ARMOR

ARMOR REPORT 1998: Units Face the Dollar Crunch

PB 17-98-6

November-December 1998

An interesting theme runs through many of the articles in this issue. Although we didn't intend it, and the article come from all points of the compass, several stories make the same point: that despite an unfriendly, resource-constrained environment, the heavy force is struggling to find ways to keep itself trained. The struggle is not an Active Component struggle, or a Reserve Component struggle. It is a struggle, branch-wide, to innovate despite dwindling training resources.

Many units face what Jody Harmon symbolized in his cover for this issue — as they attempt to drive on and accomplish the mission, the dollars just are not there anymore.

Complicating the issue is the increased number of missions, many of them decidedly not traditional tanker and cavalry battlefield fare. I won't get into an argument with veterans who remember other busy times in our Army's history. Maybe we are busier than ever; maybe we are not. But everyone should hear a recent personnel statistic that was briefed around here: the only MOSs more frequently deployed than the 19 Series are those in the Special Forces. I submit that is a busy heavy force by any era's standards.

So you are not about to read a whole bunch of reports full of belly-aching and teeth-gnashing over the lack of OPTEMPO, the effects of the current PERSTEMPO, or the dissatisfaction with ammo allocations. You will read a bunch of good news stories.

Propaganda? I hardly think so. You will read how a number of units, all of them peopled by good and patriotic citizens of the Republic, have worked through their own personal frustrations and figured out the best way to get the most from their share of the pie. I take heart in that.

When you hear how the CAARNG figured out how to create a training site from some underutilized resources, and how common sense some of the initiatives were, you will realize that we can maintain some measure of capability to perform our Mission Essential Task Lists despite the stresses we are experiencing. Of course we all know that it is far more preferable to spend time in the dirt moving vehicles, getting POL stains on our uniforms, and sticking our ear plugs in than spending the same amount of time plugging in mice and getting another box of paper for the printer at the Simulation Center. But it's just a fact that opportunities to run things over, tear things up, and launch bullets downrange are fewer than they were a few years ago. The challenge then is how do we do them better and smarter when afforded the chance?

You may very well get some ideas on how to do that in this issue. You might find this issue the springboard for your own initial or further thinking. You might be maddened by this magazine. Whatever your reaction, act on it, so we can get better at what we do despite some of the current obstacles thrown in front of us.

A couple of administrative notes. We now have a file titled *"Writing for ARMOR"* that gives you specifics on how to submit an article to the magazine. You can E-mail us for an electronic version of the guidelines, or use regular mail for a hard copy.

This issue is our second created using Microsoft Word for the layout rather than the desktop publishing software we used for well over ten years. This change was transparent to the readership, but it wasn't without some very real growing pains for us. We felt, however, that the change would better serve those readers who wish to obtain electronic versions of specific articles. Before, that was nearly impossible; now it is a breeze, so ask away if you need.

— TAB

Definition of Irony: The part of the Army that paid the biggest bills during the downsizing, the heavy force, is now the part of the conventional Army called upon to perform its mission most often.

By Order of the Secretary of the Army:

DENNIS J. REIMER
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05169

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LETTERS

The Origin of the ACAV:
It Wasn't Our Idea!

Dear Sir:

I very much enjoyed SFC Thompson's "Light/Heavy Integration at the JRTC" in your July-August 1998 issue. He is, however, slightly confused as to the origin of the Armored Cavalry Assault Vehicle (ACAV). The Viets didn't borrow it from us, we borrowed it from them!

In May 1965, I was briefed in Saigon that my prospective [South Vietnamese] counterpart was a madman using M113s as tanks, and I must persuade him to stop. After joining my squadron and accompanying its deployed troops in the field, I phoned back to report, "You're right. He is using M113s as tanks. What's more, it works! The 113 is the champion VC killer of I Corps. Spread the word."

My Viets were using jerry-rigged gunshields and hatch armor made from whatever scrap metal they could find. I managed to get the Ordnance depot in Saigon to standardize a design and fabricate it in quantity using real armor plate. The result was the ACAV.

U.S. units, beginning with the 1/4 Cav and peaking with the 11th ACR, were quick to adopt the ACAV and use it well throughout the war. I've even seen a few in TV coverage of the Israeli Army.

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Recent Letter on Spur Program
Spurs Objections, Calls for Change

Dear Sir:

I was greatly alarmed and concerned about the article on the Spur Program submitted by ANCOC Class 98-01D in the July-August 1998 issue. The suggested guidelines for tightening qualifications and standardizing the program are extremely one-sided. Although the 11 sergeants first class make valid points about preserving the purpose and intent of the program, they significantly miss the importance of all soldiers to a cavalry organization. Soldiers of varying specialties have contributed immensely to the successes of cavalry organizations throughout history. I would like to take this opportunity to address each of the basic requirements as emphasized in the article.

First, the reservation of "The Order of the Spur" for CMF 19 soldiers only would be unfair and unfortunate. Many soldiers serve cavalry organizations in many capacities to include: fuel handlers, maintenance, medical, chemical, aircraft maintenance, etc. To say that Spur holders should only be those that rode in the horse cavalry would slight those that belonged to cavalry units in the past. Those soldiers that provided medical treatment to our fallen comrades put themselves in the line of fire. What about those that carried the unit colors or took care of the horses? What about the bugler who was there to lead the charge into battle? What about those soldiers who made sure there was plenty of ammunition? There were many contributors to the efforts of our cavalry troopers on horseback. Without the efforts of those behind the scenes and those riding stride for stride with the horse soldiers, the enemy may have been victorious. The Order of the Spur identifies excellence within an organization. Excellence comes in many sizes, sexes, and MOSs, and many of them rode on those cavalry horses. Our organization, which is a part of the 3rd ACR, has no 19Ks or 19Ds. We are the mechanics, medics, chemical specialists, etc., who help make it possible for our regiment to be a viable fighting force.

The next requirement discussed in the article states that, "Holders of the Order of the Spur should be at the rank of corporal or above." That opinion has some merit. Sometimes young soldiers are prematurely given the opportunity to get their spurs. It is often debatable whether or not young soldiers with little time in service are seasoned enough to appreciate the significance of the spur or have shown motivation, technical and tactical competence, leadership, and extraordinary skills over a sustained period of time. Careful evaluation by the chain of command is critical to assessing the talent within organizations. Unit leadership must have the motivation to tell soldiers up front, their strengths and weaknesses. Recommendations for Spur candidates should be based on the overall assessment of the soldier. Sometimes you just can't pin a rank on that. Once a soldier earns his spurs, he is still under constant scrutiny and must maintain the spur standards. If not, then units must disenroll them and take their spurs. Disenrollment due to unsatisfactory performance gives the command a tool for keeping the program a success story.

Regarding the third requirement for Spur Programs for only MTOE and TDA cavalry units, I wholeheartedly agree. There is great tradition associated with cavalry units and troopers. A unit's lineage and history are the stronghold by which they link the past to the present. Tradition in a unit can only make that unit stronger. It definitely builds pride, unity, and esprit de corps. Spurs and cavalry troopers go hand in hand and it should stay that way.

Requiring spur candidates to participate in a major exercise such as NTC, JRTC, or CMTC is a must. In our organization we require that and many more prerequisites. Not only do our support soldiers have to deploy on a major exercise, but they must participate in a squadron FTX, pass the CTT with 100%, complete an SRP and be deployable, qualify with their weapon, pass the APFT at 250 or higher, perform PMCS on all their assigned equipment, and the list goes on. The program is very difficult and leaves little room for exception. Additionally, spur candidates only get an opportunity to earn their spurs twice a year. The bottom line on any Spur Program is that the program is only as good as the soldiers that organize it. If we become complacent and ease the standards, then maybe the best of the best aren't wearing spurs. The challenge is to have a tough, demanding program and keep it that way through all the changes of command and NCO responsibilities. The leadership of each squadron and regiment must pass on the traditions of the spur and keep it vibrant and meaningful. Another requirement for spur candidates should be that spur holders senior to them recommend them for spurs. Additionally, the person recommending the candidate must have knowledge of the soldier's performance.

The last requirement, meeting the prerequisites of the Excellence in Armor (EIA) Program cannot happen with the support MOSs. There are some prerequisites of the EIA program that support soldiers can attain; however, they can never be enrolled in the program. The EIA program is specifically geared toward armor and cavalry soldiers. In the article, the students stated that, "Other CMFs have their own methods for recognizing soldiers of distinction, such as Expert Infantry Badge…." The Armor community's EIA program is a program of distinction. It just doesn't have a patch or badge. EIA soldiers in Armor and Cavalry units should stand tall above the rest. The EIA program is a great example of a program that is only as good as the people and units that run it. Unfortunately, armor and cavalry soldiers only realize the benefit of the program when they're progressing from SGT to SSG, because the EIA program is the only program that awards 50 promotion points for taking and passing a Level II written proficiency test. So the bottom line is yes, cavalry and armor soldiers do have a program specifically geared toward distinction and excellence. Maybe we just need to do a better job of utilizing it at unit level. EIA prerequisites cannot be a standard for the Spur Program, because it would alienate superior performers in other critical MOSs.

Ultimately, the Spur Program must be a program of honor and distinction. Many great soldiers throughout history wore the spurs and represented them well. Many of those soldiers were not of CMF 19 descent. As long as units maintain their focus on the program and treat it with the utmost of tradition and symbolism, we cannot go wrong. If we allow the integrity of the spur to become questionable, then individual units need to reassess their programs. We must remember that the greatness of our units is not measured by the few, but the many that make up the team. Telling cavalry troopers, not from CMF 19, that they cannot participate in the Spur Program would damage the team. We in the cavalry are a family of one, sworn to serve our country to the ultimate levels. The troops and companies that compose the support squadron are ready to fight and win right next to our armor and cavalry brethren.

CSM DAVID A. HARTZELL JR.
SPT/3rd ACR
Ft. Carson, Colo.

More on Maneuver Warfare: Can We Change a Culture?

Dear Sir:

I am writing in response to the critique by SFC Stanchfield in the July-August 1998 issue of MAJ Don Vandergriff's article, "Without the Proper Culture: Why Our Army Cannot Practice Maneuver Warfare," from the January-February 1998 issue.

It is funny that even today, maneuver warfare, as a philosophy of warfare, is a term that still carries a tremendous amount of emotional baggage. Most of this stems from the defense reform debates of the mid-1980s, where a dedicated cadre of civilian defense intellectuals sought to reform our armed forces from the outside and change our way of thinking about warfare. Our Army, being the conservative institution it is, naturally resisted these upstarts, especially their nerve at telling us how to do our business when many of them had never heard a shot fired in anger. Sadly, much of the debate took on the form of personal attacks and left the heart of the issues essentially unexamined. The irony of this is that most organizations are incapable of reforming without significant outside influence, and the Army responded in a predictable manner.

Having said that, MAJ Vandergriff's thesis is quite simple. Assuming you have accepted the notion that the philosophy of maneuver warfare is a superior (faster and less costly) method of winning in war, then we must create a culture that will allow us to practice this. Most historical analysis will support this notion. His assertion, which I support, is that our current culture, which according to the *American Heritage College Dictionary* is "the totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought characteristic of a community or population," must change to practice maneuver warfare. This culture of our Army, not our society as SFC Stanchfield asserts, is embodied in our system of promotion, schooling, assignments, command selection, emphasis on short-term results, micromanagement and zero-defects. These attitudes and mores translate directly into how we lead, train, plan, evaluate training, command, use reconnaissance, use supporting fires and such. This culture dissuades all but the most exceptional leader from developing the boldness, tactical ability, and most importantly trust to properly execute maneuver warfare. We must change our culture, primarily in the officer corps, if we are to stay ahead of a future enemy, especially one who is determined to win and believes as much or more in his cause as we do in ours. Otherwise we are very likely to meet defeat on the battlefield and suffer the same critique of the French Army of 1939, the best army in the world until May 1940, when a more dynamic army swept them to the English Channel in six weeks.

How were the Germans able to defeat the most technologically advanced army of the time while being outnumbered in men and material, save aircraft? Contrary to the Hollywood stereotype of the Prussian automaton or Sergeant Schultz of *Hogan's Heroes*, the Germans simply were able to outthink the enemy due to a military culture that started in the late 18th Century and endured through many forms of government. I encourage those who critique MAJ Vandergriff's article to examine *The Roots of Blitzkrieg* by James Corum, *The Dynamics of Doctrine* by Timothy Lupfer, *Stormtroop Tactics* by Bruce Gudmundsson, and *A Genius For War* by Trevor Dupuy. It was only after 1942 and the strategic blunders over England and in North Africa and Russia did the professionalism and exceptional battlefield performance of the Wehrmacht start to unravel due to extraordinary casualties, especially among its cadre of peacetime trained, long-service professionals. Still, it bears looking at an army that was still able to generate a 5 to 1 casualty ratio against the Russians in April 1945. Can we or should we copy them outright? Of course not. But a high percentage of their practices are worth emulating. We must take advantage of our uniquely American characteristics. And initiative is one of those. However, if we have a culture that rewards the non-risk taker and punishes those bold individuals who seize the initiative and all the risks that go with it, we will lose that ability in our Army. And when the time comes for it, we will not have it in enough of our warrior leaders. I say we have that culture now.

We must restore trust in our officer corps and destroy the cult of micro-management like the scourge it is. These problems are due to a culture that places the individual above the unit and fosters an unhealthy competition among brothers-in-arms for favor, resources, promotion, awards, evaluations, and key jobs.

If we don't, defeat on the field of battle, while not necessarily inevitable (SFC Stanchfield's word, not MAJ Vandergriff's), is highly likely. Especially if the foe is determined to win, has solid technological resources, and masks his weaknesses while attacking ours. Look at how some of our SAMS-trained field grades tried to apply the MDMP in Somalia against an enemy that didn't fight by a doctrinal template. The result was a lot of raids that were busts, or captured UN workers, or led to near-disaster.

CHRISTOPHER M. COGLIANESE
CPT, Infantry
Fort Campbell, Ky.

Role of OH-58D Is Essential In Brigade Reconnaissance Troop

Dear Sir:

In response to the article written by CPT Felty ("The Brigade Reconnaissance Troop," Sep-Oct 98), I was disappointed to see his lack of discussion about the OH-58D. He mentions the use of the helicopter as providing critical information to the brigade, as well as providing overwatch for the scout platoon's movement. Yes, this is true; however, the aircraft does not identify enemy vehicles or targets, this is done by the pilots who crew the aircraft. (This holds true for the ground scouts as well.) Our best asset in the OH-58D is the tactical and technical expertise of the pilots who operate this machine. Our sight system (Mast-Mounted Sight) provides both a thermal imaging system, laser rangefinder, and a television sensor, all capable of incredible search techniques. The system, in its current configuration, will not identify targets (unlike the Longbow or Comanche system). Additionally, in the ACR role, we typically work well forward of the ground assets, providing real-time, accurate information to the ground force commander. Operating behind the scouts is a role used in the past by OH-58 Kiowa units. This technique is still used, but typically not preferred. Having the largest concentrations of Kiowa Warriors in the Army (32) in the 2d Armored Cavalry Regiment, affords the regimental commander and corps commander with assets that can see the battlefield, digitally call-for-fire, send digital imagery (Improved System), and record all that the pilots see on an 8mm tape. These reconnaissance platforms provide all of this plus an attack capability of Hellfires, a .50 caliber machine gun, 2.75-in. rockets, and Stinger missiles. Great article, and I enjoy reading more with each new issue.

CPT ANDREW KAUFMANN
Palehorse Troop Commander
4th Squadron, 2d ACR
Fort Polk, La.

Excessive Simulation Breeds Training With Little Basis in Reality

Dear Sir:

COL Guy C. Swan's letter from Fort Irwin (Jul/Aug 1998, pp. 3-4) is proof to me that our reliance on computer simulations has grown excessive. The simulations industry has been a gold mine for retired soldiers now in the private sector. They have seduced policymakers, who should know better, into believing that armor and mech infantry units can be trained on the cheap, and that none need any longer scrape their knuckles disconnecting final drives in the dark.

My experience is that soldiers accustomed to the ease of moving computer icons have lost touch with the actual weight and volume of ammo, fuel, parts, water, and food consumed by real units. These soldiers grow spiritually and psychologically soft in the sterile indoor setting of the Sim Center, coping with rain, snow, mud, and insects only between there and the gymnasium.

I commend 1LT Todd A. Napier of USAREUR ("Maneuver Training: Overcoming the Limitations," Jul/Aug, p. 4) for creative thinking. Yes, maneuver in HMMWVs is a good fix to get around the long-standing USAREUR training restrictions he describes.

Continued on Page 39

Armor Modernization, The Key to the Future

by MG George H. Harmeyer, Commanding General, U.S. Army Armor Center

As the Chief of Armor, one of my biggest tasks is to ensure the viability and readiness of our Army's mounted force. The Armor Center has forged a team that includes our peer subordinate commands in TRADOC, TACOM, PM Abrams, numerous companies in private industry, and many other significant organizations to prepare the way ahead for the mounted force. This team has relied heavily on constant input from the field about how to improve the M1 Abrams main battle tank. We are making tremendous strides to equip our soldiers with the most modern version of the M1 tank that we can afford.

The Abrams tank fleet remains the cornerstone of our ground combat capability. We are currently projecting that some variant of the M1 tank will be with our soldiers until 2025. The fleet will consist of four variants: M1A2 System Enhancement Package (SEP), M1A1 Digital (D), M1A1, and M1.

The M1A2 tank configuration represents a significant advancement in capability over the M1A1 tank in the areas of lethality, survivability, and maintainability. The M1A2 MBT will evolve from its current configuration through a series of pre-planned product improvements (P^3I). These improvements center on reliability, maintainability, enhanced command and control, better crew performance, and increased lethality.

These pre-planned improvements will capitalize on state-of-the-art technological advances. Most of the Near-Term improvements are grouped into a System Enhancement Package (SEP). Others - such as Halon replacement, Vehicle Intercom System (VIS), Battlefield Override, Pulse Jet System (PJS), select titanium components, T-158LL track, and an Eyesafe Laser Rangefinder (ELRF) - were part of production line improvements. All M1A2s will either be produced with new production improvements or be modified at field sites or depots into the most modern configuration. This program will ensure that our soldiers are equipped with the best tank possible.

The SEP program is the result of the technological maturation of the second-generation FLIR, the current computer/electronic 3-5 year evolution cycle, and the need to make the M1A2 compliant with the Army's digital Common Operating Environment. The M1A2 SEP will include the following major modifications:

- Upgraded SEP electronics and C^2
- Second-generation FLIR and optical improvements
- Under-Armor Auxiliary Power Unit (UAAPU)
- Environmental cooling.

The Army will continue to maintain its edge as the world's most lethal fighting force as the M1A2 SEP is fielded.

Ideally, our goal would be to put an M1A2 SEP in every Armor unit in the U.S. Army, but currently we are not able to achieve this goal. The M1A1D is the next-best option to the M1A2 SEP. The M1A1D represents a solution to the critical need for operational performance improvements to the M1A1. With digitization, our Armor formations can operate at an increased tempo and commanders can execute their missions well within the threat commander's decision cycle.

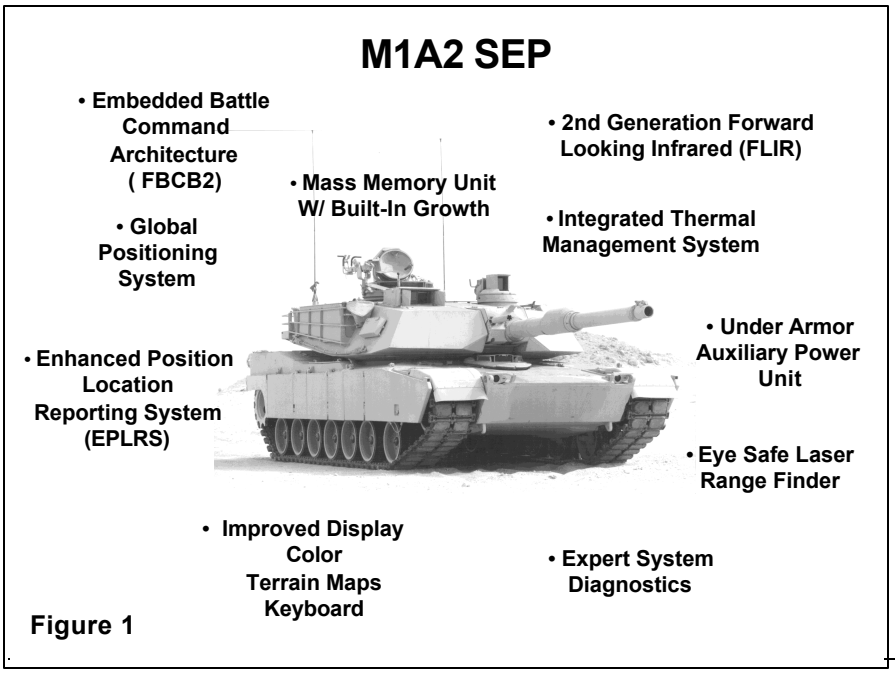

Figure 1

High payoff improvements for the M1A1 D are:

- Integrated appliqué computer system
- Far-target designation capabilities
- FBCB2 command and control system
- Upgraded tank commander's panel
- Eye-safe laser rangefinder

Modernization of our M1 MBT fleet means that the M1A2 SEP and the M1A1D will continue to be the dominant mounted maneuver systems in the world. To ensure this, we must pursue an active modernization program that capitalizes on the most modern technological advances that our country can provide. Our Army must be able to adapt to the requirements of the 21st century. We must continue to maintain the capabilities of combat overmatch that we currently enjoy.

As the Armor Center readies for the biennial Armor Functional Area Assessment to the senior Army leadership, we have revised the Armor modernization strategy. This strategy mirrors the Army modernization strategy, and is the path to the future of the Armor Force. The key components of the Army's modernization plan are:

- Fielding programs that enable information superiority
- Maintaining combat capability overmatch through selective modernization of combat systems.
- Conducting essential research and development into leap-ahead science and technology.
- Re-capitalizing aging systems with product improvements, so as to achieve status as a totally integrated force.

The Armor modernization plan, like the Army modernization plan, consists of five key areas. The first effort is to field tanks that **enable information superiority**. The M1A2 SEP and M1A1D provide excellent situational awareness and command and control capabilities. The M1A1D and M1A2 SEP provide us the **information dominance** needed to provide leaders a common relevant picture of the battlefield, scaled to their level of interest and tailored to their special needs.

The second critical component of the Armor modernization plan is to **maintain combat capability overmatch** through selective modernization of combat systems. The Armor modernization strategy focuses on improving survivability with the latest armor packages and a Vehicle Integrated Defense System (VIDS). Improved ammunition and better target acquisition with next-generation FLIR are required in order that we can maintain the capability of lethality overmatch. Our first priority is to provide the M1A1 with a second-generation FLIR for the Gunner's Primary Sight (GPS), starting in 2006, to maintain a combat overmatch. The M1A2 SEP, with its second-generation FLIR has the lethality overmatch capability until 2012. In 2012, the next-generation FLIR needs to be added to both the GPS and CITV in order to enable the tank to maintain overmatch until production and fielding of the Future Combat System (FCS). Additionally, FLIR also provides increased capability to avoid fratricide because it increases the range at which the gunner and tank commander can positively identify a target.

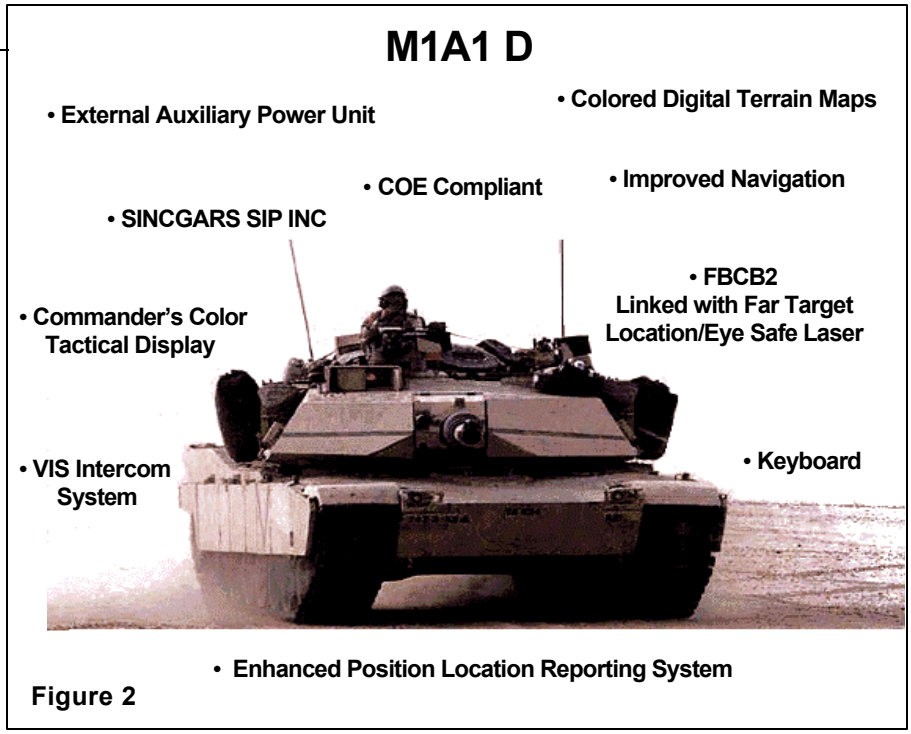

Figure 2

Conducting essential research and development on modification to the Abrams fleet and future Operations and Sustainment (O&S) cost-savers is the third component of the Armor modernization program. In the near term, this includes the research, development, test & evaluation (RDT&E) effort for VIDs and other components that can be applied to our existing M1 series of vehicles. In the far term, the RDT&E effort is the procurement of the Future Combat System (FCS).

As we attempt to maintain the Abrams fleet through 2025 it is important that we have a viable program to **re-capitalize the fleet**. The Abrams Integrated Management (AIM) program is the fourth element of the modernization strategy that gives us the capability to bring tanks back to a like-new status. AIM is required not only for the M1A1 fleet, but will also be needed for the M1A2 fleet as it reaches its 15th year.

Now that you have looked at the strategy and understand the basic building blocks that will carry Armor into the next century, we need to explain the modernization time line that will maintain our combat overmatch capabilities.

We have focused our modernization strategy for Armor on improved survivability and lethality. These capabilities, coupled with the gun & ammunition capability upgrades, are the essence of Armor supremacy through 2025 timeframe. The capabilities collectively provide Armor the ability to dominate distributed operations on the emerging Force XXI battlefield. Improved survivability and target acquisition/fire control found in the M1A1D and M1A2 SEP will only magnify Armor's capabilities.

As you can well determine, the Armor modernization plan comprehensively covers all of the desired capabilities that we need in the mounted, mobile system for the 21st century. The near-term Armor modernization program upgrades the M1A1/M1A2 with increased situational awareness and re-capitalizes the older models of the M1 with the AIM program. The mid-term plan is product im-

Continued on Page 21

Master Gunners — Vital to the Force Rewarded By the Force

by CSM David L. Lady, Command Sergeant Major, U.S. Army Armor Center

There is a rumor being passed by some soldiers: that service as a master gunner is no longer as desirable or as valuable for a tanker or scout's professional development as it once was. This rumor is incorrect.

"Shoot first, kill first" is the critical warfighting skill for every soldier. The master gunner is the key advisor to armor and cavalry commanders concerning every aspect of planning, preparing, and executing tank and Bradley gunnery programs. The master gunner is the expert that every tanker, scout, and turret mechanic can rely on for the sound, current, and doctrinally correct answer on any turret or weapon problem. The master gunner is the competent and confident leader who eagerly seeks increased responsibility and who advances through the full spectrum of armor and cavalry assignments. Let there be no mistake about the vital importance of the master gunner to the readiness and combat effectiveness of the armor force.

As stated in the review and analysis of the latest master sergeant selection board, "...The best qualified are successful master gunners who have excelled as TOE armor and cavalry platoon sergeants." Master gunners account for less than 5% of the Armor Force, yet 26% of the CY 98 master sergeant selectees were master gunners; 21% of the CY 98 sergeant first class selectees were master gunners. Three master gunners are currently serving as CSMs in Four-Star positions: Jack Tilley, John Beck, and Ben Palacios. Don't let anyone tell a tanker or scout that service as a master gunner is not an important or career-enhancing assignment!

Master gunner authorizations **have** been affected by the drawdown: the CINCOS reductions rolled master gunner authorizations down to MSGs at division and regiment, SFCs at battalion and squadron, and SSGs at company and troop. The Conservative Heavy Division redesign will eliminate 29 master gunner authorizations from the total force by taking one company from each tank battalion. The second round of CINCOS reductions has eliminated so many Fort Knox instructor authorizations that the 16th Cavalry may have to reduce each master gunner class by up to four students (up to thirty-two fewer graduates each year). These eliminations do not mean that master gunners are any less important to the armor force. Master gunners are paying a bill proportional to the entire armor force. There is still a healthy career development pyramid for those who want to do the full job of a master gunner.

Commanders must look at their best young staff sergeants and at their truly exceptional promotable sergeants when selecting prospective candidates. The unit should get at least two years of service at company/troop level from the new master gunner. As CSM of 2-68 Armor, I would not accept new master gunners in the S-3, insisting that they complete at least two annual gunnery cycles and gain the credibility needed to help design and execute the battalion gunnery program. Due to the CINCOS reductions, I am reconsidering the rank requirements: sending a sergeant first class may actually hurt the NCO, if he does not get the chance to demonstrate his skills at company level before he must be assigned as battalion/squadron master gunner.

