being drawn into a fight. Yet his drag position allows him to establish a SBF with his MK-19 and to support EVAC. Should the lead teams come under contact and become decisively engaged, they are equipped and trained to knock down a door and clear a room. The QRF would

then establish an SBF position to allow displacement, EVAC, or bypass operations. Once the route reconnaissance is complete, the troop consolidates and reorganizes outside the built-up area. If required, the cordon element maintains continuous coverage of the BUA until handoff is complete to the follow-on battalion scouts, military police, or a convoy moving through the BUA.

**Refinements.** All operations can be improved. Equipment shortages, or lack of the proper tools, is not new. It happens in the Army today. Those needs often stimulate force development. For example, sniper rifles would add greatly to the success of such operations. They provide excellent overwatch with minimal risk of collateral damage. Another shortfall is marking systems for ground to air assets. The AIM-1 laser provides a higher density light than the AN/PAC-4C and can be distinguished with the trained eye. It, however, is not the cure for all lasing tasks.

Continued on Page 43

# Modifying the Abrams Tank For Fighting in Urban Areas

by Sergeant First Class Ira L. Partridge

The regimental commander was discussing the problems tanks might encounter in urban situations: "If we found ourselves in action in Bosnia, or in a new Somalia or Chechen-like scenario, how fast could we deploy a few M1 tanks that were specially modified for MOUT? A few of the right vehicles could make a big difference...."

He then suggested some features that would not cost much to add to the M1-series:

- A precision mounted .50 caliber capable of taking out a sniper at long range
- Grenade launchers that fire high explosive rounds
- Fiber-optic cameras to provide a buttoned-up crew a full range of view
- An automatic 7.62mm gun turret for the TC or loader's hatch, capable of being aimed and fired from under armor
- Additional spaced armor on the turret roof
- A new canister round in the basic load

"These improvements could be accomplished fast in an emergency deployment," he said. "If we work on the prototype now, and put some ideas to work, we can make this a real option if it is needed."

Armor leaders have long acknowledged that the Abrams main battle tank (MBT) may have to fight in an urban environment, a mission commonly referred to as Military Operations in Urban Terrain (MOUT). But it took until May of 2000 for the Army to open the first MOUT city specifically designed to train mounted warriors with Abrams tanks, along with the other members of the combined arms team.

## Two Ways to Approach MOUT Tactics

A combined arms team should always be the primary maneuver force in MOUT environments. The tank's in-

herent features — a large caliber precision cannon, several machine guns mounted in stable cradles carrying more ammunition than two squads of infantry, and a moveable protective barrier — would be an undeniable asset to this combined arms team.

Fighting in MOUT is slow and deliberate, regardless of the care given to protecting the force or civilian population. MOUT fighting also presents many tactical problems. The Israeli Defense Force (IDF) and the Russian Army are forces that have both recently conducted combat in MOUT environments, with each using fundamentally different tactics.

At one end of the spectrum are the tactics used by the Russians in Chechnya. During combat operations between 1994 and 1996, the Russians suffered devastating losses in city fighting due to badly defined strategy, poor tactical maneuver, and inadequately protected vehicles. Their tactical solution, however, came at a price that would appall most Western powers. Russian forces, towards the end of the first Chechen war, adopted a scorched earth policy similar to tactics used during World War II. Air power and artillery were liberally used to reduce urban environments to rubble before maneuver forces would enter to mop things up.

The Russian weapon of choice for urban warfare in Chechnya seems to be the TOS-1 heavy flamethrower system, designed to defeat targets with the effects of high temperature and extreme pressure by firing 30 incendiary rockets singularly or in salvo.<sup>1</sup> TOS-1s and massed artillery became a way for the Russians to achieve a "bloodless" victory — for them. This combination of TOS-1s and artillery is capable of releasing large clouds of flammable gas and creating massive blasts that incinerate buildings and people.<sup>2</sup> In the second Chechen war, Russian tactics have been similar. The following excerpt describes the outcome:

"Today, Grozny is no more. The contrast between the damaged

Grozny before the latest battle and the utter destruction afterwards could not be more pronounced. The literal leveling of the city points to lessons that the Russian Armed Forces learned from their earlier battles for Grozny."<sup>3</sup>

By removing the urban from urban environment, Russian forces reduced the tactical problem presented and created a more favorable battlefield.

Israeli forces, on the other hand, demonstrated in the 1982 Lebanon campaign that MOUT operations are able to achieve tactical success without indiscriminate destruction or civilian casualties. They learned that, in MOUT, infantry must advance dismounted as part of a combined arms team, and operational timetables cannot be set to keep pace with mounted maneuver forces.<sup>4</sup> By surrounding and isolating large urban areas, the IDF took a slow, deliberate, and systematic approach to successfully clear cities. Dividing and subdividing the MOUT into areas that were subsequently reduced using direct and indirect coordinated fires spared unnecessary collateral damage to property and the civilian population. If faced with a similar tactical fight in MOUT, the U.S. Army would likely use similar tactics.

But tactics and training are not the only areas the Army will have to master to succeed in MOUT as part of the combined arms team. Systems and components — preferably "off the shelf" — will be needed to improve the fightability and survivability of the Abrams tank in a MOUT environment.

The most effective combat technique in MOUT fighting is for tanks and infantry to work together as part of a combined arms team. MOUT is not just an infantry problem, and effective use of armor in MOUT quickly becomes an issue when bullets are flying. According to published doctrine, armored vehicles will face a variety of tactical problems and possibilities in MOUT environments.<sup>5</sup> Issues like restricted

At right, two Israeli installations of the .50 caliber M2HB machine gun on the gun mantlets of, top, an M60, and below, a Merkava. Originally a training device, this modification allows precision single-shot fire at snipers and lightly armored targets.



movement, complicated and confused command and control, and the canalizing effects presented by buildings will be unlike maneuvering in open terrain. Additionally, the Abrams tank has limitations imposed by its design — the first being its sheer size. Most tankers know first-hand the challenges of trying to negotiate a street or town with a behemoth 70 times larger than the typical vehicle. In addition, the main gun's limits of elevation and depression — and the traversing restrictions imposed by narrow streets — will hamper its effectiveness against targets in tall buildings and basements. A third problem is the dead space in the area immediately surrounding the tank. This dead space falls between the sides and rear of the tank and the closest point that can be seen through the vision blocks. Another problem in the MOUT environment is the tank's exposure to attack from above, which is an area that is not as heavily armored as the tank's frontal armor.

Each of these problems can be overcome by technological solutions currently available that would make the Abrams better suited to fighting in a MOUT environment. What follows are ways that the Abrams could be improved to better protect the crew and enhance its lethality in MOUT.

### Precision .50-Caliber Machine Gun

In order to achieve the precision necessary to kill a point target at an extended range using a .50-caliber machine gun, the weapon must be mounted to take advantage of the tank's fire control system. This can be accomplished in two ways. You can mount the weapon as a coax or attach it to the gun mantle using a Telfare<sup>6</sup> device with an M2 .50-caliber machine gun set for single shot.

Mounting the weapon as a coax may sound like a good idea at first, but the concept was studied and rejected when the Abrams was first being developed in the '70s. There were two primary reasons for rejecting the concept. First was the volume of brass produced when the weapon fired: how do you remove the brass from the turret? Sec-

ond was the weight differential at the back of the cannon. Not that the added weight of the machine gun and a defined volume of ammunition could not be balanced. But the issue of a several hundred pound difference in weight that occurred before and after firing the ammunition, creating a transitory situation of going from back-of-the-gun-heavy to back-of-the-gun-light, was a difference in balance that could not be adequately resolved.

A better idea is to use a single shot .50 caliber mounted on a Telfare device. The device is already in the inventory and the fire control system already has a SUBDES<sup>7</sup> for firing it. (*Editor's Note: The Telfare device mounted a .50 caliber M2 MG on the M60 tank's gun barrel so it could be used in gunnery practice in lieu of shooting more expensive main gun rounds. The flight ballistics of the .50 and the main gun round were close enough to be comparable.*) Additionally, the concept of using a .50 caliber for this reason has long been effectively utilized in the tactical doctrine of the IDF. When the Telfare device was developed in the '70s, the IDF took the idea and refined the mount so that the .50 caliber would be more stable and could be used as a precision direct fire weapon. They learned early on that the original Telfare device had problems in maintaining a stable mount due to flexibility in its design. Though this may have been acceptable in training situations, it is not accurate enough for operational

applications when trying to kill targets. The IDF still uses this adaptation in both operational and training situations, on several different weapons platforms. (See photos above.)

With a few modifications to stabilize the mount, and the addition of a tray to carry ammunition cans, the existing Telfare device could be used in a similar manner by the Abrams tank, especially if SLAP-T (Saboted Light Armor Piercing with Tracer) ammunition was used instead of the API-T (Armor Piercing Incendiary with Tracer) usually used in the Telfare device. Higher velocity SLAP-T ammunition travels on a flatter trajectory, making it more accurate at longer ranges. This system would allow the Abrams to accurately engage snipers and other lightly armored targets using an M2 machine gun, set on single shot, as a precision direct fire weapon.

### Grenade Launchers

There are three ways that grenade launchers could be employed to improve the Abrams' capabilities in MOUT: by replacing one of the turret machine guns with a Mk 19 grenade launcher, by adding additional grenade launchers that fire HE grenades, or by adding a grenade launcher that could be aimed.

Simply switching the loader's machine gun with a Mk 19 grenade launcher is an immediate solution, enabling the Abrams to engage targets with



The French Galix grenade launching system. — Giat Photo

grenades in a 180-degree arc while maintaining the tank commander's ability to engage targets with a .50-caliber machine gun. However, the limitation of this solution is the fact that the loader could only fire the weapon while exposing himself to small arms and sniper fire — a significant threat in MOUT. So, while the Mk 19 might offer a valuable asset, it is not the total solution.

Additional grenade launchers could be added along the bustle rack and sponson boxes using a system like the Galix combat vehicle protection system, produced by Etienne Lacroix and Giat Industries of France.<sup>8</sup> The Galix protection system is currently mounted on the French Leclerc and Swedish Leopard 2A6 tanks. The system is comprised of three components, the firing unit, launcher, and ammunition. The firing unit is located inside the vehicle and the tank commander can select the number of grenades to be fired either singularly or in salvo. The launchers have a bayonet-type locking device that makes them insensitive to water and humidity by maintaining a seal, and holds the grenade securely in the tube. Launch tubes can accommodate an extended range of ammunition so that defense can be adapted to operational requirements. Grenades are fired on a flat trajectory to provide an almost immediate target effect. Grenades available for the Galix system are categorized as protective, flare, tear gas, decoy, stun effect, and smoke.

There are two grenade/mortar systems available that could be aimed. The first, produced by Krauss-Maffei Wegmann of Germany, is a 76mm adjustable grenade launcher system.<sup>9</sup> It could be incorporated into a redesigned loader's hatch that, if needed for a deployment, could be quickly changed. This launcher can be rotated 360 degrees, has a single launcher barrel that is breech loaded, and is normally set at a 45-degree angle but is capable of other

angles. The device is loaded from within the vehicle using a small hatch and has a safety interlock that prevents firing if the hatch is not properly closed. An indicator on the mounting turntable indicates the direction of fire and grenades are fired electrically from inside the vehicle. Grenade types

made for the launcher include smoke, tear gas, and HE. Having this device would enable the Abrams to lob grenades in the area surrounding the tank with the hatches closed.

The second device is a 60mm breech loaded mortar, made by Soltam Defense Limited of Israel,<sup>10</sup> which can be aimed and fired by the loader from a closed hatch and is currently used on the Israeli Merkava tank. The loader inserts the mortar into a ball type firing port and aims and adjusts fire with the loader's periscope. To incorporate this device on the Abrams, one could again modify a loader's hatch by installing the ball type firing port, thus allowing the tank to engage the immediate area with 60mm mortar rounds.

Each of these grenade/mortar devices would require the modification of a predetermined number of loader's hatches that could be stockpiled for quick change onto vehicles deploying. Modifying only the loader's hatch would limit the money required for the modification to the predetermined number selected as the cache size.

### Fiber Optic Cameras and Dead Space Security

The tank's best friend in a MOUT environment is infantry running alongside and hiding behind the tank. Joined as a combined arms team, this complementary situation provides immediate security in the tank's dead space. In MOUT, more than any other environment, the tank crew is vulnerable to sniper fire and grenades being tossed into open hatches and will normally always be buttoned up. This makes the

tank vulnerable to additional threats like the "sticky bombs" seen in the movie *Saving Private Ryan*, and other types of explosive devices delivered by an unseen dismounted soldier. To counter this threat, a MOUT-modified Abrams should have the capability of independently monitoring this critical area, so that if supporting infantry are unavailable, the tank can still maintain security in the tank's visibility dead space.

One solution is a variation of the Krauss-Maffei Wegmann driver's backward driving system. This system is currently being fitted onto Leopard 2A5 and 2A6 tanks and enables the driver to drive the tank backwards without assistance from the other crewmembers. It's a modular system consisting of a black and white monitor screen, video control unit, controlling elements and power supply mounted in the driver's compartment. The camera is housed in an armored box welded to the rear of the back deck, comprised of a black and white CCD camera with



The Krauss-Maffei Wegmann rear-looking TV system allows the tank driver to move in reverse without assistance. The tiny camera, mounted in an armored box on the edge of the rear deck (see top photo), transmits a black-and-white image to a monitor in the driver's compartment.

- Photos: Jan deBoer

high sensitivity and resolution, and includes an automatic cleaning device. The door of the camera box opens automatically as soon as the driver places the tank in Reverse, with the driver's controls configured so that he does not move them any differently than when driving forward. The camera has a 54° x 72° viewing angle, allowing the driver to drive as fast backwards as he does forward. For purposes of MOUT, the system should be modified to allow the driver to independently open the door to overwatch this area of dead space.

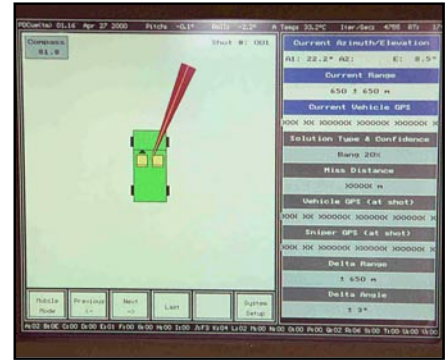
If this system were expanded and modified to mount cameras on the four

cardinal aspects of the turret, the TC could view the area normally dead space when buttoned up, regardless of the positioning of the turret. The system should be set up to independently control the camera doors and view one or all cameras at once. Along similar lines, a parallel system of microphones and speakers could be installed to both hear and talk to personnel in the vicinity of the tank, bringing to fruition a situation like the car alarm that tells someone to “Step away from the vehicle.”

Another area of observation that is sometimes overlooked, but critical in MOUT, is looking straight up. Tanks may find themselves next to buildings or other structures that require viewing the area directly above the tank. This can be accomplished by mounting a fiber optic camera — preferably thermal with a controllable pan/tilt mechanism — onto the bustle rack so that the TC can view this area.

One system that would also be invaluable in providing security in the tank’s dead space and against snipers is a variation of the Projectile Detection & Cueing (PDCue™) Counter Sniper System available from the AAI Corporation of Maryland. (See photos above.) The PDCue system as designed will provide rapid real time data to locate and classify multiple firing situations directed at the tank. Detecting the sonic disturbance created by super sonic projectiles, it provides a compound defense and zonal monitoring in multiple configurations. PDCue displays this information on a screen that provides a visual display of attack direction in relation to the tank. Designed to provide real time output of azimuth, elevation, range, the caliber, miss distance, and GPS coordinates of the origin of fire, it gives a tank crew the ability to locate enemy snipers firing in the area of the tank. The system could also be integrated with a turreted weapon system to automatically traverse onto a sniper’s location and remain stabilized to that location, making adjustments for vehicle movement. It could also be modified to incorporate other sensors that would allow monitoring of the tank’s dead space with the addition of sonic or motion type sensors.

Cameras, microphones, and a speaker system in conjunction with an automatic monitoring system like PDCue



**AAI Corporation’s Projectile Detection and Cueing system tells the crew where incoming fire is coming from. The sensors, seen above left on the bumper of a HMMWV, feed information to the monitoring screen, at right. In this case, fire is coming from the right front.**

- AAI Photos

would enable a tank crew to effectively monitor the dead space around the tank. Once detection of a threat in this area is achieved, then weapons can be brought to bear to destroy the threat or the tank can simply move away from the threat.

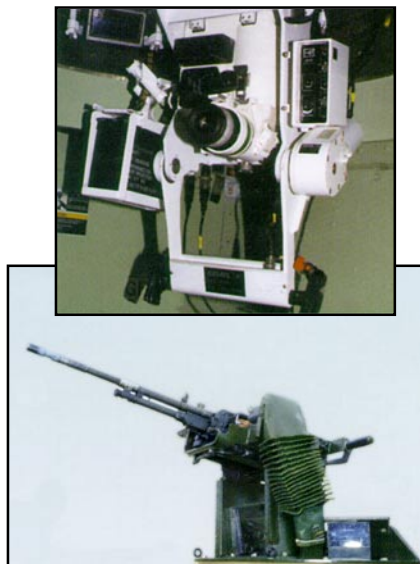
### Overhead Weapons Systems (OWS)

An OWS is one way to enhance lethality and provide a way to accurately load and fire a machine gun while the tank is buttoned up. By assuming that the deploying tank is an M1A1, an OWS is easy to incorporate. Companies like Rafa’el from Israel, Krauss-Maffei Wegmann from Germany, and Otobreda from Italy have all developed OWSs for integration into a variety of armored vehicles. An OWS of the correct size could be mounted in the CITV

ring, which is found on all M1A1s but covered by an armored plate.

The Rafa’el Ordnance Systems Division offers two OWSs that would fit this purpose, the OWS 12.7DI and OWS 7.62mm.<sup>11</sup> (See photos below.) Each features a day and night sight, weapon cocking from within the vehicle, internal (to the vehicle) ammunition feed, last round indication for internal reloading, closed hatch and head-out operating capability, electrically fired with mechanical backup, and an option on the 12.7DI that also allows for conversion to 7.62mm machine gun. Each system is a simple point and shoot device that enables loading and firing while the tank is buttoned up.

Krauss-Maffei Wegmann offers the Type 1865 remote-controlled gun mount



**Israel’s Rafa’el is one of several firms manufacturing overhead weapons systems that can be fired accurately from within a vehicle. At left is their 7.62 MG system, and at right is the .50 caliber version.**

- Rafa’el Photos



system<sup>12</sup> that could be mounted on the side of the TC's cupola, similar to the way it mounts on a French AMX-30B2 tank. This powered gun mount can be fitted with a Type LZP 2050 sighting system that has a 1.5X to 7.5X power zoom sight, and ammunition for the weapon is fed from inside the vehicle. This system, though adaptable for the concept under discussion, may require modification of the M1A1's current cupola. However, like modifying loaders hatches to incorporate a grenade launcher, this would only require modification of a predetermined number of cupolas that could be inserted into the cupola rings of deploying tanks.

The Italian company, Otobreda, offers a power operated, remotely controlled, light turret<sup>13</sup> capable of mounting a caliber .50 machine gun. This two axis stabilized turret traverses via a joystick control system that is contained completely inside the vehicle. The control system protrudes into the turret and is independent from the movements of the gun in azimuth and elevation, remaining stationary. Sighting is performed by a special aiming telescope, which rotates with the turret and moves in elevation parallel to the gun. Weapon and turret movements are imparted by electric servomotors fed, together with the firing solenoid signals, through a slip ring — mounted coaxially with the aiming periscope. The weapon can be cocked from inside the vehicle and ammunition is fed through a flexible duct from boxes inside the vehicle. This system is also available with a low-light TV camera or thermal imager camera, with or without a laser range finder (LRF).

Each of these systems has merits and faults in its own right. The Rafa'el system would be simplest to install and easy to train a loader on its operation. The Krauss-Maffei Wegmann system may be cost prohibitive due to modifications required for the cupola, but deploying tanks could still be upgraded quickly with modified cupolas. The Otobreda system is the most technological system, with complexity akin to operating the turret. Regardless of complexity or cost, an OWS would provide an invaluable asset to a tank in a MOUT environment, bringing to bear a second weapon system, with the Otobreda and Rafa'el systems, able to engage targets above the maximum elevation of the tanks main armament, in-

cluding the advantage of loading the weapon without exposing the crew.

### Add-on Armor

Add-on armor will be needed to enhance the armor protection of an Abrams in MOUT from top attack. Packages can be added to the tank in one of two ways. One can either use modular passive type armor that molds and conforms to the vehicle's existing shape or a system of Explosive Reactive Armor (ERA) "bricks" can be mounted to the vehicle.

For years, the Russians have added ERA to upgrade the armor protection on main battle tanks. Israel has also fielded ERA and add-on armor packages for the last 20 years on a variety of vehicles to configure them for specific threat conditions. Israel has also been very tenacious in modifying, upgrading, and integrating captured armored vehicles through the use of ERA and add-on armor. American vehicles have used ERA to upgrade armor protection too, on the M60A1 for the Marines and some Bradley variants.

Either approach has its bad points, like the additional weight added to the vehicle, or the fact that ERA — once hit — becomes ineffective. Good points include the ability to upgrade a vehicle's protection without redesigning the base vehicle, and the ability to configure a vehicle's armor protection to a specific threat level.

In a hostile MOUT environment, the Abrams will likely face situations like what the Israelis encountered in southern Lebanon, where attack from above or from the side by RPGs and AT missiles posed a substantial threat. These

situations led to modular add-on armor packages for the Merkava and also led to Israeli development of heavy APCs.

One ERA system currently available is from Giat Industries of France. They have developed the Brenus ERA block that can be easily fitted on all types of vehicles, giving them a high level of protection against HEAT projectiles.<sup>14</sup> The French Army has retrofitted its AMX-30B2 tank fleet with Brenus until those units can be fielded the Leclerc.

Rafa'el Ordnance Systems of Israel has three different types of add-on armor, including ERA.<sup>15</sup> Passive armor like the Enhanced Appliqué Armor Kit (EAAK) has been designed and fielded on M113s and other APCs and was selected by the Marine Corps for the AAV-7. This passive armor is based on a special spaced armor technology, highly efficient against KE projectiles and able to suppress the residual penetration of shaped charge munitions. Composite ceramic armor has also been developed and can be mounted as removable armor tiles. Reactive armor from Rafa'el began with the first generation of Blazer ERA in 1974, and was adopted for retrofitting the entire Israeli tank fleet at the time. First generation Blazer was also the ERA seen on Marine M60A1 upgrades in the late '80s, which was meant to upgrade the armor protection on the M60A1 until the Marines could field the Abrams tank. The latest generation, called Super Blazer, can be custom tailored as add-on armor for any type MBT, allowing for compatibility and operational requirements with all tank subsystems including optics, fire control systems, and guns. Super Blazer provides enhanced protec-



Rafa'el and Lockheed-Martin have developed a Super Blazer reactive armor package for the Bradley Fighting Vehicle.

- Rafa'el Photo

tion against shaped-charge munitions (like HEAT rounds and ATGMs) and increased efficiency against KE rounds. Rafa'el, together with Lockheed-Martin, also provides the latest reactive armor package for the Bradley Fighting Vehicle.

For the Abrams to be upgraded with add-on armor, a system using ERA blocks is not the answer. ERA blocks would involve the welding of mounting bolts to all the areas where the blocks are required. So the concept would not be uniformly applicable to the Abrams fleet. However, a modular — configurable — add-on armor package like that found on the Merkava could be custom fitted and tailored to specific threat levels. This modular package could be mounted with a slight modification to M1A1s as they are being deployed.

### Canister Ammunition

A 120mm canister round has been designed to meet requirements set forth by U.S. Forces Korea for an anti-personnel round that is muzzle action and effective against massed troops 200-500 meters from the tank. Using tungsten steel balls or cubes, it could be used against a dismounted attack in numbers greater than could be effectively suppressed by the tank's machine guns. This round is not currently funded for production but would not take long to produce in numbers large enough to support forces that are deploying.

### Conclusion

Having discussed the many available systems, here are the recommended features to improve the Abrams tank for MOUT operations.

- M2 .50 caliber mounted on an improved Telfare device firing SLAPT.
- Switch out loader's M-240 for a Mk 19.
- Mount the Galix system, with a series of launchers attached to the rails along each sponson box and on the bustle rack rails.
- Modify a cache of loader's hatches to accommodate either the Krauss-Maffei Wegmann 76mm grenade launcher or Soltam 60mm mortar.
- Install a backward driving system.
- Install cameras, speakers, and microphones on the four cardinal aspects of the turret to enable the

crew to see, hear, and talk to anyone close to the tank.

- Mount AAI's PDCue system.
- Mount either the Rafa'el 7.62mm or .50 caliber OWS in the CITV ring. (A rapidly deploying force will have little time to train a complex OWS.)
- Mount a modular add-on armor package to the turret roof and on the hull above the driver station.
- Add canister to the ammunition up-load.

These features would enable Abrams tankers to adequately protect themselves while delivering precise, deadly, and accurate fires to the enemy, thus avoiding casualties in the civilian population.

The Russian tactical solution to MOUT is not a politically acceptable solution and is not one that Americans would embrace in situations short of all out war. Americans would also never accept the level of losses sustained by the Russians in the first Chechen war. A more tactful solution is through the deployment of technically superior fighting platforms like a MOUT-modified Abrams tank.

In open terrain, few dismounted soldiers or lightly armored vehicles will brazenly approach or attack a tank. Though tanks have a tendency to become "bullet magnets" on the battlefield, not many want to get into a slugfest with an Abrams.

War and battlefields are destructive and chaotic environments unlike any other human endeavor. American armor must face the reality of preparing to fight in MOUT. To think that American forces will not have to face combat in a MOUT environment with the Abrams tank is akin to the ostrich sticking its head in the sand. If adopted, this proposed concept would enable the Abrams tank to maintain a technological edge, even in the restricted confines of MOUT. "If we work on the prototype now, and put some ideas to work, we can make this a real option if it is needed."

The time is now for this concept to materialize and a future Armor Conference is the opportunity to exhibit these improvements to Armor leaders. An Abrams modified for MOUT would be the best answer to reinforcing an embattled rapid deployment force that needs the combat power of a tank in a MOUT environment.

### Notes

<sup>1</sup>Yuri Babushkin, "Russia's Arms 2000," (*Military Parade*, 2000), p. 238.

<sup>2</sup>Russia is using Chemical Weapons in Chechnya," (*Kavkaz-Tsentri*, 6 Dec 99), <http://www.fas.org/man/dod-101/ops/war/1999/12/991206-chechen-news.htm>.

<sup>3</sup>Timothy L. Thomas, "Grozny 2000: Urban Combat Lessons Learned," (*Military Review*, Jul-Aug 2000).

<sup>4</sup>CPT James D. Leaf, "MOUT and the 1982 Lebanon Campaign: The Israeli Approach," (*ARMOR*, Jul-Aug 2000), pp. 8-11.

<sup>5</sup>*FM 71-1*, Appendix I – MOUT.

<sup>6</sup>M179 Subcaliber Training Device Telfare, (*FM 17-12-7, Tank Combat Training Devices*, 11 Mar 92) p. 4-1.

<sup>7</sup>The ammunition sub-designation is used to tell the tank's fire control system the particular ballistic coefficient for the ammunition being fired.

<sup>8</sup>Tony Cullen and Christopher F. Foss, (*Jane's Armour and Artillery Upgrades*, Twelfth Edition, 1999-2000), pp. 149-150, hereafter referenced as *Jane's*.

<sup>9</sup>*Jane's*, p. 152.

<sup>10</sup>Soltam Systems Ltd., <http://www.army-technology.com/contractors/artillery/soltam/>.

<sup>11</sup><http://www.Rafael.co.il>.

<sup>12</sup>*Jane's*, p. 289.

<sup>13</sup>*Jane's*, p. 300.

<sup>14</sup>Giat Industries website, <http://www.giat-industries.fr/ukgiat/prod/proa5a.htm>.

<sup>15</sup>Rafa'el Ordnance Systems website, <http://www.rafael.co.il>.

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# Some Russian Tankers' Experiences In the Second Chechen War

by Adam Geibel

At the twilight of the 20th century, Russian tankers once again found themselves crossing into Chechnya. The Kremlin committed over 400 MBTs to their second campaign in the North Caucasus; Nizhniy Novgorod's 3rd Motorized Rifle Division deployed 251 MBTs (mostly T-80s), Volgograd's 20th Motorized Rifle Division's 93 T-72s, the 205th Independent Motorized Rifle Brigade's 50 T-72s and the 136th Independent Motorized Rifle Brigade's 32 tanks. Some T-55s and a handful of PT-76s were apparently assigned to Interior Ministry units as fire support weapons.

This time, the Russians lost fewer tanks to Chechen action than during the First Chechen War. In September 2000, Colonel-General Sergey Mayev, the Chief of the Main Armor Directorate of the Russian Federation Ministry of Defense, said that only ten tanks were lost in the Second Chechen War, compared to around 200 vehicles in the first war. (Presumably, Mayev meant ten unsalvageable write-offs, since both Russian and Chechen sources make mention of more than ten MBTs knocked out (specifically, the mujihadeen claimed a total of 400 AFVs destroyed by 20 March 2000).

Major Tsimbalyuk, a former tank platoon leader and currently the chief of staff of one motorized rifle brigade's tank battalion, as well as a holder of two Orders of Courage, said simply that, "We learned some serious lessons from the last campaign."

While the Chechens had around 100 tanks and armored personnel carriers<sup>1</sup> (including a couple of dozen T-62s and T-72s in varying mechanical states), there were no known tank vs. tank confrontations. At an 11 March 2001 briefing at the unified federal headquarters in Khankala, there were claims that nine Chechen tanks and 32 APCs had been destroyed during the war, but it was not specified how this was done.

One of the worst problems for Russian tankers was the sheer age of their armor fleet, which led to many cases of mechanical unreliability. Yury Toichkin, a

sniper from Kursk, told the *Boston Globe* how one tank in his unit had to be towed into battles. "They'd drag it in, then drag it back out again, then they'd put it there on the front line as a prop, for looks. This is how we go to war — with tanks as props, to fight. The Chechens have better weapons than we do."

## The Nomad Tank and other T-72s

Before the war broke out in Dagestan, the Russian Army had a small T-72 group in the 136th Brigade, while MVD [Ministry of Internal Affairs] troops units were using T-55 tanks. When the Chechens first crossed over into Dagestan in August, 1999, there was a minor curiosity in one of the Russians' tank sheds at Bokhtiah — a T-72 fitted with ERA set up "for export" to India. Rumor had it that the deployment of a battalion of these to the 138th MR Brigade was stopped when it was discovered that soldiers had been selling the explosive from their tanks' reactive armor.<sup>2</sup>

When the Russians struck back, this T-72BM was put at the head of a company column along the route to Buy-naksk. It was soon nicknamed the "Nomad Tank." The crew would receive information from either an artillery forward observer or even a local resident, then drive covertly, but at high speed, into the area indicated. The tank would move independently, without accompanying infantry. Moving off-road along mountain ravines, the tank remained unnoticeable to observers until it reached a suitable firing position, where the crew would fire four to five rounds at the target indicated and then disappear back into the ravines.

Over several days, the Russians claimed that a mujihadeen weapons caravan, three mortar teams, and two munitions dumps were destroyed by this method.

During the battle for Rakhata, the Nomad rejoined the company. Gunner Sergeant Aleksey R. was employing the main gun to suppress Chechen assault riflemen firing from windows, when

return fire from four sides by grenade launchers hit the tank several times and the engine died. The driver-mechanic tried to start it, but the engine wouldn't turn over until several tense minutes had passed.

The Russians were convinced that the tank survived the battle only because of the reactive armor blocks. The shaped charge grenades burned through several layers of the turret armor, split the side, and completely removed the sights. The crew came out of the battle bruised and the officer acting as vehicle commander was only wounded.<sup>3</sup>

For the rest of the T-72 crews, life was full of interesting problems. One T-72 driver-mechanic, contract service Warrant Officer Protsenko, noted in a May 2000 interview that, "In the mountains, the engines overheated. There was not enough power; in fact, it was necessary to stop at 1200 meters. The tracks did not reliably grip the stony soil, especially if there was ice. And it was cold in the tanks. If heat was maintained in the combat compartment, then there was none in the control [driver's] compartment."

The crews were able to overcome some of these problems. Claws were fitted to the tracks to improve traction. In the mountains or in low temperatures and humidity, the reloading mechanism's control unit sometimes failed, so the crews would warm them up over a campfire until they ran normally. Some problems were endemic to the T-72's design. The installation and removal of the tank's AKB storage batteries was difficult even under ordinary conditions. The batteries ran down quickly during the winter, and in order to change them, the 70 kg driver-mechanic's seat had to be removed and the equally heavy AKBs raised vertically through a hatch.

The mujihadeen took advantage of another of the T-72's weaknesses: after firing, the main gun stops on the hydro-stop for reloading, giving the Chechens an opportunity to attack the tank. Sergeant Petelnik, a T-72 tank commander and contract serviceman, noted that,

“The rebels tried to attack the left side of the turret and the space beneath the turret, trying first of all to knock the sights out of operation. Sometimes they were successful.”

After five or six hours of continuous firing, the sabot ejection rack in some T-72s became unserviceable and the magazine lifting mechanism failed. In that case, the ammunition stowage location in the tanks’ fighting compartments made it difficult for crews to load the gun from the manual ammunition stowage racks.

After the basic load of ammunition was expended, the tank had to leave its position in order to reload a container. Valuable time was lost and in leaving the position, the crew exposed its position and was also forced to leave the vehicle, thereby subjecting themselves to small arms fire. Russian tankers said they wished for an armored transport-reloading vehicle like those supplied to the missile troops.

Others complained about the T-72’s fire suppression equipment (PPO), the difficulties detecting the enemy in “complex” conditions with the current vision devices, and the need for secure communications equipment (updated R-174 tank inter-phone systems were mentioned). The mujihadeen had a nasty habit of eavesdropping, sometimes even interjecting bogus commands on unsecure Russian radio traffic. This occurred even down to company and platoon level. Combat operations also illustrated the necessity of equipping all crew members with assault rifles.

At the beginning of October 1999, Private Aleksandr Pavlovich Perekrest, a tank driver-mechanic, found himself in Chechnya. Having served for 18 months, he was only six months short of being demobilized. Perekrest described being under fire:

“The most horrible thing is when they fire at you for the first time. At first, I let go of the control levers while under fire. The first time was horrifying and later it was nothing, you think: ‘I’m sitting in an armored vehicle — nothing will happen.’”

Ironically, the private’s tank was attached to an infantry platoon and at a position two kilometers from Samashki, it was hit by Chechen mortar fire.<sup>4</sup> Even though Perekrest had jumped into the tank’s hatch, the explosion tore off his hand, temporarily blinded him, and riddled his chest with shrapnel. He regained his sight after three days in the hospital. Perekrest considered his T-72 obsolete, but noted that “there were even older ones — there were T-62s.”

### T-62s and “Ilich’s Eyebrows”

In September, 1999, the chief of armaments for the Russian Federation armed forces, Anatoliy Sitnov, said there were T-62 and T-55 tanks operating in Chechnya because they were lighter and better able to function on narrow mountain trails. This might have been considered rationalization by the Russian tankers forced to man those relics. While true that they were lighter and functioned better in certain situations, some T-62s’ diesels also had power and overheating problems at higher elevations. The T-62s, lacking ERA boxes, were only fitted with “Ilich’s eyebrows” — the BDD hollow armored boxes developed during the Afghanistan War that were welded to the turret front.

The Siberian Military District Guards Tank Regiment was one such unit re-equipped with T-62s. The crews claimed to be glad for the extra room left by the lack of an autoloader and noted that ATGMs wouldn’t create over-pressure if the hatches were left open. Apparently, the Siberians didn’t want to get too close to the Chechens. In one engagement, the deputy regimental commander took out an ATGM that was firing at them at a range of 3,900 meters.

The regiment was initially split up to reinforce other units. After crossing the Terek Mountain Range, serious engagements began. The Siberians’ first taste of Chechen ATGM fire was near Kerla-Yurt, then Achkhoy-Martan and Alkhan-Yurt, where one tank company fired 1,000 rounds in support of the attacking infantry.<sup>5</sup>



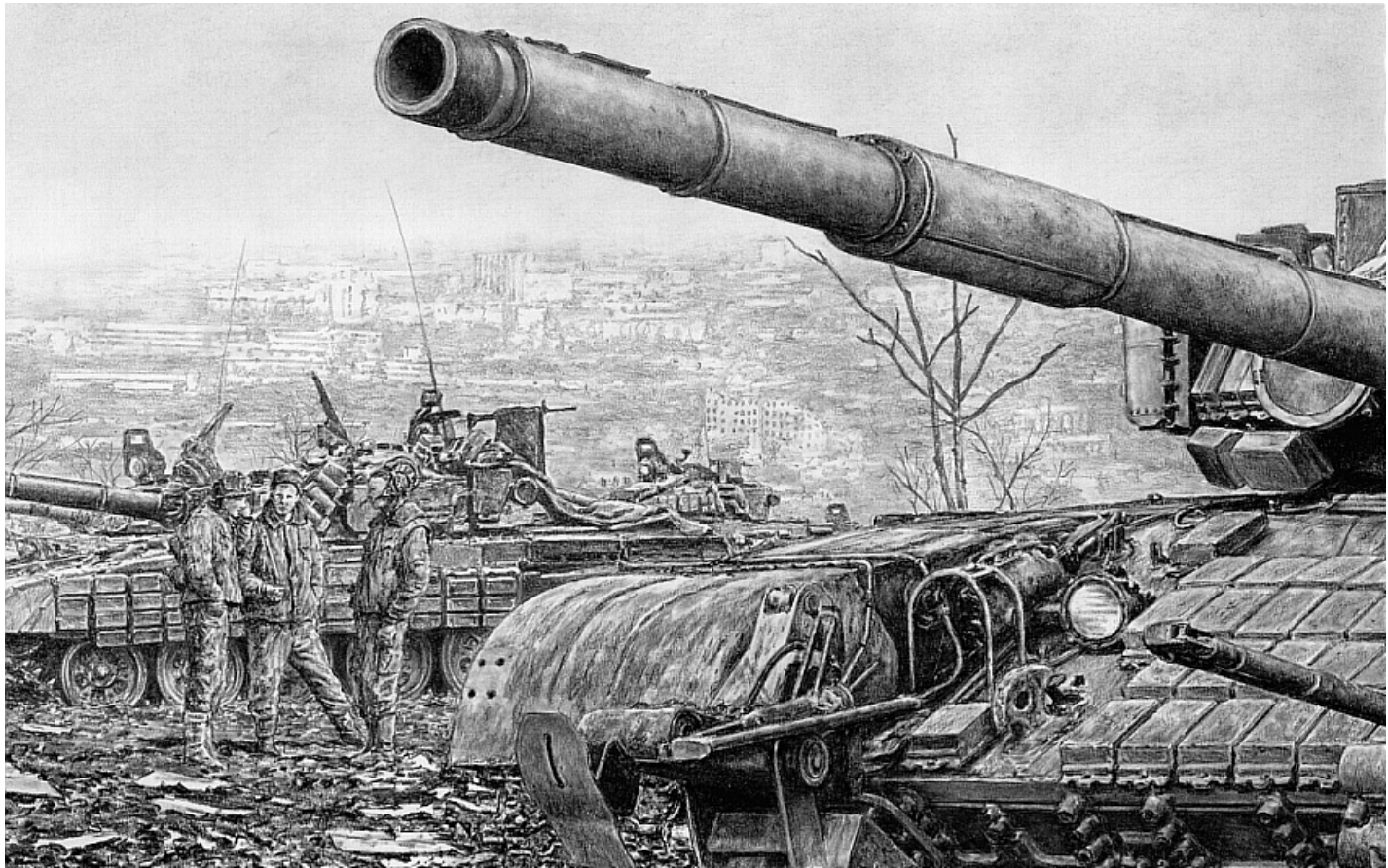
The regiment was reunited at the beginning of December for the battle of Urus-Martan, where once again the T-62s were used for direct fire support while facing return fire from ATGMs, “Schmel” flamethrowers, and air defense weapons.

After Urus-Martan, the regiment was divided again and two tank companies were sent to Grozny. The rest went into the mountains.

On 29 December 1999, the Siberian tankers reached Duba-Yurt, near the northern entrance to Argun Gorge and a major choke-point for Chechen fighters infiltrating down from the southern mountains. Three tanks and armored infantry vehicles had reached the village’s southern outskirts, but the higher command did not appreciate the Siberian’s initiative and ordered them to withdraw.

Two days later, a reconnaissance battalion traveled along that same route and the mujihadeen were waiting for them. The tankers, sent to extract the reconnaissance battalion, found themselves under a crossfire from the hills.

Three T-62s rushed to the outskirts of Duba-Yurt and expended their entire basic ammunition load into the forested slopes and were then replaced by another three “loaded” tanks. The recon-



naissance battalion withdrew under this tank “umbrella” after destroying three of their own heavily-damaged armored infantry vehicles so that the Chechens wouldn’t get their hands on them.

There were other battlefield tales on imaginative armor use. During initial stages of the siege of Komsomolskoye, a mountain village, on 5 March 2000, a Russian reconnaissance group and a tank rushing to the village fell into an ambush. The tank was knocked out by an RPG and lost traction, and the mujihadeen forced back the scouting party, wounding five of them. For four hours, the bandits tried to force the tank crew to surrender (including barrages of RPG-18s). The crew wouldn’t surrender, but neither could they be rescued. Mortar fire drove the bandits back from the tank while another T-72 and scouting party moved forward. They also fell into an ambush when the tank hit a land mine. The scouts were unable to liberate the first tank’s crew.

When the infantry finally did fight their way through to the tank, it was too late. Lieutenant Aleksandr Lutsenko had called artillery fire in on himself, but the mujihadeen were able to get to the tank and blow open the hatches. Aleksandr and his gunner-operator were killed, while the mechanic-driver was captured.

Days later in the battle, Interior Ministry troops attacking mujihadeen positions were pinned down. A T-62 and a T-72, along with a “Shilka” ZSU-23-4, moved through a narrow side street and after barely getting past three burning Interior Ministry BMPs, began to work over some houses in which the mujihadeen had settled. The battalion commander, sitting in the tank commander’s seat, spotted a rebel with a “mukha” PG-18. The Chechen got off the first shot; two officers were wounded and the tank disabled.

The Russians got their revenge in the days to follow, using their tanks at point-blank range to blast mujihadeen out of Komsomolskoye’s basements.

### Going Home - Lessons Learned?

The first Russian unit to complete its tour of duty was the 131st Motor Rifle Brigade’s tank battalion. It was withdrawn from Chechnya on 20 February 2000 and sent to its home base in Mai-kop. Two tank regiments were part of the nine withdrawn from Chechnya by 15 June 2000. In the three months prior, a total of 167 tanks had been withdrawn, leaving 202 still in Chechnya.

The Second Chechen War showed the Russians that tank crewman training had suffered in a number of individual

and collective skills. One of the most basic mistakes, repeated from the First Chechen War, was that crews were hurriedly thrown together as units slated to go to the front were brought up to something resembling full strength. The most distressing and repeated rumor was that many AFV crewmen met for the first time as they were shipped to the front, which left zero time to build cohesion within the vehicle crew, let alone at the platoon or company level.

Where once the Russians could afford to send draftees who were graduates of professional technical schools and polytechnical institutes with three to four years of special training, they now had to rely on a dwindling number of what they called “yesterday’s school youths.” Major General Vladimir Fedota, chief of Siberian Military District’s Armor-Tank Service, remarked that draftees with only six months to a year or training could not be turned into a fully qualified tank operator who knew a number of closely-related combat duties. He also knew the Kremlin couldn’t continue relying on the eternal Russian luck.