Commanders and candidates must be very wary of waiving or asking for waivers of prerequisites. The course is the hardest functional course that the Armor School offers, and is harder than BNCOC or ANCOC. Only Fort Knox can waive the rank requirement, but commanders may request waivers on behalf of their truly exceptional promotable SGTs. The prerequisites are:

- SSG to SFC, volunteer, interviewed and recommended by their battalion/squadron commander.
- Two years tank commander experience with 6 months on an M1A1 or M1A2 tank.
- AC soldiers must have qualified Tank Table VIII as a tank commander within the last twelve months (RC soldiers, qualified on TT VII or TTVIII within the past twenty-four months). If the unit has not had the M1A1 or M1A2 for that long, successful completion of NET gunnery as a tank commander will meet the requirement.
- Ten-month in-service retention, after completion of the course.
- GT score of 105; CO score of 110.
- BNCOC graduate.
- Passed TCGST within three months of attending the course.
- Secret clearance.

All candidates must pass the height and weight/or body-fat content test prior to admission. They must pass the APFT prior to graduation. There are four gunnery exams, and three maintenance exams; the candidate has three opportunities to pass each exam and the APFT. Prior to beginning the Master Gunner Course, each candidate should complete the Senior Instructor Operator (SIO) course (they all have the opportunity). During the Master Gunner Course, your candidates will be trained in mounting, troubleshooting, and employing the Tank

Continued on Page 56

Pushing the Envelope of Battlefield Superiority:

American Tank Development from the 1970s to the Present

by Robert S. Cameron, Ph.D.

"I was tired of being bombed all day and night. Then I was run over by American tanks, I have had enough."

(Iraqi POW statement quoted by MG Thomas C. Foley during briefing at NATO Commanders Conference, May 29, 1991)

This is the third in a series of articles written on behalf of the Directorate of Force Developments. The earlier articles (Sep-Oct 97 and Jul-Aug 98) addressed the design and development of the principal tanks used by the U.S. Army from World War I to the 1970s. This article focuses upon the latter half of the Cold War to the present. It identifies the M1-series tanks as the culmination of nearly 40 years of pioneering and developmental efforts in the design of tanks and their components. The M1-series provided U.S. Army with an overmatch quality long desired and it provided the springboard for further expansion of this superiority into the 21st century. The author also wishes to acknowledge the guidance and input provided by the command and staffs of the Directorate of Force Development and TRADOC Systems Manager for Abrams Tank Fleet.

In the 1950s and 1960s, the U.S. Army struggled to develop a tank superior to Soviet designs. These efforts resulted in designs too complex and costly to produce. Instead the Army fielded tanks only moderately superior to their Soviet counterparts. By the 1970s, the emergence of the T62 and the proliferation of anti-tank guided missiles threatened even this limited superiority. Worse, the Vietnam War drained funding from tank procurement. Of the reduced number of tanks actually produced, many went to Israel to cover losses suffered during the 1973 Arab-Israeli War. The cancellation of the MBT70 and XM803 programs, coupled with continued problems with M60A2 and M551 development, left the Army with no viable replacement to the M60-series. Congress became skeptical about the Army's ability to build a tank in a timely and efficient manner.[1]

The M60A1 made up the bulk of the Army's first-line tank force confronting Warsaw Pact forces in the Federal Republic of Germany. This tank was considered inadequate for offensive operations or sustained off-road action. Although one of the largest tanks in the world, it lacked sufficient protection against newer Soviet hypervelocity kinetic energy rounds or shaped-charge weapons. The M60A1's fire control system also suffered from a high failure rate. The tank's poor night-fighting and fire-on-the-move capability further undermined its ability to fight continuous mobile actions.[2]

The Army needed a new tank. Congress agreed, but it sought strict oversight to prevent excessive cost overruns. A new design would have to be cost effective, simple, reliable, possess superior survivability, and accommodate future upgrades. It would have to be a major improvement over the M60A1 to justify the investment. Designing a tank to meet these criteria required time. In the interim, the M60A1 would be upgraded through a series of product improvements.

In 1969, the Senior Officers Materiel Review Board recommended a series of modifications to improve reliability, mobility, night operability, and fire-on-the-move capability. Between 1971 and 1975, the Army acted upon these recommendations. A top-loading air cleaner increased engine life by reducing dirt intake. The Reliability Improved Selected Equipment (RISE) engine, coupled with improved electrical components, increased service life. During testing, this engine averaged 5,000 miles of operation before replacement. New T-142 tracks with replaceable pads and provision of a deep water fording kit enhanced mobility. The M60A1 received passive night vision devices that intensified ambient light. On moonless nights, however, such devices became useless. Therefore, the tank retained its searchlight, although its use revealed the vehicle's position. The appearance of the night-sight-equipped T62 in the 1973 Arab-Israeli War spurred this attention to night actions. Israeli experience with the M60-series in the same conflict revealed the existence of a shot trap between the turret chin and ring. These areas received additional armor. An add-on gunnery stabilization system made fire-on-the-move a worthwhile capability. In test environments, the probability of hitting targets while moving increased from near zero to fifty percent.[3]

A second set of improvements became standardized as the M60A3 in 1978. These upgrades focused upon a fire control system capable of a "… quantum improvement in hit performance and enhancement of range capability during adverse weather, smoke, fog, haze and dust."[4] Key components of the fire control system included a laser rangefinder with a five kilometer range, a thermal sleeve to prevent gun tube warping, a wind sensor to provide input on wind conditions, and an analog ballistic computer. The computer reduced the number of manual calculations required of the gunner. Data input included the range, wind, target tracking rate, atmospheric conditions, and ballistic solutions for each of the four ammunition types available. With this input, the computer determined the proper azimuth and elevation for the gun.

The computer increased the complexity of the fire control system, but — unlike earlier systems — it simplified the gunner's action. It also possessed a self-diagnostic capability for troubleshooting. The new fire control system raised the probability of a first-round hit to 75% at 1,500 meters — significantly better than that achieved by Soviet tanks.[5]

Desired Characteristics for a New MBT[9]	
Feature	**Requirement**
Weight	46-52 tons combat loaded
Operating radius	275-325 miles
Survivability	armor protection against the Soviet 115-mm gun, internal compartmentalization, external fuel stowage, interior spall liner
Armament	105-mm or 120-mm main gun; 1 x .50 caliber MG; coaxial 25-mm Bushmaster cannon; turret mounted 40-mm grenade launcher
First round hit probability (service test with kinetic energy round at 1500 meters range)	Stationary vehicle vs. stationary target: 92% Moving vehicle vs. moving target: 58%
Road speed	25 miles per hour
Dash speed	40-50 miles per hour
Mobility	35% of operation off roads

Other new features supplemented the fire control upgrade. Coaxial machine guns on American tanks had been plagued by unreliability for much of the Cold War. In the M60A3, this problem ended with the adoption of the superior M240 7.62-mm machine gun. A Kevlar lining helped to minimize the effects of spalling inside the turret. Survivability also benefited from the addition of an automatic fire suppression system that relied upon sensors within the tank to detect heat and light from fires. The sensors in turn activated Halon fire extinguishers that suppressed the fire.

In 1979, the tank was fitted with M239 grenade launchers, based upon the launchers used on the British Chieftain tank. They provided an umbrella of smoke to mask movement. Following the pattern of Soviet tanks, the M60A3 also received an engine smoke generator in 1983. A tank thermal sight replaced the gunner's passive night sight. Gunners now identified targets by their heat signature without reliance upon an independent light source. The new sight could be used through smoke, inclement weather, and on moonless nights.[6]

The first M60A3 left the Detroit Arsenal Tank Plant in 1978. In 1979, the 1-32 Armored Battalion became the first unit in Europe to receive the "new" tanks. Initial production plans called for a total of 7,352 M60A3s. However, most would be converted M60A1s, with only 1,686 new production vehicles. Implementation of production and fielding occurred slowly, resulting in an M60 fleet of multiple configurations. Despite resultant training and maintenance problems, no all-encompassing retrofit program was adopted. Instead the Army opted to channel funding toward the development of a replacement to the M60-series. With the M60A3, the M60's evolution ended. No further major upgrades were planned.[7]

Unfortunately, Soviet tanks continued to evolve, gaining in the critical areas of survivability and lethality. Initial uncertainty about the capabilities of the T64 and T72 led to fears that the M60-series would be outclassed in the event of war. These fears influenced the Army's new tank design. In 1972, the Main Battle Tank Task Force was established at Fort Knox, Kentucky. Chaired by Major General William R. Desobry, the Armor Center commander, the task force established the basic characteristics of the new tank. The table above outlines the task force's key requirements. Subsequent Department of Army staff reviews aimed at eliminating unnecessary items and lowering cost.[8]

These basic characteristics reflected a sober extrapolation of current tank capabilities and battlefield threats. The Task Force sought a low cost yet capable tank that could accommodate improvements. In selecting a conventional gun for the main armament, the task force reversed the trend toward missile and rocket weapons begun in the 1950s. While the Shillelagh gun/missile system suffered from a variety of problems, the conventional gun offered simplicity, reliability, and cost effectiveness. Moreover, advances in kinetic energy ammunition and stabilization systems had eroded many of the advantages associated with missile weapons.[10]

Based upon analysis of combat in the 1973 Arab-Israeli War, the Army made crew survival the top priority. Army studies of combat operations identified antitank guided missiles and shaped-charge weapons as principal threats to the tank. Heavy losses among Israeli tank crews further underscored the need for more effective protection. This need was realized in several ways. The design — designated XM1 — dropped the commander's cupola typical of American tanks in the Cold War era. By also placing the driver in an almost horizontal position, the vehicle height fell from the M60A3's 129.2-inches to 93.5-inches. Armored bulkheads separated the crew from the fuel cells. Main gun ammunition was stowed in the turret rear behind an armored door. In the event of a penetration of this compartment, blowoff panels in the turret roof ensured that the effects were vented upward and outward away from the crew. This configuration helped to protect the tank from the catastrophic explosions experienced by Israeli crews in the M60 and American M4 crews in World War II. A spall liner and Halon fire extinguishing system similar to that developed for the M60A3 further reduced the chance of a catastrophic kill.[11]

Ballistic protection benefited from the British development of composite armor. The Royal Ordnance Research and Development Establishment at Chobham, England, found that layered armor separated by various materials and placed at angles provided unprecedented protection against shaped-charge weapons. Britain made this technology available to the United States, where it underwent improvement at the Ballistics Research Laboratory. At the direction of Army Chief of Staff Lieutenant General Creighton W. Abrams the tank's weight increased to 58-tons to maximize the benefit of this new armor. Abrams and many of the personnel who participated in the XM1's development remembered firsthand the problems American tankers faced in World War II engagements with German Tigers and Panthers. The increased weight limit indicated a determination not to send under-armored tanks into combat.[12]

The XM1 also became the first American tank to use a gas turbine engine. The concept was not new, having been continuously studied since the end of World War II. However, by the 1970s advances in gas turbine technology made possible a reliable engine of great power. Moreover, the experience of military helicopters equipped with turbines indicated that such engines possessed longer service lives and lower maintenance costs. Con-

Early production M1 turrets move down the Chrysler production line.

sequently, the Office of the Secretary of Defense mandated that XM1 prototypes include the AGT 1500 gas turbine engine. This engine provided 1500 horsepower and a 26:1 power to weight ratio, compared to 13:1 for the M60A3. It provided rapid acceleration and allowed cross-country speeds over thirty miles per hour. The torsion bar suspension and rotary shock absorbers ensured a smooth ride, for a tank. The suspension system, however, did not apply new concepts; instead it represented the evolution of World War II technology.[13]

The fire control system benefited from the steady pioneering efforts undertaken since the 1940s. It integrated the main gun with an analog ballistic computer, stabilization, thermal sights, a laser range finder, ballistic solutions, and environmental inputs. This system was similar to that developed for the M60A3 but added a muzzle reference sensor that compensated for gun tube droop. The overall system also proved easy to operate. Essentially, the gunner selected the ammunition type, tracked the target in his sight, and fired. The computer automatically adjusted for target lead, eliminating the need for a gunner's estimation.

The XM1 carried the same 105-mm gun as the M60A3. However, future modifications would install the more powerful, German-developed Rheinmetall 120-mm gun, still under development in the 1970s.

The secondary armament of the XM1 was simplified in response to recommendations by the U.S. Army Armor Center at Fort Knox. Analysis of the 1973 Arab-Israeli War indicated no need for a 25-mm cannon or 40-mm grenade launcher. Tank crews tended to prefer machine guns for use against helicopters and personnel, while using the main gun for any vehicular target. The specialized weapons were replaced by machine guns. More space became available for main gun rounds.[14]

In 1973, Chrysler Corporation and General Motors Corporation received contracts to build prototypes. In 1976, Chrysler beat GMC in competition for the XM1 engineering contract. Chrysler built 11 prototype tanks and implemented a schedule of overlapping development and operational tests in 1978-1979. This pace left little time for problems identified during the development tests to be remedied before soldiers began field testing them. Preparations to train soldiers to operate and maintain the tank lagged, along with preparation of the technical manuals. When operational tests began at Fort Bliss, Texas, the results were poor. Sand clogged the air filters, tracks were thrown easily, and soldiers struggled to learn a tank fundamentally different from the familiar M48s and M60s. As problems mounted, these difficulties were reported to a public already primed for failure. The XM1 became the target of growing criticism.[15]

However, continued exposure gradually provided a cadre of crews and maintenance personnel familiar with the tank. Technical problems were solved, including those plaguing the air filters and tracks. Press criticism continued, despite an extensive series of live fire tests against a combat-loaded vehicle that demonstrated a major improvement over the M60-series in survivability. In 1979, Chrysler received authority to build 110 XM1s for more extensive field tests in various weather, topographical, and radioactive environments. The success of these tests resulted in the vehicle standardization as the M1 in 1981. The same year Chrysler ended its association with Army tank production when it sold its tank production facilities to General Dynamics.[16]

In 1982, the 3d Infantry Division became one of the first combat formations in Europe to receive the M1. After several months of operations, the new tank's popularity rose. During gunnery, tank battalions averaged a 75% or better first round hit probability. The tank proved reliable and not too complicated to service — as long as the technical manuals were followed. The clarity and simplicity of these manuals helped to avoid many of the complications that arose with the M60A2 and M551. The same year the 3d Infantry Division's M1s made their debut in the annual NATO wargames. There, the quietness of the turbine and its fire-on-the-move capability earned the tank the nickname "Whispering Death."[17]

Fielding of the M1 continued throughout the 1980s. All combat units in Europe had received the new tank by 1989. The M1 was expected to be the Army's principal tank into the 1990s, and it had been designed to accommodate upgrades. Improvements to previous tanks had been reactive solutions to problems, but the M1 design sought to anticipate future upgrades before the first tank was fielded. Consequently, a series of upgrades occurred with minimal changes to the basic design and at a reduced cost. The first modification included increased frontal armor, more external stowage, and suspension improvements. The result became the Improved Performance (IP) M1. In 1984, the M1A1 entered service, featuring the M256 120-mm gun and an NBC system that worked on the principal of overpressure. By maintaining a higher air pressure inside the tank, toxic vapors were kept outside. By 1989, all European tank units fielded the M1A1. The addition of depleted uranium mesh led to the M1A1 Heavy Armor (HA), but not all tanks carried this additional armor. By providing an add-on package to meet Marine Corps needs, the Army avoided building a separate, special tank for amphibious operations.[18]

The 1991 Gulf War demonstrated the tank's true effectiveness. The M1A1 comprised the bulk of the American tank strength, but it was not faultless. Sand clogged the air filters, requiring stops every few hours for clearance; the turbine engines consumed four gallons of fuel per mile traveled; gun sights could not effectively identify friend or foe at longer ranges; the thermal sights overheated and

required shutdown periods to cool. Yet the tank obtained speeds over forty miles per hour cross-country. Its thermal sights allowed target engagement in smoke, sandstorms, and at night. The tank proved reliable and robust, with operational readiness rates over 90 percent. The NBC system served a dual role, helping to cool the crew stations. First round catastrophic kills at ranges from 2,000 to 3,000 meters were common. Nor were targets behind berms safe from destruction. Although not invulnerable, the tank's compartmentalization minimized crew casualties. Cost became the principal determinant of whether to repair or write off a damaged tank.[19]

3rd Armored Division tankers pause to blow out their air cleaners during Desert Shield.

Following the Gulf War the U.S. Army downsized. The collapse of the Soviet Union ended the Cold War and with it public willingness to sustain high levels of military spending. The Army began to close its bases overseas and changed to a power projection force, largely stationed in the United States. Preparations for the future focused upon a smaller, lighter, and more lethal force structure capable of supporting rapid worldwide deployments. In the Information Age, the Army would rely upon digital communications technology and satellite feeds to provide and disseminate accurate information about the enemy. Such information permitted a faster operational tempo. Doctrine focused upon nonlinear operations that exploited information technology.

In the changed environment of the post Cold War era, airborne and early entry forces needed a reliable and easily deployable armored vehicle. Such a vehicle would provide the armored muscle necessary to perform reconnaissance, security, and peace operations. The M551 did not meet expectations. After intermittent design work on a replacement in the 1970s and 1980s, the Army awarded FMC, in 1992, a contract to build the Armored Gun System (AGS). Following engineering, user, and low velocity air drop tests, the AGS appeared ready to enter limited production, but a final decision was delayed. Nevertheless, six prototypes had been built with a seventh vehicle under construction for demonstration to potential foreign buyers. The AGS featured a 105-mm gun, an autoloader, two machine guns, a fire control and stabilization system similar to that of the M1-series, and a 1553 data bus to monitor vehicle subsystems and facilitate linkage to the Army's emerging tactical Internet. Powered by a 6V92 TIA diesel engine that provided 550 horsepower, it obtained maximum speeds over 40 miles per hour. It also featured add-on armor packages, permitting the protection level to match the anticipated threat during a mission. With a three-man crew, the small-silhouette vehicle was intended to simplify and minimize support requirements. The power pack, for example, could be easily rolled out for inspection or repairs.[20]

Despite the advanced state of development, the Army cancelled the AGS program in 1996. Budget considerations had become the principal determinant of materiel development. Weapon systems competed to survive. The Army opted to cut entire programs to fund others rather than disrupt their procurement and fielding schedules. The AGS became a casualty. Its termination freed $1 billion in long-term spending.[21]

The incorporation of digital technology into a tank resulted in the M1A2. The original design of the M1 included plans for future upgrades. The first set of improvements led to the IPM1, M1A1, and M1A1HA. The second upgrade package focused upon the vehicle's electronics. The core electronic architecture included a 1553B Data Bus and RS-485 Power Bus. Multiple linked subsystems ran simultaneously and shared data without any crew input. A computer automatically processed data regarding navigation, tactical operations, and fire control, displaying the information automatically to the crew and/or to other vehicles. It also ran a continuous series of self-diagnostic tests to determine mechanical and electronic failures. The computer identified the problem and automatically reconfigured the vehicle's hardware to optimize performance. Two duplicate computer systems — hull processing unit and a turret processing unit — provided a redundant capability. Damage to either system would not impair the tank's operation. Behind this digital capability lay a desire to unburden the crew from routine, time-consuming reporting and monitoring tasks.[22]

The M1A2 retained the 120-mm gun, but used information technology to enhance combat effectiveness. It featured a Commander's Independent Thermal Viewer that allowed the tank commander to select one target while the gunner engaged another. This "hunter-killer" system decreased target acquisition time and improved the ability to engage multiple targets. Originally developed for the MBT70, it had been omitted from the M1 as a cost-cutting measure. The Gulf War, however, indicated a need for the device to permit tank commanders a better view of the battlefield. The tank commander's station benefited from better protection and improved visibility when buttoned up. The Intervehicular Information System (IVIS) informed the crew of the locations of themselves, friendly, and enemy forces. Automatically updated, this system also permitted a single tank to designate targets for other friendly elements to engage, including fire support. The commander could also send and receive messages and overlays. The M1A2 included a global positioning system receiver that assisted navigation. The driver had the ability to steer the vehicle to preselected waypoints determined by the commander. The tank automatically tracked its own location and fed this input to IVIS. Collectively, these features sought to provide the crew with better situational awareness and permit them to exploit this information. The same prin-

ciple applied to the Army's overall digitization effort.[23]

The Army received the first prototype M1A2 in 1990. Testing and evaluation began in 1991. Initially, the new tank showed little improvement over the M1A1. The sophisticated electronics package proved temperamental and the software unreliable. However, during operational tests conducted in 1993, the M1A2 outperformed the M1A1. The M1A2's better situational awareness improved navigation, movement, target acquisition, and hit probability. Yet its reliability remained too low for combat missions due to electronic problems. This situation gradually improved. By 1998, the M1A2's maintenance system was considered more effective than that of the M1A1.[24]

As reliability improved, a series of safety problems emerged. Unannounced and uncontrolled gun and turret movements led to a delay in testing in 1995. Data processing problems occurred, impacting the tank's operation. A series of hardware and software changes followed. During another series of tests in 1996 involving gunnery, road marches, and tactical maneuvers, these problems did not recur.[25]

The last completely new production tank intended for the U.S. Army left the production lines in 1993. Other new production went to Kuwait and Saudi Arabia. These foreign purchases helped to keep the M1A2 program alive and sustain a tank production capability. For the U.S. Army, only a few prototypes and 62 M1A2s were entirely new production vehicles. The rest of the M1A2 fleet now in production comprises conversions of older M1 tanks.[26]

In 1995, the 3-8 Cavalry Squadron became the first combat unit to receive the M1A2. The rest of the 1st Cavalry Division began to receive the tank in 1996, followed by the 3d Armored Cavalry Regiment. Yet before fielding had begun, a decision was taken in 1994 to modify the M1A2 with a system enhancement package (SEP). The SEP aimed at immediately adapting the IVIS digital communications system to the new Army Standard and leveraging new proven technology. The SEP will be cut into the M1A2 production line in 1999. It will upgrade the tank's electronic architecture to incorporate the latest advances in computer technology. Future upgrades can then be enabled without requiring costly modification to the configuration or computer hardware. Changes will allow the M1A2 SEP to be compatible with the Army's Common Operating Environment for digitization. The SEP also includes the use of lighter tracks and titanium parts to lower the vehicle's overall weight. Other features include an environmental cooling system to protect the electronics, second-generation forward-looking infrared optics to clearly identify targets at four kilometers and beyond, and an under-armor auxiliary power unit. The last item will allow operation of the electrical systems without running the engine, thereby reducing fuel consumption. The Gulf War demonstrated the value of using satellite feeds to navigate via a global positioning system. The SEP incorporates this technology to improve the vehicle's position and navigation system.[27]

"The M1A2 and envisioned FCS rely upon technology to a greater extent than any previous combat vehicle. They symbolize a trend in American armor development toward increased use of advanced technology."

Army force modernization strategizing led to discussions regarding the numbers of M1A2 SEPs to be built. Although the M1A2 SEP is considered the centerpiece of the Army's ground force digitization, budgetary limits will permit building only 1,150. To achieve this figure, older M1 configurations will be rebuilt directly as M1A2 SEPs and M1A2s will be retrofitted to the SEP configuration. This approach leaves the Army with a large M1A1 fleet that will continue to be the

The AGS light tank system, shown here with the heaviest of its three levels of add-on armor, was intended as a replacement for the M551. It was designed to be delivered by air to provide 105mm firepower for light forces. But after several prototypes were built and testing had begun, the project was canceled to save money.

mainstay of the tank inventory into the 21st century. Fleet sustainment has become a critical issue. The Army recently embraced the Abrams Integrated Management XXI. Under this program each M1A1 will be completely rebuilt. This process will permit the incorporation of new technologies as they become available, resulting in a longer service life and improved effectiveness. To permit interoperability with digital forces, the Army also plans to provide the M1A1 an add-on communications package and the designation M1A1D.[28]

Senior Army leadership has decided not to incrementally evolve the M1-series into a future main battle tank. Instead, in a series of annual Armor Caucuses that began in 1995, the Army opted to focus more resources upon a new revolutionary vehicle, using the term Future Combat System to encourage fresh ideas. Initial characteristics for the FCS include the ability to destroy multiple targets at five kilometers and beyond, a cross-country dash speed of one hundred kilometers per hour, digital communications system, capacity for continuous operations in all battlefield environments, a logistics tail half that required for the M1-series tanks, and ease of air transportability. Protection would rely less upon armor and more upon active systems that detected and destroyed incoming projectiles before they hit the vehicle.[29]

In 1996, the Armor Center formed an integrated concept team to examine technology and alternatives. The following year, the team began a series of briefings on the FCS intended to stimulate comments and ideas. Weight considerations drifted downward from 40-tons to the 20-ton level. Army emphasis upon deployability and the need for greater mobility influenced this change. Development of an emerging Army After Next concept created an environment that did not favor heavy vehicles intended for the close fight. The enemy would not be primarily destroyed through a series of head-on firefights. Instead, he would be first engaged from afar and, as necessary, forced into a close fight that he could not win. By 1998, the Armor Center's FCS concept had triggered the creation of an overarching Future Combat Vehicle effort at HQ, TRADOC. The TRADOC-level analysis included multiple briefings on technology to the Deputy Commanding General. The complex issue of how to modernize includes industrial base sustainment, future force structure and design decisions, as well as an analysis of potential threats. A new azimuth for Armored Vehicle Modernization is expected within the next year.

The M1A2 and envisioned FCS rely upon technology to a greater extent than any previous combat vehicle. They symbolize a trend in American armor development toward increased use of advanced technology. With its electronic architecture, for example, the M1A2 has much in common with a jet fighter. In fact a "preflight" checklist for tank crews is under development. The greater reliance upon sophisticated technology, however, underscores the importance of the combat development process. Systems must be financially viable, fielded in a timely manner, and meet soldier needs.

In 1917, the U.S. Army's tank force relied entirely upon foreign technology and tactics. Today the U.S. Army is a world leader in armor, and its tanks are the standard of comparison for foreign militaries. Following are several conclusions based upon this transformation.

- Effective tank designs depend upon the availability of expertise in the areas of design, development, and production. The absence of such expertise led to combat units receiving inadequate and unwanted materiel such as the Ford 3-ton light tank of World War I. It also resulted in the failure to produce an effective tank in a timely manner, evidenced by the failure of the United States to build more than a handful of 6-Ton Light Tanks in 1917-1918, despite possession of detailed blueprints, an industrial base, and a demonstrated need.
- Tank designs have been successful when they relied upon proven technologies. The M60A2 and M551 relied upon the revolutionary but problem-prone Shillelagh gun/missile launcher. Neither tank realized its expectations. The M1 incorporated proven components or technology in an advanced state of development. It proved successful and reliable.
- Tanks must be versatile. Single purpose vehicles possess limited utility and become too expensive to retain in a peacetime environment. Built to counter a particular threat, such weapons lose their value once the threat disappears. In World War II, the tank destroyer found itself performing artillery missions, infantry support, and convoy escort once German tank masses ceased to appear. The weapon disappeared after the war. Unsuited for multiple roles, the heavy tank gave way to the main battle or universal tank concept. Conversely, the M48 was built to fight Soviet tank masses in the Fulda Gap, yet proved equally adept as a jungle-buster in Vietnam.
- Tank designs must reflect real world developments. American tank doctrine in World War II emphasized the use of tanks against soft targets in the enemy rear areas and not hostile armor. Consequently, the M3/5 Light Tank and M4 Medium Tank possessed excellent mobility and reliability but carried weak armor and armament. They operated at a disadvantage when confronted by more powerful German tanks whose doctrine stressed the use of armor to blunt enemy tank action.
- Tank development must be clearly linked to force structure and evolutionary trends. In the 1920s, tank development occurred in a vacuum with little or no coordination with Army development. No coherent Army-level plan integrated future battlefield operations with tank usage or the type of vehicles that would be required. Consequently, the Army's tank fleet continued to comprise obsolete vehicles until 1939.
- The user, developer, and industry must coordinate their efforts throughout the design, development, and acquisition process. Such coordination ensured the rapid production of the M3 and M48 Medium Tanks. It also guaranteed that the M1 provided a major improvement over the M60-series capable of accommodating future upgrades. The absence of this coordination led to the production and fielding of the M26 Heavy Tank too late to play a major role in World War II. It also led to program termination and over-reliance upon interim solutions in the case of the MBT70 and M60, respectively.

American tank designs since World War I reflect the steady advance of technology. They also illustrate the advances made in linking Armor combat needs with the broader needs of the Army. In the 81 years since the first attempts to build a light tank, Armor combat developments continuously introduced new technology into weapon systems that in turn reflected major advances in lethality, survivability, mobility, deployability, and sustainability. These efforts established a solid foundation for the development of new systems for Armor in the Information Age, symbolized by the emerging vision of the FCS.

Notes

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Robert S. Cameron, the Armor Branch historian, earned BA degrees in history and economics at the State University of New York at Binghamton and a doctorate in history at Temple University. Formerly a history instructor at Temple and several other colleges in the Philadelphia area, he also teaches history at the Armor Center.

Leaders Conducting After-Action Reviews Often Deliver Substandard Feedback

Issue

Recent feedback from the field indicates there is a problem in the current state of after-action reviews (AARs). Namely, far, far too many of them are not meeting the standard. Substandard AARs can occur in any training media — live, virtual, and constructive — and at all levels, from platoon to brigade. Research confirms that the principles and techniques laid out in *TC 25-20, A Leader's Guide to After-Action Reviews*, are sound, but that leaders conducting the AAR are not effective in their delivery, nor do they adequately address the key learning points of the training event. The only way to correct this is to increase awareness of the problem and to train even more completely our AAR facilitators. New emphasis from the training base at the Armor Center and all leaders of the armored force in the field must be focused on exploiting the learning opportunity of every AAR. This article will address some of the AAR deficiencies currently being found, as well as offer a solution to improve them.