He candidly pointed out the sloppiness of some Russian tankers, discarding engine access hatches in the warm climate of Baykal made maintenance

there easier, but that missing hatch could bring the tank to a screeching halt in a Chechen mudhole.

Major General Vladimir Fedota stressed their low technical competence and the need for additional training, particularly relating to combat situations and dealing with mechanical breakdowns. He specifically mentioned lessons in operating the stabilization, using night-vision devices, and servicing lubrication lifters and fuel supply systems under special conditions.

Russian tankers will have to learn to work with what they have for the foreseeable future. In November 1999, the Russian Army was promised 30 tanks and 130 armored transports. At a September 2000 meeting in Kubinka, Colonel-General Mayev noted that no provision for new tanks was planned for that year. Funding will cover no more than 100 new BTRs and the repair of damaged or worn-out tanks.

Another indicator that older-generation Russian MBTs will be around for a while longer is the modernization of the 9M117M ATGM. This laser-guided round can be fired from both the T-55 and T-62 tanks, as well as the BMP-3 IFV and MT-12 antitank gun. The Tulamashzavod company and the Design Bureau of Device Building told the press in early December 2000 that they would update the tandem-warhead round designed for taking out AFVs protected with ERA and fortifications that present small target profiles.

## Notes

<sup>1</sup>Rumor also had it that the Chechens had BTR-90s, of which the Russian have only five in the president's bodyguard service. The BTR-90 had increased firepower, armor, all-terrain capability and maneuverability. It was armed with a 30mm automatic cannon, a 7.62mm machine gun, an AG-17 grenade launcher and a "Konkurs" ATGM.

Prior to the 1999-2000 war, the Russians had been quite proud of their 1970's vintage workhorse BTR-80 APC. However, all the services equipped with BTR-80s experienced excessive mechanical breakdowns and most quickly bogged down in the mountains. The naval infantry replaced theirs with MTLBs and airborne units with BMDs. The BTRs were relegated to road-bound convoy-escort duty.

When the Chechens switched to mine warfare as their primary method of attack, the BTRs were the favored targets since they didn't stand up well to the 120mm mortar and 152mm HE shells used as field-expedient mines. The BTR-80 was also

vulnerable to some of the lighter direct-fire weapons.

Most Russian observers agreed that the BTR-80 was at the end of its capabilities. But in late November 2000, Alexander Yegorov, the R&D Institute of Steel's deputy director general for science, announced that his firm had finished development of technical documentation for the production of composite "grill" shields for the BTR-80.

<sup>2</sup>One former and three Russian soldiers were arrested in St. Petersburg at the beginning of February 2000 for stealing the explosives out of T-80 ERA blocks. An investigation by Northwestern RUBOP [Rayon Administration for Combating Organized Crime] and Leningrad Military District military counterintelligence started on 24 September 1999 caught former soldier Aleksey Kapralov, his brother, and two unnamed companions fencing plastic explosives four times more powerful than TNT.

They had been looting 270 grams of VVV-5a from ERA blocks taken off of decommissioned T-80s; 16.7 kg of the explosive were found in various stashes, with 350 plates holding 94.5 kg of plastic explosive moved aside at one warehouse for eventual dismantling. Apparently, the ERA blocks were part of a supply slated to be sent to Russian Forces in Chechnya as replacements. How many blocks shipped empty was unknown.

This may be a very likely reason why the Chechens were able to knock out at least 13 T-72BMs ("T-90 or T-72BM? Did the Rebels Misidentify Knocked-Out Tanks?", *ARMOR*, Nov-Dec 2000). The Russians consider "dynamic protection" to increase the level of a tank's resistance to shaped charges by a factor of two.

<sup>3</sup>Russian military scientists were shown one T-72BM tank which received nine direct hits from antitank weapons in a four-hour long battle. The tank lost its mobility but was able to continue firing. Crew members received no wounds or contusions, due to its dynamic defense (ERA blocks). The Russians claimed that if the tank had been equipped with the Arena defensive system, neither antitank missile systems nor grenade launchers would have been able to touch it. (See "Russia's ARENA Active Protection System," *ARMOR*, Sep-Oct 1996)

<sup>4</sup>Russian tankers also became targets for their own forces. When Federal artillery executed a fire mission against the command center at Khankala in mid-July 2000, one tank was hit; two crewmen were wounded, and another received a slight concussion.

<sup>5</sup>In November 1999, one enthusiastic but unnamed Russian armor officer told *Kommersant's* Sergey Dyupin that the "soldiers jump out of the foxholes and rush straight under our tracks. It's because with a single shot our T-62 can knock out an entire battery in the mountains. The battery that for three days has been preventing them from so much as sticking their heads out of the foxhole! But it is not all that easy to shoot from a tank. A prosecutor follows every machine and watches where the shell lands. God forbid we make a mistake...." Apparently, the Russian

command did make an attempt to reduce 'collateral damage' when the war started.

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## Evolving Army Armor Structure In the Late 1920s

by Brigadier General Raymond E. Bell Jr.

Above, Mark VIII tanks and a command variant of the FT-17 light tank are seen at maneuvers in 1919. Dwight D. Eisenhower is the officer second from left.

- Patton Museum Photo

As we ponder the future of the “Armor/Mechanized Legacy Force” and experiment with the new “middle-weight” integrated brigades, let us look back at the Army’s thinking about mobile warfare at a time when there was no Armor branch, and indeed, only the Infantry branch had “tanks.”

Much has been written about the development of armor in the United States Army between the two world wars. The emphasis, however, has been on armored fighting vehicles, branch advocacy, employment concepts, effect of foreign influence, unit training, and optimum large formation organizations. Little attention, however, has been given to the “nuts and bolts,” the force structure, the organization of the Army’s tank and motorized cavalry formations at a time when, “... European countries were conceptualizing armies that could trigger a war of greater velocity and intensity than anything previously known.”<sup>1</sup>

In 1930, the Command and General Staff School Press published *Tables of Organization* which detailed, “... those

war strength tables that are most frequently needed in the study of situations in which infantry and cavalry divisions are concerned.”<sup>2</sup> Although many of the tables were only tentatively approved, such as the armored car squadron of the cavalry division (as of May 10, 1928),<sup>3</sup> the force structure published was that officially recognized as of the date of the *Tables* publication. In general, they described in exacting detail how the Army was organized to fight in future conflicts. As in similar documents today, the *Tables* were designed as reference documents for the instruction of students at the then-Command and General Staff School, so they reflect the thinking of the Army’s leadership at the time about how to conduct combat operations at the division and corps level. This approved force structure also had an important impact on how units at the platoon, company, battalion, and regimental level were expected to do battle in the 1930s.

The United States Army was still in the era of the two infantry brigade

“square” division patterned after the divisions of World War I.<sup>4</sup> There was also a tentatively approved cavalry division.<sup>5</sup> In addition, it was the epoch of the light and heavy tank regiments, the armored car squadron, and the infantry division tank company. A closer look at these last four organizations reveals the U.S. Army’s thinking about mechanized warfare, as limited as it was, and on the integration of armored fighting vehicles into the established and proposed combat formations.

### The Light Tank Company

In World War I, there were no infantry or cavalry divisions. There were only “divisions” and these consisted solely of infantrymen and their supporting arms and services.<sup>6</sup> (There were cavalry regiments, but none fought as regiments even though some deployed to France.) By 1929, however, there were two types of divisions — infantry and cavalry. As late as early 1940, there was only one active Regular cavalry division in the U.S. Army, the First.<sup>7</sup> In 1930, there were, nevertheless,

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National Guard and Army Reserve cavalry formations which were, on paper, combined into cavalry divisions, as well as the Regular horse cavalry regiments. The 7th Cavalry Brigade, composed of the 1st and 13th Cavalry (Mechanized) had not yet been formed.<sup>8</sup>

The square infantry division, with its four infantry, three artillery, one engineer, medical, and quartermaster regiments, was still the standard combat formation. It was to be almost ten years before the “triangular” or three-regiment infantry division was adopted.

Nevertheless, while the infantry division continued to look like its World War I predecessor, there were some innovations. One of these was the division tank company, although its tables of organization still reflected World War I thinking. In a division authorized more than 24,000 men and 6,992 animals, the tank company comprised only 160 officers and men with a total of 24 tanks.<sup>9</sup>

The number of tanks, vis-à-vis their employment, however, is misleading. The company included one headquarters and three tank platoons. Each platoon had five two-man tanks. A corporal was the tank commander while a private drove the tank. The tanks themselves were World War I-era, two-man M1917 light tanks, a close copy of the Renault FT model. (The French were still employing this tank as late as November 1942 against the Anglo-American landings in North Africa.)<sup>10</sup>

The platoon was commanded by a second lieutenant assisted by a platoon sergeant and two additional privates in addition to the 10 tank crewmen. How the officer and his three other men were to be transported was not revealed in the platoon’s organization table, but they were not considered part of a tank crew. Instead, in a footnote for the “Truck, tank carrier,” it was specified that of the 33 such trucks in the company, four were, “...for personnel not otherwise provided for.”<sup>11</sup> So, it is presumed that the platoon’s leadership was to remain in the company trains during combat, and that the lieutenant had no command function when his tanks were deployed.

The armament of the tanks further reveals their intended purpose, to accompany the infantry. Two of the tanks were equipped with 37mm cannon, the other three vehicles only had machine

guns.<sup>12</sup> Given their light armament and lack of an overall commander, it is easy to conclude that the tanks were to be attached, most probably individually, to any infantry unit that required support, and the infantry unit commander had free rein to employ the tank as he saw fit. He had to rely on a junior noncommissioned officer for tactical advice, if he indeed wanted it. The best that could really be expected from the tank commander was that he kept his machine running. The tank platoon structure thus reveals how restrictive the then-current tank employment doctrine was.

There were four sections in the headquarters platoon. These were the headquarters, maintenance, replacement, and a combined maintenance and replacement section. Of these, the combined section had neither personnel nor equipment assigned to it. One explanation for this curious structure was that it was intended that the headquarters platoon, at some later time, would have only two sections — the headquarters and maintenance/replacement section. The organization table was apparently written to be able to accommodate a proposed later change.

As it was, of the three manned sections, the maintenance unit was perhaps the most conventional. It consisted of 23 enlisted men, all of whom were transported in either the one repair truck or the vehicle carrying repair parts and tools. The tanks were well served. A staff sergeant was the chief mechanic. He commanded five sergeants and 17 privates. One of these privates had the occupational specialty of “chauffeur.”

In addition, there was a machinist, four automobile mechanics, three gas engine mechanics, seven tank and tractor mechanics, and an oxyacetylene welder. This strong supporting unit allowed good coverage of each tank platoon when the platoon was deployed with an infantry unit.

The variety of specialists also provided broad-based support. This was important because in the division’s medium maintenance ordnance company there were no mechanics specifically dedicated to work on tanks.<sup>13</sup> Thus the tank company was expected to perform up to and including third echelon maintenance.

Of the three sections, the replacement section is the most intriguing. If you

were wondering about the other nine tanks in the company, this is where you would find them. This section included almost two entire platoons of tanks, with their crews. The section leader was a first lieutenant, who was also the company’s second in command, assisted by a section sergeant. Neither had an assigned vehicle. Four of the tanks had 37mm guns and the other five had machine guns. Corporals were tank commanders and privates were drivers.

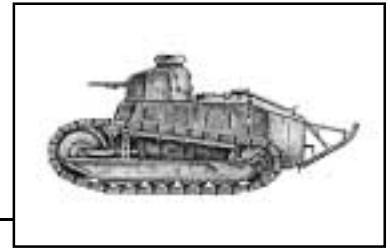
The replacement section reflects curious evidence of WWI thinking. The tanks in the line platoons were considered expendable, and evidently expected to break down frequently or be easily and quickly destroyed. Thus the need for rapid replacement. Since tanks operated frequently as individual entities, tank team cooperation was not considered imperative. And because speed of movement was tied to that of the foot soldier, the accompanying tank needed to move neither quickly nor far.

The replacement section also alleviated stress on the maintenance section. Having a complete replacement readily at hand meant the unit mechanics were not so pressed to accomplish repairs quickly. Repair parts, too, were, not in as much demand because there were good possibilities for cannibalization of tanks destroyed in action or by accident.

Finally, there was the headquarters section. Almost half (75 of 160) the company’s personnel were in this section. It also had the most vehicles. These included one light five-passenger car, two motorcycles with side cars, one ¾-ton cargo truck, a 750-gallon gasoline tanker, and 33 tank transporter trucks. The transporters were employed to carry the 24 tanks into the combat zone. If there were not enough of these specialized trucks available, then 3- or 5-ton cargo trucks could be substituted. In addition to the motor vehicles were a “rolling kitchen” and a 300-gallon water trailer.

There is nothing unusual about these vehicles except the number of tank transporters, all of which had assigned chauffeurs. Their presence again shows how self-contained the company was intended to be. In addition to transporting the tanks, these heavy trucks transported the ammunition for the guns as well as rations and other supplies.





There were sufficient transporters organic to the company to be roughly the equivalent of a present day tank transporter company.

As to personnel in the headquarters section, excluding the 36 drivers and the truckmaster, there was a wide variety of occupation specialties, some of them particularly unique. Even though there were no animals in the unit (except for possibly the company dog), the company had an assigned blacksmith. Possibly he was intended to help repairing shoes, work done by the cobbler authorized in the unit. To complement the cobbler, there was also the company tailor. In addition, two buglers were authorized, part of a surfeit of soldiers which would surely not have lasted long in combat. To complete this unique assemblage was a topographic draftsman. How he fit into the operational scheme is difficult to discern from the organization table.

More conventionally there was the mess section, but a rather small one. A mess sergeant and three cooks hardly seems a large enough group to feed a company whose elements were spread out among many different units in the division. It can be assumed, therefore, that the units to which the individual tanks or platoons were attached would provide the necessary mess facilities.

The science of inter-vehicular communication was still in the experimental stage, and an adequate field radio was yet to be had. There was only one radio operator in the signal section headed by a staff sergeant. But there was also a telephone operator and a signalman who employed wig-wag flags. The largest element was the five messengers and two motorcyclists who drove the two cycles with sidecars.

Finally, in the command/administration element there was the company commander and another first lieutenant who commanded the company's rear echelon or company trains. They were assisted by a first sergeant, a reconnaissance sergeant, and a corporal company clerk.

In sum, the division's light tank company had little combat power forward with its 15 tanks only equipped with six 37mm guns and nine machine guns.

Little was to be expected of the organization except closely confined support of foot infantry. There was no new doctrine governing this company's employment. On the other hand, the company was very self-sufficient. It had its own long-distance wheeled transport to carry the tanks, a significant capability for maintenance, and a large degree of service support. It was, however, very inadequately equipped with radio communication, reflecting the World War I dependence on motor messenger support. Its self-sufficiency can be attributed to the fact that the division had no other tank transporter or high level maintenance capability to accommodate the company's requirements.

### Mechanized/Motorized Cav Units

The *Tables of Organization* displayed Table 401W showing that the cavalry division's organization was tentatively approved as of 10 May 1928.<sup>14</sup> Only a few of the other components of this division, however, had been granted that status by that date, among them the armored car squadron.<sup>15</sup> Also approved was the organization of the division's light tank company, the other mechanized/motorized combat unit in the cavalry division, which was the same as the light tank company in the infantry division.

The inclusion of a light tank company, organized exactly like the one in the infantry division, is interesting. It was equipped with the same, slow, infantry support tanks as the infantry division's, so it was hardly suited for fast-paced horse cavalry operations. While the horse required little maintenance beyond good feeding and proper handling, the tank was ever prone to mechanical failures, as attested by the size of the maintenance section and the number of replacement tanks. It is difficult to imagine how the tank company could be employed in the Army's most mobile command. It should be remembered, however, that tanks "belonged" to the Infantry Branch, and doctrine for such vehicles was the responsibility of the Infantry School.<sup>16</sup> Just because the tanks were in a cavalry formation did not mean that the Infantry School relinquished its influence over the employment of tanks. Clearly, there was a

mismatch here, most probably because it involved internal Army politics.

On the other hand, the armored car squadron's presence in the division is more plausible, and armored cars "belonged" to the cavalry. One would think the cavalry division now had, with its division aviation, a new, long-range reconnaissance capability. While in the past horse cavalry was intended to perform that function, it is apparent that times were changing.

The fact that the basic cavalry troop had been tentatively approved as a "rifle troop" in 1928 led credence to the concept that horse cavalry was to fulfill the role of mobile infantry mounted on horseback.<sup>17</sup> Although the sabre was an issue weapon, the horse soldier also carried a pistol and rifle. Each cavalry troop also had eight "machine" rifles. The mounted trooper could still perform reconnaissance missions and charge with the saber, but it was clearly intended that he also fight on foot.

The armored car squadron consisted of a headquarters and three troops. It was mounted in 36 armored cars, 14 "cross-country" cars, and 13 trucks. The headquarters of 11 officers and men had two cross-country cars and the only maintenance vehicle, a light repair truck. Each troop of 89 officers and men had 12 armored cars, four cross country cars, three cargo trucks, and a refueling vehicle.

The small squadron headquarters had very limited capabilities. The commander was a major, the usual rank for a squadron or battalion commander of a combat formation. He had a two-officer staff, a captain serving as adjutant, who also developed plans and training, and served as intelligence officer. Also, there was a first lieutenant as the supply officer.

The number and occupational specialties of the enlisted personnel in the headquarters provide a good picture of how it was to function. The highest ranking noncommissioned officer was a sergeant, the mess sergeant, but there were no cooks allocated to the headquarters. The headquarters, therefore, had to be assigned to one of the armored car troops for subsistence. The other noncommissioned officer was the

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corporal clerk, who had a private as an assistant. The maintenance section had two mechanics and a driver for the light repair (cargo) truck. Finally, there were two chauffeurs for the cross-country cars and a messenger. With this meager complement, it was clear that there was to be no command and control function for the squadron headquarters. The commander could be the division commander's armored car advisor, but there was no communications capability in either the squadron headquarters or the troops, except for the one motor messenger. The headquarters, it appears, was intended only to be an administrative element with a limited maintenance capability.

From the squadron's organization it is evident that the squadron was not to operate independently. With no radio capability, the squadron headquarters would have been unable to control a fast-moving battle or widely dispersed reconnaissance formation. There was no way for the headquarters to act as an intermediary between troop and division headquarters for the transmission of information and intelligence. The only officer charged with operations and intelligence also had an administrative function. Unlike in the light tank company, there was no reconnaissance sergeant.

The capability of the squadron, then, devolved on the armored car troop. It was unclear from the tables, however, just what the function of the troop was to be. It could operate independently. It had its own mess, transportation, supply, and maintenance section. It did not have, however, a communications section and no specially trained intelligence personnel. Any transmission of messages would have had to be via motor messenger. In the armored car platoons, one gets some sense of the squadron's intended purpose. Each platoon (there were three in the troop) consisted of a second lieutenant, his platoon sergeant, two section sergeants, two corporals, and 12 armored car crewmen. An additional four "assistant mechanics/gunners," although assigned to the troop headquarters, were meant to be employed in the platoon. For vehicles, the platoon had one cross-country car and four armored cars, each

equipped with a .30-caliber machine gun. Each trooper carried a pistol and the armored car crewmen had either rifles or submachine guns.

Of interest was how the platoon was organized. The remarks for Table 414W, which described the organization, states:

"Each platoon is divided into two sections of two cars each, each section being commanded by a section sergeant who also acts as commander and observer of his car, the other car being commanded by a corporal. Each car has a crew of one sergeant (or corporal) as commander and observer, and three privates (driver, gunner, machine gun, and gunner, sub-machine rifle)."<sup>18</sup>

The platoon leader and platoon sergeant rode in the cross-country car (not yet the well-known "jeep" or lesser-known "peep") from which they controlled the movement of the two sections. Control had to be executed through flag, hand, or voice signals, although voice could hardly have been effective. How the platoons would operate together over extended distances appears not to have been considered. There is no indication that any of the vehicles were radio equipped; there is no mention of a radio operator in the armored cars. Thus it would be difficult for the armored cars to perform long-distance reconnaissance without an extended-range communication capability. Motor messenger would have to be the principal means of transmitting information.

As for a combat role, the armored cars were too lightly armed to engage any tank. A .30-caliber machine gun had only very limited armor penetration capability. Mobility gave the platoon an advantage in skirting enemy positions, but it was not intended for the platoon to ride to the battle area and then dismount to fight. What the platoon could perform was to provide security for vulnerable organizations, execute close-in reconnaissance and conduct delaying actions. Its ability to "shoot and scoot," for example, gave it the ability to stay behind and cover the withdrawal of a supported organization.

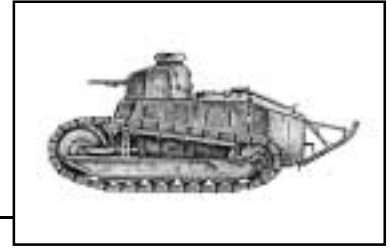
Of note, nevertheless, is that the platoon's organization was the forerunner of the scout section in the 1950s "integrated armored cavalry platoon."<sup>19</sup> In that platoon, the platoon leader had his own radio-equipped quarter-ton truck. The "eyes and ears" of the platoon were a two-squad scout section consisting, as did the 1928 armored car platoon, of four vehicles with two in each squad. The section and squad leaders were both sergeants in the same manner as the armored car platoon. Each vehicle had a noncommissioned officer commanding, with two additional crew members. Each quarter-ton truck had a radio and carried a .30-caliber machine gun. The difference between the two versions, of course, was the ability to communicate with other elements.

As to employment, movement by bounds was preferred. In the armored car platoon, one car could cover the movement of the other as they moved forward or to the rear. While one performed "overwatch," the other moved. The same mode of movement was standard operating procedure in the armored cavalry platoon, and continues today in the brigade cavalry troop's platoons.

### The Light Tank Regiment

The light tank regiment outlined in the *Tables of Organization* had, as its basis, the light tank company to be found in both the infantry and cavalry divisions.<sup>20</sup> That is, each platoon had five light tanks with each of the five consisting of a crew of two and a machine gun or 37mm cannon. The platoon leader and his platoon sergeant were not crew members. The replacement section now became the "reserve" section, still under the command of a first lieutenant, and equipped with nine fully-crewed tanks. This gave each platoon a back up of three tanks completely prepared to take their place in the line platoons if needed.