State of AARs Today

We find more inexperienced and junior leaders guiding others into and through the AAR process than ever before. This is no one's fault; but across the force, we have less experience at almost every tactical position. Our trainers themselves just don't have as many training events under their belts as was once common. So, many of our young leaders have understandably not been adequately trained in proper AAR facilitator techniques. Some merely go through the sequences of events and detail who shot whom on replays, instead of learning to discuss all facets of the two or three lessons to be learned from that training iteration. And when the appropriate lessons are correctly identified, far too often there is little to no discussion of how to improve unit/leader performance. This is necessarily the next step after issue identification, but many facilitators are simply not adept at taking the discussion toward correcting the newly identified problem.

When O/Cs tell war stories and anecdotes at an AAR, instead of getting the unit member to discuss their own performances, soldiers don't get the benefit intended.

If the trainers/facilitators do happen to be leaders with some degree of experience, too often they dominate the discussions with their own "war stories" and anecdotes. They are the wrong folks to be talking at center stage during the AAR. The leader running the AAR should be only a facilitator, not a player. High quality, effective AARs usually follow when the facilitator gets the leaders of the unit being trained talking about their experiences, the experiences that they were living just a couple of hours or minutes before, rather than recounting his or her own unit's past battle successes.

One key change in AARs conducted in the virtual training environment, according to research, is that *they oftentimes occur immediately after the conclusion of the training event*, sometimes as quickly as 10 to 15 minutes. Not only is this a very short time to adequately prepare for an AAR, but many facilitators are simply not aware of how to effectively utilize the multitude of AAR products which can be gained in simulations.

Another problem with simulation-based training events is that the O/Cs are not part of a full-time O/C team, but instead part of a pick-up team hastily pulled together for one training event. These "part-timers" are often unfamiliar with the intricacies of the simulation systems and are generally no more experienced than those undergoing the training. Moreover, they have even less knowledge about data collection methods and receive little training prior to the event.

Finally, AAR facilitators are not receiving feedback from their supervisors on their performance. Specifically, these leaders need constructive criticism of their own effectiveness during the AAR as well as suggestions on how to improve their delivery. Unfortunately, due to the multi-echelon nature of our training events and subsequent "tiered" AAR schedule, many supervisors are unable to observe their subordinate's AARs, as they are busy preparing for their own AARs. This leaves improvement of that junior leader to pure chance, to occur without the benefit of feedback from a more experienced observer. And without this feedback, these leaders grow more comfortable over time with their own performance, even though they are not reaching their full potential. Additionally, the unit leaders in the AAR are not learning all the lessons they could with a better-trained facilitator.

Training , Certification and Supervision of the AAR Leader

Anecdotal as well as researched evidence indicates that units are entering the CTCs at lower levels of training competence than was the case a few years ago. This situation requires our O/Cs — AAR leaders all — to be more mature and well-qualified in order to maximize the learning potential of every training event. The only way to address this is to train even more completely our AAR leaders. But how can this be accomplished? How do we train our leaders to be great AAR facilitators?

Fortunately, there are several tools available to help train the leader or trainer in proper AAR standards. To begin, our training doctrinal manuals *FM 25-100, Training the Force,* and *FM 25-101, Battle Focused Training,* emphasize the importance of quality feedback and self-discovery during AARs. Of course, *TC 25-20, A Leader's Guide to After-Action Reviews,* is our Army's main source for how to conduct AARs and provides leaders with the essential information on preparing and conducting AARs in all types of training environments (live, virtual and constructive). There is also a videotape that has been produced to help our junior leaders entitled "Platoon/Company Preparing for the AAR." This 1-½ hour-long tape was produced by the Joint Readiness Training Center and is an excellent vehicle to prepare new O/Cs and AAR facilitators.

These manuals and videotape serve to provide the leader with the philosophy behind the AARs as well as suggestions on how to guide the discussion and how to ask thought-provoking questions. Unfortunately, these guides do not provide the requisite communication skills that a leader must develop to stimulate the audience. They also do not tell the facilitator how to capitalize on various AAR products which can help the unit discover what went right or wrong during their training, nor do they explain how to guide these leaders in developing solutions for how to improve unit performance. These skills can only be learned through an effective training program that totally prepares the O/C or facilitator to orchestrate a successful AAR. Such a program is described on page 5-6 of *FM 25-101*. Briefly, it specifies that leaders must first be subject matter experts, tactically and technically qualified in the required doctrine, knowledgeable on the unit's training objectives, as well as being well-versed in rehearsals, safety, OPFOR tactics, O/C duties, and ROE.

So, how does a junior leader acquire the skills to conduct an AAR, and how long does it take to acquire them? And, who is responsible to ensure that the leader is prepared to conduct an AAR? The answer to these questions may vary from unit to unit. An O/C team at one of the CTCs, under the supervision of a senior O/C, will generally conduct a comprehensive certification program. New O/Cs are required to first observe several AARs, then to conduct several "rehearsal" AARs in front of more experienced O/Cs, and finally to conduct a few AARs under the watchful eye of another O/C. This process is very time-consuming, lasting possibly an entire rotation. The results, however, are generally a well qualified, confident, and polished AAR facilitator.

Commanders of tactical units, on the other hand, may not have the time to conduct such a detailed program. Instead, they often conduct a specifically focused train-up for the leaders in their unit that will be tasked to perform O/C duties. This training will often focus on arming the O/Cs with the MTP checklists and the specific doctrinal background required for the upcoming event. Additionally, training objectives and the overall concept for the training is generally provided. Unfortunately, actual training to prepare leaders to conduct AARs is not provided, and the result is often less than effective AARs, especially at subordinate levels — squad, platoon, and company. Again due to the multi-echelon nature of training, AARs are generally tiered and thus conducted without an immediate supervisor present to provide feedback. This is totally unacceptable for the development of the leader and to the long term training of Army units.

To correct this, all commanders and leaders must ensure their subordinates are fully trained to conduct AARs before they are ever allowed to perform this extremely important duty. Selection should not be left to chance or be based on an individual's reputation within the unit. Fact is, there are many great soldiers who have a wealth of experience in training, but that does not necessarily make them capable of conducting an effective AAR. Commanders must recognize this, and ensure that any subordinate tasked to conduct AARs is properly trained, adequately resourced, and well rehearsed.

The commander's responsibility does not end here. AAR facilitators, whether new or experienced, must have continuous feedback if they are to reach their full potential. And since many soldiers will be required to conduct AARs throughout their careers, it is extremely important that they receive developmental feedback on their performance as early and as often as possible.

Without a doubt, feedback by a supervisor/leader is invaluable, not only to the maintenance of quality AARs within a unit, but also to the continued professional growth of the facilitator.

If "tiered" AAR scheduling prevents the supervisor from attending the AAR, an effective tool is to videotape it for later viewing with the facilitator. This has proved to be a very effective vehicle for coaching various AAR techniques.

AAR Preparation

Leaders must ensure their subordinates are capable of organizing the myriad of tasks required for an effective AAR. Being organized is a critical skill of the AAR facilitator. There is generally an incredible amount of information to absorb, collate, and analyze. Much of this can be made easier through an effective observation plan, developed before the training event and modified as the training event unfolds. Guiding subordinate observer/controllers toward suspected problem areas helps focus the collection effort that will provide the required feedback needed for a successful AAR. Once the mission is completed, facilitators need to ensure enough time is available to adequately prepare and rehearse for the AAR. Preparation is truly a key to any successful AAR.

Availability of training aids and AAR production materials ensures a quality appearing product, which in turn promotes increased professional behavior and performance by the trained unit. If they feel and see the effort being undertaken on their behalf, they will respond with increased levels of performance and come to the AARs with the open minds necessary to move to the next level. Training aids for an AAR may vary from the rather low-tech butcher paper to the more high-tech PowerPoint slide show with accompanying video footage and communication cuts. And depending on the specific learning point to be made, high-tech may not be any more effective in helping the learning process. The facilitator must simply decide what training aid will work best to get the point across.

Facilitators must also determine the type of AAR that will work best. Our AAR "how-to" manuals provide guidance for many different types of AARs. They may be formal or informal and may be struc-

tured to focus on different issues, depending on the lessons to be discussed. Some AARs focus on the "Plan, Prep, and Execute" aspects of the training. Another AAR may focus on the "Key Events/Key Issues" of the exercise. Still another AAR may focus on the "Sustainment and Improvement of Battlefield Operating Systems (BOS)." These AARs generally proceed in a chronological sequence of the major events of the training in order to provide a logical sequence for the training audience. Regardless of the technique employed, however, AARs must address what happened, what was done right or wrong, and how to do it better next time. This is not an easy task, especially for a less experienced AAR facilitator.

Key tasks for the facilitator in preparing for the AAR include:

- Understand what happened during the event.
- Determine the key issues (good and bad). Then determine the causes that led to the issue. Must understand the "cause and effect" relationship of what happened and why it happened.
- Decide the key issues, events, or themes the AAR will focus on.
- Know the doctrine in depth that supports the key issues of the event.
- Think through TTPs and doctrine that help improve weaknesses or sustain strengths.
- Consider how the participants view what happened and why it happened. This is helpful in anticipating their responses and questions during the AAR.
- Again, determine the method for conducting the AAR:
  - Chronological order. This technique is the most basic and follows the flow of training from start to finish.
  - Key events/themes/issues. This intermediate technique focuses on specific issues observed during the training.
  - Operating systems. This advanced technique presents issues by each operating system for all phases of the training.
  - Combination. The AAR leader may use a combination of these techniques; however, it usually takes too much time.
- Finally, prepare the AAR site and audio-visual aids. REHEARSE.

Conduct the AAR

It is important that the AAR be conducted at a facility that will allow effective learning to take place. Distractions must be minimized and attendees should be arranged so they can talk to each other. Unfortunately, many of our "fixed" AAR sites have the attendees facing center stage, directly where the facilitator is located. A better arrangement is to have the chairs arranged in an arc or V-shape so unit leaders may better interact with each other. The AAR facilitator can then be off to a flank where he can guide the group's discussion and not be the central focus of attention. Instead, center stage should be a sand table, butcher board, screen, or other training aid being used to bring out teaching points.

Training Circular 25-20 outlines a good format to follow for an AAR, no matter the echelon. This format gives the facilitator a methodical way of presenting a great deal of information. Soldiers have grown comfortable with this format and now have this expectation of how information will be presented at the AAR. They generally know the rules for the AAR, and little time needs to be taken for this topic. Of course, the content will vary greatly from a platoon-level AAR to that information presented at a brigade combat team AAR. However, the method of presenting the lessons and the journey of discovery each unit takes is quite similar. (One note: due to the time limits of an AAR, the facilitator must determine the focus, be it on key issues or battlefield operating systems. There will generally not be time to cover the myriad of data available for each item listed below.)

Each item in the sequence at right can mean different things to each facilitator. Below is a detailed discussion of the sequential steps for conducting an AAR, based on the collective experience of the Armor Center. NOTE: Each step is in accordance with *TC 25-20, A Leader's Guide To After-Action Reviews*, dated September 1993.

1. Introduction and rules. The introduction should include the following thoughts:

- An AAR is a dynamic, candid, professional discussion of training which focuses on unit performance against the Army standard for the tasks being trained.
- An AAR is not a critique. The key difference is the AAR centers on the unit working through the process. A critique focuses on the evaluator providing the answers.
- Everyone participates. No one, regardless of rank or strength of personality, has all the answers.
- An AAR does not grade success or failure. There are always weaknesses to improve and strengths to sustain. There are doctrinal principles to follow, but there is no "right" answer.
- Again, keep this short in order to quickly get to the major issues.

2. Review of objectives and intent.

- Training objectives.
- Commander's mission, intent, and concept of operations (what was supposed to happen).
- OPFOR commander's mission, intent, and concept of operations. Use the OPFOR commander, if available.

AAR SEQUENCE

Introduction and Rules (briefly)

Review of Objectives and Intent

- Training objectives
- Commander's Mission/Intent (what was supposed to happen)
- Opposing Forces (OPFOR) Commander's Mission/Intent
- Relevant Doctrine/Tactics, Techniques, and Procedures (TTPs)

Summary of Recent Events (what happened)

Discussion of Key Issues

- Chronological Order of Events
- Battlefield Operating Systems (BOS)
- Key Events/Themes/Issues

Discussion of Optional Issues

- Soldier/Leader Skills
- Tasks to Sustain/Improve
- Statistics
- Others

Discussion of Force Protection (Safety)

Closing Comments (Summary)

- Relevant doctrine and TTPs.

3. Summary of events (what happened). After the commander and OPFOR commander explain what they wanted to happen, the AAR facilitator reviews what actually happened. The level of sophistication will necessarily vary depending on the domain in which the training was conducted and available training devices. For instance, audio-visual aids are very useful and the virtual (SIMNET and COFT) and constructive (JANUS and BBS) simulators provide tremendous support in this area in the shortest amount of time.

- Live training may have a summary of events as simple as a series of sketches or as sophisticated as a seven-minute videotape used at CTCs.
- Most constructive simulations have playback capability. The AAR facilitator, with assistance from a system technician, can develop summaries which play back an engagement at "hyperspeed" to allow the participants to see enemy and friendly actions during an engagement.
- Virtual simulations normally have playback and built-in AAR capabilities which expedite preparation of AARs and take-home packages. Again, the facilitator should coordinate with the virtual simulation technical staff to help prepare the AAR.
- Conduct-of-Fire Trainer (COFT) capabilities are well known.
- Simulation Networking (SIMNET) supports historical playbacks during or after the exercise. It automates preparation of candidate "stand-alone" AAR aids and displays. It plays back voice communications and top-down displays. It provides complete AAR presentation at the end of an exercise. It also supports the review, deletion or modification of aids and displays for the AAR presentation. Units can be provided a take-home video.
- Janus can replay a complete scenario or selected events like sensor detection, unit positions, movement, direct-fire engagements, force attrition, artillery impacts, and obstacle effects. Janus can show single units throughout the battle or general battle actions.
- Brigade/Battalion Battle Simulation (BBS) collects and presents data from BBS in "near real time," allowing instant evaluation of exercise performance. Features include video replay, printed reports, map and text slides, and slide shows through the on-screen slide capability. The video replay portion of the AAR produces standard BBS map and overlay graphics for a snapshot (one battlefield event) or animation (a series of snapshots based on a user-selected time interval). These views can be modified by user-selected "filtering."
- With the advent of digital systems comes even more mechanisms to collect feedback for later playback that will greatly enhance discovery learning at AARs.

4. Discussion of key issues. This step is a discussion of key learning points using one of the four methods discussed previously: chronological order, operating systems, key events/themes/issues or combination. Effective AAR products are essential to clearly demonstrate to unit leaders what went right and what went wrong. The better the products, the greater the potential for learning to take place. All key observations must be supported by doctrinally based discussions, leaving no room for opinions by the facilitator or unit leaders. By the end of this discussion, unit leaders must clearly understand whether MTP standards and/or unit training objectives were met or not, as well as recognize the reasons why or why not. Key guidelines include:

- Ask leading questions that facilitate self-discovery and learning by all participants. If the AAR facilitator gives statements rather than asks questions, he is probably wrong.
- Avoid open-ended questions. Be specific and do not generalize.
- Once an issue and its causes are identified, help the participants determine HOW TO IMPROVE. Relate the solution back to doctrine, TTPs, or their SOPs. Do not leave an issue until the participants develop a solution. Be specific in the details of how to fix weaknesses or sustain strengths. "You must determine and show what right is!"
- Do not dwell on issues unrelated to mission accomplishment.
- Guide the direction of the AAR through questions and answers.
- As issues are resolved, summarize the solutions.
- The AAR should highlight positive issues and strengths: strengths to sustain and weaknesses to improve, always ending the session positively on strengths.
- Relate performance to the accomplishment of training objectives.

5. Discussion of optional issues. The following optional issues may be discussed as part of the AAR.

- Soldier/leader skills.
- Tasks to sustain/improve.
- Statistics.

6. Discussion of force protection (safety). It is extremely important to discuss any and all safety related concerns of the unit or as identified by the O/C team.

7. Closing comments (summary). Prior to ending the AAR, it is important to summarize the key areas which require additional focus before the next iteration or training opportunity. Unit leaders generally have a good idea on what they need to work on, and a good technique is to ask them before they depart the AAR. Finally, leave the AAR on a positive note, linking conclusions to future training. After this, the facilitator should leave the immediate area to allow the unit leaders and soldiers time to discuss the just completed AAR and its implications in private.

Conclusion.

It is imperative that the AAR leader undergo a rigorous training program prior to being given the responsibility of leading a unit through its AAR discovery learning process. This training should be made part of the standard professional development or leader certification program as found in many units today. Once trained, however, it is imperative for facilitators to receive continual feedback from their supervisors. Such a mentoring program will go a long way in improving AARs and the professional development of each facilitator.

Our Army's AAR procedure is sound; we have proven it over and over again. To revitalize it requires a renewed commitment and a willingness of senior leaders force-wide to provide the resources necessary to train our AAR facilitators to be the best that they can be. We welcome comments on the above from anyone interested in the subject, and hope to generate further thinking and writings on this important subject that deserves our attention.

This article was prepared by COL William Blankmeyer and LTC Terry Blakely of the Directorate of Training and Doctrine Development at Fort Knox.

An NTC For the Next Century

by Lieutenant Colonel Martin N. Stanton

This article was prompted by the superb work done by two other authors in *ARMOR* Magazine and one in the *Naval Institute Proceedings.* In the May-June issue of *ARMOR*, Captain Mark H. Salas questions the necessity of a permanent OPFOR at the CTCs. His letter argues that (1) Army force structure cannot afford a regular brigade-sized force that does not fight, (2) deployable forces can get as much training out of going to the CTC to be OPFOR as they can to be BLUEFOR, and (3) with the demise of the former Soviet Union there really isn't an opponent left that follows the lockstep doctrinal model of the Krasnovian OPFOR. I heartily concur with all three of his major points.

In the same issue, LTC Aaron R. Kenneston presented a useful article on how the 1-221 Cav (Nevada Army National Guard) was integrated into the OPFOR at the NTC.

Finally, Captain H.A. Petrea Jr., USN, wrote an interesting article in the *Naval Institute Proceedings* proposing the creation of a Naval NTC. His suggestions included proposals for the improvement of USMC training on NTC lines.

I will try to expand upon the thoughts of these three gentlemen. The NTC is an integral part of the training readiness of our Army. It was the most visible evidence of the post-Vietnam renaissance of the U.S. Army, and played a prominent role in training the Army for the Gulf war. Now, however, it presents an outmoded scenario based upon a type of enemy that doesn't exist anymore. It is also expensive, in terms of monetary and material resources and personnel resources.

We have been trying to exist in a 10-division (and shrinking) over-committed Army with an 18-division cold war NTC. Something had to give, and it has: the number of training rotations has gone down. However, the overhead at the NTC — infrastructure, OPFOR, and controller group — has remained the same. We need to look at how we can derive more benefit from the treasure that is the NTC.

I have five modest proposals.

- Create a non-permanent OPFOR, using heavy brigades on 90-day rotations to participate in CTC rotations as OPFOR.
- Develop a more non-doctrinal model for OPFOR, with the integration of different vehicle types and organizational models.
- Reorganize the 11th ACR as an armored cavalry regiment and reallocate the 11th ACR into real world OPLANs.
- Increase integration of the National Guard.
- Increase integration of USMC elements, and start USMC BLUEFOR rotations.

PHOTO: Greg Stewart

Create a Non-Permanent OPFOR

With the advent of the Krasnovian variant tank OPFOR modification to the M1A1, the requirement for a specialized OPFOR vehicle (à la the M551 Sheridan) becomes a lot less significant. If a similar VISMOD could be devised for the Bradley Fighting Vehicle (i.e., no armor side skirts and minor body and turret attachments, such as fake Spigot launchers) then both mech and tank units could fight as OPFOR in their organic vehicles. Even if no VISMOD to the BFV could be created, the OPFOR Surrogate Vehicle M113 modification could still be available for mech units to draw. The only time the entire regiment rolls is during a regimental attack. This would leave plenty of time for the mech battalion detailed to OPFOR to conduct useful training in their Bradleys. The OPFOR brigade would deploy to the NTC for a quarterly rotation. Each year, one quarter per year would be dedicated to the 11th ACR in an OPFOR role. The rotational (OPFOR) brigade could bring all three of its battalions and rotate them through the OPFOR role. The Ft. Irwin reservation is large enough for the OPFOR rotational brigade units not actively involved in supporting the current OPFOR mission to conduct training and not be in the way. This will have the following positive effects on the Army and readiness.

- It will create another brigade-sized element (the 11th ACR) that can be allocated forward in the TPFDD for current OPLANs.
- It will increase the number of brigade headquarters trained at the NTC per year by three and task forces by nine (or six if a two-battalion brigade option were exercised)
- If the nine-battalion option was used, it would allow the 'out of OPFOR' third battalion of the OPFOR rotational brigade to act as an adjacent unit. Elements of the battalion could take the place of the infamous notional 1-23 (Allow All Penetrations) Cav.
- It will shorten the amount of time between NTC rotations. OPFOR rotations would count as NTC rotations. Another possibility is it would open up additional space in the training schedule to train the National Guard enhanced brigades.

Such a concept would not be without its cost. Additional barracks space and infra-

structure would have to be constructed on Ft. Irwin and additional vehicle sets would have to be pre-positioned. Balanced against this would be the cost saved by eliminating the fleet of special OPFOR vehicles, the creation of a deployable ACR, and the increased benefit of training U.S. Army units in the hard school of the NTC.

As Captain Salas pointed out, the perfect OPFOR that can fight in absolute congruence with its published doctrine is becoming less and less relevant in the post-Cold War world. In 1988, the Krasnovian model made sense because we were still facing the Soviet Union. In 1998, it really doesn't. We don't need an OPFOR that will perfectly replicate a foreign military doctrine found nowhere else but in the NTC. We just need an OPFOR that will give the BLUEFOR a good, knock-down, drag-out fight and defeat them if they're not proficient.

Having the world-class OPFOR was swell. It was one of the things that made the NTC. It also provided priceless *Maskirovka* prior to the Gulf War because media hacks focused only on the fact that the OPFOR won most of its fights, instead of how the overall quality of the Army was skyrocketing due to the CTCs. We could afford the dedicated OPFOR then. It was sure worth it. It's worthwhile now, but we can no longer afford it. With our number of divisions shrunk to ten and getting smaller, and with our increasing commitments, we just can't afford a permanent OPFOR anymore. We can deploy brigades to act as OPFOR and still give a good fight. They would still have most of the advantages of the present OPFOR (i.e., friendly orders timelines, notional artillery, admin resupply and reconstitution, etc.) so the BLUEFOR unit would still have an uphill fight. The difference being that unlike now, deployable U.S. soldiers would be trained on both sides of the fight.

Develop a Non-Doctrinal Model for the OPFOR

The best Iraqi defensive position I ever encountered was in the Mojave Desert in December of 1991. It sure as hell didn't look anything like the ones I saw in the Gulf War. Those Russians in Chechnya put an interesting twist on old Soviet doctrine as well. My point is that the OPFOR in the NTC was more faithful to the published doctrine of our enemies and former enemies than they themselves were. The enemies we face in the world today are not as lockstep in their interpretation of doctrine as the Krasnovian army at the NTC. Our intelligence on these enemies will include pretty exhaustive information on equipment and order of battle but relatively incomplete analysis of their published doctrine (if for no other reason than they might not have any). We need to get away from complete doctrinal templates for our enemy's actions in the NTC. We need to create a battlefield where the S2 is uncertain as to how the enemy will maneuver/defend and has no doctrinal template to rely on as a clue.

The OPFOR could take several flavors and have several different "faces" they could portray. It could portray Krasnovians with rigid and well-defined doctrines, or it could portray Krasnovian allies whose doctrine we know little about. It could even include variations on unit tactics and doctrine based on whether the portrayed OPFOR commanders were Western-trained or Russian-trained. We need, above all, to add an element of uncertainty to the enemy that we face at the NTC. The Krasnovian OPFOR is so well documented and defined that scenario writers and OPFOR planners used to argue over what the OPFOR would or would not do, much like Hebrew scholars arguing over the Talmud. We need to get a bit more doctrinal unpredictability into the OPFOR.

Make the 11th ACR an *"ACR"*

Currently, the 11th ACR has two maneuver battalions, one tank and one mech. One of the additional benefits of doing away with the permanent OPFOR is that the 11th ACR could be reorganized into an actual armored cavalry regiment with two squadrons active, and one National Guard (1-221 Cav NVARNG). As an infantry officer, I am naturally loathe to lose infantry battalions from the Army's force structure. However, the existence of only a single ACR (I mean a real ACR, not the reflagged survivor of the 9th High Tech Division that is currently called the 2nd ACR light) in the Army's active force is not a state of affairs that should be allowed to continue. The creation of a second ACR would give the Army two ACRs on active duty, in the worst case one per major regional contingency. This ACR could still conduct one complete quarter of OPFOR duty each year (I would suggest the summer months as the 11th ACR has permanent billets on Ft. Irwin). They could still be used on a case by case basis throughout the rest of the training year to conduct special OPFOR missions. However, they would be available for Intrinsic Action rotations to Kuwait and for other training deployments OCONUS. They would have more time to train up to their U.S. Army training tasks at NTC while out of OPFOR rotation density, and they might even (gasp) get a little more time off.

Integration of the National Guard

Using 90-day rotation OPFOR units would work in peacetime, or during a limited war that does not utilize a large part of the Army's strength (like Somalia). It would not work in a Desert Storm-level deployment because the 11th ACR and/or the active brigade scheduled to be rotational OPFOR would be deploying to combat. This does not mean the NTC will close down. The NTC will still be used to train activated "Enhanced Brigades" and other activating National Guard units, as it was with the 48th Brigade in 1990-1991. We need to keep the NTC in business even when the whole regular Army has deployed. The controller group and base operations would be easy enough to keep on hand, but where would the OPFOR come from?

Short answer. 40th Division, California Army National Guard. Here we have a whole mech division looking for a real world mission. In his article about the 1-221 Cav, LTC Kenneston described the OPFOR certification training undergone by the 1-221 Cav over a period of three years. This training culminated in the unit's participation as OPFOR in an actual NTC rotation. The 40th division could do the same thing. Starting in FY2000, and using the same timeline for training as described by LTC Kenneston, by the year 2003 the 40th Division could be ready to assume an OPFOR mission upon activation. The 40th Division is a natural choice for this mission. They're close at hand, they have the people to staff it, and they even have some unit equipment stored at Ft. Irwin itself. The proximity of the National Guard units to Ft. Irwin would mean they could probably be formed and out in the desert, ready to train troops, in about two weeks. Only one brigade of the division need be dedicated to the OPFOR mission. The others could still be called upon for activation, post-mobilization training, and deployment.

In addition to being the full mobilization OPFOR, the 40th division OPFOR units could act as "special guest star" augmentees for specific missions, just as 1-221 Cav of the Nevada National Guard was used by the OPFOR for a regimental attack mission. They could also be used on short-term activation to act as adjacent U.S. Army BLUEFOR or allied units.

The 40th Division Brigade assigned to the NTC support mission could have variations of uniforms and markings that would allow them to act as allied nation units as well as OPFOR. If you really wanted to add a twist to coordination with "allied" units, have the Spanish speakers in the NG units do all the adjacent unit coordination in a language other than English.

Having an entire brigade from the California National Guard dedicated to the NTC mission would solve the problem of where a post-general mobilization OPFOR comes from. It would also provide a ready source of OPFOR augmentation (on an individual or unit basis up to battalion level) for limited rotations during peacetime. It would also provide a meaningful mission for one of the underutilized National Guard divisions.

Integration of USMC Units

Currently, the NTC is only doing 9 or 10 rotations a year. This is far less than the 14 per year we were executing in 1985 and the 12 per year we accepted as the standard in 1986. This is due to both budgetary and OPTEMPO considerations. In his recent article in *Naval Institute Proceedings*, Captain Petrea of the USN suggested the creation of a Naval NTC. Although he was referring mainly to Navy assets, Captain Petrea suggested that the USMC could improve its training in several ways (particularly AARs) by emulating an NTC-type exercise. Since the Marine Corps almost certainly does not have the money to build an instrumented battlefield similar to the NTC's, why not hold one or two USMC rotations per year? With their OPTEMPO, it's probably all they could do anyway. This would allow them to practice some of their concepts, such as operational maneuver from the sea, in a mid- to high-intensity environment. It would also present the possibility of attaching an Army light TF (Airborne, AASLT, Mountain, whatever) to the Marines. This is a way we often fight in contingency operations (the author has worked beside the Marines in two combat deployments). It would also give the brigade detailed as OPFOR another rotation to fight. More training for everyone, everyone learns a lot about how the other guy works, a lot of joint warfighting, C2 and logistics stuff gets worked out, and the NTC gets utilized at max capacity. The costs? The OC teams would have to go to school on USMC Organization and Doctrine (not really that different). Some vehicle instrumentation and MILES issues would have to be addressed, but I doubt they'd be insurmountable. Funding issues from the Navy would probably be one of the biggest drawbacks, but with reallocation of funds from training exercises that would be canceled to accommodate this training density, the Navy should be able to cover it. The NTC is a national treasure. If the Army isn't going to use it for 12 rotations a year, we should make the down time available to the Marines.