Looking at this organization, it is interesting to see how the triangular configuration was now creeping into the Army's organization. This was to be seen particularly in the tank formations. There were the three platoons in the light tank company and three companies in the light tank battalion. The



battalion headquarters company was heavy on administrative and logistics personnel with the principal logistics element being a 17-man maintenance platoon. It was commanded by a first lieutenant who was also the headquarters company commander. The battalion headquarters consisted of only seven officers, with a lieutenant colonel battalion commander, a major executive officer, and a staff of five lieutenants. The organization thus reflected the intended bias of being purely an infantry support formation.

There were, further, three battalions in the regiment commanded by a full colonel. The other organizations in the regiment were the headquarters and headquarters company, a 29-member band, and a large maintenance company. The latter company was a third-echelon organization formed into four platoons and a company headquarters commanded by a captain. A "float" of four tanks was also provided within the unit.

The band was a standard formation for a regiment at this time. There was no division or brigade band, but the infantry, artillery, engineer, and medical regiments all had organic bands. Military music had an important role in maintaining regimental morale and *esprit de corps*. Emphasis was still on a regimental structure and soldiers identified most readily with their regiment. There was no such feeling by soldiers of attachment at brigade or division level.

The entire regiment consisted of 93 officers, the band leader warrant officer, and 1,733 enlisted men including nine medical officers and 48 medical enlisted men. The most striking feature of the regiment was the number of tanks it was supposed to have. There were 223 light tanks, just a few less tanks, both medium and light, than were to be found in the WWII armored division after the armored regiment organization was largely abandoned in 1943.<sup>21</sup>

### The Heavy Tank Regiment

If the light tank regiment was heavy on two-man tanks, the heavy tank regiment was unique in the number of personnel in it. There were 237 offi-

cers, the warrant officer band leader, and 2,749 enlisted men, again including the medical personnel. There were 135 heavy tanks in the entire regiment.<sup>22</sup> These vehicles were the ponderous, World War I-era Mark VIII tank which were designed to work closely with the infantry, operating at their pace.<sup>23</sup>

This time, the triangular configuration was maintained even down to the platoons, which had three squads. Each squad consisted of one tank with a crew of 11 men. Such was the "nature of the beast" that the squad was commanded by a second lieutenant. The three-tank platoon had a first lieutenant commander, and there were three line platoons plus the headquarters in the company.

As with the light tank company, the headquarters platoon was a large formation. It consisted of a big headquarters section, designed to provide broad administrative and logistics support and reflecting the desire to make the company a self-contained organization. This could also be seen in the hefty maintenance section of 29 enlisted men.

The most remarkable formation in the headquarters platoon was the reserve section. It had a first lieutenant, six second lieutenants, 60 enlisted personnel, and six tanks. Thus, two-fifths of the entire tank company were held in reserve, with not just their vehicles but with their full crews ready for deployment. When a tank became disabled, the whole system (which included the crew) was to be replaced. Evidently expecting a high vehicle casualty rate, either through enemy action or mechanical failure, there was the very high ratio of replacement vehicles and crews to line platoon elements.

There might have been other reasons for this somewhat lopsided organization. The heavy tank was even less reliable mechanically than the light tank. This is reflected in the unit's large maintenance organization. It must have been expected that a large percentage of a company's tanks would be out of commission at any one time, necessitating immediate replacement. It appears that tank employment experience in World War I still played a major role in

determining the decision to provide so many replacements and the size of the maintenance section.

Why the crew which lost its tank could not man a new vehicle is not quite so evident. If a tank broke down, then the mechanic or mechanics in the crew could be expected to remain with the tank to repair it, but these were but a fraction of the crew. The heavy tank of the time was not exactly a "user-friendly" combat vehicle, so it may have been anticipated that if the tank was hit, all or most of the crew would become casualties. If key personnel were wounded or killed in the tank then, possibly for the sake of teamwork, it would have been easier to replace the whole crew. In addition, a fast-moving situation was not envisioned for the employment of the heavy tank formations. Thus limited time to coordinate with the infantrymen advancing mostly on foot was not a major factor. The "set-piece" type of battle envisioned for the employment of heavy tanks could be expected to yield sufficient time for detailed briefing of such a replacement crew. The tank commander lieutenant could also be expected to quickly integrate his vehicle into the scheme of maneuver.

Whatever the reason for such a large reserve section, the company became a cumbersome organization for a captain to command. He had five first lieutenants and 16 second lieutenants. There were 247 enlisted men for just 15 tanks.

The tank battalion of which these heavy tanks were components was also a cumbersome formation. It had over 900 officers and men to fight and support 45 tanks. The battalion's headquarters company consisted of a 29-man maintenance section (including a first lieutenant company commander) and a 60 enlisted man company headquarters. The preponderance of the battalion's personnel were in the three line companies (again, a triangular formulation).

The battalion headquarters was particularly light in assigned personnel, with no enlisted men and only seven officers, five of whom were lieutenants. There was only limited staff functioning which reflects the lack of expectation that the battalion would engage as

a unit in independent action. The lieutenant colonel commanding the battalion was in all probability best utilized as an armor advisor to a division or corps commander.

Finally, the regiment itself consisted of three heavy tank battalions, a maintenance company, the regimental band, and a headquarters and headquarters company. It appears that the employment of the regiment called for either subordinate unit attachment or a breakthrough accompanying infantry role. Given the state of vehicular radio communication, it is difficult to envision anything for the regiment to be capable of beyond a limited accompanying role. The staff was restricted to junior officers, which mitigated against the organizing of any independent operation. The large maintenance company of four platoons, each with 36 men and an officer, on the other hand, made it possible to provide effective support to a multitude of elements spread out among a number of supported organizations.

It is obvious that the heavy tank regiment, like its light tank regiment brother, was to do battle as they had on the Western Front in World War I. Employment of independent mechanized and motorized combat formations had to be conducted using a methodology that saw the Army planning to fight the next war by preparing for the last one.

## Conclusions

The tentative institutional organization of a cavalry division clearly pointed the way towards using cavalry in exploitation and mobile warfare. The British experience with mounted troops in Palestine under General Allenby in 1917 and 1918 could also have served as a model, not only for horse-mounted troops but for motorized formations as well.<sup>24</sup> But it seems that the tanks and armored cars in the division were expected to yield small return. With the primitive state of mobile radio communications, it is difficult to see how these vehicles could be effectively controlled using signal flags and motor messengers in a fluid situation. A significant result was the fragmentation of command and control. At the lowest levels, there was a built-in bias against cohesive small unit leadership. At the levels of command where there were headquarters elements, there was an excess of overhead while the staffs were woefully undermanned, thus denying them

effective input into the conduct of operations. So, the tanks and armored cars became "tag-along" elements whose employment was expected to be limited.

The huge infantry division literally swallowed the light tank company. The U.S. Army was saddled with a surfeit of obsolete World War I tanks which gave little incentive to develop new, technologically advanced armored fighting vehicles. But with the armor tied to the slow-moving infantry tactics, the lack of mobility became a moot point. One wonders how 15 light tanks in the line platoons were to give the division anything but a tiny amount of armor-protected firepower and mobility. Their limited capability suggests that to the Army of the time, tanks were simply a sop to the idea of mechanized warfare. Although the controversy as to which combat arm, the cavalry or infantry, was to ultimately control the successors to the World War I Tank Corps was not yet full blown, there seems to be little doubt that, by 1930, the future of an independent mechanized/motorized combat arm was insignificant within the full context of the manner in which battle was to be prosecuted as promulgated by the U.S. Army's leadership.

The independent tank regiments, seen primarily as corps assets, were too large and cumbersome to be little else but holding formations for numerous small packets of tanks attached to infantry organizations. Attachment to the cavalry division operating in an independent mode appears out of the question. If force structure was to reflect forward-thinking employment doctrine, then what was taught at the Command and General Staff School in 1930 had not progressed much in the ten years after World War I.<sup>25</sup>

Not only was the inclusion of a limited tank capability indicative of a "last war" mentality, so was the size of the infantry division, the large number of horses, horse artillery, and horse transport in the division, and the limited inclusion of aviation assets in both the cavalry and infantry divisions.

Luckily, what was extant in 1930 was to be greatly altered in the next few years. Ten years later, the entire landscape had changed. It was impossible to not only ignore German and other foreign armored warfare developments, but for the then-Command and General Staff School to stagnate in executing its

mandate of preparing mid-level commanders for future combat.

In 1930, there was no Armor School. Indeed, there was no Armor branch, nor armored force. Today, however, the Armor School has proponentcy for "... history of armor and armored cavalry units at the brigade/regiment level and below..."<sup>26</sup> The Command and General Staff School's 1930 *Tables of Organization* for tank and motorized cavalry are today part of that history. Although not meant to be some stellar exposition, the *Tables* are a concise revelation of the predominant thinking on mechanized/motorized force structure of the early interwar era.

## Notes

<sup>1</sup>John B. Wilson, "Influences on U.S. Army Divisional Organization in the Twentieth Century," *ARMY HISTORY* (Washington, D.C., Fall 1996) p. 4.

<sup>2</sup>The Command and General Staff School, *Tables of Organization* (The Command and General Staff School Press, Fort Leavenworth, Kan., 1930) p. 1. Henceforth noted as "Tables."

<sup>3</sup>Tables, p. 75.

<sup>4</sup>Wilson, p. 3.

<sup>5</sup>Tables, p. 68.

<sup>6</sup>See Mary Lee Stubbs and Stanley Russell Connor, *Armor-Cavalry, Part I: Regular Army and Army Reserve* (U.S. Government Printing Office, Washington, D.C., 1969) p. 40. One cavalry division was organized in Texas in December 1917, the 15th, consisting of three brigades of three regiments each. A complete division organization, however, was never formed and the division was disbanded in May 1918.

<sup>7</sup>Russell, P. Weigley, *Eisenhower's Lieutenants* (Indiana University Press, Bloomington, Ind., 1981) p. 1. The Regular Army's 2d Cavalry Division, authorized under the 1920 National Defense Act, was inactive. See Stubbs and Connor, p. 53.

<sup>8</sup>Stubbs and Connor, p. 56.

<sup>9</sup>Tables, p. 13.

<sup>10</sup>Richard M. Ogorkiewicz, *Armour* (Stevens & Sons, London, 1960) p. 175.

<sup>11</sup>Tables, p. 13.

<sup>12</sup>Ogorkiewicz, p. 170. The French Renault FT, with which the American light tank company was equipped as a result of the tremendous number remaining in the U.S. Army's inventory after World War I, carried either a 37mm gun or a machine gun in its turret. The two-man tank weighed about 6.5 tons, could attain a maximum speed of 4.8 miles per hour, and had an operating range of 25 to 30 miles.

Continued on Page 37

# Some Thoughts for Junior Officers On Making a Career Decision

by Lieutenant Colonel James F. Pasquarrette

If I were a junior officer today in the United States Army, I wouldn't know what to think of my institution. Multiple sources (email, surveys, magazine articles, and newspaper stories) proclaim that the Army is in trouble. Many of my peers are opting for civilian life. Separation time from my family continues to rise due to increased operational deployments. My equipment is aging with no plan to replace it. My pay is not commensurate with the required commitment. The field grade officers in my battalion — my gauge to the future if I stay in the Army — work horrendous hours. The senior leaders are out of touch with the climate at the small unit level.

On top of all this — there is not a clear explanation of how I fit into the grand Transformation plan. Most disconcerting, however, is the gnawing feeling that my time and effort are not being applied toward a consequential end. The nation is not at war. There is no Soviet Union to keep in check around the globe. Instead, the Army is relegated to preparing for an unlikely war and keeping hate-filled areas of the world from becoming Third World combat zones. In short, I feel a gravitational pull to follow my peers out the door to the civilian world.

In fact, I am not a junior officer. I am — in civilian parlance — considered “middle management,” a newly promoted lieutenant colonel. Before you stop reading what I have to say, let me provide a few words on my background for reference. I did not go to West Point. I was not a distinguished ROTC graduate — I received an “other than RA” commission. I am not a combat veteran. I am not Ranger School qualified. I spent 18 months after the Advance Course at division G3 and brigade S4 shops prior to getting a command. I did not get a second company command. I watched countless numbers of my peers — good officers with great potential — take a financial incentive to leave the Army in the early 1990s. I was not selected for early promotion to major or lieutenant colonel. I



Photo by Robert L. Stevenson

consider myself an average officer relative to my peers — many of whom possess more potential and ambition than me. I explain this not for humility's sake, but for credibility. I don't write this from the perspective of someone on the fast track to general officer. Rather, I explain my background to appeal to the junior officer who perceives himself or herself to be on the same glidepath that I have realized. It is most likely these officers who feel some pressure to leave the Army today.

Should you stay in or get out of the Army? It's a good question — one that every officer should seriously ponder before making a career decision. I was not committed to the Army as a career for many years. Like today, the cons seemed to outweigh the pros when I was considering the options.

Why leave the Army? There are certainly some good reasons. Some officers discover as a lieutenant that they simply aren't predisposed to be leaders. There are places in the other services for those without leadership ability. In the Army, there is not. If becoming independently wealthy is your driving motivation in life, then the Army is not the place for you. An Army officer's

salary can meet most of your needs, but will perhaps not meet all of your wants. It certainly won't make you a millionaire by the time you are 30 years old. If you are incapable of meeting the physical demands of the Army, you should opt for civilian life. Officers must lead by example on the PT field. Being overweight, out of shape, or unable to go to the field are simply unacceptable. There are other valid reasons to leave the Army based on the individual situation, but the reasons I have outlined apply to every officer and transcend time.

Why make the Army a career? There are many reasons, more than most realize. I'm thankful I stayed in the Army. It's the best decision — short of marrying my wife — that I've ever made. Outlined below are ten reasons junior officers today should consider making the United States Army a career.

First, you should stay in the Army because it needs you. You may not hear this from your chain of command, but it is the truth. A majority of the Army's reduction from 780,000 to 480,000 soldiers took place while I was a junior officer. In all honesty, the Army did not require my service. In fact, it would

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*“Additionally, the quality of the people in the Army is extraordinary. Though I admit to knowing little about the civilian world, I believe the quality of people in the Army is second to none.”*

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have been glad to do without me. The Army offered financial incentives to my peer group to attain end strength goals to avoid a painful Reduction-in-Force (RIF). Today, the drawdown is complete. The Army has been at a steady-state end strength for several years. Our Army is in the midst of transforming itself to address the realities of the new millennium. It needs good officers to see Transformation through to fruition, especially on the execution end of the spectrum. Today's junior officers are needed as tomorrow's middle managers and senior leaders in the Objective Force Army. In the interim, there will undoubtedly be periodic threats to the nation's vital interests. The National Command Authority will call upon the military to conduct operations to protect these interests, and soldiers will be sent into harm's way. Wars are human nature — and the nation will continue to need a combat-ready Army led by well-trained officers.

Second, the Army cares about your family. This was not always the case. When I was a company commander, there was not a Family Support Group program. Army Family Team Building and awards/recognition for spouses did not exist. The Army in recent years has come to understand that soldiers' families are an important part of the Army team. A soldier must be confident that his family will be taken care of if deployed away from home. Installation quality of life improvements are on the rise. They include Wellness Centers, Youth Centers, new hospitals, skate parks, new playgrounds, new schools, privatized housing, and family fitness centers.

Third, the Army is fun. You are paid to do things that those in civilian life pay for: jumping out of airplanes, riding in helicopters, four-wheeling in rough terrain, shooting all types of weapons — from pistols to tanks, “camping” in the woods, and playing “laser tag.” There are countless activities aimed at making life more enjoyable for soldiers that many take for granted: hails and farewells, free intramural sports leagues, unit sponsored

MWR trips, and Dining-Ins/Outs. The Army also ensures soldiers have time for fun. Every federal three-day weekend is a four-day weekend in the Army. Soldiers receive compensation time after extended field duty and units take block leaves once a year.

Not every day is fun. Combat readiness is serious business that requires soldiers to endure hardships that many civilians would deem unacceptable. However, the Army realizes that soldiers need leisure activities and time for fun to compensate for the hardships that training and readiness demand.

Fourth, the Army is about people. The other services are about ships, aircraft, or a mythical aura, while commercial industry is about the fiscal bottom line. There are few institutions that go to the Army's extreme to ensure the success of its individuals. A great example is the Army's emphasis on education: officer and NCO preparatory schools for each leadership position, GED and college programs for enlisted soldiers, degree completion for officers, and various master and doctorate degree opportunities. Additionally, the quality of the people in the Army is extraordinary. Though I admit to knowing little about the civilian world, I believe the quality of people in the Army is second to none. Dedicated, hard working, selfless, physically fit, intelligent, and trustworthy are representative traits of the average soldier.

Fifth, the Army is a meritocracy. Race, religion, ethnicity, and gender are secondary to performance. If you perform, you are selected for promotion and positions of greater responsibility. I am not too naïve to think there are not selection board racial and gender objectives. But this is a form of affirmative action as it was intended to be. There is not a quota system that elevates the unqualified over the qualified. Rather, there are simple checks to ensure selection board results represent fully qualified individuals from across the racial and gender spectrum. As a white male, I fully support it. In fact, I've become proud of it. The Army set the standard on this front for the rest of society — and continues to lead by example to-

day. Soldiers need to see leaders that look like themselves succeeding in the Army. It is intangibly healthy for the institution as a whole — and it's what makes the Army's fiber so strong.

Sixth, the Army senior leadership is committed to the good of the service. In the civilian world, the senior executives are often hired for their Ivy League education, ability to produce fiscal results, or to instill investor confidence. They quite often have no experience at the lower levels in the business they've been entrusted to lead.

Army senior leaders are grown from within — they've risen to the top of the institution through meritorious service. However, there seems to be a concern among junior officers today that Army senior leaders are disconnected with reality at the company level. I had my doubts with the senior leaders mid-1980s. I imagine a good portion of the junior officers in World War I, World War II, the Korean War, Vietnam — and the times in between — had concerns with the direction of the Army and the leadership provided at senior levels.

I believe concern for the direction of the institution at the lowest levels is healthy if kept in context. I've had the unique opportunity to see our senior leadership in action over the last 15 months. The experience has been refreshing. The Army's senior leaders are cognizant of the challenges today's junior officers face. Since they are products of the institution, they have experienced first-hand and are sympathetic to the dilemmas faced by junior officers. They dedicate an inordinate amount of their time on initiatives in support of the company commander.

Differences in opinion at the highest level are not based on the desire for personal recognition or selfish designs but on heartfelt beliefs on what is best for the Army. In short, I think junior officers would be surprised at senior leaders' appreciation of life “on the line” today.

Seventh, there are more opportunities than ever before for advancement. When I was a junior officer, battalion

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## Evolving Army Structure

From Page 34

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command was the overriding qualification for selection to the grade of colonel. Today, there are multiple avenues to colonel — battalion command is no longer a prerequisite. The new career field personnel system will take a few years to solidify, but the end result will be more officers excelling in a field of endeavor in which they both enjoy and are best suited.

Eighth, staying in the Army allows you to be a part of an altruistic endeavor. Service to country was a quaint phrase as a junior officer. To be honest, it meant little to me. I was paying back my ROTC scholarship commitment. As I've matured, I now appreciate the importance in having a core of individuals that commit themselves to protecting our nation's way of life. The eventual realization that you are committed to something more important than yourself is therapeutic in myriad ways: it becomes easier to get up in the morning for PT; there is a rationalization for the forced separations and long work hours; and you realize that the size of the paycheck isn't the measure of a person.

Ninth, the Army is a great institution. It's sometimes hard to recognize this fact as a junior officer. The Army for me was initially more a job than a career; more a paycheck than a profession. Once I committed to a career in the Army, the worthy facets of the institution came into focus. Perhaps it is human nature to accentuate the positive upon commitment to a career course of action. I started noticing that Army Values are more than something worn on the dog tags. It is a standard — an expectation for behavior — that I have come to cherish. Many institutions claim adherence to a set of values, but the Army lives it. Those that don't meet the standard leave the Army by various means. Those that do meet the standard thrive in the Army.

Finally, making the Army a career allows you to continue being a soldier. There are few endeavors as honorable. You will continue serving your country alongside the national treasure — the patriotic men and women that made a decision to serve their country. I didn't fully appreciate the privilege of serving with soldiers until the end of my com-

pany command time. My only experiences as a junior officer were on or near Army installations. I had no reference point to judge a soldier's standing to those not in the Army. Since my company command, I've had several assignments that placed my family in non-military communities. At social gatherings, I was struck by the admiration and interest others had in me simply because I am a soldier. In turn, their lives seemed incredibly dull. Children are sometimes the best judge of what is important. My son, a fourth grader who attends an affluent Catholic school in Atlanta, was asked by a friend what his father does for a living. Jay unassumingly answered, "He's in the Army." The inquiring boy felt compelled to hide the fact that his father was a lawyer, doctor, or some other well-compensated professional (I forget which). Instead, the boy told Jay his father was "a policeman with a gun." I'm sure the other boy's father makes much more money than me, but Jay's friend knows "there's something about a soldier."

I realize that my reasons for making the Army a career may sound ridiculous to the average junior officer. I know they would have sounded ridiculous to me ten or twelve years ago. The junior officer reading this probably envisions me awaking to the National Anthem each morning, walking around with a silly smile on my face all day, and singing "The Army Song" with my family before bed each night. In reality, I think I am a fairly average person that thoroughly enjoys what I do for a living. What I have outlined above is simply how I feel — and how I think most officers feel that make the Army a career. Not every day in the Army is nirvana — but on the whole, the good dwarfs the bad. The Army is much more than "a great place to start." It is a great place to enjoy an exceptionally rewarding career.

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<sup>13</sup>Tables, p. 14.

<sup>14</sup>Tables, p. 68.

<sup>15</sup>Tables, p. 75.

<sup>16</sup>Stubbs and Connor, p. 50.

<sup>17</sup>Tables, p. 83. For how rifle troops fit into the cavalry regiment organization and how they were organized, see Stubbs and Connor, p. 54.

<sup>18</sup>Tables, p. 76.

<sup>19</sup>Letter, U.S. Continental Army Command, 13 January 1959, Subject: The Armored Cavalry Regiment (U).

<sup>20</sup>Tables, p. 108.

<sup>21</sup>Stubbs and Connor, p. 61. The 1943 armored division had 263 tanks with medium M4 tanks outnumbering the light tanks by a ratio of about two to one.

<sup>22</sup>Tables, p. 109.

<sup>23</sup>Ogorkiewicz, pp. 189-190. This tank was based on the British designed heavy Mark VIII. The rhomboidal heavy tank had overhead tracks and a main armament of two 57mm guns, one on each side mounted in a sponson box. The tank did not see action in World War I, with only a hundred being constructed, the majority after the war had ended. The Americans employed the British Mark V and Mark V Stars in the 301st Heavy Tank Battalion during the war. See also Stubbs and Connor, pp. 46-47.

<sup>24</sup>T. Dodson Stamps and Vincent J. Esposito eds., *A Short Military History of World War I*, (U.S.M.A.A.G. Printing Office, West Point, N.Y., 1950) pp. 241-248. Allenby's campaign in Palestine in 1917-1918 served as the basis for Major General John K. Herr's lectures on mobile warfare at the Army War College in Washington, D.C. during the 1920s.

<sup>25</sup>See James S. Corum, *The Roots of Blitzkrieg* (University Press of Kansas, Lawrence, Kan., 1992) pp. 92 and 190, for a scathing indictment of the instruction at the U.S. Army Command and General Staff School between the two world wars.

<sup>26</sup>*ARMOR*, January-February 2001, Vol. CX, No.1, Contents Page.

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# The Poor Man's GUARDFIST

by Captain Todd A. Scattini

When I took over as my battalion's scout platoon leader in March 1998, I was fresh from the scout platoon leader's course (SPLC), and confident that my scouts would be proficient in the skills necessary to detect, disrupt, and destroy the enemy. At SPLC, I had been taught that indirect fire is the scout's main weapon. I had been told repeatedly that a scout with a map, compass, binoculars, and a radio could easily sway the outcome of a battle through the use of his reports and indirect fire.

The platoon leader before me had trained his men well. The platoon sergeant was exceptional, and the non-commissioned officers were all extremely skilled. However, after a few field exercises, I found a weakness in the training of individual soldiers. Most of them, but not all, had difficulty calling for and adjusting indirect fire, especially those straight from advanced individual training (AIT).

Recognizing the deficiency was the easy part, but effectively training and testing the skill with no ammunition or time allotted in the call for fire simulator (CFFS) was the true challenge. I needed a visual training aid that was simple to use and explain, yet inexpensive and easy to make. Investing a small amount of time and a little imagination, I created a tool that is effective, portable, and one that will remain in my "kit bag" for quite a while.

I took an 8½" x 11" sheet of clear plastic overlay material and used an office copier to print a binocular reticle onto it. When the binocular reticle overlay is placed over a sketch of a vehicle at long range, the effect is a simulated view as seen through binoculars.

It took about five minutes to create the "binos." I used PowerPoint to "draw" a binocular reticle that matched that of the M24 type binoculars used in my platoon. I printed that reticle out onto the overlay paper so that it was almost as large as the overlay (see diagram at right). On a second sheet of regular white paper, I sketched a target, a dug-in BMP or a T-80 in a wood line, for example. On this second sheet of paper, I draw the impact of rounds so that the soldier can adjust them.

I can use two different methods of execution, depending on the level of difficulty desired to train the soldier. Using one method, I require the soldier to prompt me for all information necessary to request and adjust fire. The soldier must ask for the location of the vehicle and the direction and distance to the target. By prompting me for information, the soldier demonstrates his understanding of all necessary data for the call for fire.

Using the second method, I brief the soldier on the location of and direction and distance to the target vehicle. When I want the soldier to request a polar fire mission, I brief him on his current grid location, as well. This does not have to be an exercise in map reading, unless that is part of your intent. As the trainer, I act as the fire support officer (FSO), so I ensure the soldier knows the call sign I will be using. Once the soldier has sufficient information to execute the call for fire, he performs the task using simulated radio transmissions. After the soldier sends the request for fire, to include the warning order, location, and description of the target, I provide the message to observer (MTO). For example, "MTO, Gunner, 1 round, HE, target number AL4006." Once the soldier correctly repeats the MTO, I send "shot" and "splash." Five seconds after "splash," I draw the impact of the round on the

white target sketch paper. The observer then places the "binos" back directly over the target vehicle and begins the adjustment process. The observer should be able to send the correct direction to target and left/right and add/drop adjustment. The soldier discerns the observer to target (OT) factor and direction to target based upon the information I previously gave him. I continue to draw subsequent rounds as the observer requests further adjustments.

Using this tool, you will be able to train soldiers to call for and adjust indirect fires using any one of the three methods: grid, polar plot, or shift from a known point. This tool is an easily understandable visual aid that can be transported anywhere. I often use this for opportunity training and rehearsals, and have found it to be infinitely useful — hopefully, you will, as well. SCOUTS OUT!

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CPT Todd A. Scattini has served as a tank platoon leader, 18 months as an armor battalion scout platoon leader in 2-70 Armor Battalion, and 9 months as a brigade reconnaissance troop leader in H Troop, 1st Cavalry. A recent graduate of ACCC, he is currently working in the S3 shop, awaiting a troop command, in 1-4 Cav in Schweinfurt.

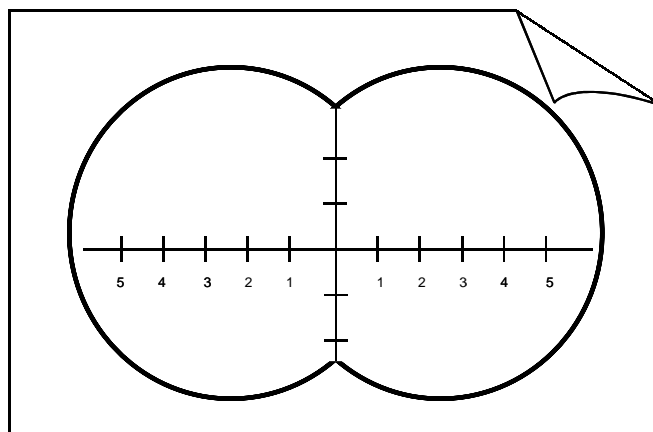


Fig. 1. This is the binocular reticle to print out onto a clear sheet of overlay paper.



**Information I provide the observer once prompted:**  
 Location of BMPs is NK861324  
 Distance to target: 2750m  
 Direction to target: 1700 mils  
 Observer location (optional): NK834322

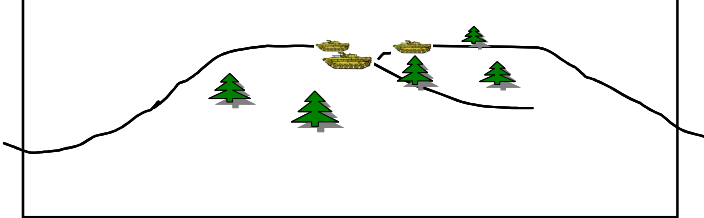


Fig. 2. This is an example of a sketch to represent enemy BMPs as observed from an OP to generate the call for fire.

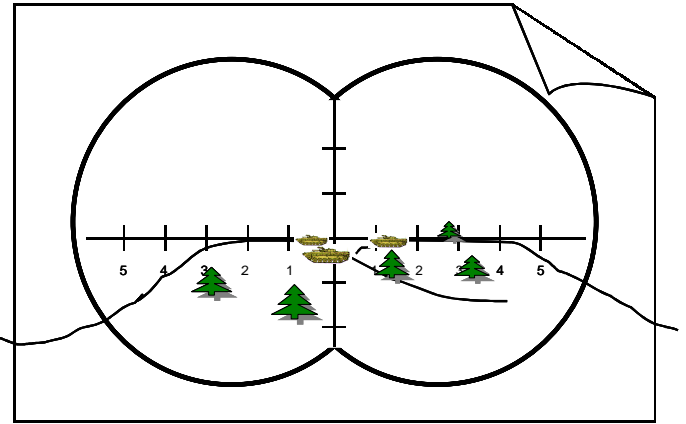


Fig. 3. This is the view the observer will have after placing the "binos" over the sketch of the enemy.

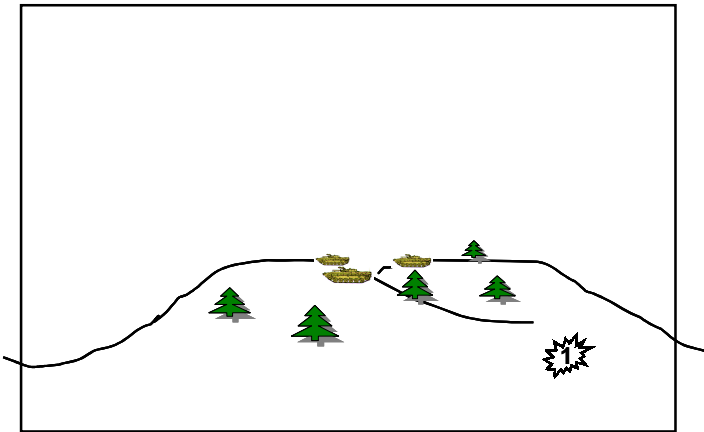


Fig. 4. After "splash" is given, draw the impact of the first round.

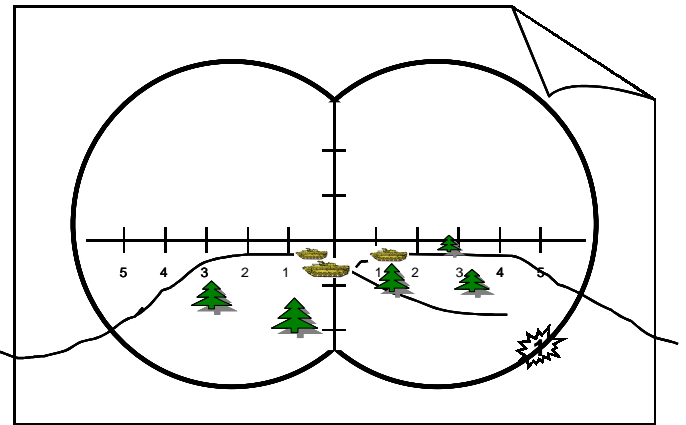


Fig. 5. Once the observer places the "binos" back over the target vehicles, he can see that the correction will be: "Direction 1700, left 150/add 400."

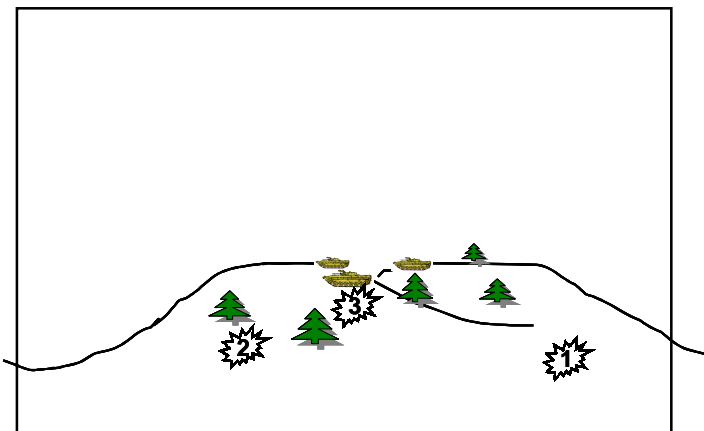


Fig. 6. Continue to draw the impact of subsequent rounds as they are adjusted. Once the criteria is met, the observer can request "fire for effect."

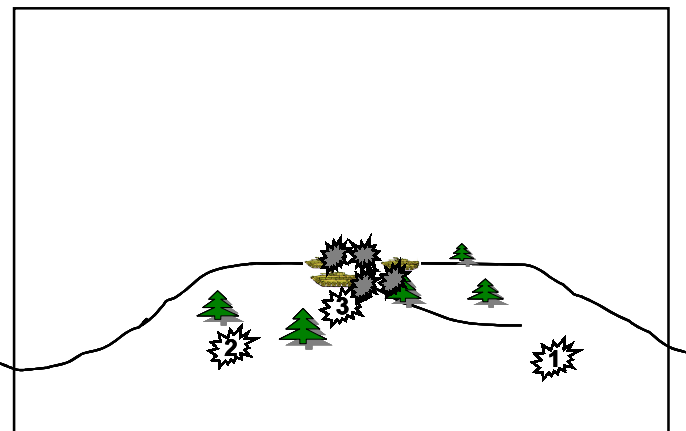


Fig. 7. After "fire for effect," draw the destruction or displacement of the target vehicles which should generate the end of mission and BDA report.

The PowerPoint file with larger graphics is available on our website at: [www.knox.army.mil/armormag/](http://www.knox.army.mil/armormag/) under the "Downloads" link.

# The Joint STARS Common Ground Station: A New Tool for the Maneuver Commander

by Captain Mike Monnard

*The last time COL Smith conducted a brigade-level training exercise with his unit, the intelligence infrastructure of his brigade combat team was limited to the organic assets of his direct support Military Intelligence company and the various scouts supporting his brigade. The unit is now preparing for deployment, but this time COL Smith has a new tool in his kit bag: The Joint Surveillance and Target Attack Radar System (Joint STARS) Common Ground Station. Before COL Smith can employ this piece of equipment, he and his staff must understand the system, its requirements for employment, and the techniques for exploiting its capabilities.*

Upon completion of the Army's Transformation concept, each direct support MI company will possess a Joint STARS Common Ground Station (CGS) which will provide the Brigade Combat Team (BCT) with a rapidly deployable, mobile, and responsive intelligence processing capability. However, tactical intelligence officers and maneuver commanders may not thoroughly understand the system, its requirements for successful employment, or the techniques for exploiting its phenomenal capabilities.

Joint STARS is comprised of two major components: the Joint STARS E-8C aircraft and the Common Ground Station. The Joint STARS E-8C, a modified Boeing 707, is maintained and operated by the Air Force. The Common Ground Station (AN/TSQ-179 mission shelter), to include all subsystems, is maintained and operated by the Army. It consists of a ground data terminal, communications system, and operations system mounted on an M1097 HMMWV.

The Joint STARS phased array radar can survey up to 62,000 square kilometers every 60 to 90 seconds. This area is referred to as the Radar Reference Coverage Area (RRCA). The Ground Reference Coverage Area (GRCA) is smaller than the RRCA and remains under constant surveillance, regardless of the position of the E-8C aircraft. The

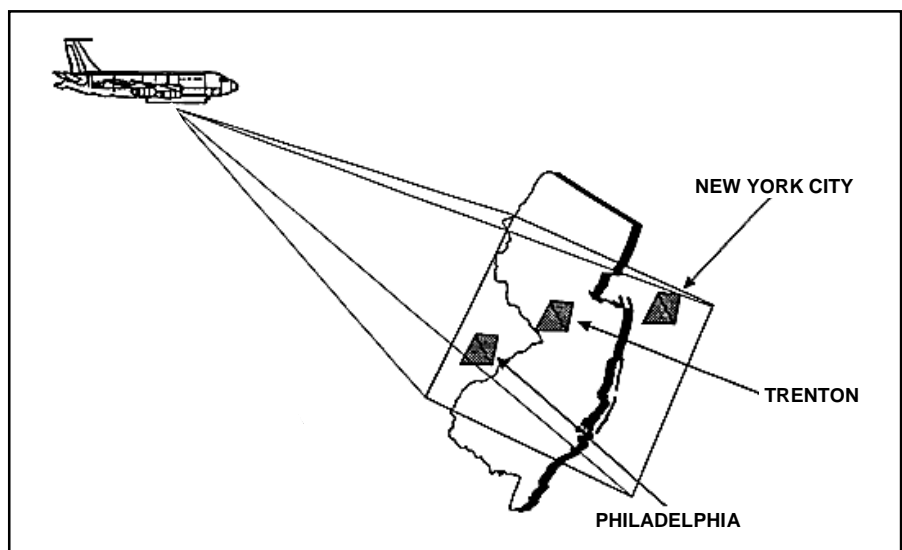


Mounted on a HMMWV, the Common Ground Station processes data from multiple sensors, including the J-STARS E-8C aircraft, unmanned aerial vehicles, and other intelligence platforms. —Motorola Photo

GRCA is normally 150 km by 150 km. The accompanying illustration puts this in perspective: the system could survey a ground coverage area that incorporates most of New Jersey, plus the cities of New York, Philadelphia, and Trenton.

The radar has two operating modes, Moving Target Indicator (MTI) and

Synthetic Aperture Radar (SAR). MTI is the primary operating mode and is used to locate moving vehicles, rotating antennas, and slow moving aircraft. SAR can provide a medium resolution photo-like radar image of a specified area on the ground. Fixed Target Indicator (FTI) is a sub-function of the SAR mode, and is used to display stationary targets.



Joint STARS Ground Reference Coverage Area (GRCA)

The systems on the J-STARS E-8C provide a Synthetic Aperture Radar mode that can produce photo-like radar pictures of the battlefield and a Moving Target Indicator mode that tracks anything moving in the battlespace.



The radar cannot operate in both modes simultaneously, but can switch modes so quickly that it is transparent to the users of Joint STARS data.

*COL Smith has just received the Execute Order and is ready to move to the Sea Port of Embarkation (SPOE). The BCT will be among the first units into country and the division commander has told him that Joint STARS will be available to support his operations. Prior to their departure, COL Smith calls the brigade signal officer into his office because he is concerned about spectrum management and what the CGS will need to communicate with the Joint STARS aircraft.*

Prior to establishing a secure data link, UHF voice communication is the primary means of contact between the E-8C and the CGS. Once established, the Surveillance and Control Data Link (SCDL) — a Joint STARS-unique, jam-resistant, two-way up-and-down data link — provides for free text messaging as its primary means of communication. As many as 15 CGSs can establish a secure, two-way data link with the E-8C, while an unlimited number of CGSs can receive data. All links require line of sight between the CGS and the aircraft.

The Surveillance and Control Data Link is used to broadcast E-8C data to the CGS, transmit radar service requests from the CGS to the aircraft, transmit digital free text messages between the CGS and the aircraft, and transmit E-8C location and speed updates to the CGS. The CGS receives, stores, processes, correlates, disseminates, and displays near-real-time radar imagery from the Joint STARS E-8C. It can also receive, display, and disseminate unmanned aerial vehicle (UAV) video from a UAV ground control station and secondary imagery from theater and national sources. Additionally, signals intelligence data is received

from the Intelligence Broadcast System (IBS) via the Joint Tactical Terminal.

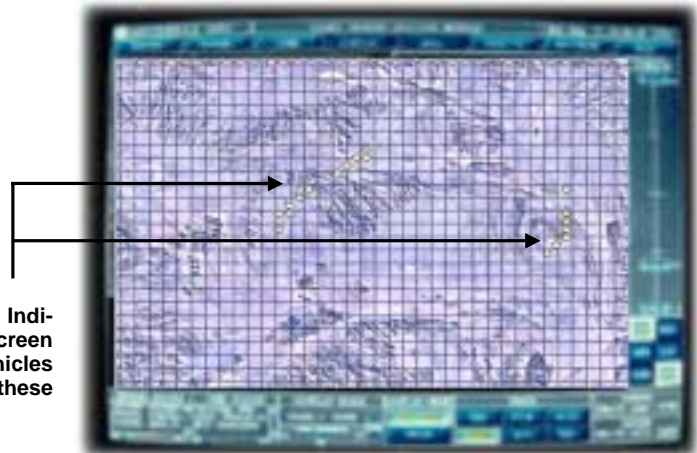
*Upon arrival in theater, COL Smith and his BCT begin the RSOI process. He observes his unit conducting pre-combat checks and inspections in assembly areas within the seaport of departure (SPOD). COL Smith still does not fully understand what the CGS will need in order to provide his BCT with a better intelligence picture. He grabs the S2 and MI company commander and asks for a brief regarding the unique requirements of the CGS.*

The CGS is authorized six Imagery Ground Station Operators (MOS 96H). The crew consists of one staff sergeant (CGS team leader), one sergeant (assistant team leader), and four ground station operators. The crew is trained to operate the system, provide hard and soft copy products, establish interfaces with all systems, and provide basic level analysis of Joint STARS imagery products. The CGS team's analysis is limited to determining if the moving target indicator data represents moving vehicles or is simply ground clutter, and determining ground patterns which may define certain types of enemy ac-

tivity (i.e., assembly areas, battle positions, and disposition).

To exploit the capabilities of the CGS, the mission shelter must remain in close proximity to the supported TOC. However, the primary emplacement criteria is line of sight from the data link antenna to the aircraft. Placing the antenna on a three-meter mast attached to the shelter, or remoting it on a tripod up to 100 meters away, often improves the line of sight, but if remoting the antenna does not provide line of sight to the aircraft, the unit must move. To retain connectivity, Remote Work Stations (RWS) are often set up in the TOC while relocating the CGS up to one kilometer away to gain line of sight with the aircraft.

Coordination and communication between the CGS and the E-8C is critical for efficient and effective operations. Communication between the BCT battle staff and the aircrew is done via the data link or secure voice. To ensure success, units must develop an SOP that includes procedures for dynamic re-tasking and addressing the following coordination requirements:



**In Moving Target Indicator Mode, the screen highlights all vehicles on the move, like these columns of tanks.**

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## From BCT to E-8C

- Current OPORD and enemy front line trace
- Current PIR
- Special requirements

## From the E-8C to BCT

- On/off station times
- GRCA coordinates
- Orbit locations

To disseminate its products, the CGS connects directly to the Army's digitized command and control systems. These include ASAS, Maneuver Control System (MCS), and the Advanced Field Artillery Tactical Data System (AFATDS). The ground station is connected to ASAS either by LAN or direct hardware and, if necessary, via the Mobile Subscriber Equipment (MSE) Network. The CGS is connected to AFATDS the same way, or via the Single Channel Ground and Airborne Radio System (SINCGARS) as an over-the-air data link. To communicate with Army aviation, the ground station includes an Improved Data Modem (IDM) to forward freeze-frame MTI data and receive AH-64D Longbow Apache fire control radar images.