Summary

The NTC will continue to be one of the cornerstones of our training readiness. Unfortunately, the current NTC is stuck in the cold war — not only in the OPFOR that it portrays but in the resources that it requires. Were it the best of all possible worlds, I would keep the dedicated OPFOR. However the realities of the Army's situation today simply cannot justify the dedication of an active duty heavy brigade-sized unit to a non-deployable role. The present OPFOR is the perfect instrument. We can't afford it. Unfortunately, we are living in a world where "good enough" will have to do.

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Hatch (Continued from Page 6)

provements on the M1A1 and upgrades to the M1A2 to maintain survivability and lethality overmatch. Our far-term focus is to provide for successor to the Abrams tank, the FCS.

This article focuses on one of our primary materiel solutions for the next century. At the Armor Center we are also immersed in crafting training, leader development, and tactics to complement the improved Situational Awareness, Survivability, and Lethality that the Abrams M1A2 SEP and M1A1D provide the Armor Force. Our commitment to the soldiers and leaders of Armor is to create the most DTLOMS-comprehensive systems that we can provide. Forge the Thunderbolt!

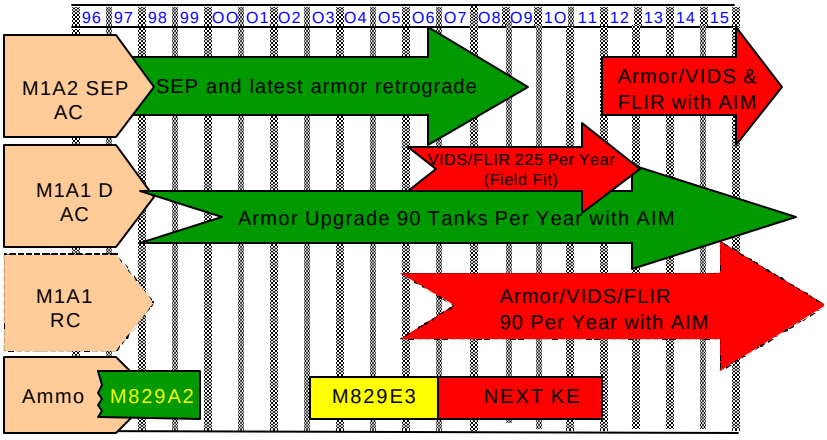


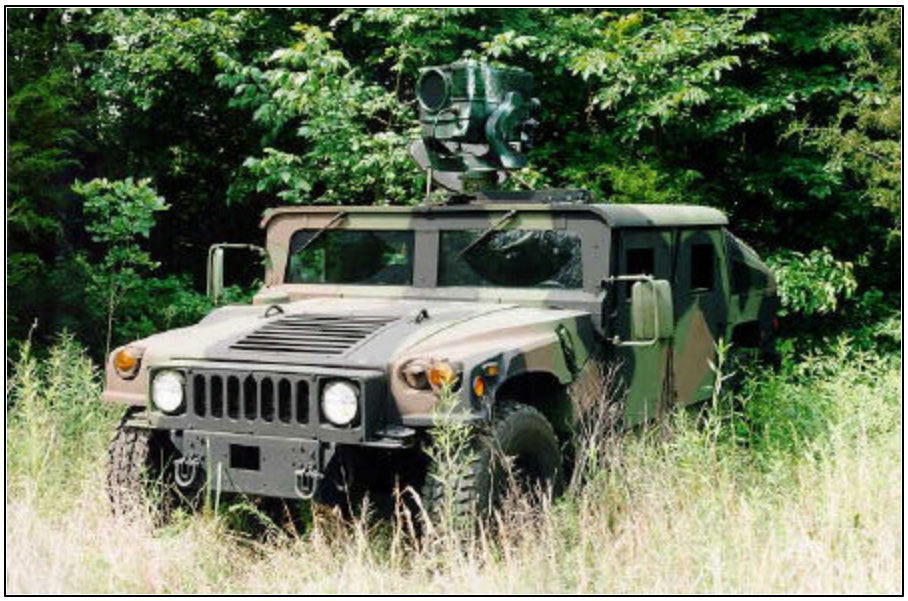
Figure 3

Long Range Scout Surveillance System (LRAS3)

by Captain Michel Jones and Sergeant First Class Christopher Wagner

The ground scout platoon's primary missions are reconnaissance and security in support of its parent unit. It can perform its missions mounted or dismounted, day or night, in various terrain conditions, and under all weather and visibility conditions. Currently 19D MOS scouts use the M1025/26 HMMWV and the M3 Cavalry Fighting Vehicle (CFV). Both of these vehicles were designed for other functions. The M3 Bradley is an infantry fighting vehicle that was modified for the scouts to carry more TOW missiles. The HMMWV is a logistics support vehicle that was adopted by the heavy task force units in 1992 because it is stealthier than the large M3 CFV. The HMMWV's reduced size and noise signatures allowed it to penetrate deeper into the enemy area of operations without detection. Based on a USAARMC analysis conducted by the Directorate of Combat Development, November 1992, the CFV and the HMMWV were both adopted and modified to meet some of the scout mission requirements. Neither one of these platforms by itself meets all the required sensor, mobility, survivability, or lethality capabilities required for scout missions.

The Long Range Scout Surveillance System (LRAS3) will partially fill a critical capabilities gap in tactical information dominance until the fielding of the Future Scout and Cavalry System (FSCS). Until then, the LRAS3-equipped scouts will provide the tactical commander with the ability to identify the enemy at greater ranges to achieve decisive results during operations.



(Photo courtesy of Raytheon)

Today's Capability

Imagine you are a scout for an armor or mechanized task force. You are the eyes and ears of the commander. The best night observation device you have can only detect out to 2500 meters. At 2500 meters you cannot confirm if an enemy is tracked or wheeled. A blurb of white starts moving across your sight picture. In the dark you look at your map and start figuring out the location of this moving target in your sector. Finally, success! You have a six-digit grid coordinate of where the enemy is located. Unfortunately, when you look for him again, he is no longer in your sight picture. All you hear in your radio hand mike is the voice of your platoon leader asking for a spot report to follow up the initial contact report that you gave him. As you start to reply you see a flash and hear a boom in the distance... Not only does the scout fail to get the needed information to the commander, but most important, another scout squad dies. The cost tonight is a scout crew; however, the price may be higher tomorrow if the commander stumbles into a fight because he has no eyes forward.

Current Scout Target Acquisition Deficiencies

The high correlation between scout mission success and BN/TF success is fully recognized. The Armor Center has examined scout capability shortfalls and mission effectiveness for many years. NTC rotation historical data clearly show that BN/TF scouts sustain a nearly 50% attrition rate in every battle they fight. A 1995 RAND study suggests scouts require a better sensor in order to survive and increase mission success. Adjustments in materiel, doctrine, training, and organizational design have all resulted in only limited success in addressing the scout survivability issue.

The Armor Center concluded that in order to make our HMMWV-equipped scout platoons more survivable, we must provide them with a target detection and identification system that has a significant capability improvement over the current and evolving threat. The LRAS3 is that system.

A study conducted, February 1998, at the Mounted Maneuver Battle Lab, Fort Knox, Ky., using Southwest Asia and European terrain, reinforces this conclusion. This study concluded that a six-HMMWV-equipped scout platoon[1] with six LRAS3 systems would:

- Provide 20-40% improvement in artillery kills

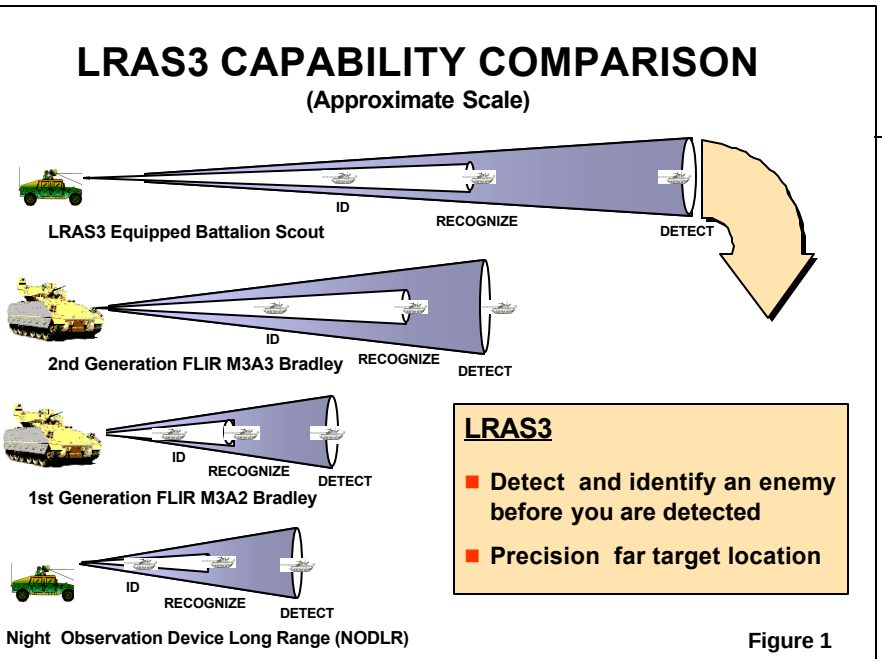


Figure 1

- Detect 60-64% more enemy
- Survive better
- Reduce detection by the enemy by 85-106%

Background

The idea for the LRAS3 system first surfaced in 1991 when the commander of the 4th Infantry Division asked if battalion HMMWV scouts could have FLIR and Far Target Location capabilities. The current AN/UAS-11 Night Observation Device Long Range (NODLR) failed to provide standoff capability outside threat direct fire/sensor ranges and had no far target location capability.

The Night Vision Lab at Ft. Belvoir subsequently built two LRAS3 prototypes that were used and tested in the 4th ID Task Force XXI Brigade Recon Troop and Task Force 1-22 IN. The LRAS3 prototypes performed exceptionally well during company lanes at Ft. Hood and the Advanced Warfighting Experiment at the National Training Center. For the first time in HMMWV scout history, scouts directed helicopter attacks and destroyed armored vehicles with artillery while remaining outside of direct fire/sensor range of the enemy.

The Sensor

The heart of the LRAS3 system is the advanced thermal imager Second Generation Forward Looking Infrared, (FLIR). This is the same Horizontal Technology Integration (HTI) FLIR to be fielded on the M2/M3A3 and M1A2. However, the LRAS3 will stand apart from these other systems in range due to higher transmission optics and a larger aperture afocal, (see Figure 1). This afocal lens will provide LRAS3 with a 15% increase in range capability over other 2nd Generation FLIR platforms utilizing the standard size afocal.

The LRAS3 has a built-in Global Positioning System Interferometer Subsystem (GPSIS). This allows the LRAS3 to determine target bearing and self-location, (see Figure 2). An eye-safe laser rangefinder, coupled with the GPS, will provide Far Target Location (FTL) and display a ten-digit grid coordinate of a target within 4/10 of a second after lasing. The scout operator will be able to update every second if needed. The FTL data will be accurate to within 60 meters at 10 kilometers. At lesser ranges the FTL error is considerably smaller. Using the FTL feature will allow scouts to call for more accurate and timely indirect fires. The LRAS3 will also have a back-up day video camera that allows the scout to compare FLIR to TV images. The LRAS3 hand stations are modified Improved Target Acquisition System (ITAS)[2] controls that will allow the operator to perform all LRAS3 functions without taking his eyes off of the display.

LRAS3 will almost triple the detect capability of the HMMWV scouts using the AN/UAS-11. The display options for viewing include a wide field of view (WFOV) with 4-power magnification, for scanning, and a narrow field of view (NFOV) with 12-power, providing more detailed scanning capability. The operator may also select an electric zoom feature that provides a 2X (8-power) capability in WFOV and both 2X (24-power) capability and 4X (48-power) capability in NFOV. These levels of zoom will be used primarily after a target is suspected or detected. If the target is still not recognizable, the operator may use the frame integration function to improve the sensitivity of the sensor. This function takes less than a second and involves the elec-

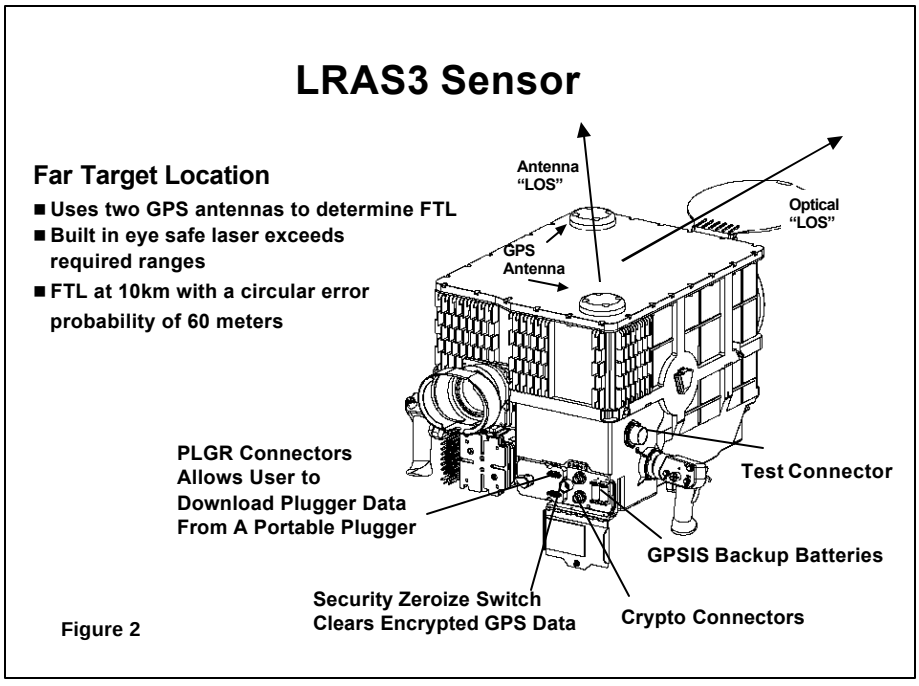


Figure 2

tronic integration of 2, 4, 8, or 16 frames and averages them to improve the image sensitivity, making the shapes of the target sharper and thus increasing range performance of the LRAS3.

LRAS3 will also interface with the Future Battle Command Brigade and Below (FBCB2). The scout will be able to detect an enemy, conduct a FTL, dump the enemy location into a spot report, and then send the report forward via FBCB2. FBCB2 will provide the scout a digital link for reporting, call for fire, and situational awareness.

Testing and fielding

The first Engineering and Manufacturing Development (EMD) LRAS3 was delivered by Raytheon in July 98. A total of 13 will be built in 1998-99. These units will be used for developmental and operational testing to ensure scouts receive a quality product that will be reliable, maintainable, and positively contribute to their already overburdened roles. Once it is proven that the LRAS3 meets all requirements, the LRAS3 will go into its full production cycle.

A Detect, Acquire, Recognize and Identification (DARI) test was to start in Yuma, Ariz. on 26 Oct 98 and conclude 21 Nov 98. This test will require the LRAS3 to conduct approximately 900 FTLs. This will evaluate the reliability and accuracy of the ten-digit grid given. The system will be mounted on an M1114 HMMWV for 6,000 miles at a mission profile of 0% primary road, 32% secondary road, and 68% off road. It will also be mounted and dismounted approximately 180 times to assess the human interface. The LRAS3 will be evaluated by scouts for reliability under different extreme environmental conditions.

A logistics demonstration was conducted in August at Fort Hood, Texas. This evaluation was to proof the technical manuals and evaluate the supportability and maintainability of the system.

The initial operational test and evaluation is scheduled to begin in May of 1999 at Fort Hood, Texas. The Test and Evaluation Command (TEXCOM) will test the LRAS3 and measure the operational impacts of the system on the scout platoon conducting typical scout missions. This test will ensure scouts can detect, recognize, and identify targets and that the LRAS3 provides the operator a ten-digit grid to targets within a 60-meter circular error probability (CEP). They will evaluate the interface with the FBCB2 system while in a field environment. This operational test will further refine any future doctrinal changes.

The LRAS3 basis of issue will be one per scout HMMWV, six systems per HMMWV scout platoon. It will be fielded to the armor and mechanized infantry battalion scout platoons, brigade reconnaissance troops, and light infantry division cavalry squadrons. The basis of issue is based on analysis from the JANUS study, conducted in Feb 98, mentioned earlier in the article. The LRAS3 is scheduled to begin fielding in 3rd quarter 2001 to active component HMMWV scout platoons and finish in FY07. The Army will start fielding it to the National Guard in FY07 as active component units receive the Future Scout and Cavalry System.

Tomorrow's capability using LRAS3 2001

You are on the same mission, except this time you are equipped with the LRAS3. In your LRAS3 sight, you detect a moving vehicle. You switch from WFOV to high magnification NFOV. Still unable to recognize the target, you determine that the vehicle is large enough in your sight to get a FTL. The 10-digit grid tells you the vehicle's current location. As the enemy vehicle continues to move in your direction, you send a spot report via FBCB2. Because you still cannot recognize the target, you zoom to 2X. It's a BMP. You then hit the E-zoom again, at 4X it appears to be a BMP. What type BMP is still questionable. The enemy vehicle is now closer and stationary, but you know you're still outside its direct fire range. You hit the frame integration button and in one second you have a still picture of a BMP 2. You select 8 frames and hit the frame integration button again and confirm a BMP 2 at Grid AB12345 12345. You send a digital spot report and a request for fire. This time you observe the BMP's destruction. With the aid of the LRAS3 you have destroyed the enemy without being decisively engaged and are able to continue your mission.

Notes

[1]Six HMMWV scouts were used, based on the new conservative heavy division redesign that standardized all scout platoons to contain six vehicles, M3 or HMMWV.

[2]ITAS (The 2nd Gen. FLIR TOW system).

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Remember the Road to Bataan:

Training for War in a Resource-Short Environment (Reserve Component)

How a California Army National Guard Tank Battalion derived a reduced-OPTEMPO training strategy based on the inspiration of its historic legacy.

by Lieutenant Colonel John M. Menter and First Lieutenant Michael R. Evans, CARNG

At 2100 hours on 8 September 1941, the 194th Tank Battalion, composed of National Guard divisional tank companies from California, Minnesota, and Missouri, sailed under the Golden Gate Bridge from San Francisco harbor aboard the *USAT President Coolidge*. Under darkened ship conditions, the gray hulls slid west, guarded by the sleek dark shape of the cruiser *USS Astoria*. Their destination was Manila harbor in the Philippines.

After what must have seemed an eternity, almost exactly four years later, on 12 September 1945, the survivors embarked again, this time from Yokohama, Japan. While in various prison camps in the Philippines, Taiwan (Formosa), and Japan, these citizen-soldiers had suffered terribly. As a case in point, of the 108 men of Company C from Salinas, California, only 47 returned home in the fall of 1945.

Yet their sacrifice had not been in vain. From December 1941 to May 1942, the 194th and 192nd Tank Battalions, comprising the 149th Tank Group (Provisional) defended central Luzon and then the Bataan Peninsula from units of the invading Japanese 14th Army. These National Guardsmen were part of the first U.S. tank unit to go overseas in WWII, the first U.S. tank unit to engage the enemy in WWII, and the first U.S. tank unit to engage enemy tanks in the history of the U.S. Armored Force. In the process, they earned three Presidential Unit Citations in a five-month period. The only mechanized force available to the U.S. Armed Forces, Far East (USAFFE), they repeatedly blunted Japanese infantry and tank assaults, extending the Japanese seizure of the Philippines far beyond the timeline Japanese planners expected.

The Japanese 14th Army, tied down by this tenacious defense, was unavailable for the Japanese drive south in that dark spring of 1942. That drive was stopped, only barely, by the courageous last-ditch defenses of Port Moresby, on the island of New Guinea, and at the Battle of the

Coral Sea. It wouldn't have taken much more for the Japanese to turn the tide and to continue their advance to the shores of Northern Australia. But for the sacrifice of those brave men on central Luzon, with their untried or worn-out equipment, shortages of every type of supply, and with starvation their constant companion, World War II in the Pacific might have gone very differently.

Now, consider the context. Imagine, if you will, the Army fallen on hard times. A conservative Congress bickers with a liberal President over fiscal conservatism versus deficit spending while the national economy struggles. The national interests are turned inward; feeling no threat from a world that they had recently saved in a victorious and popularly acclaimed war for the ideals of freedom. Elsewhere, nations little regarded in the press muster massive armies fueled by a global economic and technological surge and begin programs of slow but inexorable military expansion and modernization. Economic turmoil and corruption rule in Latin America while ethnic hatreds simmer in southern Europe and Africa. The Pacific Rim nations begin amazing leaps of industrialization, fueled by cheap labor and raw materials. The Army, cut to its smallest size in decades, struggles on with aging equipment in the face of an ever-more evident revolution in military technology brought on by new advances in communications and weapons. Debates rage over the very existence of the Army, while the Navy consumes disproportionate resources in a capital ship building program and the Air Force suggests that future wars will be won by air power alone. And the strength of the Army drains away in small-scale stability and support operations across the world.

Sound familiar? It should…it's the mid-1930s. Eerily familiar today, our grandfathers faced similar concerns of changing world orders, old hatreds coupled with new opportunism by militarized enemies, discord and confusion at home, and a climate of having to "do more with less" in the face of defense budgets which had been cut to the bone. As our country has always done, in the fall of 1940 it turned to the citizen soldier. National Guardsmen from across America answered the call of freedom and began their post-mobilization training as war clouds loomed. Overnight, the Army doubled and then tripled in size, and grew even larger as the nation's first peacetime draft began to create Army Reserve divisions filled with draftees while their more ready National Guard brethren began overseas embarkation. And so sailed the men of the 194th Tank Battalion, with their brand-new, and as yet untried, M3 Stuart light tanks.

That these men did so well is a tribute to their esprit, professionalism, and courage. It is also, however, a tribute to careful planning, dynamic leadership, and innovative approaches to existing tactics, techniques, and procedures in the Army training program.

Those brave men faced many challenges. Their tanks were untried, new designs with many flaws which became evident only in combat. Their flat decks allowed easy placement of thermite grenades. Their riveted armor created spalling hazards from kinetic energy impacts. The tanks' armament was complicated by extraneous and unneeded hull machine guns. They were penalized by the high fuel consumption rates of the tanks' aircraft engines, which burned only highly volatile aviation gasoline. And the 37mm guns of the M3s, on arrival in the Philippines, were supplied only with kinetic energy AP shot, not the high-explosive rounds they needed against an infantry-heavy enemy.

Their doctrine was new and likewise untried: an ambitious Armored Force encouraged tank-pure charges into the enemy with the aggressive spirit of the Cavalry. But this approach clashed with an entrenched Infantry-dominated hierarchy that remembered the tanks from World War I days as slow and unreliable infantry-support gun platforms.

Here and Today

In the summer of 1997, similar concerns were at the forefront of planning by the professional descendents of those heroes, the modern citizen-soldiers of the First Battalion, 149th Armor. Earlier in the year, they had successfully transitioned from their tried and tested, but obsolescing and road-weary, M60A3s to the newer and more glamorous, but as yet unknown M1 (IP) Abrams (105mm gun). But planning for FY98 was not easy. Operational Tempo (OPTEMPO) cost estimates were skyrocketing… tank mileage costs had multiplied five-fold, to nearly $105 per mile, and there was no Class IX stockpile to fall back on in the event of their inevitable breakdown with use. The tanks had arrived from their previous owners in, at best, worn condition with some little better than hangar queens. And in the face of these daunting demands, the budget had been slashed yet again… a 60 percent reduction from the previous year's budget. Even funds for commercial buses to make the two- or three-hour road trip to the equipment and training sites at Camp Roberts and Fort Hunter-Liggett had drained away.

To make matters worse, the transition of Fort Hunter-Liggett from Regular Army to Army Reserve control ignited a bitter and acrimonious turf battle between the National Guard and the Army Reserve over control of and access to training areas. Road marching the tanks from the MATES site at Camp Roberts, some 35 miles one way, had become prohibitively expensive (almost $140,000 for 20 tanks), and the USAR refused to allow parking in the M1 tank park located only five miles from the MPRC (recently vacated by the 1-40th Armor when they deactivated). This battle even now has not been resolved and has frozen into a stalemate. As a result, California Army National Guard (CAARNG) units are denied access to Fort Hunter-Liggett facilities, with the only tank range in Northern California.

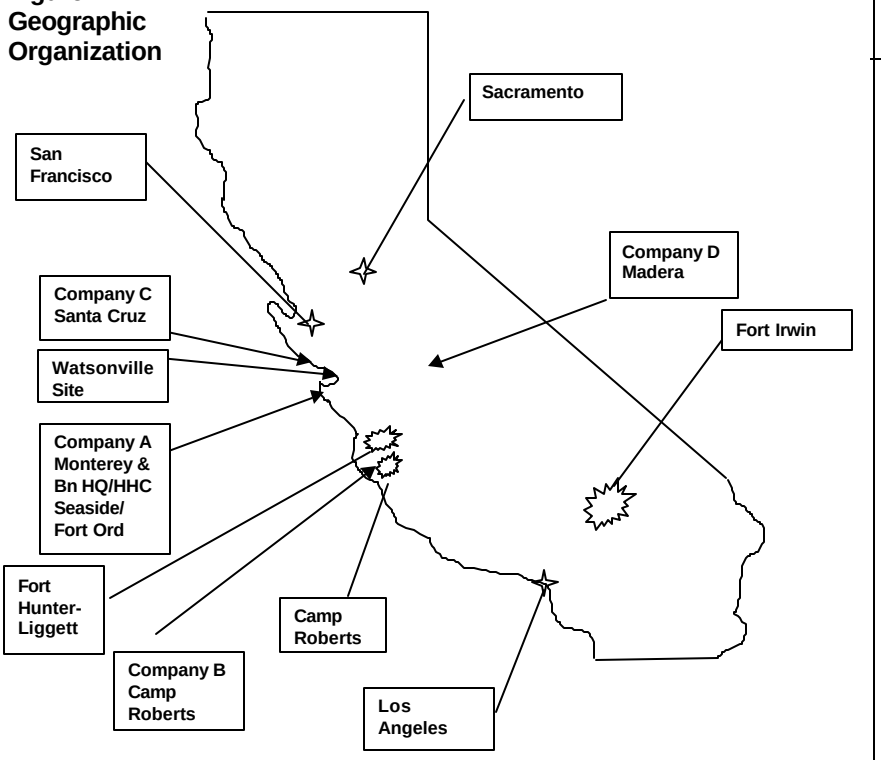
Then and Now

At first, it seemed that the battalion could not slip this one-two punch. They had tanks, but no money to operate them. And, even if they had the money, they had no range on which to train. Survivors of the 194th Tank Battalion, retired men like CWO Ero (Ben) Saccone (the C Company First Sergeant in 1941), understood their plight only too well. The unit had trained in the 1930s with their World War I-vintage Renault FT-17s, no ammunition, broom handles simulating machine guns, and Ford Model-Ts with cardboard armor to simulate enemy tanks. Without ammunition during peacetime, the first opportunity the men of the 194th had to fire their brand new 37mm main guns was in combat. But "Do more with less" becomes worse than a bad joke with time. Wishes and positive thoughts don't fuel tanks, refurbish track pads, or punch holes in targets. "Hooah" only goes so far. In 1998, a new concept had to be found.

A Training Center is Born

That new concept took root in a convergence of several factors. In 1996, Company B had been relocated from its traditional armory in rural Watsonville to new accommodations in a conventional orderly room/office block and supply facility on Camp Roberts itself. This move,

Figure 1
Geographic Organization



undertaken to improve manning by spreading the battalion across a wider geographic population base, had been successful and had also brought improved access to Camp Roberts' training facilities. But the old armory stood vacant. A nearby mech infantry battalion tried, and failed, to establish a detachment there… and so the battalion had a vacant building.

At the same time, two new valuable training tools became available: an M1(IP) Mobile Conduct of Fire Trainer (MCOFT), a trailer-mounted gunnery simulator, and an Abrams Full-System Interactive Simulation Trainer (AFIST). These systems could have been parceled out to a couple of company armories, based on the usual criteria of who had the necessary installation of pads and wiring, or they could be massed for maximum effect.

The Watsonville Armory had a pre-existing MCOFT pad and 220v wiring for an AFIST, and was centrally located to the members of the battalion. Company D, in Madera, has the longest distance to commute — about three hours by truck, Company B a two-hour commute, and HHC and Companies C and A have trips of an hour or less.

The Lay of the Land

At Watsonville, the drill floor is big enough for two tanks, so the idea of a tank for stationary training (e.g. TCGST) came to mind. In discussions by the battalion staff, the ideas of multi-echelon (individual through Company Team Mapex) and cross Combat Arms -Combat Service Support training entered the picture.

As it eventually took root, the concept is multi-echelon tank company team training, based around four fields:

1. Simulation Training. One crew at a time (TC and gunner only in the MCOFT) can each train in the MCOFT and AFIST. With restrictions on gunnery access and funding for operation of tanks, this is frequently the best company-level access to tank gunnery and maneuver. With 24-hour-per-day operations from 2100 Friday to 1500 Sunday of a typical drill, this allows each crew in the company three hours in each simulator.

2. Stationary Tank Training. This tank is available for TCGST and Armament Accuracy Checks training, with the addition of a boresight panel, "snake board," and solution board set up outside the building and visible when the overhead door is opened. It is also available for maintenance training: not only crew -10 tasks (e.g. track maintenance), but also for basic -10 and -20 hull and turret classes.