The ground station can simultaneously display collateral level SIGINT reports, video imagery from UAVs, imagery products from U2 and ARL, and fire control radar freeze-frame pictures from Longbow Apaches

*The BCT is prepared for its first mission in theater. They have just received the OPLAN brief from the joint task force. As COL Smith sits down to prepare his planning guidance to the brigade staff, he wonders how the CGS can assist the BCT during the upcoming military decision-making process (MDMP) and impending battle.*

The ground station supports the BCT in the offense by providing enemy locations, battle positions, large obstacles, and the location and movement of reserve forces. With this information, the commander can shape the battlefield before crossing the line of departure. For example, during mission analysis and COA development, the CGS might be focused on where and how the enemy is establishing defensive positions. Using the SAR mode, the ground station provides supplemental imagery of defensive positions and large obstacles. Add to that Joint STARS moving target

indicator and SIGINT overlays, along with UAV information, and the battle staff can formulate a more effective attack plan.

During the battle preparation phase, the ground station can provide targets and also information as to how the enemy is reacting to preparatory fires. During the battle, the ground station concentrates on any enemy movement and subsequent commitment of reserves. Joint STARS MTI provides most of the combat information. As the enemy moves to and from battle positions, the ground station cues the UAV to confirm any activity, and when movement of the reserve is detected, other intelligence sensors are notified or repositioned to identify and track the movement.

The CGS supports defensive operations by using all available sensor feeds to determine the enemy's main attack and follow-on forces. The Joint STARS moving target indicator is the primary sensor for detection of enemy forces as they depart assembly areas and move into combat formations. The CGS will detect and track enemy movement, allowing the commander to see how the enemy is arraying his forces. By using MTI to cue the UAV, the BCT commander can clarify the enemy disposition in sufficient time to reposition forces and set the conditions for destruction of the enemy.

The ground station supports stabilization and support operations (SASO) with its ability to receive and display multiple sensor feeds. The CGS also provides an electronic record that is used for analysis. The CGS can track friendly convoys, determine traffic volume and track movement on road networks, monitor military motor pools for vehicle deployments, and back-track vehicle movement to determine point of origin.

In a SASO environment, HUMINT and SIGINT might provide the cue to conduct analysis of archived CGS information. For example, HUMINT sources may reveal points and times of threat activity. With that information, CGS records are reviewed by the battle staff to determine originating locations and movement.

*COL Smith has been notified by his S2 that the enemy has penetrated the covering force and a motorized rifle regiment is attacking from the march. He*

*asks the MI company commander the status of Joint STARS, and he is told that the E-8C is on station and the CGS is receiving data. COL Smith tells his staff he wants to attrit the first echelon by 50 percent before it comes into contact with the BCT defense. He then turns to the S2, S3, and FSO and orders them to begin the targeting process.*

The CGS contributes, in varying degrees, to all phases of the targeting process.

**Decide.** The CGS provides information on the disposition and location of enemy forces. The CGS team leader advises the battle staff on areas of masked terrain, as well as what targets the E-8C can detect and track.

**Detect.** Joint STARS is ideally suited to detect moving targets. By comparing MTIs to criteria for targets, along with SIGINT cues and imagery, the CGS can identify specific tracks.

**Track.** The ground station is effective at tracking moving targets and monitoring target areas for changes. The key component to maintaining target continuity is the moving target indicator capability.

**Deliver.** The CGS continues to update the target location, facilitating adjustment of fires, until the attack is complete.

**Assess.** The CGS can provide a correlated sensor product for limited battlefield damage assessment (BDA). The fidelity of the assessment is based on the ground station's correlated moving target indicator, unmanned aerial vehicle, and signals intelligence data.

Not only does the ground station provide the brigade team with target information, but its ability to correlate multiple sensor information on a single screen allows targeting cells to detect, classify, and track potential targets, as well as determine battlefield damage following an attack.

The ground station provides Army aviation the same targeting and battlefield awareness support available to other combat units. In addition, it is an important tool for planning cross-FLOT operations. Specifically, the ground station can pass MTI data via the Improved Data Modem to Apache Longbow aircraft. The only requirement is

## Mountain Cavalry from Page 18

radio line of sight between the CGS and the aircraft.

The CGS also provides the commander a means of improving the effectiveness of CAS sorties. The CGS MTI capability is the primary means of improving this effort. When moving targets are detected, the information is forwarded to the TACP and forward air controller, who acquire the targets and direct the CAS aircraft. The commander determines the target and engagement area. The TACP/FAC moves into position. MTI are detected and the information is passed to the TACP/FAC. The ALO continuously updates the TACP/FAC. The TACP/FAC then positively identifies the target, and CAS attacks it.

*"The primary mission of Joint STARS is ... to provide dedicated support to ground commanders." (FM 34-25-1)*

Under the Army Transformation Concept, every BCT will possess a powerful tool to support and focus its efforts. The CGS provides the BCT a surveillance platform with a wide variety of capabilities, to include a Near Real Time (NRT) picture of the battlefield. Not only will the CGS detect and track targets in combat and pre-combat formations, but when remoted into the TOC, it will assist the commander in battle management and increased situational awareness. It is, therefore, critical that both tactical intelligence officers and maneuver commanders understand the Joint STARS CGS and its value added to the MDMP and the war-fighting capabilities of the BCT.

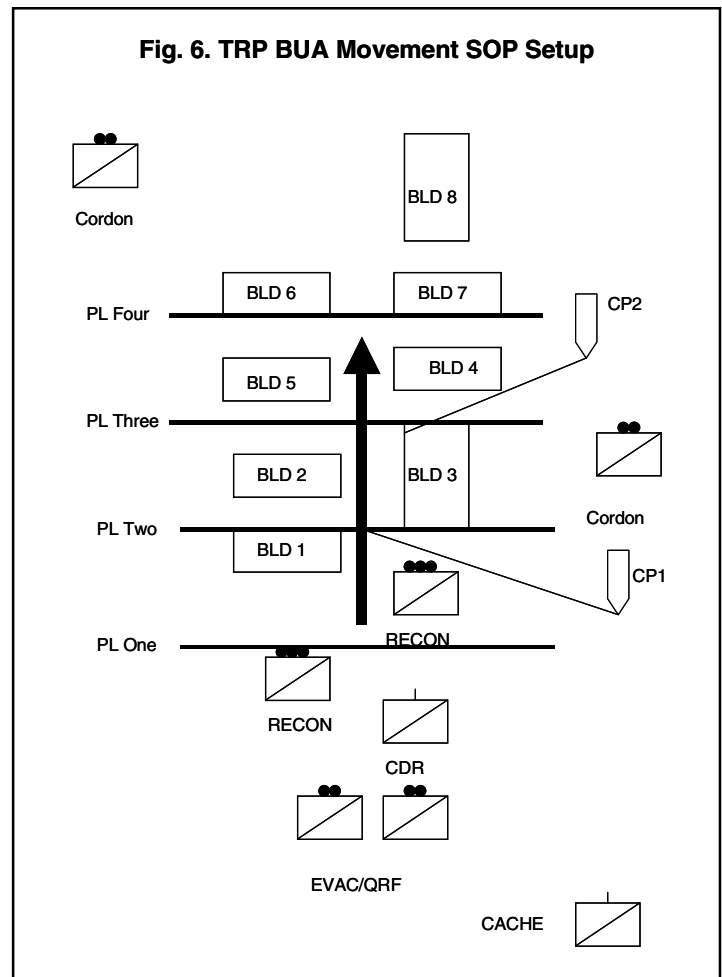
CPT Mike Monnard was commissioned in September 1992 following graduation from Officer Candidate School. He served with the 1-43 ADA Battalion as an air defense officer until 1996. Upon completion of the MI Transition and Advance Course, he served as a company commander in the 902nd MI Group at Fort Meade, Md. Following command, he served as the division cavalry squadron S2 and 505th Parachute Infantry Regiment S2 at Fort Bragg, N.C. Recently completing 10 rotations as the G2 operations officer for Operations Group, NTC, he currently serves as the light infantry task force S2 trainer.

**Conclusion.** The days of bypassing all built-up areas greater than 1 kilometer are gone. Even in the Third World, urban sprawl and modernization has made MOUT a fact of military life. Cavalry scouts will lead units into and through those areas. Doing so requires the careful application of DTLOMS by unit leaders. This brief article showed how one unit maintains its combat edge by using all the available tools at hand. Apache Troop draws on the experience of its combat veterans, seasoned in operations in Somalia, Haiti, and Bosnia. Much of that experience has gone into the creation of the MLC4 and the unit leaders make sure that all troopers benefit from that combat course training. Finally the unit never stops refining its TTPs in combat drills that improve the unit's ability to meet the challenges of MOUT.

*The following troopers provided valuable input and deserve the lion's share of the credit: 1LT Kevin Scott, 1LT*

*David Spence Sales, 1LT Wade Birdwell, and 1LT Toby Austin. Without input from my former platoon leaders this article may still have been sitting on my hard drive.*

CPT Richard R. Rouleau enlisted in the Army National Guard in 1982 and transferred to active duty in 1984 as an M60A1 armor crewman. His previous enlisted assignments include the 133d Engineer Battalion; 2-6 Cav; 2-72 Armor; and HQ USAG, Fort Drum. In 1991, he was commissioned in Armor from Niagara University. He has served as a tank platoon leader, company XO, and BMO in 2-37 Armor, 3ID, and A/S3, S4 and troop commander of A/3-17 Cavalry, 10th Mountain Division. He is currently assigned to the Joint Readiness Training Center as an observer/controller.





- All Photos by Robert L. Stevenson

## Division Capstone Exercise Verifies the Effectiveness Of Army's Tactical Internet

*(This article was prepared by the ARMOR staff from exercise reports. — Ed.)*

The Army's search for enhanced combat capabilities through the application of advanced technologies — a process known as digitization — reached another milestone this spring at the National Training Center, where the first fully digitized brigades demonstrated that they were fully capable of accomplishing their wartime missions.

The Division Capstone Exercise (Phase I) (DCX I), conducted against Fort Irwin's world class OPFOR, demonstrated the capabilities of the 2d Brigade Combat Team and 4th Aviation Brigade of the 4th Infantry Division (Mechanized). The exercise confirmed that these "Ironhorse" Division units, equipped with the M1A2 SEP tank, the M2A3 Bradley Fighting Vehicle, and the AH-64D Apache Longbow attack helicopter, can contribute decisively to

the III Corps' land campaign counteroffensive capability, and that these Legacy Force systems, especially as updated with the latest technology, remain dominant battlefield killers.

Over the past ten years, the Army has searched for advanced technologies that would empower its formations to dominate information as an element of combat power. The search for these advanced technologies and concepts came to be known as "digitization," and began in earnest in 1994 with the first advanced warfighting exercise, Desert Hammer, at the National Training Center. Soon after that, III Corps' 4th Infantry Division (M) was designated as the Army's experimental division for the application of advanced warfighting concepts. Subsequent combat training, materiel developments, and further field experimentation have led to the incorporation of a range of organizational, doctrinal, combat platform, and

information systems improvements to the division's formations.

The outcomes of brigade and division Advanced Warfighting Experiments in 1997 demonstrated that the Army was on the verge of achieving powerful enhancements to waging combat. As such, the goal was set to bring the 4th ID's combat brigades to a go-to-war status employing advanced capabilities. The Division Capstone Exercise, Phase I, was the expression of this goal. In October, a second phase of the DCX at Fort Hood, Texas, will continue the assessment.

During Phase I of the Division Capstone Exercise at the NTC, leaders expressed tremendous confidence in their organizations and equipment, which greatly improved a range of capabilities: "When fighting at night, these systems are unmatched. My Bradleys made direct fire kills routinely at 3700 meters



Bradley crewman enters enemy location data on the FBCB2 touch screen.

and beyond. Additionally, the FBCB2 increased our situational awareness dramatically. We were able to conduct bold maneuvers at night that we would normally only do during daylight,” said CPT Dane Acord, commander of B Co, 2-8 IN.

Phase I of the DCX focused on combat brigade operations in an expanded tactical battlespace, the ability to exploit information, achieve dominant maneuver, execute fire and maneuver, conduct tactical assault and sustain combat power. Phase II will focus on a division combat operation as part of a III Corps fight in a robust Battle Command Training Program scenario, exercising the full range of division command and control capabilities at brigade and divisional level.

“The new systems give soldiers greater levels of understanding of where friendly forces are located, where soldiers are located themselves, and where the enemy is located,” said SGT Robert Munsey, B/1-67AR. “With the new systems, we can virtually pick and choose our fighting positions, giving us the freedom to seize every opportunity.”

DCX I was more than just an assessment, certification or experiment. It demonstrated the 4th ID’s ground maneuver and aviation brigades’ combat mission capability across a range of attack and defend missions — enabled with battle command, organizational, equipment, doctrinal, and C4ISR enhancements. Tough, demanding, realistic training challenged the competence and character of every soldier and leader and the reliability and contribu-

tion of our new technologies. They conducted non-stop operations against a very adaptive enemy employing asymmetric strategies, and validated new Army tactics and strategies for combat operations.

SFC Campos, platoon sergeant for 2nd Platoon, A Co, 3-67 AR, provided one example of the demonstrated lethality of the 4th ID during the DCX. On 4 April, as the OPFOR attacked, SFC Campos destroyed 15 enemy armored vehicles. With the powerful sights of the M1A2 SEP, he identified targets up to 8 kilometers away and destroyed them as they entered his engagement area. This ability to acquire, identify, and destroy targets was the result of several factors. First, SFC Campos had the most lethal equipment currently available. Second, empowered by advanced technology, he had excellent situational awareness that maximized the potential of his direct fire weapon system. Third, SFC Campos had a trained crew. His gunner has been with him for two years. They knew their tank and they knew each other.

The warfighting activities during DCX I were executed in force-on-force and live-fire scenarios designed to replicate likely deployment and contingency operations in a major theater of war. Extraordinary effort was expended to develop a contemporary operational environment that would challenge 4th ID units with a world class opposing force that operated continuously across the spectrum of conflict. The opposing force was designed to execute adaptive

and asymmetric strategies, and employ the full range of unpredictable and lethal tactics expected on today’s and future battlefields.

The range of modernized and recapitalized combat systems, such as the M1A2 SEP Tank, AH-64D Longbow Apache and the M2A3 Bradley Fighting Vehicle, have significantly increased the lethality of the 4th Infantry Division. The 2nd Generation Forward Looking Infra-red Radar (FLIR), Commander’s Independent Thermal Viewer (CITV), and enhanced mechanical reliability improved warfighting capability. An upgraded and modernized information network, linking these combat platforms, empowered commanders to execute precision maneuver and fires. “The DCX provided us with continuous operations in a tactical environment that challenged our systems — our communications systems, our digital systems, and our warfighting systems — against a very, very competent OPFOR,” said MG Ben Griffin, commander of the 4th ID.

DCX I demonstrated that the soldier remains the centerpiece of the Army and represents the core of the nation’s ability to fight and win wars — decisively. DCX I provided an opportunity to enhance combat leader development in a contemporary threat environment. Tough, field-wise soldiers and leaders in well-trained teams achieved a level of situational awareness during DCX I that empowered them to accomplish their combat tasks under extremely demanding, continuous, and lethal conditions. They were able to exploit the nature of their environment, apply their competencies in field craft and technology, and relentlessly pursue their tactical missions to fight and win engagements and battles. Enhanced and enabled by the latest ground combat and information systems, the soldiers of the “Ironhorse” Division proved their mettle against a wily and cunning foe and came out better trained and prepared to win on the battlefield.

“... It is clear at this point that these units are superior warfighting outfits whose great soldiers are able to superbly leverage information technology to significantly enhance the combat



effectiveness of the Army,” said MG B.B. Bell, Chief of Armor, who served as Exercise Director.

The Army’s investment in developing the Army Battle Command System (ABCS), along with doctrinal, organizational, and materiel system upgrades, powerfully enhanced the 4th ID (M)’s ability to fight. The observed units were judged to have achieved their training goals and possess a formidable go-to-war capability. Maneuver units are more lethal than before. They possess and routinely employ an all-weather night and day combat capability. They are survivable, and can effectively dominate the enemy in an expanded, dispersed battlespace. During DCX I, the training units, enhanced with ABCS, operated with greater initiative, at faster tempo, and adapted more quickly to changing battlefield situations.

The 1-67 AR Scout Platoon demonstrated the significance of having a Common Operating Picture (COP) that accurately portrayed both friendly and enemy locations. The scout platoon, having completed the security zone fight, experienced one of their most challenging operations. Using advanced technology to pinpoint their locations, the platoon moved back on a moonless night, in the midst of a blowing sandstorm, and passed safely through designated lanes in the mine/obstacle belt without delay or casualty. Equally important, the battalion had an accurate picture of the scout locations and accurately tracked their rearward movement.

The new, networked Army Battle Command System (ABCS) empowered soldiers to be responsive and dominant across the full spectrum of military operations. The sharing of knowledge between the primary killers on the battlefield — the M1A2 SEP Tank, the M2A3 Bradley, and the AH-64 Apache Longbow — enabled the division to apply overwhelming combat power at the decisive point in order to defeat the enemy.

The unparalleled navigation capabilities and situational awareness provided by this electronic network gave 4th ID the ability to know where its forces were, as well as the location of the enemy, even during periods of darkness, sandstorms, and in difficult terrain. Armed with this accurate information, 4th ID demonstrated unprecedented synchronization, speed, and agility under all battlefield conditions. The advantages also extended to the area of air-ground integration. The integration of Air Force A-10s and F-16s into the 4th ID’s tactical internet provided friendly locations on the pilots’ Head-Up Displays (HUDs) and proved decisive in the close air support role. An Air Force JSTARS provided Moving Target Indicators digitally to the cockpit of Apache Longbows, significantly enhancing the 4th ID’s ability to apply decisive and overwhelming force on the battlefield.

The exercise surfaced some solid conclusions:

- DCX I units have achieved a go-to-war capability.
- III Corps is postured today to deliver the legacy counteroffensive force, with full-spectrum relevance, against a contemporary operational threat for the next 15-20 years.
- Recapitalized and modernized legacy systems are more lethal than ever and demonstrate significant overmatch against potential enemies.
- The force significantly increased its pace and tempo in continuous, day/night operations.
- Effective information technology (ABCS) systems provided the same picture of the battlefield to all friendly forces.
- Continued improvements in advanced technology will build an even more significant overmatch capability for the future.
- Information superiority significantly improved the logistician’s ability to

provide proper resources at the critical place and time on the battlefield.

- Well-trained and well-led soldiers, equipped with appropriate technology, remain central to effective combat operations.
- Improved intelligence, surveillance, and reconnaissance systems (e.g., tank 50-power FLIR, TUAV, JSTARS, etc.) dominated acquisition at extended ranges.
- Artillery, while performing satisfactorily, requires improved range, rates of fire, mobility, and survivability. Future systems require simplified sensor-to-shooter links and quicker response times for accurate fires.

DCX I confirmed the course for the transformation of III Corps into the nation’s land campaign counteroffensive formation. While the Army pursues solutions to Objective Force requirements, III Corps’ counteroffensive capability will form the nucleus of the nation’s ability to fight and decisively conclude land campaigns over the next 15 to 20 years.

DCX I thrust the mechanized and aviation brigade combat teams of the 4th Infantry Division (M) into a complex threat and terrain environment typical of what we expect on today’s battlefields and those in the future. The brigades executed their warfighting doctrine, learned to synchronize the elements of combat power, and employed their full range of combined arms. Importantly, DCX I demonstrated the brigades’ ability to effectively employ information as an exponential element of combat power. These units are fully capable of fighting and winning decisively.

“The process of digital transformation isn’t just about new equipment. It is a process that involves developing leaders who can see opportunities in time and space provided by information superiority, and be versatile and adaptive enough to take full advantage of those opportunities,” said LTC Damon Penn, commander of 1-67 Armor.



## LETTERS from Page 4

tanks, five-tank *companies* assigned to four-company *regiments* (21 tanks).

The authors misstate the doctrinal mission of the tank platoon, which is NOT to act as a single element (i.e., fire **or** maneuver). Per *FM 17-15*, Chapter 1, Section 1: "The tank platoon is the smallest maneuver element within a tank company. Organized to fight as a unified element, the platoon consists of four main battle tanks organized into two sections, with two tanks in each section." Though, admittedly, poorly worded, further reading clearly emphasizes operating by sections in order to fire **and** maneuver. A three-tank platoon lacks this flexibility.

The authors' contention that the wider frontages of digitized operations overtax the platoon leader's ability completely misses the point of digitized command and control, and simplifying platoon collective training by eliminating tasks (and capabilities) is just bad training.

Having fewer tanks per platoon does not solve logistical problems unless you reduce the total numbers of tanks overall (massing tanks by consolidating them into a single brigade, as suggested in the article, defeats the purpose). The suggested improvement in manpower is illusory, since shortages are a percentage of authorized strength, and a three-tank platoon can be at 75 percent strength just as readily as a four-tank platoon.

Historically, the three-tank platoon was an inefficient response to a desperate situation when all else failed. Rather than a new approach, it is a last resort. Let's not go there. Let's train to standard, instead.

CHESTER A. KOJRO  
LTC, AR, USAR (Ret.)

### Three-Tank Platoon Poses Problems of Terrain, Training

Dear Sir:

After reading Major Stringer's and Major Hall's article, I have to disagree with some of their arguments for reducing the size of the tank platoon. First of all, the truth in the argument is that money is the bottom line. If it were not for budget constraints, we would not be discussing this topic at all.

The primary arguments in support of this change are that a second lieutenant can focus better on three tanks rather than four. [Other points are that] reduction of the number of tanks in the company will solve personnel shortages, and that the M1A2 is capable of operating over wider frontages because of its advanced technology.