3. Maintenance Training. Having a real tank to work on takes on new meaning for hull and turret mechanics. With removal of the AFIST tank engine and its placement on a wheeled engine stand, this becomes far more valuable for a systemic approach to M1(IP) maintenance with TMDE and "ground-hop" kits. Additionally, turret mechanics conduct trouble-shooting on turret electrical systems using "Bob" box multimeters.

4. Platoon-Company Team Leader MAPEX: With the soldiers engaged in crew duties, the officers and senior NCOs have a classroom available for conduct of sand table and map exercises using terrain models of Camp Roberts and Fort Hunter-Liggett, the battalion's main pre- and post-mobilization training sites. This makes it possible to wargame and conduct sand table rehearsals using task force orders generated for the terrain on which the battalion conducts its maneuver during IDT and AT.

Additionally, a separate classroom is available with both audiovisual and hands-on training aids for class instruction on armored fighting vehicle identification, ammunition identification, gunnery-course procedures, etc. A supply room and arms vault for storing sensitive items (machine guns for TCGST, muzzle boresight devices, diagnostic equipment, plus some pilferable training aids) solves storage problems. The company administrative offices allow the installation of phones, fax machine, and photocopier; and a kitchen and latrine with showers allows easy soldier support for the typical three-day drill weekend. (See Figure 2 for the armory layout.)

"The tanks had arrived from their previous owners in, at best, worn condition with some little better than hangar queens. And in the face of these daunting demands, the budget had been slashed yet again… a 60 percent reduction from the previous year's budget..."

Old wine in New bottles?

The key here is not simply to do the same old thing at a new location, but rather to find a new way to use existing resources in such a way that the value is more than the sum of the parts. Machine gun training, TCGST, maintenance training, MAPEXes, and simulator time, taken individually, aren't very glamorous or

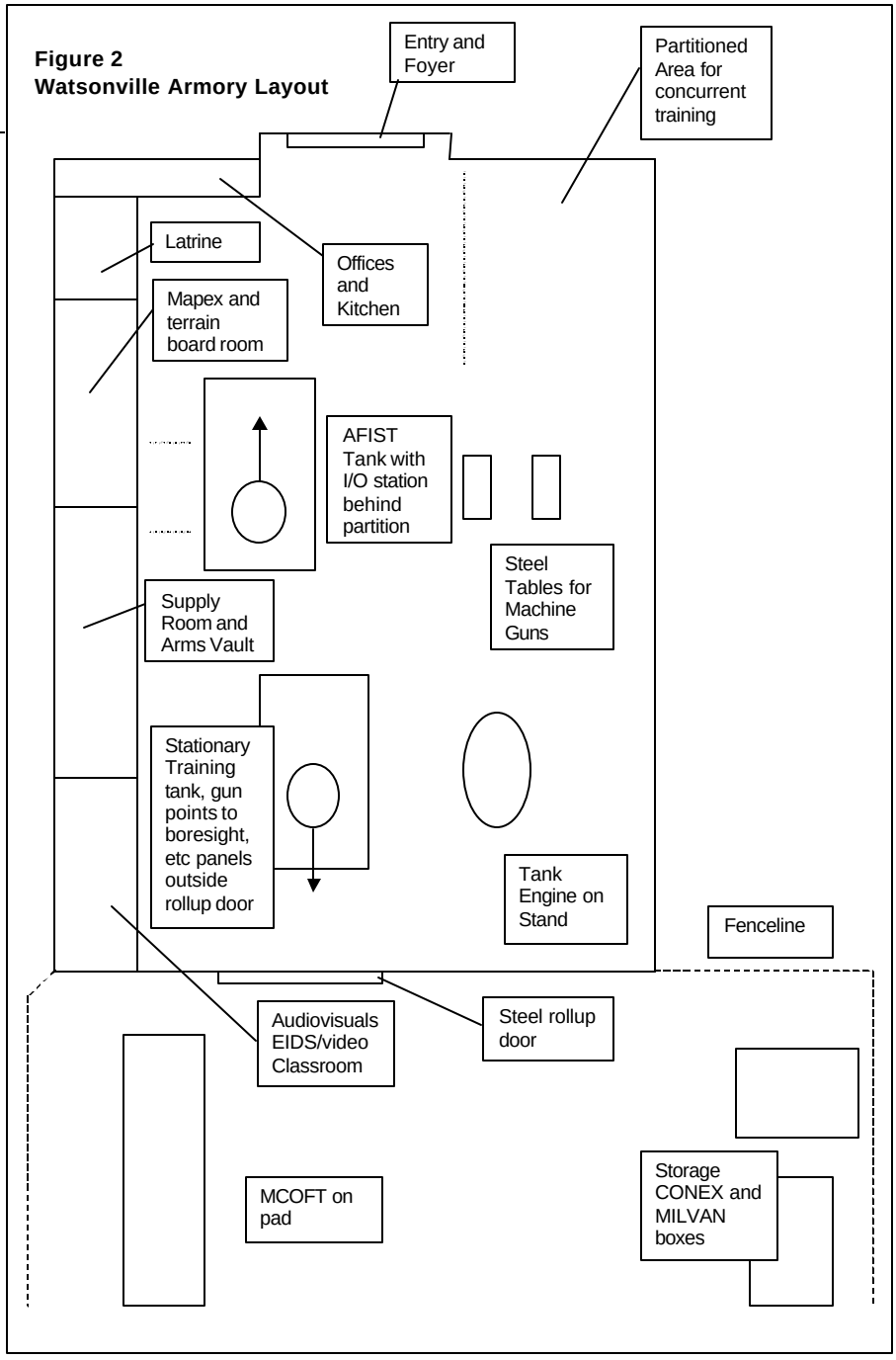
exciting. Indeed, they are routine tasks for all tank units. What is new and innovative about this approach is the regional foucs at its heart and the end run that this center performs around the twin blocks of time and funding constraints. By concentrating these assets at a single, centrally managed, centrally located site; by making this location remote enough to eliminate distractions (e.g. not in an in-use armory); this site becomes a time-efficient "one-stop" point for basic individual and crew level tanker tasks and for critical leader tasks.

As planning developed into execution, armory and tank security became a major hurdle. The armory would not be regularly manned by Full Time Unit Support (FTUS) personnel, and higher echelons were concerned about the possibility of break ins or even theft of the tanks (a major pre-occupation in California since the infamous San Diego M60A3 theft in 1995). A four-layer approach adequately addressed the concerns:

1) The tanks are inside the armory building, behind locked steel doors. The grounds are surrounded by a perimeter fence meeting *FM 19-30* and *AR 190-51* standards. The armory is floodlit at night, with one side patrolled by local police on an irregular schedule and the other side adjoining the Watsonville Community Airport aircraft parking ramp, a controlled-access facility.
2) The tanks' loader hatches are padlocked and other hatches combat-locked.
3) The tank electrical systems are disabled with maintenance-installed electronically keyed shutoff systems (aka "Clifford" devices).
4) The tanks, even the one with its engine removed, are mechanically disabled by disconnection of key components.

To add unit accountability, battalion FTUS personnel check the armory twice daily on their commutes to and from their duties in the morning and evening. Also, a roster of unit personnel who reside in Watsonville provides for immediate response and random, unannounced checks.

Figure 2
Watsonville Armory Layout



On-Call Unit Readiness Activities

When fully equipped as envisioned, the center will provide training from a systemic approach. It is multi-echelon in nature and crosses combat arms and support specialties. On request, the battalion S1 provides a team of clerks to conduct updates of soldier personnel issues, to include DEERS and pay actions, DA Form 2-1 and SIDPERS record reviews, and updates of SGLI and records of emergency data. Costs are essentially zeroed: with the major items of equipment positioned, the only recurring cost is the utility costs associated with the building and operating the simulators. The tanks don't even have to be run: the AFIST tank, with its engine removed, is powered from a 220-volt power connection to the building, and the stationary training tank will ultimately be powered by connection to the building 110-volt system via a "rectifier" transformer.

Costs are essentially negligible. Armory utilities cost about $250 per month, assuming three drills using all the simulation devices. Compare this to the $105 cost per tank per mile for field training, and the "constrained resources" advantages of this facility become readily evident.

Work continues. With the tanks and simulation devices present, the centerpiece events are possible. Future items planned for acquisition include main gun breech trainers, a turret electrical net-

"Those men trained with virtually nothing, against popular belief that "There will never be another big war," and "the National Guard is just a bunch of weekend warriors." Today, seven out of ten U.S. Army tankers is a National Guardsman. These men, and their fathers and grandfathers before them, have proved those beliefs wrong, time and time again."

works troubleshooting board, VIGS and EIDS computer self-trainers, additional terrain boards and maps of training areas with "micro-armor," and pre-arranged class slides, transparencies, charts, and posters. Another possibility is the addition of a platoon-level SIMNET maneuver trainer. The armory floor is easily large enough to accommodate four SIMNET tank simulators and associated hardware. The California Office of the Adjutant General (OTAG) is currently pursuing this concept. The supply room is already well-stocked with graphic training aids (GTAs) and sub-scale tank models for target acquisition training, and with steel tables for machine gun training (the units bring their own machine guns from home stations).

It is important to keep in mind that this facility is not a panacea. Nothing is as good as training on the tanks, in the field. Essentially, this facility is the 1998 version of the broomsticks and cardboard tanks with which our predecessors of 1938 trained. Field training at Camp Roberts is our GREEN cycle, where we can conduct gunnery through Table IV (subcaliber) and Table VI, plus platoon maneuver. Watsonville allows us to conduct essentially zero-cost AMBER training, with crew-sustainment gunnery training, leader "rock drill," and Mapex training, and simulated gunnery through Tank Table VIII.

"Do more with less" is subject to diminishing returns. At Watsonville, we "Do more with what we have."

What began as an initiative based on the battalion's wartime experiences has now turned full circle. On 2 May 1998, the center scheduled an open house and formal dedication ceremony. At that time, it was renamed the CWO Ero "Ben" Saccone Armor Training Site. CWO Saccone served as first sergeant of Company C (from Salinas, Calif.), 194th Tank Battalion on Bataan and attended the ceremony. Each classroom was dedicated in honor of a CAARNG Bataan survivor from the original C Company from Salinas.

As an example of the esprit to which the battalion now gives homage, consider the case of the tattered blue guidon. With a representation of an old Renault FT-17 tank and the numerals "40," it hangs today in the "Men and Steel" conference room, at the battalion headquarters on the former Fort Ord reservation (Presidio of Monterey Annex). This is the original guidon of the 40th Tank Company of the 40th Infantry Division, from its creation in Salinas on 18 June 1924 out of the old Troop C, 1st California Cavalry. This is the guidon that was carried through drills and Annual Training through the giddy 1920s and through the desperately poor 1930s, when the guardsmen drilled with broom handles. And this is the guidon which was carried by the company when it left the 40th Infantry Division and became Company C of the 194th on 1 September 1941. It was carried, in homage to their old lineage, overseas on that fall day in 1941. It fluttered bravely in the dark, early days of WWII as the Japanese pressed home their onslaught against those brave men who carried it. And, when the day came when the 194th was ordered to surrender (it was never defeated), MSG Earle Braye, the company maintenance sergeant, wrapped that guidon around his waist to hide it from the Japanese. Risking instant torture and execution if discovered, he carried that flag through the Bataan Death March into captivity at the Japanese PW enclosure at Camp O'Donnell. When MSG Braye was sent out to be worked as a virtual slave in the mines, he gave it to 1SG Saccone. And when 1SG Saccone was also sent away, he left it with SSG Emil Morello, the tank commander whose legendary exploits are recounted in the National Guard Heritage Series painting entitled "At a Roadblock on the Road to Bataan." And so on. Until, one day after the war, it was finally brought home.

Those men trained with virtually nothing, against popular belief that "There will never be another big war," and "the National Guard is just a bunch of weekend warriors." Today, seven out of ten U.S. Army tankers is a National Guardsman. These men, and their fathers and grandfathers before them, have proved those beliefs wrong, time and time again.

The California National Guardsmen of 1938 found solutions to the resource constraints of their time, and they proved the effectiveness of those solutions in battle, in America's darkest hour. Their esprit and professionalism are an inspiration to us all. It is in their honor that this center has been created… and in the hope that, if called upon, our solutions will be as effective as were theirs.

1LT Michael Evans is a 1988 graduate of Norwich University. A former SSG in 5-117th Cavalry, NJARNG, he was commissioned in 1993 from the New Jersey Military Academy OCS program. He has served as a tank platoon leader, mortar platoon leader, and battalion S1 in 3-185th Armor, and B Co. XO in 1-149th Armor. He is a graduate of PLDC, AOBC, JFCC, IMLC, and AOAC and is a part-time student at the Naval Post-Graduate School. He is the in-coming commander of Co. B/1-149th Armor and is the full-time (AGR) training officer of 1-149th Armor.

LTC John Menter is a 1979 ROTC graduate of California Polytechnic University. He served in the Regular Army as armored cavalry platoon leader and troop XO in the 11th ACR. His other assignments include battalion tactical intelligence officer, tank company commander, battalion S4, S1, S2, S3, and XO, bde S2, and S3, and deputy division G2. He is a graduate of AOBC, JOMC, AOAC, MIOBC, MIOAC, ENOBC, ENOAC, M60A3, and M1 TCC, CGSC (with honors, 1988) and the Armor PCC. He is the commander and full-time (AGR) administrative officer of 1-149th Armor.

LETTERS (Continued from Page 4)

In Armor's best tradition, LT Napier has assessed the situation on the ground, looked around for what is available, and offered a cost-effective solution. I add only the old lesson, I hope still taught at Fort Knox, that any bus or rail traveler can improve himself by planning the attack or defense of terrain visible during a halt.

"Devil's Advocate" Don Loughlin (Jul/Aug, p. 37-8) breathes fire, like Satan himself. Mr. Loughlin is correct in citing the still-swollen Cold War-era DoD civilian payroll as a black hole for money that once went into live training outdoors and to building tanks. "Sayonara, Armor"? No, not yet. But unless redundant layers of (military and civilian) middle management can be eliminated, Armor and Infantry will continue to shrink. Companies and platoons will be left undermanned, as now. Brigades and battalions will be unready in our hour of need.

May I be a bit more specific? For every colonel or Navy captain commanding troops, nine push paper and computer icons. The swollen staffs include: the Office of the Secretary of Defense, all four Service headquarters in Washington, the myriad defense agencies, the four-star Service MACOMs, and the worldwide regional "CINCdoms." Many of these "troops" don't know what web gear looks like. Many of them serve years, and even decades, without zeroing an individual or crew-served weapon.

ROBERT FAIRCHILD
COL, Armor, ARNG (Ret.)
Hampton, Va.

Tanks and Rapid Deployment: It Ain't Impossible!

Dear Sir:

I have to disagree with the "official" from the Future Concepts Division of the Joint Warfighting Center when he says that once tanks arrive, they don't move very quickly. I was fortunate enough to command a tank company in 1st Bde., 3d ID at Fort Stewart, Ga. We lived the rapid deployment mission daily. With the loss of the 3-73rd Armor at Fort Bragg, we assumed the rapid deployment mission to support the 82nd should they deploy and need the extra combat power. My company participated in two rapid deployment training exercises to validate the concept and help to refine the division's SOPs for the Immediate Ready Company (IRC). The division had the ability to manipulate the packages that would fly in order to meet the mission, and the standard was that the company would be "wheels up" in 18 or 22 hours, depending on the mission. We were never pressed to meet the time standard. We deployed with a company-minus and all the support needed to sustain the unit during the initial 48 hours of conflict. Tanks and Bradleys are able to fly completely uploaded with all classes of supply, including ammo, in about the same amount of time that the 82nd is.

On the far side, when the C-17s landed, the tanks were unchained in less than five minutes and rolled off of the planes. Once on the ground, the only preparation needed was to remove the gun tube tie-down, verify that the fills in the SINCGARS were on time with the 82nd, and fight. In less than ten minutes from the time the tanks hit the ground, they are ready to battle-carry and fight. In a combat-situation, I know this time would be reduced.

Flying a battalion into a site with a pre-positioned fleet was also discussed. This is another option that offers a very real solution on how to get tanks into the fight. While in 1st Bde., we also did a To Accompany Troops (TAT) deployment. In February of this year, 3-69 Armor was deployed for gunnery. Upon hearing of Iraq's non-compliance with the U.N. resolution, and seeing that a deployment to Kuwait was imminent, the soldiers in my company only requested enough time to go home and do laundry before we boarded planes. The packing of the TAT equipment was completed within a matter of hours from the start time. Six hours after the actual alert for deployment was called, we began manifesting for the flight to Kuwait. Once on the ground there, the battalion fell in on equipment at Camp Doha, and within six hours rolled out of the motor pool to the ammo upload site. This is not a slow process, or a process that has not been tested. In both cases, we have gone beyond the theoretical stage and actually executed to see if we were capable of doing what we were briefing.

ROBERT P. ASHE
CPT, Armor
USMA AR Branch Representative

Current Missions Require Both Heavy and Light Attributes

Dear Sir:

The U.S. Army structures its divisions as either being "light," without *any* armored vehicles to rapidly deploy by air and fight in closed terrain, or slow-deploying "heavy," with armored vehicles to fight in open terrain. Official documents list the pros and cons of each arrangement, and we assume all is well. Yet light forces got clobbered in Somalia without AFVs, and Russian heavy, AFV-equipped forces get decimated in Chechnya without foot infantry. All is not "relative" in war*, you do all you can to win,* not make excuses for weaknesses or hope the mission's demands will not expose these self-imposed flaws. We think that by clever semantics over what "missions" our divisions are performing we can somehow dodge the realities of the battlefield. To win on the modern battlefield you need *absolute quality,* a force with *both* heavy and light attributes. Both light and heavy forces have wheeled vehicles. Since wheeled vehicles can operate in either "light" or "heavy" mission areas, there is no excuse why light forces couldn't have a small force of light, tracked AFVs, like the M113A3, for armored vehicle firepower, mobility, and protection. The addition of light AFVs will not heavy up the LIDs to the point where they become non-rapidly deployable by air, since a C-130 easily carries a M113A3 and dozens of troops in a single lift. The basic assumption — "light without armored vehicles, heavy with armored vehicles" — is a lie, an "all or nothing" tunnel vision....Heavy forces in large numbers cannot get to the battlefield in time by air. Light forces can get there in time but do not have the firepower, armor protection, and mobility to win without heavy casualties. Light armored fighting vehicles, like the air-droppable, swimming, 11-ton M113A3 weigh the same as 22,000 pound, 5-ton trucks (which are now air-dropped) and can mount heavy weapons to move the leading segment of the light force to victory on the battlefield — a heavy/light mix now....

MIKE SPARKS
1st TSG (A)

Thoughts on Training, Simulators, And the Need for Qualified O/Cs

Dear Sir:

In reviewing this article ["Simulations and Training," by Major Mark Alan Eastman and Mr. George Helton, March-April 1998 *ARMOR],* I can see where readers may be lead astray from the types of simulation training that is conducted in the simulation world. Simulation training is done in both the constructive and virtual world. In constructive simulation training, both friendly and opposing forces weapon systems are set to represent the capabilities for that weapon system. However, when a unit is training in a virtual simulation exercise the friendly forces, using the manned-simulators, are only as good as their crew skills.

The second issue is training the unit conducts prior to its NTC rotation. I am sure they did their very best with what they had to work with, but without having a professional observer/controller team to help them in this training they never reached their full training potential. Professional operators are needed in order to make constructive simulation training work to its fullest potential. At NTC, we have to support the units training so they can train and not have all the burdens that come with this type of training. I do agree with COL Swan [Letters, July-August 1998 *ARMOR*] that, short of war, the training a unit receives at the NTC is the very best training a unit can receive. The Army cannot train all its units each year at the NTC. We need to give our soldiers the best possible training we can in order to prepare them for their next battle. Using what training resources we have, and supporting those resources correctly, you will see that the total training package will work. Virtual and constructive simulations can and will prepare any unit for live training, as live training at the NTC prepares a unit for combat, if and only if this training is given the correct resources it needs to make it a part of the total training package.

CSM (RET.) BLAINE SWANN
Radcliff, Ky.

PARK 'EM

The Last M60s Hit The Bullpen

by Captain Roger T. Aeschliman

Company B waves goodbye to their 60A3s at Fort Riley MATES site.

Very few people are aware that on a windy prairie day in May 1997, at Fort Riley, 1st Battalion, 635th Armor, Kansas Army National Guard, retired the last M60-series tanks in the United States' military force structure.

The 58 M60A3 main battle tanks of the Kansas Guard's only armor battalion were unceremoniously parked in a holding pen at the Camp Funston Mobilization and Training Equipment Site (MATES), in the Kansas River Valley, down the hill from Fort Riley's main post. A few snapshots were taken and a couple of jokers "kissed them goodbye." Otherwise the tired Kansas tankers simply boarded buses for home stations after an aggressive weekend of training.

There was little sense of history at the time, and none of the attention that was bestowed on the last Sheridans which disappeared nearly simultaneously. Few battalion members even realized that these particular tanks were the very last of the hardy and valiant Patton Series serving in the U.S. armed forces.

LTC Bob Bloomquist, commander of 1-635th AR, said it was — in fact — the publication of the Sheridan articles in *ARMOR* that led staff officers to look into the equipment question.

"When we learned our A3s were indeed the last tanks of the type — Active Army, Army Guard, or Marines — we knew we needed to spread the word. The M60 was a damn fine tank and a mainstay of our national defense for 20 years. Even now the A3 version is one of the top five or six main battle tanks in the world, and the A3's thermal sights still put the M1 sights to shame. It was a wonderful tank, and it is significant to see it go," Bloomquist said.

Production on the M60 began in 1960, but only after a decade of effort to tweak and contort World War II-vintage Pershings into something more than they were designed for. The Pershing got a new power train and was dubbed the Patton in 1950, an obvious naming choice with GEN George S. Patton Jr., a Blackjack Pershing protégé, transformed by death into an icon. The M46 then got a new turret, 90mm gun, and fire control system to become the second Patton tank, the M47. A whole new tank was contracted to Chrysler. The crew was reduced to four; enhancements were made to the fire control system; the hull was recast, but the same M47 powerpack was used, resulting in the M48. It wasn't until 1959 that a variant of the M48 — with a diesel engine, new front hull, higher profile, and a 105mm cannon — proved to be different enough to warrant a new number; and the M60 was born.[1]

Four variants of the original M60 were created:

- The "Slick 60;" then the A1, which featured a new cannon with a thermal shroud and bore evacuator, and for the first time carried 63 main gun rounds, as well as thicker armor.
- The A2 model featured the short-lived 152mm missile/cannon system carrying 13 missiles and 33 rounds.
- The A3 was a cross-breed with many improvements created in the course of M1 development and research, including the Tank Thermal Sight (TTS), solid-state ballistic computer, laser rangefinder, turret stabilization system, smoke grenade launchers, and Halon fire extinguisher system.[2]

The M60-series turret, which has the 105mm M-68 E-1 cannon, was able to traverse 360° in 16 seconds and could depress to -10 degrees. A cant unit permitted firing on the move over inclines while a sensor measured and corrected for crosswinds. Other armament included the much maligned (and deservedly so) M85 .50 caliber machine gun as the tank commander's weapon. Even more despised was the M219 coaxially-mounted 7.62mm machine gun. Though the M-85 was never replaced, tankers' coax complaints were answered with the exceptional and reliable 7.62mm MG M240 for accurate long range and rapid fire on troops. The M60 weighed 60 tons and could go 30 miles an hour (downhill, with a tailwind) and a nice 10-20 cross-country. Firing on the move required a "stab" speed which was usually between 5-10 mph, but occasionally a system would not stab out until 20-22. In these instances tanks were known to outrun the firing boxes on tank gunnery ranges.

The M60 in all of its variations was truly a world-class tank and saw continuous duty in Europe and Korea from 1961 into the late 1980s. While the Soviets built sleek and fast attack vehicles, the large and powerful A3 was more of a "hunker down and wait for them to come to you" machine. While highly visible outside of a berm or dug-in firing point and ponderous on the move, the M60 can claim some of the credit for preventing the Warsaw Pact attack that never came. It was a well-designed defensive tank.

Whether GEN Patton would have liked this tank bearing his name is open to debate. Certainly these beasts were not his idea of fast, dynamic, and aggressive vehicles primarily to be used in the attack. Patton repeatedly spoke against tank versus tank warfare and in favor of the tank as an exploitation weapon to rapidly cross ground, and terrorize artillery guns, troops, and rear areas. Today's M1 tanks would have been more to his liking, totally suited to the attack.

Despite its long service, the M60 tanks saw little combat by United States' forces. They were of limited use to the Marines in Beirut, and until the mass attack of some 200 Marine M60A1 tanks in Kuwait during the Gulf War, were virtually untested by U.S. forces. Israel used its M60s to great battlefield effect in the Sinai and on the Golan Heights during the Yom Kippur War; and in the Gulf War, Egypt fielded M60A3s in Kuwait.

Park 'em...

Above, an M60 tank platoon maneuvers across the Kansas prairie enroute to the turn-in facility.

At right, tankers pull their gear off the tanks as they get ready to turn them in. These tanks will be transferred to the Jordanian Army.

Tanks roll into storage, below left, and a "second career" in the Mideast. SGT Clark Bingham, lower right, administers one last farewell kiss.

All photos by the author

"...But we had nothing to be ashamed of with the M60s. We were able to do more with less than any unit I can think of. The Jordanians are getting a fine tank with our Kansas A3s..."

After the active forces began fielding M1s in the 1980s, more M60A3s became available to the National Guard, replacing early M60s or even older M48-series vehicles. Many units received depot rebuilds as a part of the Reagan military build-up, providing the Army Guard with the best armor it had ever had. But through the '90s, most Guard units were converted to M1s, and by January 1997, 1-635th Armor was the last in the system, and scheduled to be deactivated.

As a part of the once-proud 69th Brigade, 35th Infantry Division (Mech), First Tanks were set to follow 2nd of the 635th into the world of the deactivated. The currently used Red, Amber, Green status of the states' end strength indicated that Kansas — in a downward Amber trend — was due to lose force structure. The brigade lost an infantry battalion as well as the armor, and lost the brigade flag, leaving First Grunts and First Tanks to follow soon after.

Into this dismal picture stepped the 69th Brigade's chain of command and Kansas' State Adjutant General. In 1995, they reviewed the status of 1-635th Armor and found something worth fighting for — a highly efficient and hard-charging bunch of DATs. Over the next two years, the battalion produced a string of successes which lead to an eventual decision to retain the unit and upgrade to M1s. During this period the tankers:

- Produced a national winner in the Army Chief of Staff's Supply Excellence program.
- Qualified 48 tank crews on Tank Table VIII (including a score of 996) at the Fort Riley MPRC, one of the toughest ranges in the world, and in the same two-week annual training fired all platoons in a Platoon Kills Battalion exercise. This coming from a training cycle with no funding for gunnery ramp-up and only one 1970s MCOFT trainer of dubious reliability for the whole battalion.
- Supplied the Kansas National Guard Officer of the Year.
- Twice supplied the Kansas Best Individual Soldier of the Year.
- Supplied the best NCO in brigade-level competition.
- Increased strength from 85% to the current 100% before retiring the M60A3 MTOE.
- Placed second in the National Guard heavy-rucksack division of the Bataan Death March in New Mexico.
- Placed first in the Adjutant General's APFT team competition, including a junior officer scoring 374 on the extended scale, winning the overall individual competition.
- Had eight M1 Tank Commander school honor graduates of 20 classes conducted.

Through these efforts and others, the battalion made believers out of the National Guard Bureau and the 40th Division, from California. Effective September 1998, 1-635th Armor becomes a battalion of the 40th Infantry Division (Mech), (headquartered in California) armed with M1-IP tanks. At this writing the unit is preparing to fire screening rounds in April and May 1998, to proof the new fleet of M1s in expectation of entering a full-year of gunnery training in FY99. The gunnery cycle in 1999 is expected to be of similar intensity at the Ft. Riley MPRC. Again, with limited resources and funding, the battalion will have to rely on talented NCOs and officers, drive and enthusiasm — items not carried in PLL, but nonetheless abundant.

LTC Bloomquist speaks for everyone in the unit when he says of the M1s, "they are a dream come true."

"This is the finest weapon system in the world and we're proud to have them. We're going to perform with them. But we had nothing to be ashamed of with the M60s. We were able to do more with less than any unit I can think of. The Jordanians are getting a fine tank with our Kansas A3s," he said.

The Kingdom of Jordan has purchased the entire M60A3 unit, and the tanks have been entirely rebuilt, some for the third, fourth, or even fifth time since they were cast in the 1960s. The purchase enhances the Jordanian Army, adding to the vehicles purchased when 2-635th Armor rolled away, and from other states.

The 1998 class of the International Command and General Staff College at Fort Leavenworth, were guests at a recent luncheon meeting of the Topeka Chapter of the Association of the United States Army. An AUSA member who is also a company commander in 1-635th Armor found himself seated next to a Jordanian battalion commander who was very eager to get home in order to get right to work on his new Kansas-provided M60A3 tanks.

"These are the best tanks in our Army," he said. "It is exciting to have world-class equipment."

M60s will continue to generate that kind of enthusiasm for many years to come, all around the globe. We will remember them fondly here in the USA. In Kansas, we're proud to be members of the "Last of the M60 Tankers" Club, and say goodbye to a sturdy warrior of the Cold War.

Notes

[1]Hunnicutt, R.P., *PATTON: A History of the American Main Battle Tank,"* Presidio Press, 1984, pp. 421-459, vehicle data sheets.

[2]U.S. Military Academy Home Page, World Wide Web Address: www.dmi.usma.ed/Milresources/weapons/m60tank.htm.

CPT Roger Aeschliman is currently assigned as Bravo Company commander, 1-635th Armor Battalion, KSARNG. He was previously assigned as asst. S3, 69th Bde, Total Quality Management Trainer with the Kansas State Area Command, tank company XO, tank platoon leader, and fire support team chief, all with the KSARNG. He is a 1987 honor graduate of 19E OSUT at Ft. Knox; was commissioned through the Kansas Military Academy OCS in 1988; and is a graduate of AOBC (Honor), AOAC, and CAS3. He was selected as the Kansas Army Officer of the Year by the National Guard Association of Kansas in 1997. In his civilian career, he is the deputy secretary of the Kansas Department of Human Resources. He earned his BS in Journalism and Polictical Science from Kansas State University, and his Master's of Public Administration from the University of Kansas.

The 11th Armored Cavalry Regiment: NTC's "Home Team" Battles with the Best

The mission of the 11th Armored Cavalry Regiment "BLACKHORSE" is to serve as the world's premier opposing force. Located at the National Training Center (NTC) Ft. Irwin, Calif., the 11th ACR conducts combat operations as the 60th Guards Motorized Rifle Division, providing the U.S. Army the most capable and lethal combined-arms opposing force anywhere in the world. The 11th ACR's mission at the NTC focuses around training brigade task forces to achieve proficiency in their mission essential tasks, improve their ability to synchronize and employ the combined arms team, and enhance their combat readiness. The 11th ACR executes these combat operations during 10 rotations a year while at the same time maintaining its own U.S. Army BLUFOR skills.

Reviewing the Blackhorse year, troopers of the regiment engaged in heavy MILES combat in October against the 3rd ACR "Brave Rifles." Fighting across three corridors and conducting a week of continuous operations, both ACRs came out to the rotations exhausted but exhilarated at the training conducted. The capstone of this hard fought rotation was the "Lucky 16" dinner, a celebration of the "Cav Spirit" attended by members of all three active armored cavalry regiments (2nd ACR, 3rd ACR, and the 11th ACR).

The following rotation was against the 1Bde of the 101st Airborne (Air Assault) Division, a unique training challenge that pitted the premier mechanized force of the U.S. Army against the world's premier air assault force. Both sides learned valuable lessons for future combined arms operations.

Following rotations pitted the Blackhorse against the 1st Cavalry Division and the 3rd Infantry Division. The 1st Cav and 3rd ID trained hard in the rainy, windswept desert of the NTC. Each BCT left better trained and with a higher METL assessment.

The OPFOR refined its mission by conducting AC/RC, joint, and coalition operations. January's rotation introduced the 1-221 Cavalry from the Nevada National Guard as an augmentation unit to the 11th ACR. The 1-221 Cav "Wildhorse" became the 11th ACR's 3rd Squadron for rotation 98-04. Acting as an independent tank battalion, the 1-221 Cav added another facet to the NTC battlefield. This force multiplier validated the 11th ACR motto "One Team, One Fight."

The 11th ACR was also augmented by the Princess Patricia Canadian Light Infantry and by Marines from 29 Palms and Camp Pendleton during rotations 98-04 through 98-06. These light fighters provided the BLUFOR with an infantry threat attacking simultaneously at night against both flanks. All of these units fought with the intensity of seasoned OPFOR units.

The completion of FY98's first campaign concluded with the Expert Field Medical Badge and Expert Infantry Badge training and competitions. These first class NCO-run events improved trooper proficiency and raised esprit de corps. The EFMB, run by 1/11 ACR, awarded 19 badges from a field of 76 medics. The EIB, run by 2/11 ACR, awarded 157 badges from 292 troopers.

Immediately following our chance to hone our BLUFOR skills, we again went into battle in two rotations, against the 1st Cavalry Division and the only CONUS brigade of the 1st Armored Division. The regiment concluded these two hard-fought rotations with a regimental change of command. COL Guy C. Swan III passed the 11th ACR colors to COL John D. Rosenberger, 58th Colonel of the Blackhorse. Without pause, the regiment continued its hostile, uncooperative OPFOR mission to all BLUFOR units rotating through the NTC.

The August rotation brought the 116th National Guard Brigade Combat Team to the NTC, a unit consisting of units from 41 states. This rotation was the first time in nearly seven years that a National Guard BCT had fought the OPFOR. The Secretary of the Army, Louis Caldera, and the Army Chief of Staff, General Reimer, visited while the National Guard was conducting force on force. The fact-finding visit introduced the Secretary of the Army to the mission of the 11th ACR OPFOR and also to the National Training Center's mission.

The 11th ACR's fleet of combat vehicles continues to consist primarily of the M551 Sheridan, portraying the T-80 and BMP-1/2. Future vehicle modifications for the OPFOR fleet include the OPFOR Surrogate Vehicle (OSV). This vehicle, currently funded through FY00, will enhance the capabilities of the OPFOR. The

The OPFOR Surrogate Vehicle (OSV), based on the M113 APC with visual modifications that make it resemble a BMP, will expand tactical capabilities by allowing dismounts to be carried.
–Jody Harmon Sketch

vehicle consists of a M113A3 chassis with a Bradley turret and fire control system and a BMP-2 visual modification. This vehicle, along with its capability to carry dismounts, will provide a more realistic combined arms challenge to the visiting units of Force XXI.

Through it all, the regiment continues to focus on family and community relations. The regiment supports two veterans associations, the Blackhorse Association and the 11th Armored Cavalry Veterans of Vietnam and Cambodia. The annual Blackhorse Round-Up was recently held in New Orleans affording 11th ACR troopers of past and present to continue the traditions of Cav camaraderie. The 11th ACR looks forward to next year's San Diego Round Up in July 1999. This reunion will include a trip to Fort Irwin where Blackhorse troopers will visit the newly dedicated 11th ACR Museum.

The 11th ACR's force structure continues to evolve. Ironhorse 1st Squadron portrays the OPFOR armor. Eaglehorse 2nd Squadron portrays the OPFOR mechanized infantry. Packhorse Support Squadron provides logistical, chemical, engineer, intelligence and maintenance support to the regiment. The round-out units consist of the 1-221 Cavalry Squadron, from the Nevada National Guard, and the recent addition of the 1/180 Field Artillery battalion, from the Arizona National Guard.

The 11th Armored Cavalry Regiment has continued to set the standard for the combined arms army. Rotation after rotation, we live by our motto, "Find the Bastards, Then Pile On." We will always stand ready to fight.

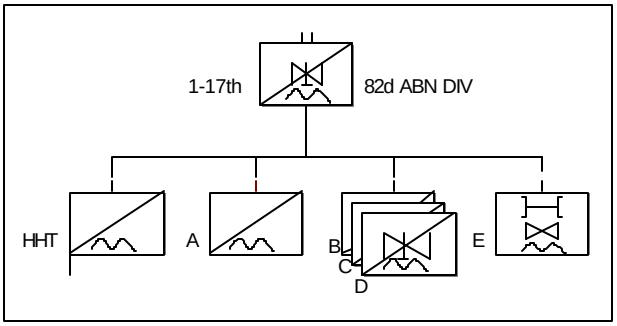
ALLONS!

Airborne Ground Cavalry

In a Unique Unit of the 82nd Airborne Scouting Begins 800 Feet Above the Ground

by Captain Gregory K. Stephens

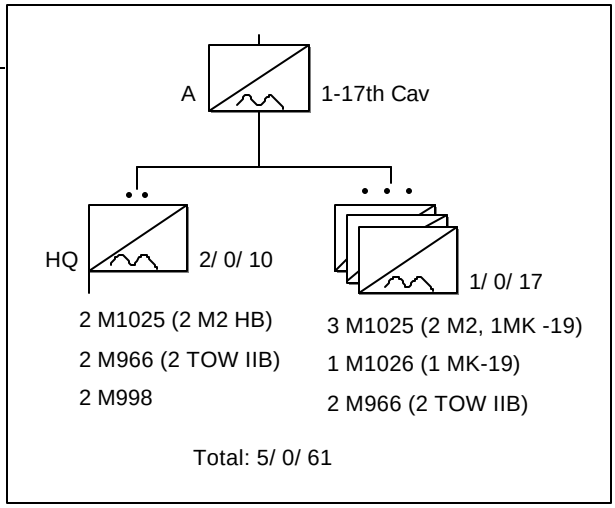
There are only four individual light cavalry troops in the United States Army. Of these four units, Alpha Troop, 1st Squadron, 17th Cavalry, 82d Airborne Division is the only airborne ground cavalry unit. During over three years in that unit as a platoon leader and the executive officer, I saw many maneuver commanders and some of the personnel at Fort Knox fail to fully understand the Troop's Modified Table of Organization and Equipment (MTOE) or capabilities. Because of this, Alpha Troop was not used to its fullest extent by other units. In this article, I will explain Alpha Troop's organization and overall mission and capabilities in order to clear up misunderstandings and fully explain this unique unit.



Alpha Troop, also known as "Shadow," is a part of the 82d Aviation Brigade. This brigade, which contains all of the 82d Airborne Division's helicopter assets, has one attack battalion, one lift battalion, and one cavalry squadron. The attack and lift battalions consist of OH-58D Kiowa Warriors and UH-60L Blackhawks respectively. The attack battalion used to have AH-64 Apaches instead of the OH-58Ds; however, the 82d Airborne Division decided to switch because the OH-58Ds can be off-loaded from tactical aircraft such as the C-130 and C-141 much more quickly, and more aircraft can be carried in a single plane. The cavalry squadron consists of three OH-58D troops, a maintenance and headquarters troop, and the ground troop. Alpha Troop is a unique asset as it is the only maneuver ground element in the entire brigade.

The MTOE for Alpha Troop consists of four platoons of five High Mobility Multipurpose Wheeled Vehicles (HMMWVs) and the headquarters section. Each platoon is authorized two M1025 ("Turtleshell" HMMWV), one M1026 ("Turtleshell" w/winch), and two M966 TOW HMMWVs. Each platoon is authorized one officer and 14 enlisted men. The headquarters section is authorized one M1025 for the commander and two M998s for the 1SG and the supply sergeant. The headquarters section has one officer and five enlisted men, which includes the NBC NCO and the supply sergeant. The troop's maintenance team, which consists of one E7 motor sergeant, and an E5 and E3 light wheeled vehicle mechanic, are held under squadron control. The total troop strength is 5 officers and 61 enlisted men.

The current organization of the troop is a little different, however, for reasons which will be discussed later. Currently, Alpha Troop has three platoons of six vehicles with the headquarters section. The sixth vehicle for each of the platoons came from the fourth platoon, with the two TOW HMMWVs moving to the headquarters section. The headquarters section currently consists of two M966 TOW HMMWVs, two M1025 HMMWVs for the commander and executive officer, and the two M998 HMMWVs for the 1SG and supply ser-



geant. The extra M1025 is an additional vehicle authorized, but not required by the MTOE organization. This organization gives each platoon a personnel strength of one officer and 17 enlisted men with the headquarters section having two officers and 10 enlisted men. For a light unit, Alpha Troop has a vast amount of firepower, the most in the division since 3-73rd Armor was deactivated. Each platoon is equipped with two MK19 40-mm grenade launchers, two M2 HB machine guns, and two TOW IIB missile launchers. In addition to these weapons, each vehicle also carries an M60 machine gun as its secondary weapon. Each individual soldier carries an M16 with three of the weapons equipped with M-203 grenade launchers. Each platoon also has a tremendous ability to fight at night. Besides the two thermal sights for the TOW launchers, the other four gun HMMWVs also have thermal sights mounted on top of the hatches, which gives every vehicle in the three line platoons thermal capability. Each platoon also has PVS-7B night vision goggles, PVS-4 and TVS-5 night sights for the crew-served weapons, and PAQ-4Cs, which are infrared laser pointers used on the M16. It allows a soldier to sight in the M16 by placing a beam of light on the target, which can only be seen through NVGs, and allows pinpoint accuracy once properly zeroed.

The headquarters section is nicknamed "The Fighting HQ Section," as it also carries some firepower for reinforcing another platoon when needed. The commander and executive officer both carry an M2 HB machine gun with the other two vehicles mounting the TOW IIB missile launcher. There are also three M60 machine guns in the headquarters section, and it is equipped with all of the same night vision capabilities as the three line platoons, except for the additional thermal sights.

Unlike a more normally organized cavalry squadron, this unit has no mortars. Its supporting firepower comes from the three air troops which have the OH-58D. This helicopter can be equipped with 2.75-inch rockets and Hellfire missiles, and also carries an M2 HB machine gun under the fuselage of the aircraft. Alpha Troop and the three air troops have a very close relationship; they constantly train together and work to perfect the air-ground concept. The air troops normally screen in front of Alpha Troop, staying approximately one phase line ahead. By doing this, they can relay possible enemy locations, danger areas, or better routes to follow. For fire support, the troop has attached a fire support team (FIST) which includes one officer, two enlisted men, and an M1025 HMMWV.

The original MTOE organization was actually four platoons and one headquarters section, but this was changed to three platoons about six months after I had arrived at Fort Bragg in May of 1994. After seeing both organizations, I feel that the three platoons of six vehicles is a much better organization for two main reasons. The first is because FM 17-98 is written for either a six-vehicle Bradley platoon or ten-vehicle HMMWV platoon. By having six vehicles, the platoon can break down evenly into either two or three sections. With only five vehicles, the platoon can only break down into two sections with the platoon leader by himself as the command and control element. This not only reduces security, since the platoon leader does not have a wingman, but also effectively reduces the frontage that a single platoon can cover. The second reason for the three platoon organization is because it enhances the command and control element. The commander now has a dedicated executive officer who can not only help keep track of logistics and maintenance, but also help the commander fight the battle. In the original MTOE, the fourth platoon leader is the senior platoon leader and an acting executive officer. Although this concept may work in a garrison environment, it is very difficult for even a seasoned lieutenant not only to command his platoon, but also to keep track of the entire troop logistically and operationally.

There are only three other separate light cavalry troops in the United States Army, not including those troops which are part of the 2nd Armored Cavalry Regiment at Fort Polk, Louisiana. These troops are located at Fort Wainwright, Alaska; Fort Drum, New York; and Schofield Barracks, Hawaii. Some of these light cavalry troops organize their eight TOW IIB systems into two anti-armor platoons, which support the two scout platoons. This is very similar to the M3 Bradley/M1A1 Abrams tank mix in an armored division cavalry troop. Again, the problem with this organization is that the overall frontage that the troop can cover is reduced because there are only two platoons abreast in a zone. Although the TOW IIB system's capability is greatly reduced in a wooded environment, the vehicle can be configured to carry the M60 machine gun either with or without the TOW IIB system. This allows the crew to operate in terrain that reduces the weapons observation and fields of fire. Also, by integrating the TOW IIB systems with each of the platoons, it allows them to have anti-armor capability readily available should they need to use it.

The headquarters section is best operated when the executive officer uses the additional M1025 HMMWV. Depending on the current strength of the troop, the executive officer will use either the M1025, or if there is not enough personnel, one of the M966 TOW HMMWVs will be used. Having the additional vehicle allows both the commander and executive officer to operate independently with a wingman. By retaining control of the additional two TOW IIB systems, the commander may flex them throughout the battlefield. The 1SG will be moving around from the combat and field trains with the supply sergeant operating primarily at the BSA.

Alpha Troop is capable of many different missions and can arrive on the battlefield by a number of ways. The one thing that sets the troop apart from all other troops is its capability of making an airborne assault. Every single soldier and piece of equipment within the troop can be placed on the battlefield at night by parachute. During an alert, the support units will aid in rigging each HMMWV on platforms with three G-11 parachutes attached. These platforms are then placed on either C-130, C-141, or C-17 aircraft, and dropped approximately a minute before the soldiers jump to minimize injury from the heavy equipment falling onto the soldiers. During peacetime, the platforms are dropped at an altitude of approximately 1,100 feet above ground level (AGL), while the paratroopers are dropped at around 800 feet AGL. During a combat jump; however, the altitudes are reduced, with the soldiers jumping at only 500 feet AGL. Once on the ground,

the soldiers link up with the equipment and can be ready to conduct operations within a very short time. This allows the Army to place troops into another country very quickly, as the world is one big drop zone. The 82d's mission is to have aircraft taking off within 18 hours upon notification of an alert.

The troop's other capability is conducting air-mobile operations. Whether mounted or dismounted, the troop can be moved swiftly throughout the battlefield. The troop is highly trained on slingload and pathfinder operations. Every platoon has school-trained pathfinders who can effectively locate, mark, and control helicopter landing zones. They can also be inserted in advance to mark drop zones for parachute operations.

Because of these capabilities, the troop can be pushed out as far as needed since supplies can be delivered by either slingload or door bundles. Also, since the UH-60L can pick up equipment up to around 8,200 lbs., the troop can be slung quickly around the battlefield or into another area of operation.

The troop can conduct operations in all weather, 24 hours a day, day or night, mounted or dismounted. Many times, the troop will have two platoons conducting mounted reconnaissance with one of the platoons conducting dismounted operations. This allows the division to insert the platoon deep into enemy territory and observe specific objectives or Named Areas of Interest (NAIs). A mission, which is often conducted by the dismounted platoon, is Battle Damage Assessment (BDA). After a strike on an objective from either the Kiowa Warriors or Apaches, the only way to determine the extent of casualties or damage is to place eyes on the objective. By inserting a dismounted platoon, the exact damage can be determined and radioed back to waiting operators in the rear.

The ability of the troop to conduct both mounted and dismounted operations, combined with airborne or airmobile operations, gives the troop capabilities that heavier forces cannot match. The troop can be deployed much more quickly, both tactically and strategically, whereas the armored cavalry troop must either arrive by sea or air-land. In order to air-land, however, either the airport or Field Landing Strip (FLS) must first be secured.

The trade-off is the unit's lack of armor protection, but in a wooded or mountainous terrain it can be argued that the Bradley Fighting Vehicle is very vulnerable since its maneuverability and weapons ranges are greatly reduced.

Alpha Troop's mission extends across a wide spectrum. Of course, its main missions are reconnaissance and security. The troop often conducts a zone reconnaissance with a couple of routes included in the zone, which will be used later as main supply routes for the division. The troop will then pause along a screen line while waiting for follow-on operations. The troop also conducts many other missions, which fall under Stability and Support Operations (S&SO). Some of these include convoy security, checkpoint security, or Downed Aircraft Recovery Team (DART) missions. Convoy security and checkpoint security missions were often assigned in Somalia and are currently carried out in Bosnia.

DART missions can be assigned both in peacetime and during conflicts. This basic mission is to retrieve a pilot who has either crashed or been shot down in enemy territory. This mission is conducted both mounted and dismounted, depending on the terrain and threat. The troop has also participated in a couple of counter-drug and border patrol missions with Joint Task Force Six. During one of the missions, the troop, using its thermal capabilities, helped capture a total of 106 illegal aliens crossing the border at one time, which was the record in October 1995.

Since Alpha Troop conducts a multitude of missions, rigorous training ensures that all soldiers are proficient in these numerous areas. The troop maintains an Army Physical Fitness Test average of around 270 points and conducts quarterly 20 km road marches. Semi-annual gunneries are conducted using *FM 17-12-8, Light Cavalry Gunnery*. The troop also developed and conducts the only Excellence in Armor program at Fort Bragg for the 19D cavalry scout. The troop deploys to such places as the Joint Readiness Training Center; Fort Hood, Texas, and Fort A.P. Hill, Virginia, for gunneries and training; and Fort Knox, Kentucky to conduct SIMNET.

Most of the time, the troop will conduct airborne operations into these areas in order to help maintain proficiency and simulate jumping into unknown territory. The troop also participates in division emergency readiness deployment exercises (EDREs) in which the units on mission cycle will be alerted and conduct operations either at Fort Bragg or another area of the country, such as Fort Chaffee, Arkansas.

The troop conducts airborne operations from one to three times a month. Each platoon has qualified jumpmasters, who can safely supervise paratroopers as they jump out of an aircraft. Fort Bragg is the only Army post where armor/cavalry officers or 19D cavalry scouts can attend jumpmaster school, a three-week course in which soldiers learn how to inspect and rig equipment, and perform their actions within the aircraft.

One of these actions includes hanging out of the aircraft for what is called a "Clear to the Rear." This is done to ensure that there are not any low flying aircraft under the jumpmasters' plane and that there are not any jumpers being towed by their static lines. When conducting jumps, soldiers will typically carry anywhere between 70 and 100 lbs. of equipment.

Alpha Troop, 1-17th Cavalry is a unique troop which can accomplish a multitude of missions. Whether jumping at 800 feet or skimming above the trees while flying nap of the earth (NOE) in a UH-60 Blackhawk, the troop can be flying anywhere in the world and ready for an airborne assault within 18 hours of notification. Once in country, the troop can swiftly move across the battlefield, either mounted or dismounted, by conducting air-mobile and slingload operations. The troop gives the Aviation Brigade and the 82d Airborne Division the enhanced capability of conducting reconnaissance and security missions 24 hours a day anywhere in the world as well as the flexibility of numerous other missions. With its stealth, maneuverability, and firepower, Alpha Troop brings an added punch to the light fighters.

CPT Gregory Stephens is a 1993 graduate of the U.S. Military Academy, where he received his Armor commission and a B.S. in Electrical Engineering. He has served with A Trp, 1-17th Cav, 82d ABN Div, as a scout platoon leader and XO. His military schooling includes the Armor Officer Basic Course, Scout Platoon Leaders Course, Ranger School, Jumpmaster School, Air Assault School, and Pathfinder School. He is currently stationed at Ft. Leonard Wood, Mo., where he completed the Engineer Officer Advanced Course and completed a masters in Engineering Management. His follow-on assignment will be at Ft. Drum, N.Y. with 3-17th Cavalry, 10th Mountain Division.

A high operational tempo, and frequent personnel turnover...
While in the background, a real threat looms

ARMOR IN KOREA

by Captain Andrew T. Berkowitz

This article will provide the Armor Community an informed and thorough look at various aspects of an armor assignment to Korea. The scope of the article will include the Second Infantry Division, its organic armor units, major training events conducted on an annual basis, and the operational environment. Duty in Korea is among the best in the armor community due to the unique mission, training operational tempo, and combined operations with the Republic of Korea (ROK) Army, the force integration schedule, and the nature of the threat.

The 2nd Infantry Division is the most forwardly deployed heavy division in the U.S. Army. With a history dating from World War I and including extensive combat during the Korean War, the "Warrior Division" has been serving continuously on the peninsula since July 1965. In 1993, in accordance with international agreements signed by the United States, 2ID withdrew its forces from the Demilitarized Zone and formally handed over responsibility for that area of operations to ROK forces. Since then, the soldiers of the 2nd Infantry Division have remained ever vigilant, ready to come to the immediate aid of our South Korean allies, if the need should arise.

Armor units of the division include the 1st Battalion, 72nd Armor Regiment (Crusader); the 2nd Battalion, 72nd Armor Regiment (Dragon Force); and the 4th Squadron, 7th Cavalry Regiment (Sabre). Both battalions of the 72nd Armor are part of 1st Brigade (the "Iron Team") and are garrisoned at Camp Casey, which is approximately 18 miles north of Seoul and nine miles south of the DMZ. The division cavalry squadron, 4-7 CAV, conducts operations out of Camp Garry Owen, 13 miles west of Camp Casey.

The mission of the 1st (Iron) Brigade is quite distinct from other armor units. A real threat, the North Korea's armored forces, oppose the brigade just across the DMZ within the range of enemy conventional artillery. Also, unlike most of our brothers-in-arms, the Iron Team trains and prepares for the "Defile Fight" against the North Koreans.

The defile fight is a sequential battle conducted in restricted terrain characterized by rugged mountains, steep ridges, and narrow valleys. Setting the platforms of C^2, fires, and intelligence are critical tasks that must be completed prior to the maneuver fight. Additionally, the restrictive terrain makes the fight a company/team battle. Main gun engagements of only 800 to 1000 meters are the norm with extensive obstacles, urbanization, and a vertical fight, as well as a horizontal one, characteristic of the defile.

Under the guidance of Col. Robert W. Mixon, Jr., the brigade commander, 1st Brigade routinely trains with teams at both battalion and company levels. The brigade-designed combined live-fire exercise and company/team external evaluation models are specifically built to tie the defile fight to maneuver training, gunnery, and the threat. Each battalion in the Iron Brigade conducts tank gunnery with a CALFEX of two company teams under task force control every six months in order to maintain crew and collective training proficiency.

With high personnel turnover and an unmatched OPTEMPO, armor junior officers and noncommissioned officers must remain in a narrow band of excellence to accomplish these challenging missions. The brigade has identified this imperative and established the Iron Team Leader Development Program to achieve these particular objectives. "Continued junior leader development is the key to our successful execution of platoon and company battle drills," said Mixon. These programs endeavor to immediately integrate the soldier into the Iron Team and increase his overall proficiency.

Duty in Korea has numerous benefits. Among them are some of the most challenging training events conducted by armor units in today's Army. One of these events is FOAL EAGLE. This is a reception, staging, onward movement, and integration (RSOI) exercise in which a continental U.S.-based brigade deploys to the Korean peninsula and conducts force-on-force exercises with ROK forces. This year's training event marks the first time ROK forces will use the Multiple Integrated Laser Engagement System (MILES) and participate in a Combat Training Center-like force-on-force exercise that includes after-action reviews, a technique new and unfamiliar for ROK soldiers and officers.

Another significant training event is WARSTEED. This is an annual brigade-level field training exercise in which brigade headquarters and battalions receive external evaluations. The division also conducts various command post exercises throughout the year. These exercises include WARSTRIKE (division level), WARFIGHTER/BCBST (a brigade level WARFIGHTER), SUMMER-EX (an Eighth Army CPX), and ULCHI FOCUS LENS (the largest theater training event in Korea).

One of the great benefits of armor duty in Korea is the chance to work with the Army's latest technology. All units of the Warrior Division are upgrading, improving, and modernizing individual soldier systems, vehicles, and weapons platforms.

With the introduction of the tactical local area network (TACLAN) and website automated reporting systems, the Warrior Division is again poised at the technological forefront of our Army. TACLAN provides data connectivity in a field environment via a secure LAN system. It allows spot reports, situation reports, logistical statistics, and other information to be sent from division staff to all major subordinate command and separate battalion tactical operations centers.

The TACWEB system is a secure tactical website for use by the division's

commanding general and his subordinate commanders. It provides key decision-makers with a real-time picture of the battlefield and allows instantaneous access to critical information.

In the arena of firepower, 2ID armor units recently fielded the XM908 tank round. This obstacle-reducing round can destroy rock drops, bridge abutments, most armor vehicles, bunkers, and has tremendous potential for military operations in urban terrain. Also, it is of interest to note, soldiers of the Iron Team developed the Army-wide tactics, techniques and procedures for using this round. *(See photos below. –Ed.)*

Another distinct characteristic of the Warrior Division is the Korean Augmentees To the United States Army, or KATUSA program. KATUSAs are Korean soldiers assigned to U.S. Army units and make up approximately 10 percent of the Warrior Division's force in Korea. These soldiers play an essential role as a combat multiplier for our armor units and are assigned for two years while most U.S. soldiers serve one-year tours. To become a KATUSA, Korean draftees must pass an initial exam showing English language proficiency. Upon successful completion of ROK basic training and acceptance into the program, KATUSAs complete the remainder of their enlistment with a U.S. Army unit. Our soldiers train the KATUSAs on American weapons systems, vehicles, and doctrine. They also participate in all training conducted and experienced by U.S. soldiers. As a result, KATUSAs and U.S. soldiers develop strong friendships laboring together daily and sharing common duties. Further, it is not unusual for an American to visit a Korean home for dinner or for a Korean to be secure in the knowledge that he has a place to stay, should he visit the United States.

In addition to working with KATUSAs, U.S. soldiers train in a combined environment with ROK soldiers during FOAL EAGLE, ULCHI FOCUS LENS, and, for the first time next year, tank gunnery. The 5th Republic of Korea Armor Brigade is attached to 2ID and will fight side by side with Iron Team soldiers. The discipline, work ethic, and maintenance standards of 5th RAB are unmatched. During a recent tank gunnery, they had no vehicle breakdowns and only two mechanical failures, both on coax machineguns. With a numerically superior communist threat just to the north, they maintain the highest readiness levels and are prepared to execute combat operations on short notice.

The largest and most critical continuing challenge is how to maintain our leaders in the Band of Excellence while sustaining high personnel turnover. The significant amount of effort we devote to programs like our Leader Development Workshops are key to maintaining high levels of leader performance.

An armor assignment in Korea differs in many ways from other assignments. From the mission to major training events, the tour presents great opportunities to excel in a real threat environment. The bottom line to training in Korea is that after a year of fire and maneuver in challenging terrain, almost all soldiers agree that Korea offers an outstanding opportunity to tank as part of a mobile and lethal combined arms team. With an enemy just on the other side of the DMZ, U.S. forces in Korea are a significant, credible deterrent to the communist threat.

CPT Andrew T. Berkowitz was commissioned a second lieutenant of infantry from the United States Army Officer Candidate School in 1991. Prior to a successful branch transfer to armor, he served as an infantry rifle platoon leader, support platoon leader, and battalion liaison officer in TF 1-10 CAV, TF 1-70 AR, and TF 2-33 AR at Fort Knox, Ky. He is a graduate of the Infantry Officer Basic Course and the Armor Officer Advanced Course. He is currently the Assistant S3 of 1st Bde, 2ID (Korea).