First, the authors are forgetting corps, division, brigade, and battalion red cycles. With the J-Series MTOE, the platoon could possibly salvage 50 percent of the crew during battalion and brigade red cycles, but forget trying to train during corps and division red

with 16 soldiers, let alone 12. I led two platoons, one in Korea and one at Fort Riley, both with four tanks, and with the ebb and flow of personnel shortages. I had no problem managing or focusing on the 8 to 15 soldiers and four tanks that I had, depending on what time of year it was and what training cycle we were in. So, I don't understand the claim that we need to make a platoon leader's job easier by giving them one less tank and four fewer soldiers to lead. I would submit that by taking away those four soldiers the platoon leader's life just got worse.

In addition to that, I've commanded an M1A2 company at Fort Hood where that installation wrote the book on red cycles and the Good Idea tasking. The M1A2 technology is perishable. Unless the digital system is trained at least weekly and integrated into every single crew, platoon, and company training period, we may as well fight the M1A1.

Second, operating with four fewer soldiers with the same OPTEMPO will not improve our lethality, but will exacerbate the problem with maintaining competent, lethal tank crews. I don't think the authors can guarantee that my prime time training will increase just because we have reduced the tank battalion by another 9 to 12 tanks.

My last counter-argument is with the claim of operation over wider frontages. Okay, yes at NTC, Kuwait, and Iraq, no argument. But what about CMTC, Korea, and the Balkans? I've OC'd six heavy rotations at CMTC. Fighting a platoon across a frontage that stretches from the 15 Tango Bowl down to the Hohenburg DZ does the platoon no good if the one T-80 in the CSOP is facing one-on-one with "A11." In restrictive terrain, you aren't going to get three-and-a-half-kilometer shots with the FLIR. If the platoon leader is unable to mass his THREE tanks rapidly on that T-80 IAW *FM 17-15*, I don't see how a three-tank platoon is more lethal. At least with the four-tank platoon, the platoon leader has a wingman that provides the ability to fire and maneuver.

According to *FM 17-15*, page 1-2, the wingman concept is a doctrinal technique. *FM 17-15* states: "Under battlefield conditions, the wingman concept facilitates control of the platoon when it operates in **sections**." Again, with the loss of a wingman, taking advantage of the technology by operating on extended frontages in restrictive terrain is nullified with the three-tank platoon. Although the IVIS will let me know exactly where my platoon is dispersed in restrictive terrain, it won't be able to magic move my vehicles to mass fires on the enemy if the enemy is protected by a ridgeline. The CITV, I think, is the best improvement that the M1A2 has to offer (I have no experience on the SEP); however, the CITV offensive engagement (B1) on TT VIII is conducted on a smooth course road and is not performed on the "washboard" at the NTC. Therefore, the CITV pays the most dividends in a defensive or counter-recon scenario. Again, there is no

advantage offensively that I can see going to a three-tank platoon.

Finally, we've already begun to eliminate 14 tanks, 14 Bradleys and 2 M1064 mortar carriers from every heavy battalion and the challenges to the task force commanders and their staffs trying to develop new tactics, techniques, and procedures is already producing wild new concepts. The four-tank platoon works, the wingman concept works, and if a platoon leader can't handle four tanks, how will he handle 14 as a captain?

CPT MIKE HENDERSON  
CMTC

### An Infantryman Speaks Out On the Challenges of His Branch

Dear Sir:

My reply concerns one of the letters to the editor in the May-June 2001 *ARMOR* magazine, "No Badges Needed for Esprit: Armor-Cav Is Elite Enough," a letter from CPT Robert Ricks. I offer the following response.

While I certainly agree in principle to some of CPT Ricks' letter to the editor concerning the [proposed] Expert Armor Badge/Combat Armor Badge (EAB/CAB), I take issue with several portions of his thought process.

First, his statement that, "There is no glamour or élan inherent in the world's oldest branch of arms." Maybe in his opinion. However, I did not become an infantryman for the "glamour or élan." I joined it for the tough, realistic, soldier-oriented roles and challenges it offered me as a leader, and the opportunity to tackle one of the toughest, most undesired and unglamorous, yet critical, roles on the battlefield — that of the combat infantryman. We do what others could not accomplish, or would not dare to attempt. CPT Ricks' premise that Cav has the "toughest mission" in the Army is from his perspective. I know a lot of infantrymen who would beg to differ. Our roles are complementary. Each has its "tough" portions.

Second, don't equate the cost of equipping, maintaining, and/or sustaining with the quality of a soldier or unit. While historically this may have been the case, just because you "cost" more does not make you "better" or create or indicate "élan." A discussion on élan with some 75th Rangers or some old infantrymen from the Big Red One, who fought in every war in the last century, might broaden his horizons and understanding of "élan." Again, we each have our role. Infantry forces are better suited on some terrain, against some enemies, and provide certain capabilities. Likewise, mounted forces. The point is combined arms and a "team" effort, not about "who's better or cooler." (Incidentally, élan has two definitions: 1) enthusiastic liveliness and vigor: ZEST; 2) flair:style. Which part of élan is he equating the Cav with? Some would argue the latter, which does not necessarily equate to combat capabilities.)

Third, his reference to “badge-happy” infantrymen. Most honest to goodness infantrymen I know could give a rat’s butt about badges. It’s about competence AND demonstrated skills. All a badge shows (for the most part) is a demonstrated skill. I’ve known several infantrymen with every badge the Army can bestow who were not worth the price of their AAFES uniform. Additionally, to imply that badges artificially “create élan” is a tremendous leap, and one that demonstrates a lack of understanding of the Infantry ethos.

I applaud his understanding of the Infantry’s “thankless and dirty chore,” but it’s a “chore” that in a lot of cases makes the difference between being decisive or just providing firepower and an ability to maneuver quickly. Some of us may not have chosen to be Infantry, and likely so in his branch. But most choose to be an infantryman, tanker, or cavalryman, and thankfully so.

We all play for the same team. Be careful the slings and arrows you throw around.

DAVID S. POUND  
LTC, IN  
U.S. Army Infantry Center

### Remembering the Black Beret: Time, Honor, and Distinction

Dear Sir:

In late May of 1978, I was allowed to join the ranks of a young volunteer Army. I remember how excited, but scared I was as I rode the bus to the reception station at Fort Knox, Kentucky. I remember, as I got off the bus, seeing the old two-story wooden barracks, the sounds of drill sergeants sounding off commands, and two distinctive items of headgear, the drill sergeants’ hats and the armor headgear, a black beret with the silver ornamentation of the WWI tank. I remember my dreams of seeing myself as a member of one of the elite units of the U.S. Army, the United States Armored Corps. Yes, we were once thought of as elite also. I wanted so much to earn the honor of being able to wear my black beret with my khaki uniform...

In September of that year, I graduated OSUT and was allowed to purchase and wear the black beret, as did my armored brethren. Yes, I had to purchase it then, but I was no less proud of it than the Rangers are of theirs. My beret symbolized and acknowledged that I was part of one of the most elite military corps in all the world’s armies, a tanker. Today, in almost all the armor units in the world, you will find them in black berets, as we too once had. I was so proud of that beret and all I had accomplished to earn the right to wear it. No, I did not have to go to an extra course to get it, nor did I have to train to a different standard, but I did have to meet and exceed the standard set before me.

The following year, the U.S. Army decided that we must give up our berets and that only the Rangers could have this coveted head-

gear. We were now separated from our armored brothers in the other armored corps around the world. Now this may not mean a lot to young armor soldiers today, but very few of today’s soldiers were in the Army when tankers were allowed to wear this special headgear. [Instead of berets,] we were ordered to wear the old baseball caps. We did not agree, nor like being told we could no longer wear our berets, but because of the true professionalism of armored soldiers, we quietly folded our berets, never to be worn again. We did as all good soldiers do: we followed the orders of our superiors without dispute. I’m not saying that we agreed — at least, I did not — but as a soldier, I obeyed.

Now, 22 years later, on the day that I will leave the service, June 14th, this old first sergeant can once again remove my old black beret and wear it one more time with honor and distinction. I can leave as I had come. With this, I thank the Chief of Staff for his decision.

I would like to commend and salute the professionalism of all the Rangers who are quietly following and obeying the orders of the Chief of Staff. Even though you have a right to be disappointed, your professionalism and dedication to perfection makes you the *ELITE* soldiers that you are. You will wear the tan beret with honor, as you did the black beret, because you are true professionals. As a first sergeant and a soldier for 23 years, I salute you and thank you, the Rangers, for your devotion and commitment to excellence.

To all the others making statements openly disrespecting other soldiers, statements such as, “They just barely meet the standard or just meet the minimum standard,” I say you truly dishonor your corps. You are displaying your lack of true professionalism by your whining, complaining, and unprofessional attitude. I further would like to say that if you honestly believe that the black beret is what makes you special, then you have missed the mark about what makes Rangers special. A true professional will understand what I am saying.

To the Rangers who are crying and disrespecting fellow soldiers with your statements about how much more above the standard they are, I give you this challenge: Come to my range here at Fort Hood, climb down inside one of my M1A2 (SEP) tanks with minimal training and shoot 1000 points out of 1000. Yes, we all understand that you are good at what you are trained to do, but we are good at what we are trained to do also. Yes, I understand that you may think you are better than the rest of us lowly MOSs and you may not have a need for us, but you may someday find you will need the pilots and crew chiefs of the helicopters you use, or the medics and doctors that treat your wounds, or the artillery that gives you fire support, or the signal corps that give you your much needed communications that allow you to call for evacuation or fire support, and yes, even the armored forces that

will move in to assist you when your backs are to the wall. Yes, you had better hope that we, the other soldiers, meet and exceed the standards, just as you do.

I have been hearing how the black beret is the uniform item that shows your distinction above others, but you’re wrong. You have a distinctive item, which I do not. You wear it on all your uniforms. It’s called a tab, a Ranger tab. All Special Forces type units have a distinctive tab which designate them as being special and elite.

In closing, I would like to say thank you for allowing me to wear my black beret one last time and that all soldiers are elite in their own right. I say to all soldiers, wear the black beret with pride and distinction, for it has a long, time-honored history and many great soldiers have worn it.

1SG BOBBY D. JONES  
Company A, 1st Battalion, 67th Armor  
Fort Hood, Texas

### An Observation from Kuwait: All Soldiers Are the Same

Dear Sir:

“All soldiers are not the same.” For years I have been told this, and up to now, I believed it. I work as the Master Gunner/Brigade Advisor for the Kuwait Land Forces 35th Armored Brigade, “The Martyrs,” which includes the 7th Armor Battalion (K-SA M1A2). The 7th had recently completed crew-level qualification gunnery and I was fortunate to have been invited to attend their post-gunnery award ceremony.

When I arrived, the troops were just starting to form up. As they moved into formation, the statement that “all soldiers are not the same,” came in to my mind, so I took the opportunity to observe them in order to see what made them so different from American soldiers.

As I watched, I noticed the Kuwaiti privates laughing and joking with each other, the Kuwaiti sergeants alternately barking orders at the privates and talking amongst themselves about the tank tables they had just finished firing. The officers walking around were loudly boasting about their own shooting prowess, and who had the best platoon. The longer I watched, the more they sounded exactly like American soldiers. Soon, I began to see the faces of my old company members in the formation. I flashed back to my last unit, A Company, 3-69 Armor, and could see all of my old soldiers doing the very same things before our own post-gunnery award ceremonies.

As the ceremony started and the awards were handed out, the reactions of the Kuwaiti soldiers convinced me more and more that this could easily be an American ceremony. The shouts and applause from the formation, the reactions of the individual soldiers when they received an award, and

the emotions of the 1st Company soldiers when they captured the high tank award were the same emotions that my company had displayed when we took the high tank trophy.

I watched as the 2d Company commander accepted the high tank company trophy from the battalion commander and then walked over to his company and presented it to the youngest private. The company as a mass then lifted the private on their shoulders and carried him around the formation as if he were the winning quarterback at the Super Bowl.

I was completely taken aback: the actions of the Kuwait soldiers were definitely not what I had been told to expect. I was most certainly stunned to see the same reactions that I know so well displayed by a foreign army several thousands of miles away from the army that I call my home. So the next time that someone tells you "all soldiers are not the same," particularly when referring to another country's army, that person is only seeing the equipment, and not the people.

SFC BILLY W. SMITH  
U.S. Army

### Has the Tank Finally Reached The End of a Historical Cycle?

Dear Sir:

*ARMOR* is one of the best military journals I receive. Your thoughtful articles and excellent graphics are a winning combination.

I am particularly enjoying the intelligent debate between proponents of heavy armor vs. light. The contest may be moot, however, in that the day of the tank in any form may soon be over. We're all aware that a weapon system grows in size and strength (and expense) until it is outmoded by something small, light, cheap, and entirely new. One example: fortifications start out as a wooden palisade on a hilltop and progress to a massive stone castle taking millions of dollars and twenty years to build. Eventually, the castle is rendered useless by the new, small, and relatively inexpensive cannon. Another: warships grow from Henry VIII's *Mary Rose* to fleets of huge steel battleships, the construction of which nearly bankrupt many nations in the 20th century. The battleship is then made obsolete by aircraft.

Does the 70-ton, multi-million dollar Abrams represent the apogee of the historic cycle for tanks? If so, what novelty will bring on its obsolescence? I don't know — I'm an historian, not an inventor — but perhaps the new weapon will be a handheld laser projector carried in every infantryman's haversack, or something similar. Whatever it may be, now would appear to be the time for the armor branch to start thinking small — thinking outside the tank, so to speak.

The business schools like to teach that the railroads went out of business because their

management thought they were in the railroad business when actually they were in the transportation business. Likewise, the armor branch is in the tank-busting business, not the tank business.

HARRY ROACH  
ex-Captain, USAR

### Changes in Washington Unlikely to Bring Relief

Dear Sir:

The latest news of DOD cuts (*Washington Post*) indicates that the Bush Administration plans to take a big swipe at the Army's force structure. *ARMOR* readers with good memories may remember how many articles have been published (for years!) in *ARMOR* saying that the Army needed to 'lighten up' or be made irrelevant to future warfare.

The heavy force's heavy hitters were triumphant in keeping the heavy tanks, and in killing the M8 Armored Gun System, among other victories (Yes, I know there's more than one set of fingerprints on that knife.) Several authors said that the Armor force was getting smaller and would put itself out of business.

There is another old saying: "Be careful of what you wish for — you may get it."

Most of the military wished to see a Republican Administration, and the heavy force guys wished to be rid of the M8. The victory party can soon be held in a telephone booth — that's all the space needed.

DON LOUGHLIN  
Lynden, Wash.

### Historian Seeks Veterans' Accounts of Operation COBRA

Dear Sir:

I am looking for eyewitnesses of all ranks (but the lower the better) who were in the various stages of *Operation COBRA*, including the weeks before U.S. troops were trying to drive through the Bocage to reach a good start line for *COBRA*.

DR. KEN TOUT  
136 Church End Lane  
Runwell, Wickford  
Essex, SS11 7DP  
England  
Email: KTout45678@aol.com

### Author Seeks Accounts From Siegfried Line Vets

Dear Sir:

I am currently writing a book on the Siegfried Line, which is due to be published in March 2002... I would like to contact any-

body who was involved in the fighting for the Siegfried Line.

MR. N. SHORT  
12 Helston Road  
Nailsea,  
Bristol, BS48 2UA  
England  
Email: neil.short@talk21.com

### Further Reading Suggestions On Armored Train History

Dear Sir:

The May-Jun 2001 article, "Forging the Red Thunderbolt," about Russian armored trains, was an interesting introduction. If anyone is interested in the subject, I suggest three books published by Schiffer Books:

*Armored Trains of the Soviet Union 1917-1945* by Wilfried Kopenhagen, ISBN: 0887409172

*German Armored Trains of World War II Vol. 1 and Vol. 2* by Wolfgang Sawodny, ISBN: 0887401988 and 0887402887, respectively.

CHESTER A. KOJRO  
LTC, AR, USAR (Ret.)

### A Reader Wonders: Where Did All the Horses Go?

Dear Sir:

I came across some figures indicating that the U.S. Army had more than 12 million horses and 4½ million mules at the beginning of World War II (*U.S. Army Handbook 1939-1945* by George Forty, Barnes & Noble Books, 1998). And I have read elsewhere that the Army had its own stud farms and that many Army horses were used by the Coast Guard for coastal security patrols during World War II.

Apart from the 26th Philippine Scouts' use of horses in combat, some provisional local horse recon units, and pack animals, the Army didn't use horses in combat. My question is: What happened to all the horses, stud farms, and saddles/bridles/harnesses?

I've been a member of the Armor Association since 1970, but don't recall any articles on the subject. Might make an interesting historical article.

GORDON J. DOUGLAS JR.  
Fullerton, Calif.

### 1/77th Armor to Hold Reunion

The 1/77th Armor is having their second annual reunion in Louisville, Ky., July 11-15. For more details, contact Bruce Goldsmith at [bjgold2@juno.com](mailto:bjgold2@juno.com) or phone (636) 282-3302.

## The Demise of the Tank: Another Analysis

**The Tank Debate** by John Stone, Harwood Academic Publishers, Amsterdam, 2000, 201 pages, \$50.00.

John Stone, a British academician, has produced a thoughtful and balanced book on the future of the tank. Keeping in mind that prognosticating the future of armored warfare has been something of a cottage industry among British military intellectuals since 1919, this particular volume should have a longer shelf life than most, because Mr. Stone has grounded his analysis firmly on the history of the tank and the endless debate about its battlefield utility.

Mr. Stone's conclusion is that the modern battle tank — as represented by the Abrams and the Challenger — has reached an evolutionary dead-end. Not because of technology, mind you, or any future antitank 'silver bullet' that may come along, but because they are unfit for the new environment of information-based maneuver warfare. The heavy tank, in short, is akin to the dinosaur: invulnerable, but unable to survive when the swamps dried up and the weather turned cold.

The author is almost apologetic for reaching this conclusion, as he spends much of the book in explaining why past prophets of doom were proved wrong, but his logic is compelling and refreshingly original. He begins by tracing the development of Anglo-American military thought (the weakest part of the book — as if there were such a thing in the first place), but moves quickly to following the inter-relationships between battlefield performance, doctrine, and tank development as they develop across the years. He illustrates that the three have rarely been synchronized, providing ready ammunition for short-sighted critics, but western militaries have generally done an excellent job of bringing the three back into balance when one component has lagged behind the others. This has maintained the utility of the tank through Desert Storm.

He parallels this theme by following the technical race between armor and bullet (whether kinetic or chemical), showing that every advance in killing power was quickly matched by improvements in protection. He also points out that the tank has been made considerably more efficient over the years. In constant dollars, the Abrams is only twice as expensive as the Sherman, while its killing power and survivability have expanded exponentially. It is, however, twice as heavy and far more constrained by terrain trafficability.

In his concluding chapters, Mr. Stone brings together these historical and technical threads. He dismisses the argument that modern battle tanks are too expensive or

vulnerable to new weapons. Top attack and precision guided munitions are troublesome, but he is confident that countermeasures can and will be found to reduce their effectiveness. However, Abrams and Challenger are products of development processes aimed at producing centerpieces for attrition warfare on the North German Plain. Changes in doctrine, beginning with AirLand Battle and continuing through present day theories of information warfare, have renewed emphasis on operational mobility. Both tanks are too heavy and require far too long a logistical tail to fulfill a meaningful role in maneuver-based warfare. Unfortunately, it is not possible to simply lighten them in any meaningful way without destroying their effectiveness. Thus, the balance between development, performance, and doctrine is irrevocably overthrown. In other words, tanks remain kings of the battlefield — they just can't get to the next one in time. While Mr. Stone foresees an eventual 'tank-like platform' entering service, he concludes that the conventionally configured tank has outlived its usefulness.

Agree or disagree with Mr. Stone (and I have my doubts; maneuver warfare is a fine concept, but evenly matched opponents invariably end up in a slugging match), he has written a fine book which both sides can draw upon for material to fuel the never-ending tank debate.

STEVE EDEN  
LTC, Armor  
Fort Knox, Ky.

**Following the Tanks — Cambrai 20th November-7th December 1917** by Jean-Luc Gibot and Philippe Gorczynski. English translation by Wendy McAdam. Privately published by Philippe Gorczynski, Béatus Hotel, 59400 Cambrai, France, 1999, large format hardback, 192 pages, fully illustrated, including loose map. ISBN 2-9511696-1-2, UK price £29.95. The book is also available through Naval and Military Press, [www.naval-military-press.co.uk](http://www.naval-military-press.co.uk) for \$53.00.

The Battle of Cambrai gave tanks their first chance to operate on solid ground in the forefront of an attack. While the battle has been the subject of several books, these tend to cover the broader picture of the battle with the role of tanks included as part of the whole. The approach here is very different, as the actions of each tank are traced from original reports and accounts of those who manned them. Weaving all sources together allows this important battle to be described from the all-important point of view of the tanks. There is more than ample detail on the other arms involved, including numbers and type of guns used, support, Royal Flying

Corps squadrons overhead, and detailed orders of battle of all the divisions involved, but the tanks' part has pride of place. The text follows, as far as remaining sources allow, the actions of each individual tank during those fateful days. The location of each is recorded using a facsimile of the original operations map, suitable sections of which appear alongside the account of each section of the battle. As a bonus, these are combined as a loose map as well. Each tank is listed, noting its identification number, nickname, and commander's name. The accounts are illustrated using original photos, while contemporary color images show the ground as it appears now. This combination of accounts, photos, and maps, together with a brief suggested itinerary, make a tour of the battlefield an easy matter. Just as important are appendices which list awards made to those who took part, tank losses and, more poignantly, the locations of the graves of those who gave their lives.

This book, the culmination of many years of research, shows great attention to detail and betrays a love of subject which can only come from true enthusiasm. Not only have both authors searched records and archives, they have actually searched the battlefield to locate the remains of several of the tanks lost. As a result, it was possible to actually recover one of them! D51 DEBORAH came back to the surface in November 1998 and will be the focus of a memorial to the action and those who fought in it.

Proceeds from this book will help preserve a truly unique piece of history which is well recorded here in print.

PETER BROWN  
Dorset, England

**The Delafield Commission and the American Military Profession** by Matthew Moten. Texas A&M University Press, College Station, Texas, 2000; 269 pages, \$47.95, hardcover, ISBN 0-89096-925-6.