Testing the New XM 908 Obstacle-Reducing Tank Round

Photo sequence shows effect of the new round on a typical Korean "rock drop" obstacle, seen intact at upper left. Obstacle blocks have dropped in lower left photo which shows size of the blocks compared to standing soldiers. Above, the rubble left after demolition by the new XM908 round.

4th ID Pioneers New Division Design

by Major Mark Newell, Public Affairs Officer, 4ID/EXFOR

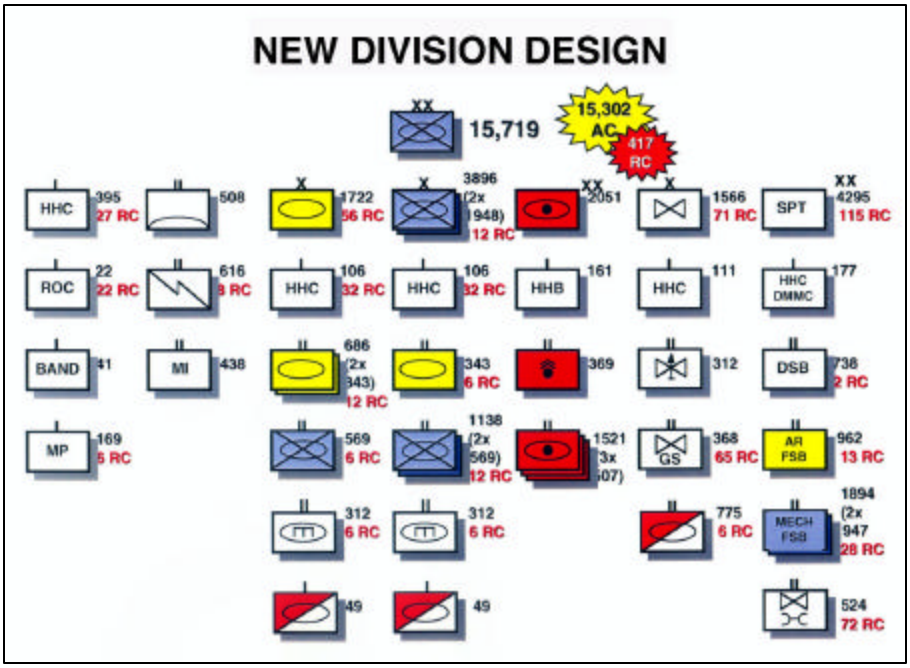
As the Army's Experimental Force (EXFOR), the 4th Infantry Division (Mechanized) is at the tip of the spear, guiding the Army and sister services into the Information Age and onto the Digital Battlefield. The division's mission statement contains two very important, simultaneous tasks that the unit must constantly balance. The division is tasked to, "*... maintain combat readiness to deploy on order for commitment to operational missions, while preparing for and conducting large-scale Force XXI experimentation to test improved lethality, survivability, operational tempo, sustainability, organizations, deployability, joint/combined linkages, and versatility of the force for the 21st century.*"

This dual responsibility has kept the units within the division performing at a very fast pace for the past year. Even though it is an infantry division on paper, the division is currently organized as an armored division. The reason for this is that the division was reflagged from the 2nd Armored Division to the 4th Infantry Division (Mechanized) in December of 1995. The former home of the 4th ID, Fort Carson, Colo., still maintains the division's 3rd Brigade Combat Team, to include the supporting slice elements. The division headquarters and the rest of the units are located at Fort Hood, Texas.

The current division composition was changed during the summer, when the Army unveiled its new division design, called Division XXI. The first division to undergo the transformation is the 4th ID. The new division will be smaller — going from an authorization of nearly 16,700 to slightly over 15,000. That translates to about 24 percent fewer combat platforms in the division, most of those combat-arms reductions occurring in the armor and infantry battalions. Despite fewer personnel and vehicles, the unit will achieve increased combat lethality, survivability, and speed through Information Age technologies and logistic efficiencies. Also, the design will take important steps toward fully integrating Reserve forces into the divisions of the future. Much of the data used for the redesign was extracted from numerous Advanced Warfighting Experiments conducted at Fort Hood and Fort Irwin, Calif. during the past three years.

The physical organization of the Division XXI design is very similar to the current heavy division; that is, it maintains its three maneuver brigades, a division artillery, a division support command, an aviation brigade and several separate battalions comprising the division base. However, within those units, some significant changes will occur:

- Each maneuver brigade will have its own scouts — the Brigade Reconnaissance Team (BRT.)
- The maneuver battalions will be reduced to three companies with a total of 45 combat vehicles. Company organizations will remain the same.
- The mortar platoon will be standardized at four 120mm mortars each.
- The infantry dismounts will be standardized at three squads of nine men in each mechanized infantry platoon.
- The Division Artillery's Multiple Launch Rocket System battalion will have three MLRS batteries of six launchers each.
- The Engineer Brigade HHC will be replaced by a planning section at the division level. An engineer battalion will be habitually associated with each of the three maneuver brigades.
- Combat Service Support is centralized. They return to maneuver formations in the form of Forward Support Companies (FSC) associated with maneuver battalions and Forward Support Battalions (FSB) associated with the maneuver brigades. Logistic resupply will be distribution-based, instead of supply-based.
- There will be organic Reserve Component positions and organizations in the division. They will wear the same patch, train to the same level, and be accountable for the same mission requirements. They will be included in Command and Control/Staff augmentation, signal, aviation, and medical positions/units. The total number will be around 500.



- Some units, such as the Chemical Company and water purification units, will be "passed back" or moved to Corps.

The 4th ID has already implemented many of the changes, starting with the former Task Force XXI Brigade, the 1st Brigade Combat Team. Restructure of the remainder of the division will occur within the next year. During the transition, the command is committed to consider personal and professional concerns while fulfilling Army requirements.

The new division's modular design allows for quicker deployment and can be tailored to the full range of contingency operations, from full-spectrum conflict to operations other than war.

The 4th ID has been designated as the Army's First Digital Division (FDD), and is expected to be fully fielded by the year 2000. Although the new division design is not the final design for the future, senior Army officers feel it is the right organization for this point in the experimental process and still affords the division the ability to deploy. As the design goes through further experimentation, versions of this structure and the lessons learned will be applied Army-wide, to heavy and light forces.

Even with all of the experimentation, digital testing and redesign actions, the division still has honed and maintained its combat effectiveness and deployability:

- A combined task force of infantry from Fort Carson and armor from Fort Hood conducted an Intrinsic Action rotation to South West Asia last December.

- The division's 2nd BCT, 4th BCT (Aviation Brigade), and 3rd BCT all executed successful rotations to the National Training Center.

- Armored units supported light/heavy rotations at the Joint Readiness Training Center.

- The 1st BCT conducted extensive Future Battle Command at Brigade and Below (FBCB2) Limited User Tests (LUT) to train units to a higher state of readiness and provide data to the Army's testing community.

The 4th ID has picked up an additional contingency mission, but will continue Force XXI experimentation in conjunction with Combat Training Center rotations. We are proud of our past, prepared for our missions, and forging ahead. Ironhorse!

TADSS Rides to the Rescue As Training Funds Disappear

by Colonel Ted Carmony, Commanding

The 37th Armored Brigade is the largest combat arms organization in the Ohio Army National Guard. It is the heavy brigade for the 38th Infantry Division (M), whose subordinate commands are located across three states. The brigade maintains four maneuver elements; two armor battalions (1-107th CAV and 1-147th AR), one mechanized infantry battalion (1-148th IN), and the divisional cavalry squadron (2-107th DIV CAV). These battalion elements are equipped with the M1 and M1IP Abrams main battle tank. The brigade accesses the fire support elements of the 1-134th Field Artillery Battalion (equipped with the M109A4) and combat service support from the 237th Forward Support Battalion. The brigade's manning employs 3,939 soldiers. The brigade's MTOE configuration is standard across the force; however, during Training Year 1998, our opportunity to execute standard gunnery and tactical training was dramatically reduced. Early in calendar year 1997, we received notice that our OPTEMPO funds were reduced to 13%, so the armored brigade would not have the opportunity to train in a traditional event cycle.

Fortunately, our command maintains a steady presence at the annual U.S. Army Armor Conference, the annual Master Gunner Video Tele-Conference, and readily communicates with the Crew Gunnery Doctrine team. They charted a course to utilize even more heavily existing Training Aids, Devices, Simulators, and Simulations (TADSS). We would NETT new simulators whenever the opportunity presented itself, and adapt the local training areas (LTA's) to facilitate the new gunnery standards in FM 17-12-1. A key would be to disperse simulation centers to centralized battalion locations and culminate these events with a Fort Knox SIMNET and multiple combined arms Lanes Training Exercises.

We were able to receive a commitment from STRICOM to NET the Thru-Sight Video (TSV) and the Tank Weapons Gunnery Simulation System (TWGSS). STRICOM and Gowen Field's Armor Team committed five A-FIST training systems and a NET. Fort Knox scheduled nine consecutive days of SIMNET, and our State Training Office initiated the reconfiguration and enhancement of three separate LTA's to support preparatory gunnery simulation training. After some revision of the training events, all of the necessary tools for us execute our Yearly Training Guidance and yearly Training Calendar seemed to be available.

TADSS allowed us to spend our austere funding for electric bills rather than Class III, V, and IX. Preparing for gunnery on simulation devices afforded us additional time to review and rehearse tactical training at the platoon level. Some very positive by-products came out of this chain of events: the leadership validation process was initiated on the specifics of the newly fielded Abrams gunnery standards; tactical SOPs were revised and validated at the platoon, company, and battalion level; combat service support elements "crawled, walked, and ran" through exacting lanes training exercises; and the battle staffs planned and rehearsed for participation in an end of the training year BCST.

Our first new gunnery Table VIII will be on Yano MPRC (Fort Knox) in TY99. TWGSS will be the standard for the conduct of Table IV. A-FIST and TSV TCPC will be the mode for full crew interaction. The MCOFT hones and refines tank commander and gunner synchronization, and finally, logical and progressive mounted gunnery becomes less costly, while appreciably more effective. What's next? Battle staffs and company-level tactical leadership fully embracing SIMNET, Janus, while the brigade continues its cycle of Division Warfighter exercises. All of these tools and events are constantly being reviewed to find just the right mix of simulation and effective field endeavors.

Training for War, and Battling the Weather, Fighting Drugs and Helping Neighbors, It Was a High-Tempo Year for the 42nd ID

by Captain Richard L. Goldenberg, PAO, 42nd ID (M)

From World Wars I and II, the Cold War, and right through the Gulf War, the 42nd Infantry Division supported its federal mission in training and in combat. More recently however, the Rainbow Division received the opportunity to support the citizens of local communities in the form of disaster relief and emergency assistance. In fact, the Rainbow Division headquarters and soldiers have been called upon more than eight times in just the last three years to respond to threats to local communities.

The Rainbow Division's nickname was coined by the division's first chief of staff, General Douglas MacArthur, to capture the spirit of one division comprised of 26 different state National Guard regiments deploying to the trenches of Europe in World War I. In the years since the first National Guard soldiers saw combat with the American Expeditionary Force, the 42nd Division has returned to its roots — citizen-soldiers representing the very best of individual states. The 1997-1998 training year reflects the training and operations of a division training for a combat role while never losing sight of its ties to local communities and local citizens.

Training

Rainbow Division's 1998 training covered a broad spectrum. The division's 3rd Brigade, from Buffalo, N.Y., participated in the first-ever Synthetic Theater of War Exercise (STOWEX) as part of a Force XXI training experiment at Ft. Knox, Ky. Soldiers from the brigade's infantry and armor battalions engaged in cyber combat using a National Training Center scenario. Similarly, one of the division artillery battalions, the 1-258 Field Artillery based in New York City, also conducted Force XXI testing with the Global Positioning System (GPS) and the Initial Fire Support Automated System (IFSAS) to bring advanced combined operations to the division's combat capability.

Gunnery annual training for 1998 included crew qualifications and artillery live-fires for all Rainbow units. Brigade tank crews from western and upstate New York, New York City, Vermont, Massachusetts, and New Jersey gathered on Fort Drum gunnery ranges and with their combined arms brothers participated in crew qualifications, artillery live fire, and mechanized infantry training. Crew gunnery resulted in an unprecedented number of first-time (Q1) qualifications and top gun crews in every battalion.

Other division highlights include support of Joint Task Force Six, the Defense Department counter-drug operation on the U.S./Mexican border. Soldiers from the Buffalo-based 152nd Engineer Battalion deployed to southern California to assist Border Patrol efforts battling cross-border drug traffic. The battalion constructed more than two miles of fence along the U.S./Mexican border in just two 15-day deployments.

"We're protecting citizens from a different kind of invasion. What we're doing is trying to keep drug dealers from reaching Southern California." — Captain James Wasnechak, Battalion S1, 152nd Engineers

Maintaining

Soldiers of the Rainbow Division continue to support and maintain their fleet of armored vehicles, including the M1 Abrams tank. In fact, Rainbow soldiers reached out to provide vehicle maintenance and inspection to the PM Abrams research and development (R&D) team in Picatinny, N.J. Soldiers from the 101st Cavalry, based in Staten Island and Albany, New York, traveled to the operational R&D site at Picatinny's Benet Laboratories to perform semi-annual checks and services on the test center's M1A1 and M1A2 Abrams tanks. Rainbow maintainers replaced various fuel and hydraulic filters, serviced air cleaners, and removed the tank's turbine engines for checks and services. In return, the TACOM engineers in New Jersey provide crew familiarization with fire control systems and other upgrades in the M1A1 and M1A2 versions yet to be fielded in the 42nd Division. The soldiers from the 101st Cavalry are excited to be assisting the Abrams R&D team and appreciated the opportunity to train with the newer Abrams for crew familiarity and proficiency.

Leading

Leadership of a division spread across more than six regional states offers unique challenges. With individual maneuver brigades and separate battalions headquartered in Vermont, Massachusetts, New York, and New Jersey, coordinating unit training and support becomes an obstacle in itself. With individual state emergencies adding even more unique demands on units, the division capitalized on these command and control (C2) opportunities for the headquarters and staff to prepare for the Battle Command Training Program (BCTP) Warfighter exercise.

Last conducting a BCTP exercise in 1994, the division started staff planning and leader development more than 18 months prior to the 1998 rotation to Ft. Leavenworth, Kansas. Linking with the active component's 10th Mountain Division (Light Infantry) at Ft. Drum, New York, the Rainbow headquarters and staff adapted lessons learned and prepared plans and orders for the divisional command post exercise. Integrating automation equipment and revising unit reporting procedures provided real advances in situational awareness and gave Rainbow soldiers new experiences with tactical internets, web sites, E-mail reporting, and communications.

The call-up for state emergencies during the trainup for Warfighter gave the division staff real experience in coordinating large-scale troop deployments, civil/military operations, and logistics. Operation "Rainbow Ice" — relief for the devastating Northern New York and New England power outage in January — and

"Rainbow Twister" — assistance for tornadoes in upstate New York — saw thousands of 42nd Division soldiers activated to help local communities overcome natural disasters. The coordination required with civilian authorities sharpened commanders' skills and exercised staff planning under short timelines and in harsh conditions.

The successful command post exercise was a validation of the division's ability to command and control large-scale operations. The scale of the divisional mission for Warfighter exceeded that of any state emergency relief mission in the division's history. From operations to intelligence to logistics, Rainbow commanders and staff at all levels displayed an ability to coordinate and communicate.

Caring

Another important contribution the Rainbow Division made to local communities is found in New York's implementation of the **guardHELP** Program. The initiative, developed to unite Guard soldiers with the communities throughout the state, invites local leaders and nonprofit organizations to work jointly with the Rainbow Division to address threats in New York's hometowns. Getting the division involved locally incorporates all the elements of **guardHELP** — **H**earing local needs and identifying threats, **E**ducating communities about divisional capabilities, **L**inking assets to needs to provide training opportunities, and **P**artnering by local National Guard armories with local communities.

The program encourages a central aspect of the National Guard role: citizen soldiers lending assistance to other citizens. In the few months since introduction, Rainbow soldiers have assisted local communities with education, engineer construction, beach and park cleanup, counter-drug youth programs, and resources and training for law enforcement. The success of **guardHELP** in New York State has led to the Rainbow Division adopting community partnership objectives for units throughout the division.

"We are redefining national defense at the local level (and) the National Guard is uniquely configured because it is community-based, and this is where citizens at large perceive the greatest threat." — Brigadier General Bill Martin, New York Deputy Adjutant General

On a large scale, the assistance to New York's North Country during the devastating ice storm of January, and the tornado response to the upstate New York town of Stillwater in June, provided Rainbow soldiers a true perspective on National Guard partnerships with local relief and government agencies. The adoption of the New York State **guardHELP** initiative by the 42nd Division empowers local commanders and soldiers in every Rainbow State to make the same linkages without the drama of a federal disaster. The impact of the Rainbow Division on the daily lives of thousands of residents of Rainbow states grows with every new training opportunity and every new partnership in Rainbow communities throughout the division.

"The response from the Guard members is hard to describe. There are plenty of tears as a result of their generosity. My children, who have always been a little intimidated by the green uniforms, now see National Guard members as everyday people who really care about the community." — Patti Hemendinger, tornado storm victim, Stillwater, New York

Editor's Note: *LTC Pete Kutschera, LTC Paul Fanning, CPT Stephen Mueller, HQNYARNG, and SFC Jim Fillio, HQ 42nd ID (M) contributed to this story.*

Joint Services Team To Test and Evaluate Close Air Support at the NTC

by Sergeant First Class Roderick McCottrell

A joint services test force chartered by the Secretary of Defense will study the effectiveness of close air support (CAS) during NTC rotations with the goal of developing more effective tactics, techniques, and procedures that can be shared by all of the services.

Battlefield assessment teams will be gathering this data during Army and Marine rotations, but the BAT teams will not interfere with BLUEFOR or OPFOR players, nor will the rotating units be evaluated by the teams.

The NTC was selected as the test site because of the availability of its instrumentation, used to evaluate visiting maneuver units, and because the NTC reflects realistic force on force combat involving the joint services. CAS support, for example, comes from Air Force units at Nellis AFB nearby. Data will be gathered from BLUEFOR and OPFOR participants from a series of force-on-force battles, both day and night. Additional data will be gathered from tactical air control parties (TACPs) which coordinate air support, and the CAS providers from the four services. Part of the data base will be gleaned from the NTC Instrumentation System, the Air Warrior Measurement and Debriefing System at Nellis AFB, recordings of tactical communication nets, and observation at TOCs and Tactical Air Control Party locations.

As a rule, there are 10 rotations through the NTC each year, assuring that there is sufficient data for analysis. Each combat arms branch has provided a subject matter expert as part of he JT&E teams, which will augment the O/C teams at the NTC in gathering data. All JT&E teams are made up of a mixture of the services, with representatives from the Army, Air Force, Navy, and Marine Corps.

The project actually got under way in October, when the teams began collecting baseline data on how units currently perform. The final analysis and report is expected to be issued in the second quarter of FY 2002. More and more frequently, maneuver units will be fighting as part of joint operations. While each service has its own capability to provide close air support, there is limited joint doctrine on some aspects of CAS, notably night operations, in *JP 3-09.3 Joint Tactics, Techniques and Procedures for CAS*.

In addition to the field tests, several so-called "mini-tests" will evaluate alternative control procedures under day and night conditions, and equipment issues involving infrared pointer devices and laser target designators.

Sergeant First Class Roderick McCottrell is the Armor Operations and Plans NCO on the Joint Close Air Support JT&E.

1st INFANTRY DIVISION – 1-63 ARMOR

USAREUR LIVE FIRE

Overcoming USAREUR training area restrictions
To improve gunnery exercises at Grafenwoehr

Black 6, this is White 6. Contact, three tanks, east near TRP 1, over.

White 6, Black 6, roger. Hold your fire and continue to observe and report, out.

Black 6, this is Red 6. Contact, multiple tanks to the north of White's contact, over.

Red 6, this is Black 6. Roger, hold your fire, break...

Guidons, Guidons, this is Black 6. Contact, tanks, east. Frontal, at my command, tophat, tophat, out.

Black 6, White set.

Black 6, Blue set.

Black 6, Green set.

Guidons, Guidons, this is Black 6. Fire!

This is not a fire command given often by tank company commanders in Europe. Although it may occasionally be given during a company defense at the Combat Maneuver Training Center (CMTC), it is always given to MILES (Multiple Integrated Laser Engagement System) equipped subordinates. USAREUR tank company commanders simply do not have the opportunity at the current time to experience maneuver training combined with the live firing of main gun and small arms ammunition as their comrades in the Continental United States (CONUS) do. The 7th Army Training Command (7ATC) and the Operations Group, CMTC, are attempting to change that by developing and implementing a live-fire exercise to train task forces and companies at the Grafenwoehr Training Area (GTA). The headquarters, B Company, D Company, Scout Platoon, and Mortar Platoon of the 1st Battalion, 63rd Armor Regiment, task organized with two platoons from D Company, 2nd Battalion, 2nd Infantry Regiment all were tasked with proofing and validating the proposed offensive and defensive scenarios.

The opportunities to train as a company are limited in the United States Army Europe (USAREUR), given problems of restrictive local training areas, low OPTEMPO allowances, and requirements to support ongoing contingency and peace support operations theater-wide. Most units rely upon the "standardized" USAREUR training cycle — a gunnery density at the Grafenwoehr Training Area, followed by a rotation through the CMTC at Hohenfels — augmented by a few exercises in their Local Training Areas, Maneuver Rights Areas, and/or simulation centers to train companies. The CMTC live fire scenarios — a hasty attack followed by a defense — would be added onto the end of the GTA gunnery density, before the unit rail-loaded for Parsberg and Hohenfels.

At the National Training Center at Fort Irwin, mechanized units conduct both offensive and defensive missions with live main gun and small arms ammunition. This forces unit commanders to take extra precaution in their tactical planning processes and maintain tighter control over their subordinate units during the actual maneuver to prevent real fratricide. Bold maneuvers by subordinate leaders exercising their initiative that were acceptable when firing MILES lasers suddenly become completely unacceptable when they cross the gun-to-target lines of tanks firing real APFSDS rounds with their associated sabot petals. Successfully completing a live-fire mission and the After Action Review (AAR) are both professionally rewarding and eye-opening experiences for the commanders and subordinates alike.

The CMTC is trying to emulate this by combining some ranges and training areas at the GTA into one "open" range. Ranges 201 and 301, and the intervening areas became the Task Force 1-63 Armor maneuver area. It was an area in which the two companies of the task force could maneuver with some degree of freedom. There were relatively few maneuver restrictions: no maneuvering or firing south of Range 201's southern boundary, no maneuvering or firing north of Range 301's northern boundary, no entering of GTA's Impact Area A, and no entering of areas marked off by "Seibert" stakes. All terrain management within the boundaries was handled by the task force's S3.

To provide top-notch observations and feedback through AARs, a new Observer/Controller (O/C) team was being established at Grafenwoehr by the CMTC. Although they were not fully established for the scenario validation, the "Warhogs" (as they are known) will be organized similarly to the O/C teams at Hohenfels and would provide the same ability to observe maneuver units down to the platoon level and relevant BOS managers (Fire Support Officer, Engineers, Air Defenders, etc…). The quality and content of the AARs will also be very similar to those provided by the O/C teams at the CMTC.

In addition to the pre-existing target lifters on Ranges 201 and 301, separate "Saab" target lifters were also employed. This allowed the CMTC Operations Group to emplace targets in realistic positions and not be tied to pre-existing target locations. For example, "in-play" CSOPs were emplaced on the north side of Range 301 and in between the two ranges, out of either ranges' normal impact areas. The targets would also be presented in a "depleting band" manner

— meaning progressive target presentations would reflect battle damage from previous engagements and would be presented at closer ranges to simulate movement.

The tanks of the two companies were fitted with the Tank Gunnery Precision In-Bore Device (TPGID), a 35-mm subcaliber training device, to allow for economical main gun engagements without wasting 120-mm main gun ammunition on unproven scenarios. All tanks also were uploaded with live 7.62-mm and .50-caliber machine gun ammunition. The two team commanders' tanks were additionally equipped with Through-Sight Video units to record the attack and defense to provide feedback to the Operations Group on the target presentations.

Task Force 1-63 Armor was tasked to validate both offensive and defensive scenarios in January 1998. Two company teams, B and D — both task organized with two tank platoons and one mechanized infantry platoon — would execute the scenarios. Additionally, the battalion deployed its scout and mortar platoons for the exercise.

The task force occupied a tactical assembly area on Range 208, in the southwest corner of the GTA. The night prior to the tank teams' LD, the task force scouts conducted a reconnaissance in zone in order to identify the positions of the enemy motorized rifle platoons (MRPs) and any defensive obstacles. Additionally, they attempted to conduct "stealth" breaches on the obstacles they encountered to enhance the mobility of the attacking teams. They were successful in identifying both the obstacles and the MRP defensive positions.

The task force uncoiled in a manner that allowed Team Bulldog to lead and Team Demon to follow. After proceeding north for several kilometers the task force crossed the line of departure near the Hopfenohe Church ruins. Team Bulldog proceeded due east before turning northeast to attack along Range 201; Team Demon continued north and turned to attack due east along Range 301. Both teams engaged targets with tank main gun and small arms; additionally the mechanized infantry platoons' dismounts cleared enemy CSOP and dismount positions. After fighting along their axes of attack, both teams assaulted through and seized their objectives. In the future, it is envisioned that there will be a dismounted defensive position, complete with trenches and bunkers, for dismounted infantry to clear as part of the assault on the objective.

After conducting consolidation and reorganization on the objectives, both teams conducted a slight withdrawal to more defensible terrain and began preparations to defend the newly seized ground. These preparations included establishing a counter-reconnaissance screen by both teams to deny the enemy information on our defensive positions. This was done with the minimum number of vehicles and soldiers (Team Demon used only a reinforced tank platoon) in order to allow some development of the main engagement area and battle positions. After identifying and destroying all elements of the enemy's divisional and regimental reconnaissance assets, both teams were given final instructions to destroy the Combat Reconnaissance Patrols (CRPs) before withdrawing to and occupying the main battle positions. This was completed shortly after sunrise.

After successfully defeating all elements of the enemy's divisional and regimental reconnaissance assets, the battalion headquarters believed that the OPFOR Motorized Rifle Regiment (MRR) would constitute an advanced guard and attack "one up and two back." They also templated that the OPFOR would use the larger of the two mobility corridors, which was the one running due east along Range 301. To prepare for this, Team Demon was reinforced with an additional tank platoon from Team Bulldog, bringing Demon's strength up to three tank platoons and one mechanized infantry platoon. The task force mortars were also positioned so that they could fire live ammunition into the Range 301 high explosive impact areas, thus allowing the leaders to call for and adjust indirect fires.

As expected, the MRR's advance guard attacked along the Range 301 axis. After destroying the Combat Reconnaissance Patrols (CRPs) from its screen-line locations, Team Demon withdrew to its primary battle positions. The team was arrayed three tank platoons forward with the mechanized platoon in reserve. From the primary battle positions the team destroyed the advanced guard's Forward Patrol (FP), Forward Security Element (FSE), and Advance Guard Main Body (AGMB). Following the defeat of the AGMB, the team withdrew to its alternate battle position in preparation for the MRR's main body. Indirect fire was effective in achieving suppressive results; however, the small mortar rounds (4.2") were not successful in achieving any destructive effects.

The MRR main body attacked with one second echelon MRB along each of the Range 301 and Range 201 axes. Since Team Bulldog was reduced to one tank and one mechanized platoon, priorities of fires were shifted to it. Both company teams were able to defeat the attacking MRBs. On Range 301 elements of the MRB were able to get close enough to their immediate objective to "dismount" and "assault." The utility of tanks having a coaxial machine gun, loader's machine gun, and tank commander's machine gun was well justified in the end.

The most obvious lesson learned was the importance of tactical main gun boresighting, and zeroing of the 25-mm autocannon and machine guns. These procedures are often overlooked during "normal" field training exercises; however, thorough and "to standard" procedures are a necessity if our weapon systems are to achieve their full lethality. Commanders must think through and have a plan for boresighting and zeroing all of their systems' sights, including the thermals, in a combat environment.

Secondly, this exercise stressed the importance of commanders to clear any calls for fire that would impact in their sector. This point is driven home to all when they witness the effects of indirect rounds impacting less than one kilometer away. The final major lesson learned from this exercise is ammunition management, particularly onboard the M1A1 tank. It was very easy for our tanks to fire their combat loads of ammunition when faced with two attacking MRBs. Commanders must pay close attention, not only to the total expenditure of rounds, but also to the expenditure of rounds by ammunition type. The potential lethality of the M1A1 tank is never fully achieved if it does not have any main gun ammunition to fire, or if it only has HEAT rounds to fire at assaulting tanks.

A fully resourced tactical live fire exercise, against a thinking and reactive OPFOR (target panels controlled by dedicated O/Cs), is one of the few chances for a tank company commander to "put it all together." It places stress upon the commander and forces him to plan, resource, coordinate, execute, and lead like few other training exercises can. Short of going to war, this sort of exercise will pay the greatest dividends to maneuver commanders. CONUS-based commanders can learn their lessons first-hand at the National Training Center; this opportunity will shortly come to those of us based in USAREUR.