With the characteristic academic detail of a doctoral dissertation, Matthew Moten's new book is a comprehensive study of the early development of the American Army's military professionalism, with particular emphasis on the contribution of the little-known, but influential Delafield Commission in 1855. This book is a recent addition to the Texas A&M Military History Series.

Moten is a lieutenant colonel in the U.S. Army, and is a graduate and former history instructor at West Point. His book is really the combination of two academic requirements. His analysis of the Delafield Commission appears to be his master's degree thesis, with the additional wrap-around hun-

dred-page study of West Point and antebellum military thought comprising his doctoral dissertation. The combined result is a thorough presentation of the early development of American military thought (1815-1860), which profoundly influenced the military culture and society in the Civil War.

Half of this book tells the history of the U.S. Military Academy at West Point and how it contributed to professional military development as primarily a school of military engineering. Moten discusses the early philosophical rivalry between Alexander Hamilton and Thomas Jefferson over the role of a professional, standing army, as well as the controversial influences of militarism, elitism, and Federalism.

Best are Moten's excellent portrayals of legendary West Point figures like Sylvanus Thayer and Dennis Hart Mahan, men who devoted their lives to the ideals of professional military education. West Point may have been the mecca of military education in the first half of the 19th century, but it also fostered a restrictive culture of branch parochialism and a stifling "system and habit of thought."

While Moten lays out the background of military thought well enough, it is his portrayal of the Delafield Commission that is the real value in this study. By 1855, Secretary of War Jefferson Davis, himself a West Point graduate, recognized the need for reform and an infusion of new ideas in the U.S. Army.

He ordered a trio of regular army officers, headed by Major Richard Delafield, to travel to the Crimea to observe the European-style war being fought by the British, French, and Turks against the Russians. The commission was also to travel in Europe, visiting England, France, Prussia, Russia, and Austria, to learn of European military organization and innovation.

Delafield was to study fortifications and engineering. Major Alfred Mordecai was to study artillery and ordnance, and Captain George B. McClellan (yes, that's the one, of Civil War infamy), was to study cavalry. These three men did not get along all that well, but they were professionals and dedicated to the heavy responsibility of this diplomatic and military mission.

The commission's year-long, 20,000-mile journey was only a partial success, due to their own dithering, political delays, and travel problems. Moten's presentation, however, is both entertaining and instructive, as he describes the commission's observations, misconceptions, complaints, praises, and conclusions. Interestingly enough, he analyzes their reports both for what they did write and for what they did not include.

The Delafield Commission achieved most of what Secretary Davis intended, but because of West Point's institutional "system and habit of thought," they missed the most important opportunities. The reports became

doctrinal texts, but, as Moten points out, they lavished misguided praise on the Russian army, proscribing it as the new model for the U.S. Army to follow (despite the fact it was soundly defeated by the allies and desperately needed reform itself). They focused on tactics, not strategy, on weapons, not warfare, and on technical detail, not concepts.

This is an important work on the history of West Point, the U.S. Army, and the development of the American military profession. The Delafield Commission was a fascinating journey of discovery and misdirected intellectual thought, and it had a profound influence on the United States as it prepared itself for civil war.

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**Dear General: Eisenhower's Wartime Letters to Marshall** by Joseph P. Hobbs, Second Edition, Johns Hopkins Press, Baltimore, 1999, 272 pages, \$16.95.

Undoubtedly, the U.S. Army has produced some of the finest generals in the military history of the United States, and possibly the world. Among that distinguished list, two names undoubtedly can be found at the very top — Generals George C. Marshall and Dwight D. Eisenhower. Joseph P. Hobbs' *Dear General: Eisenhower's Wartime Letters to Marshall* is an intimate portrait of these two military leaders whose combined talents led Allied armies to victory over Nazi Germany beginning in North Africa (1942), in Italy (1943), and finally in the Northwestern European Theater of Operations, starting in 1944 up through the end of that titanic struggle in May of 1945. Hobbs examines both men's contribution to victory over the Axis forces through their wartime correspondence that began in June 1942 and lasted up through V-E day in Europe on 8 May 1945. Throughout the letters Eisenhower wrote to General Marshall, one can sense not only the frustrations and many headaches associated with command of all American forces in Europe but the respect that he had for the latter's judgment and guidance in dealing with the multitude of problems in fighting a coalition war, and in dealing with subordinates (i.e., General George S. Patton, Jr.) and our British allies (Field Marshal Sir Bernard L. Montgomery, among others) who oftentimes would've rather preferred to fight each other than the Germans.

Prior to his description of the wartime correspondence between the two men, the author provides the reader with a brief, though concise, biographical sketch of both Generals Marshall and Eisenhower to illustrate the different career "paths" both men followed prior to their wartime relationship. General Eisenhower, a Kansan who graduated from West Point (1915), and General Marshall, from the Virginia Military Institute (1901), came from entirely different backgrounds, but each possessed strengths that

in the years ahead would bring both of them together into what can be described as one of the most remarkable command relationships in the history of the U.S. Armed Forces.

While General Marshall came from an infantry background, and Eisenhower was one of the earliest armor proponents, destiny and history propelled both men's careers inexplicably toward the relationship that developed during World War II. Yet what is even more important is the fact that the World War (1917-18), and all of its technological and operational innovations had greatly affected both Eisenhower's and Marshall's careers — particularly that of the former who, in his assignment to the Tank Infantry School at Fort Meade, and later at Camp Colt, Gettysburg, Pa., under Brigadier General Samuel D. Rockenbach, had the responsibility of training new volunteers to the Tank Corps and had come to the attention of his superiors as an outstanding young officer. It seemed that even at Camp Colt history itself had destined Eisenhower to one day command a large body of soldiers as he rose quickly during the wartime expansion to the temporary rank of lieutenant colonel to lead an estimated 10,000 soldiers by war's end in 1918.

General Marshall's career was just as meteoric, rising to become General John J. Pershing's Chief of Staff in France during the World War, and the man responsible for the first American offensive at war's end in the Meuse-Argonne. Indeed, the World War served not only to train the generation of officers that won the first major conflict of the United States in the twentieth century but also the same generation that would lead the U.S. Army to victory over both Germany and Japan in 1945. It was not until the mid-1920s, though, that Eisenhower and Marshall met, when the former had been appointed to the Battlefield Monuments Commission in Washington, D.C. After a series of staff assignments in Washington and in the Philippines, Eisenhower had seemed to reach the pinnacle of his career. Marshall, meanwhile, had gone on to make a name for himself at Fort Benning, where he implemented what became known in time as the Fort Benning or *Marshall Method* of thinking, whereby Army (and Marine) officers had been trained to "think outside the box" of conventional military operational art. It was while teaching at Fort Benning that Lieutenant Colonel Marshall noted the young officers that he deemed the future leaders of the U.S. Army in any future war.

By July 1939, Marshall had become Chief of Staff, and with war clouds gathering in Europe it became his task to begin the slow but steady task of rebuilding the U.S. Army that had slipped from the top ten at the end of the World War to that of seventeenth. In fact, by the eve of the U.S. entrance into World War II in December 1941, General Marshall had become once again acquainted with then-Colonel Dwight D. Eisenhower,

who at the time had served as Major General Walter Krueger's Chief of Staff during the all-important Louisiana Maneuvers of 1940. Marshall's ever-increasing respect for Eisenhower, coupled with his abilities as a planner (on General MacArthur's staff), sent Brigadier General Eisenhower to head the Operations Division in the War Department in December 1941, and later onto England where the latter went on to command all U.S. forces in the European Theater of Operations.

One of the most important themes stressed throughout *Dear General* is the close working relationship that developed between Generals Marshall and Eisenhower, one that was built on both loyalty and trust. Throughout the different phases of the war, starting with both the initial build-up of U.S. forces in England (Bolero) in 1942-3, and eventually "Round Up," which culminated in the Normandy landings on 6 June 1944, General Eisenhower's letter to Marshall reflected the frustrations and problems in waging war over a broad front, and with subordinates and allies who proved to be even more troublesome at times than the Germans themselves. Of particular interest here is the relationship between Eisenhower, Patton, and Montgomery, and of the problems and difficulties in waging a major war with allies who differed on strategy and even tactics as they both set out to defeat the same adversary. One can see that General Marshall trusted Eisenhower's judgment on all matters so much that he gave the latter much latitude in dealing with these and other problems as the time drew near for the Normandy landings in June of 1944. Indeed, it was Marshall's trust in his subordinate that allowed Eisenhower to deal with many of the problems of command, particularly over logistics, shipping, and over command in the different theaters.

What makes this book perhaps one of the best volumes on the problems of command during World War II is the fact that it reveals Eisenhower's oftentimes stormy relationship with the British and the differing approaches to taking the fight to the Germans on the continent. Whereas the Americans preferred the direct approach via a landing in France in 1942 or 1943, the British, under the leadership of Prime Minister Churchill, favored the all too familiar indirect approach along Nazi Germany's periphery. In the end, it was the former view that ultimately defeated German military power on the continent. Though as Hobbs points out, it was Eisenhower, ever the politician, who was able to persuade, cajole, and sometimes threaten the British, who seemed determined at times to push their own politico-military strategy at the expense of their American allies. Only with General Marshall's firm support of General Eisenhower were the British, most notably Field Marshal Montgomery, forced to cooperate within an Allied strategy. This was most evident during the German Ardennes offensive (16 December 1944 - January 1945), when Montgomery sought to claim credit for a victory that even Prime Minister

Churchill squarely credited to the tenacity and skill of the American soldier.

*Dear General* is an excellent book, though at times one wishes that the author could've included a few maps to illustrate the theater of operations under discussion and the plans that Eisenhower had been sent to Europe to implement. Nonetheless, Hobbs' includes Eisenhower's many thoughts on armored warfare, which one might add are excellent and thought-provoking, particularly in his comparison of U.S. and German tanks, as well as his thoughts on conducting amphibious training and operations, and in handling personnel — from privates up through general officers (i.e., Patton, Bradley, Hodges, etc.).

This is a book that has an appeal to every interest. While it remains a story of two of the greatest soldiers ever to wear U.S. Army khaki, it is a book about waging and fighting war on all levels, with the greater emphasis on how that war was fought on the highest echelons of command, as well as how those decisions affected the individual tanker, rifleman, and logistician. It is a book that offers many lessons on combined and joint warfare through his use of Eisenhower's letters to Marshall on tactical and operational planning and warfighting, something biographies oftentimes miss or purposely ignore. Soldiers and military historians alike need to read and reread this book, for it demonstrates that the waging of war is more about personalities rather than abstract political ideas.

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**Duty First: West Point and the Making of American Leaders** by Ed Ruggero, Harper Collins Publishers, New York, New York, 2001, 342 pages, \$27.50.

What is the leader development program for cadets at the United States Military Academy at West Point? Ed Ruggero, a former infantry officer and a graduate of West Point's Class of 1980, attempts to explain it in this very readable book. Ruggero's work is the latest of a vast amount of literature about West Point over the years. This book distances itself from others about West Point because it offers a current look at the Academy's leadership training as the U.S. Army makes its transition into the next century.

West Point's administration allowed Ruggero unfettered access to cadets and faculty members for an entire year. Ruggero elected to follow the lives of several plebes, and the upperclassmen that train them, from the first day of Cadet Basic Training until the graduation ceremony the following spring. He brings up some contentious issues with respect to the changes in the Academy's leadership development program and its honor code in the past decade. Without drawing any con-

clusions, Ruggero presents multiple viewpoints on these issues from both cadets and faculty members alike. Perhaps the most disconcerting thing about this book is the lack of commitment and apathy expressed by many of the cadets Ruggero interviews. Nevertheless, Ruggero also portrays other cadets and most faculty members very favorably with respect to their leadership and commitment to the U.S. Army. In the aggregate, one should still come away impressed with the leadership development experience cadets undergo at West Point after reading *Duty First*.

For the civilian interested in learning more about West Point, this work offers a vivid, non-biased account of the daily lives and attitudes of today's cadets. I would recommend *Duty First* to anyone considering attending West Point because of its rich depiction of cadet life. All readers will gain an appreciation of the first summer of military training and the cadets' numerous activities, as well as an understanding of the leadership development program the cadets experience. This book, however, has only limited value to soldiers desiring to gain greater insight into military leadership. Ruggero has demonstrated that he can point out leadership lessons in his narratives of the cadets' experiences, but his lessons are not new for most soldiers.

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**In Rommel's Backyard: A Memoir of The Long Range Desert Group** by Alastair Timpson with Andrew Gibson-Watt, Leo Cooper, South Yorkshire, England, 2000, 182 pages, \$36.95.

In June 1940, the Western Desert Force formed the Long Range Desert Group (LRDG) in North Africa. For the next three years, the men of the small LRDG kept watch over Axis movements, harassed enemy convoys and supply points, and escorted numerous parties of Special Air Service (SAS) commandos to and from their targets. *In Rommel's Backyard* chronicles the exploits of one of those selected members of the LRDG, Alastair Timpson and his small group of desert warriors.

*In Rommel's Backyard* is a memoir of Timpson's exploits in the desert. He kept a detailed journal of his operations, and like many members of his generation who fought in World War II, resisted publishing them until well after the war. The editor, Andrew Gibson-Watt, does a creditable job of organizing the book and putting the operations of G Patrol into the context of the entire war in the desert as a whole. Those who have served in the desert environment of Southwest Asia and the desert of the National Training Center will empathize with Timpson and his men as they navigate the sand seas,

rocky slopes, and generally inhospitable North African desert.

The Long Range Desert Group was small, with a group headquarters, and five separate patrols of 36 men each, that normally operated in two groups. Each half of a patrol comprised four 1.5-ton Chevrolet or Ford trucks, one jeep and 18 men. Then-Captain Timpson began his duty with "G" or Guards Patrol in September 1941, serving until January 1943 when he returned to his regiment, the Scots Guards.

The soldiers of G Patrol are volunteers from the 3d Battalion Coldstream Guards and 2d Battalion Scots Guards. All the men of the patrol get their experience on the job, learning from the veteran members how to navigate by sun compass, drive across sand dunes, and avoid detection by the enemy. Timpson details clearly the training and operations of his patrol. The bulk of the narrative concerns the relentless monotony of the desert, interspersed with incredible moments of sheer terror as German and Italian aircraft strafe and harass their tiny columns; the weeks of "road watch," lying only 300 meters from the enemy's main supply routes, observing and carefully recording every Axis vehicle and cargo traveling to and from the front; the occasional attempt to attack the soft rear of the Axis supply lines; and the inevitable, yet unwelcome, reality of the death of members of the patrol.

In Timpson's private arena of war there are many moments of incredible bravery, daring escapes, and astonishing luck. One such incident is of particular note, as it epitomizes the bravery, daring, and ingenuity displayed by the LRDG patrols. With the 8th Army defending along the Gazala Line in May of 1942, Timpson's patrol was given the mission of interrupting enemy maintenance traffic along the road from Tripoli to Benghazi. As the patrol approached the road through a wadi at dusk, they noticed a large pile of stones on the side of the road, left there for repair work. Timpson formulated a simple plan: push the rocks out onto the road and create a temporary detour that looked authentic, slowing enemy traffic long enough for his patrol to place timed satchel charges in the back of each truck. The Italian drivers, however, did not cooperate, driving quickly around the "detour" before Timpson or his men could climb out of the ditch alongside the road! After several frustrating attempts at this game, Timpson brought his own truck up to the road, placed a soldier on the hood with a satchel charge, and chased enemy trucks down the road. Driving at high speed without lights, Timpson would close on the speeding Italian truck as the soldier on the hood lofted the bomb into the back. The technique worked several times, but Timpson would never know the effects of his night's work, as the patrol was discovered and chased away the next morning. It was a small incident, in a very big war, by a small group of dedicated men.

After reading the overviews of the war in North Africa, with their large-scale maps and arrows showing the movements of divisions and corps, take the time to read *In Rommel's Backyard*, and discover the incredible efforts, sacrifices, and accomplishments of a company grade officer and his 35 men, and their small but important contribution to victory in World War II. There was no micromanagement here, only the daily enervating tasks of command and decision by a young captain and his soldiers in the unforgiving desert wastes of North Africa. *In Rommel's Backyard* is the timeless story of a soldier and his part as one of the world's "Greatest Generation."

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**Minuteman: The Military Career of General Robert S. Beightler** by John Kennedy Ohl, Lynne Rienner Publishers, 2000, 291 pages, bibliography, extensive notes and index, \$59.95.

In his preface, Professor Ohl notes that the history of the U.S. Army "is the history of two armies. One is the regular army consisting of professional, or career, soldiers. The other is the citizen army consisting of various components, including militiamen, volunteers, National Guardsmen, draftees, and reservists who serve on a temporary basis in times of emergency." In a similar fashion, this book is two stories: one, the story of Robert Beightler who enlisted in the Ohio National Guard, served in World War I, rose to become a major general and commanded the 37th Infantry Division, Ohio National Guard, throughout World War II. The other is an essay that runs through the book on how Regular Army officers habitually viewed National Guardsmen as substandard soldiers and their officers as political hacks whose competence was mediocre at best. This theme is so persistent it detracts from the rest of the book, yet the primary source was Beightler himself in his letters to his family and friends!

Beightler was not just another National Guard officer. He was committed to the concept of the Guard, but he recognized that most Guard units and officers fell far short of Regular Army standards. An intelligent, ambitious and energetic man, he determined to win the approval of his RA peers and superiors. He trained his own troops to very high standards. He committed himself to the RA career pattern by winning appointments to both the Command and Staff College and the Army War College special sessions. He served on the General Staff so successfully that his six-month detail was extended to four years. When General Marshall weeded out all the old and physically unfit Guard officers in anticipation of combat, Beightler was the obvious choice to command the 37th Division.

He trained his division hard; took them to the South Pacific, to New Georgia, Bougainville and Luzon; was a visible, up-front leader who protected his troops' lives by heavy artillery preparations; and made his Guard division one of the best and most respected units in the Pacific.

But through it all, he struggled for professional recognition for himself and his division from the Regular Army generals, and he was constantly sensitive to the hostility and condescension accorded Guard officers. Yet he tended to blow every perceived slight out of proportion: if he didn't get his wishes met, he believed it was only because he was a Guard general, even though other factors may have dictated differently. A case in point: General MacArthur wanted desperately to free Manila early, but the Sixth Army Commander, General Walter Krueger, tended to move more slowly. So MacArthur visited both the 37th Division and the 1st Cavalry Division and encouraged their commanders to race to Manila and win historic acclaim. The 37th had been fighting in Luzon for months; the 1st Cavalry was newly arrived, was mechanized and enjoyed better terrain. The Cavalry arrived in Manila at 1900, February 3 and the 37th twelve hours later. Yet Beightler was convinced for the rest of his life that obstacles had been put in his way deliberately so that a Regular Army division would win Manila instead of a Guard unit!

It was true that General Krueger openly scorned senior Guard officers and probably had a hand in denying Beightler a corps command and a third star, even while admitting Beightler was one of his best generals. And it was true that Beightler watched several general officers who had less command time and less combat service receive promotions and higher commands. Disillusioned and embittered, he blamed it all on Regular Army hostility toward the National Guard. Then, after the war, he was one of three generals offered a Regular Army general officer commission by Eisenhower. He accepted, hoping for challenging assignments. Instead, he received lesser assignments, yet continued to win high praise — but no promotion. In 1952, he suffered a heart attack and had to retire.

Reading this book makes you reflect on just how you have looked at National Guard units and their officers. My personal observations have been that they have been very, very good or very bad, with few in between. General Beightler and his troops were definitely in the very good category. This book would be good reading for each of us to alert us to any hidden bias in our own thinking, and it would be especially useful for young National Guard officers to show them that determination, professional standards, and hard work can bring them the rewards of higher command.

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# New TSM–Soldier Office Established at Fort Knox Bolsters Transformation Effort

The Army's Training and Doctrine Command (TRADOC) has recently established, at Fort Knox, the office of TRADOC System Manager–Soldier/Mounted Warfare, which will be responsible for combat vehicle crewmen force modernization requirements. The new Knox team will work together with the Armor Center and the Directorate of Force Development to shape the mounted force transformation.

ATSM–Soldier/Mounted Warrior supports all soldiers who serve as crewmembers on combat vehicle platforms and is at the forefront of determining, articulating, prioritizing, and validating mounted crewman requirements. The Mounted Warrior Soldier System (MWSS) is a “system of systems” approach to equipping the mounted crewman to fight, survive, and win. Soldier systems are analogous to any major platform system consisting of many component parts that must work in harmony to be effective. This concept recognizes the mounted soldier as the key element within the most sophisticated platform system and organizational design.

The system will be used by armor, cavalry, infantry, engineers, artillery, air defense artillery, chemical, military police, and ordnance military occupational specialties. Initially, Mounted Warrior efforts will be focused on the development, testing, and fielding of a cordless communications system and a head-up display. The cordless communication system will solve an age-old problem experienced by crewmembers: losing intercom and radio access when the spaghetti cord inadvertently becomes disconnected from the vehicle's communications system.

This capability will also allow the dismounted crewmember, while at an observation post or conducting other dismounted duties, to transmit and receive within the command and control structure of their platoon/company. Of greater importance, by using the cordless C2 link, the mounted and dismounted soldier will now be fully capable of coordinating the fight while allowing the dismounted soldier to direct fire and maneuver in response to the on-ground situation.

The head-up display will provide the vehicle commander the capability to view platform situational awareness information and command and control the platform during out-of-hatch operations. Platform lethality is increased with the ability to expand situational awareness, to coordinate the fight between mounted and dismounted soldiers, and to extend target acquisition and fire control to the vehicle commander. Mounted Warrior will operate with other soldier systems initiatives and will ensure commonality and interoperability.

The address of this office, ATSM-Soldier/Mounted Warrior, is:

Directorate of Force Development  
ATTN: ATZK-ATS  
Building 1002  
Fort Knox, KY 40121

POC is LTC Iddins (502) 624-3519 or Mr. Larry Hasty (502) 624-3662. The DSN prefix is 464.

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