1st Battalion, 37th Armored Regiment - "BANDITS"

"A Year of Reforging"

In an era of shrinking budgets and high expectations, when it is increasingly difficult for battalions to accomplish a single primary mission, executing two dissimilar missions simultaneously is downright daunting. This account details how 1st Battalion, 37th Armored Regiment met this challenge in 1997. As an M1A1 tank battalion, 1-37 AR trains to execute high intensity operations and focuses on the fundamentals of offensive operations — movement to contact, breaching operations, and the deliberate and hasty attacks. As part of NATO's rapid reaction corps, however, the battalion's mission also includes a significant commitment to peacekeeping operations. In FY97, we found that innovative training, proactive leadership, and above all, flexibility play key roles in maintaining proficiency in both high intensity conflict and peacekeeping operations.

In August 1997, 1-37 AR was tasked to deploy troops to enforce the Dayton Peace Accord. Seven tank platoons were attached to 1st Battalion, 36th Infantry and spent six months deployed to Bosnia-Herzegovina as part of Operation Joint Guard. The year unfolded in three phases. For the deployed units, it was predeployment/train-up, stabilization force mission, and redeployment/reintegration. For those remaining at home station, the year began with supporting the train-up, followed by a maneuver and gunnery rotation, and then reintegration of their former detachments.

Peacekeeping operations inherently favor the dismounted soldier and hence posed a challenge to soldiers conditioned to living, working, and fighting on a tank. Fortunately, the battalion was able to draw upon the experience of a number of soldiers who had served a prior tour during Operation Joint Endeavor and were well-accustomed to the unique challenges of peacekeeping missions. Following a sustainment gunnery in July, the battalion assisted 1st Brigade in executing a week-long cycle of Individual Readiness Training (IRT) lanes. By the time the week was up, over 540 soldiers had a basic familiarity with peacekeeping operations, ranging from media interaction to refugee processing to mine and UXO identification. In July, the soldiers followed up their IRT training with a three-week training rotation at the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany. The rotation, dubbed Mountain Eagle V, was not what most soldiers were accustomed to, since it focused on low-intensity missions. Platoons set up checkpoints, patrolled, seized weapon sites — all training events that would soon become real-world operations in Bosnia. Preparation efforts proved fruitful, as the deployed units quickly found themselves utilizing their newfound skills: manning checkpoints, conducting mounted and dismounted patrols, and inspecting facilities. One particularly critical mission assigned to the unit was to ensure the security of the first-ever democratic Serbian National Election. Standing their ground in the face of hostile Serbian dissenters, the unit's soldiers quickly learned first-hand that the price of freedom is indeed eternal vigilance.

Like many other units deployed in the SFOR mission, however, they soon realized the difficulty of maintaining proficiency in their primary MOS. Training opportunities were necessarily limited by mission requirements and the lack of maneuver area. Leaders, however, maximized every training opportunity with creative uses of time and resources. Since actual mounted maneuver training was highly proscribed, proactive platoon leaders and platoon sergeants took advantage of the one allotted maintenance run each week to work in action and battle drills. "More often than not," remarked 1LT Robert Halvorson, an XO with A Co., 1-37 AR, "formalized hip pocket training was the key. Proactive leaders made the training happen."

Back at home station, the rest of the unit's soldiers felt the absence of the detached units, as they were challenged to maintain a high level of training while continuing to carry the full burden of garrison duties and taskings. The effects of an undermanned battalion also became evident on the battlefield. During 1-37 AR's November 1997 CMTC rotation, the unit fought with only three companies; task-organized as two tank and one mechanized infantry. Over the course of the rotation, our chief challenge was to execute not as individual tank killers, but as a cohesive task force. Mission execution revealed that slice elements were not fully integrated, thus limiting the potential of a combined arms team. However, the rotation highlighted strengths as well: leaders were well-versed in the orders process, company level cross-talk steadily improved, and tactical movement was excellent.

Two months of intense Level I and II gunnery preparation paved the way to 1-37's return to Grafenwoehr in February '98. Across the board, it was evident that soldiers were well prepared at an individual, crew, and platoon level. Every tank in the battalion qualified on the new M1A2 tables, with one crew shooting Top Tank in USAREUR. The mortars paid a fitting tribute to their aging 4.2-in. mortars by excelling at Grafenwoehr during a five-day MORTEP. Citing a lack of realistic training due to budgetary constraints, MSG Steve Sosebee said, "Many of the younger soldiers had never touched a real live round." Despite this, the mortars walked off with top honors in the brigade competition. The scout platoon fared just as well, earning the right to be called the best scout platoon in the brigade.

While the battalion was busily engaging targets in Grafenwoehr, the long awaited redeployment of the forces in Bosnia finally occurred. Recovery of the vehicles and long-overdue services proved to be relatively painless. While the vehicles had remained in remarkably good shape, the warfighting skills of the soldiers required attention. Continuous, day-to-day peacekeeping operations, however, had taken its toll on the tankers' ability to fight in a high-intensity conflict. The battalion's first objective in rebuilding a cohesive fighting task force was to refresh basic tanking skills. Crews trained on individual and crew skills during Soldier's Time training. The next step was to again familiarize soldiers with the fundamentals of fire and maneuver. Companies began at the crew and section level, utilizing the limited local training area to conduct FTXs. Once platoons had the chance to exercise their tanks, all companies spent one week in Schweinfurt utilizing the Platoon Gunnery Trainer (PGT) and the Close Combat Tactical Trainer (CCTT) in Grafenwoehr. PGT honed cross-talking, platoon fire distribution, but most importantly, the ability to achieve first-round kills. All platoons qualified on multiple scenarios under degraded conditions such as night fire and simulated chemical warfare. The week culminated with several days spent in the CCTT, executing offensive missions at the platoon level.

1-37 AR concluded FY97 by renewing friendly ties with its German partnership unit, the 143th Panzer Battalion. Soldiers and their families attended a German-

American friendship festival hosted by their German counterparts. Reaching out to foreign militaries extended past the host country's borders as well. Reflecting the ever-changing political landscape, a contingent of 1-37 AR soldiers briefed M1A1 capabilities and swapped war stories with former-Warsaw Pact Hungarian soldiers as part of a Partnership for Peace exercise. Finally, 1-37 AR officers conducted a staff ride to retrace the remarkable journey of Captain Abe Baum's task force during his famous, doomed raid on the Hammelberg POW camp over fifty years earlier.

With commands averaging a duration of 12-14 months for commanders and 10-12 months for platoon leaders, the development of tactical SOPs to standardize garrison and field operations has been critical. Lack of training resources was another significant obstacle to regaining warfighting skills. Situated in the rustic town of Friedberg, the local training area has been continually shrinking due to German reclamation and construction efforts. What little is left becomes hotly contested by the numerous combat arms companies stationed here, especially before maneuver rotations. 1-37's response has been to maximize the use of trainers, simulators, and especially the semiannual CMTC rotations. Finally, 1-37 AR is beginning to keep pace with the technological advances long enjoyed by its stateside counterparts. In May, the aging fleet of M106A2 mortar tracks was replaced with new M106A3 120mm mortars. Although not yet tested since they were fielded, the unit has high expectations for the expected vast increase in lethality, range, and responsiveness in organic indirect fire. In addition, a new Vehicle Intercom System (VIS) was installed in every M1A1 in the battalion. The new system, which replaces the old 1780 intercom, is more reliable, programmable and, as soldiers are quick to point out, feature excellent sound quality, compliments of the Bose speakers.

The Bandit Battalion continues to draw from its extensive experiences in peacekeeping operations, as well as a proven record for aggressive training in high intensity conflict missions, to become a cutting-edge, highly mobile and lethal force ready to deploy, close with, and destroy the enemy in any theater.

Editor's Note: *This article was prepared by 1LT Louie B. Cheng, S3 Liaison Officer, HHC, 1-37 AR, Friedberg, Germany.*

Weapons Gunnery Simulator System (TWGSS). They will return to you both confident and competent to be your advisor on all gunnery issues; to mentor your crews on gunnery strengths and weaknesses; to serve as experts for turret maintenance and gunnery staff actions. They will be tremendous combat multipliers.

I recognize that 19DJ3s do not have nearly as many opportunities to serve as master gunners, and that assignments to HMMWV scout platoons may prevent them from serving even the minimum-expected two years as a Bradley master gunner. My centralized promotion board instructions have asked that the armor panels be very careful before judging such NCOs as uninterested in filling master gunner assignments; they may be only doing what the Army assigns them to do!

The master gunner will be a combat multiplier throughout his career, with guidance and careful management by commanders and command sergeants major. A platoon sergeant or first sergeant who is a trained master gunner is a tremendous asset to the unit. Master gunners must be assigned into these positions of greater responsibility once they have served successfully as company and battalion-level master gunners. They can return to master gunner positions at the higher grade, but these NCOs deserve the chance to lead armor and cavalry soldiers. Do not allow the master gunners to stay on the staff over two or three years, or assign them into consecutive master gunner positions. Do not make master gunners into "headquarters platoon sergeants" and expect such duty to earn leadership certification as platoon sergeants! Do not enable NCOs to become complacent and remain as "career Mike-Golfs!" Promotion board results are proving that such careers often end at staff sergeant.

Master gunners lead through technical competence and professional example. The entire Armor Force is better for those sergeants who volunteer for this toughest of courses, succeed as gunnery advisors to armor and cavalry commanders, train tankers and scouts to kill and to kill quickly, and then serve as technically accomplished platoon sergeants and first sergeants.

"SERGEANT, TAKE THE LEAD"

July-August 1998 Correction

Due to an editorial error in the July-August 1998 "Driver's Seat" column, we misidentified the 5th Squadron, 15th Cavalry as the 5th Squadron, 16th Cavalry. We apologize to CSM Lady and the 5-15 Cav's troopers for the error.

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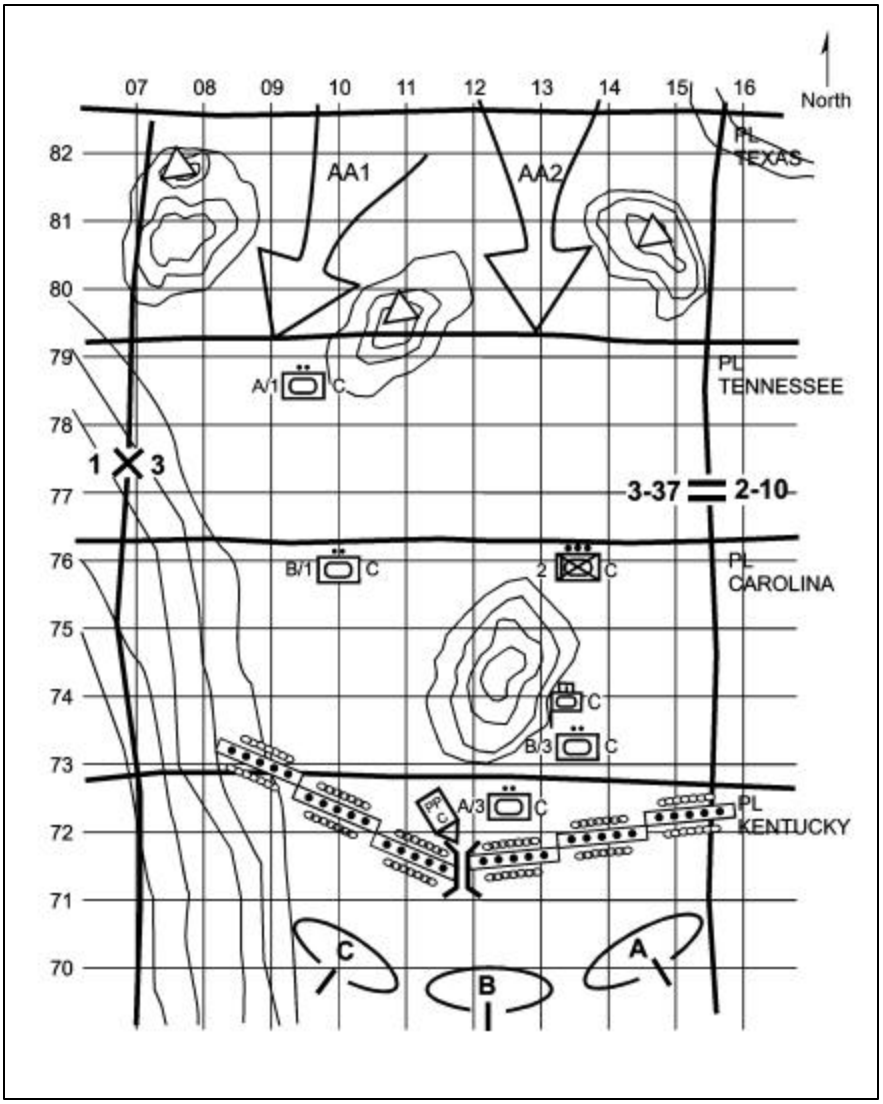
TACTICAL VIGNETTE 98-6

Cobra's Counterreconnaissance Fight

Situation: You are the company team commander of Cobra Team (tank heavy), TF 3-37. Your team consists of two M1A1 tank platoons (1st and 3rd Platoons), both at full strength, and one mechanized infantry (BFV) platoon (2nd Platoon), which has three operational BFVs. Your TF is comprised of two armor company teams (Apache and Cobra) and one mechanized infantry company team (Battle Masters). Your TF is defending in sector, and the brigade commander wants your TF to protect the western flank of TF 2-10, the brigade main effort. Prior to 1500 yesterday, you prepared your battle position for the main defensive battle. You assumed the counter-recon mission from Apache Team at 1500 yesterday. During the night, Apache Team destroyed three vehicles from the enemy's division reconnaissance. The TF scout platoon (with six HMMWVs) was already established in three long-term OPs in depth forward of PL TENNESSEE.



Currently, you have 1st and 2nd Platoons (at 50% security) arrayed along PL CAROLINA, ready to react to spot reports from the scouts. 3rd Platoon's Alpha section is manning passage point CHARLIE on the north end of the passage lane and controlling all traffic into and out of the security area. The remainder of your company team is in a hide position co-located with your command post. You have priority of fires. The TF scout platoon is attached to your company team until you withdraw from your counter-reconnaissance mission. Upon your withdrawal, scouts remain in place and revert to TF control.

Your company team has had no contact with the enemy until around 0330, when scouts report one BMP-1 vic WT095813 moving south on AA1. The 1st Platoon's Alpha section reacts, and at 0400 you get the following report from RED 4: "RED slant 2, Alpha section engaged but did not destroy 1 BMP, last seen moving south vic grid WT086793. Alpha section has one vehicle with severe track damage, one fully mission capable vehicle stuck in a wadi, and a total of four wounded soldiers vic WT097786. Bravo section set PL CAROLINA." Just as RED 4 finishes his transmission, you receive a report from the scouts that two BRDMs are moving south on AA2 vic WT132809 and scouts are observing four unidentified hotspots moving south vic WT095862.

The TF commander stated in the OPORD that you are to withdraw your company team NLT 0500, signal the engineers to close the lane behind your last vehicle, rearm and refuel, and occupy your BP ready to defend with all 14 vehicles NLT 0600.

Time is now 0403. You must act now! What do you do?

REQUIREMENT

Develop your COA and issue your FRAGO and any other reports you would submit. Readers who submit their solutions to the scenario should provide the following: fragmentary order to the company team, the rationale behind your decision, and a sketch of your plan of action. E-mail your solution to: HastyD@ftknox-dtdd-emh5.army.mil, or mail your solution to Platoon and Company Team Doctrine Branch, ATTN: ATZK-TDD-P, Fort Knox, KY 40121-5210.

SOLUTIONS – Tactical Vignette 98-4

"Showdown at Bruechville" from the July-August 1998 issue of ARMOR

THE PROBLEM:

Scenario:

You are deployed in theater as part of a United Nations force where you have been assigned stability and support type operations (SASO), primarily peace enforcement and support of the humanitarian assistance efforts of non-governmental organizations (NGOs).

The threat in the area is from the Athian faction, which is not satisfied with the United Nations' resolution of border disputes or redistribution of international aid. Athian equipment includes BRDM-1s and OT-64s, which they have been flaunting in violation of the U.N. accord by using their armored vehicles to escort other vehicles and equipment around in your area of operations. Additionally, Athian activity has thus far been limited to mild anti-United Nations demonstrations and graffiti.

Recent intelligence indicates insurgent forces are suffering food shortages brought on by harsh winter months. Current rules of engagement now allow the use of deadly force when necessary to protect lives, critical equipment, and all U.N./host nation facilities.

General Situation:

You are the commander of Blackhorse Troop 1-23 Cavalry, an armored division cavalry squadron. Your assets include two scout platoons (1st and 3rd Plt) of M3 CFVs, two tank platoons (2nd and 4th Plt) of M1A1 Abrams main battle tanks, a mortar section, one up-armored fire truck and one tank and pump unit, carrying high-pressure water cannons. Additionally, there is a team of OH-58D(I) Kiowa Warriors (KWs) on station from Delta Troop that are under squadron control. The KWs are each carrying 300 rounds of .50 caliber and two Hellfire missiles.

Mission:

B/1-23rd Cavalry conducts area security operations centered on the village of Bruechville to protect food distribution points and other critical facilities against Athian insurgent threats.

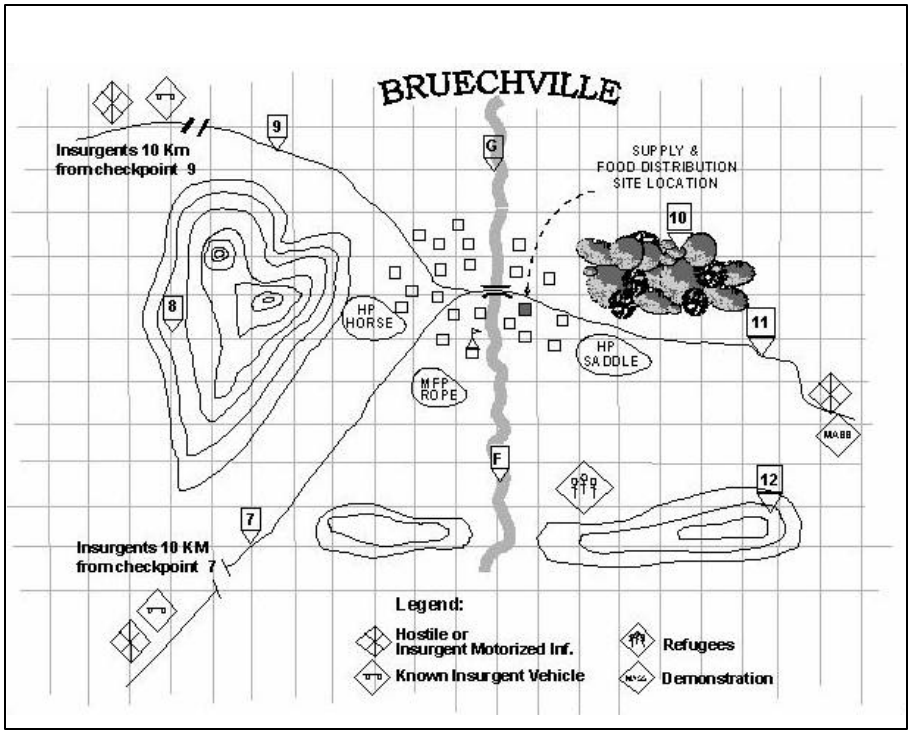
You have been issued non-lethal weapons for crowd control, to include water cannons, pepper spray, and CS grenades. You are conducting an area security mission to protect and control the distribution of food and medical supplies at a recently resupplied food distribution center. Your 1st platoon is assigned Checkpoints 7 and 9, the terrain west of the river, with its sister platoon (2nd) established in Hide Position Horse. Your 3rd Platoon is responsible for the river and the terrain east of the river, with its sister platoon in Hide Position Saddle. Your mortars are in Mortar Firing Position Rope.

The Action Begins:

Ten minutes ago, the squadron S2 informed you that JSTARS reports two convoys approaching your position from the west on each of the major roads. Both convoys have approximately 20 vehicles, of which about half appear to be armored. The squadron commander FRAGOed the KWs to reconnoiter the convoys to determine their exact location and disposition. You plot their location to be approximately twelve kilometers west of CPs 7 and 9.

You receive the following **SPOTREP** from your 3rd platoon: "*Black 6, this is Blue 1. We have a crowd of approximately 200 pro-Athian sympathizers on foot, moving on the road toward the resupply area, current location is two kilometers west of CP 11. We have identified known Athian blacklist personnel among the demonstrators. Also, a roving patrol has found five empty dump trucks hidden in the wooded area north of HP Saddle. The truck drivers state they are taking a lunch break from their road construction project*." Although you have been briefed on all construction projects in your area, you are unaware of any projects in your immediate AO.

The **KWs report** that both convoys are approximately ten kilometers west of CPs 7 and 9 respectively. The northern convoy consists of 3 BRDMs, 5 OT-64s, and 12 GAZ cargo trucks. The southern convoy consists of 5 BRDMs, 6 OT-64s, and 9 GAZ cargo trucks. Every armored vehicle has women and children riding on top. The OT-64s are equipped with 14.5mm heavy MGs, and BRDMs equipped with 12.7mm heavy MGs. The paramilitary soldiers have RPGs and SA-7s. They further report that the road is bordered on both sides by restricted and severely restricted terrain.



THE SOLUTIONS

Author's Solution

FRAGO

Guidons, this is Black 6, FRAGO follows, acknowledge, over.

Situation: There is a 20-vehicle convoy consisting of 3 BRDMs, 5 OT-64s, and 12 GAZ cargo trucks 10km west of CP 9 moving east. There is an additional 20-vehicle convoy with 5 BRDMs, 6 OT-64s, and 9 GAZ cargo trucks 10 km west of CP 7 moving east. All armored vehicles in both convoys have women and children riding on top. Blue has approximately 200 pro-Athian sympathizers on foot, 2 km west of CP 11 moving west. Blue has also discovered 5 empty dump trucks in the wooded area north of HP SADDLE.

There is an Air Weapons Team (AWT) from D Troop operating in our area. It is my assessment that this is a coordinated effort by pro-Athian sympathizers to raid the distribution site in Bruechville.

Mission: No change.

Intent: (Purpose) Prevent Athian aggressors from capturing or destroying supplies. (Endstate) Athian convoys and demonstrations dispersed and returned to their point of origin.

Tasks to subordinate units:

RED: - Establish blocking positions at CPs 7 and 9 to allow no penetration east of the checkpoints.

- On order, destroy convoys using sections from White.

- Use the fire truck at CP 7 and the tank and pump unit at CP 9 to remove women and children from the armored vehicles, or use mortar fire.

- Use mortars first, then escalate force with direct fire as necessary to stop the convoys.

- B/P coordinate with AWT to prevent penetration of CPs.

- You have priority of mortar fire.

WHITE: - Send one section to CP 7 and one section to CP 9 to reinforce Red.

- On order, destroy convoys.

BLUE: - Establish a blocking position from CP 11, west 4.5 oriented east.

- Use water cannons, CS, and pepper spray as necessary to disperse the crowd.

- Identify and detain crowd leaders and blacklist personnel.

- Detain the dump truck drivers.

- Disable the dump trucks.

GREEN: - Send one section to reinforce Blue and one section to defend the supply distribution point.

- Be prepared to reinforce Red or White.

MORTARS: - Lay one tube on a target from CP 9, west 1.0.

- Lay the other tube on a target from CP 7, west 1.0.

- Be prepared to reorient your direction of fire to support Blue.

TOC: - Keep Squadron informed.

- Request that the AWT be OPCON to us.

- Request FA priority of fires.

FIST: - Move to CP 9 and adjust fire for the mortars.

- FA POF: KWs, 1st Plt.

- Mort POF: 1st Plt, KWs.

KWs: - Maintain contact with the convoys.

- O/O use FA and organic fire to attrit the convoys.

- Be prepared to conduct BHO with 1st Platoon and fight a coordinated close fight.

TRAINS: - Move to the supply point with the 1SG's M113, maintenance M113 and the M-88.

- Link-up with Green and establish a perimeter around the supply point.

Service Support: No change.

Command and Signal: I will be with Red and White at CP 7. Acknowledge, over.

RATIONALE:

I sent 1st and 2nd Platoons to CPs 7 and 9 as a show of force and have overwhelming firepower if destruction of the BRDMs and OT-64s is necessary and/or authorized. I split 2nd Platoon because a section is sufficient firepower to destroy either of the convoys and the restrictive terrain will not allow for anything larger than a section to be effectively employed against the convoys.

I sent a section of 4th Platoon to reinforce 3rd as a show of force. 3rd Platoon has the ability to detain crowd leaders and delay the crowd so they should be dispersed before they reach the distribution point.

I detained the dump truck drivers for later questioning and possible turnover to the host nation police for their involvement in the raid. I disabled the dump trucks to prevent their usage by other personnel. I considered tasking 3rd Platoon to use them to block the road into Breuchville, but I felt time was short and they would need all they could get to plan and prepare for the crowd.

4th Platoon is my be-prepared reserve. They should not be needed in 3rd Platoon's fight or at the distribution point.

The Kiowa Warriors will provide additional firepower and eyes for 1st Platoon. They also can record the event on video.

Reader Solution

(Submitted by CPT Ray M. Ceralde)

Note: "Demon" Troop is one of the Air Cavalry Troops in the squadron.

Alert

Guidons, this is Black 6, FRAGO follows.

Situation: 20-vehicle convoy, ten kilometers west of CP 9, consisting of 3 BRDMs, 5 OT-64s, and 12 cargo trucks, moving east, break.

Another 20-vehicle convoy, ten kilometers west of CP 7, consisting of 5 BRDMs, 6 OT-64s, and 9 cargo trucks, also moving east, break.

Demon troop reports terrain on both sides of north and south road past checkpoints 7 and 9 is severely restricted for vehicle movement, break.

All armored vehicles have women and children riding on top, break.

200 pro-Athian sympathizers with identified black-listed personnel, two kilometers east of CP 9 moving west along east road, break.

5 dump trucks, stationary in woodline, 1 kilometer north of hide position SADDLE, break.

Most probable course of action is that the Athians are attempting to overwhelm the supply and food point by numbers and force to take more than their allotted share of food and supplies, break.

Mission: We will establish hasty checkpoints at CP 7, CP 9, and CP 11 to prevent armored vehicles from entering Breuchville and to prevent large numbers of civilians from massing at the food distribution point, break.

Intent: I want to prevent the armored vehicles from entering our AO, break.

I want the checkpoints to delay the passage of non-combatants so that they will not overwhelm the supply and food point, break.

I want to detain blacklisted personnel that attempt to pass through our checkpoints, but I do not want you to aggressively pursue them if they flee, break.

I want to maintain observation on dump trucks to ensure that they do not support insurgent operations, break.

All other personnel are free to continue to Breuchville within guidelines of UN Accord, break.

Tasks to Subordinate Units

RED 1, Go with your Alpha section past checkpoint 7 along south road, break.

Send your Bravo section past checkpoint 9 along north road, break. Establish hasty checkpoints and use your vehicles to physically block the road where there is restricted terrain on both sides to prevent the convoy from bypassing you, break. Upon inspection, cargo trucks and personnel can continue, but send them in intervals of two vehicles every five minutes, break. Order all armored vehicles to turn around or remain at checkpoints, break.

WHITE 1, Send your Alpha section to vicinity checkpoint 7 along south road with Red's Alpha section and physically block the road to support Red's hasty checkpoint, break.

Send your Bravo section to vicinity checkpoint 9 with Red's Bravo section along north road and physically block the road to support Red's hasty checkpoint, break.

GREEN 1, Move your platoon to the Bruechville river bridge, 3.0 west and 1.0 north from your hide position, break. Put your sections on both sides of the bridge to prevent any armored vehicles that have slipped through from reaching the supply and food point, break

BLUE 1, Send a two-vehicle section to continue to observe and report on the 5 stationary dump trucks, break. Send the rest of your platoon and all available dismounts to establish a hasty checkpoint at CP 11 to prevent the crowd from massing at the food point. Upon inspection, send groups of 20 people every five minutes, break.

BLACK 5, Move to CP 11 and supervise the situation there, break.

BLACK 7, Move company trains to food point to provide security to enable orderly distribution, break. Send fire truck and pump unit to food point to support in the event of a hostile crowd, break. I will send the mortars to provide you additional manpower, break.

BLACK 2, Move to the food point and provide dismounts to support security at food point. Obtain further instructions from Black 7, break.

Coordinating Instructions

Detain any blacklisted personnel attempting to pass through checkpoints, break.

Use deadly force only in self-defense and to protect lives and critical equipment, break.

CSS

Company trains move to supply and food distribution site, break.

Command & Signal

I will be with Red's Bravo section at CP 9, break.

Blackhorse X-ray will remain in same place.

Acknowledge, over.

RATIONALE

I sent one scout platoon and one tank platoon to areas along the roads where the terrain is severely restricted on both sides so that the convoys cannot bypass them.

In the event that an armored vehicle does bypass the checkpoints west of the river, another tank platoon is at the bridge blocking both sides to prevent passage to the food point. I decided to put the tank platoon at the bridge instead of supporting 3rd Platoon because they really do not need combat vehicles, but rather dismounts. Sending four BFVs and their dismounts to establish a hasty checkpoint should be able to control the situation.

The dump trucks may not have work in the area of operations and are suspicious, but unless they actually participate in insurgent operations, there is nothing I can do but continue to observe and report. If they do something in violation of the UN accord, then I can have the BFV section block their movement and detain the drivers.

The hasty checkpoint at CP 11 is intended to slow down the movement of the crowd. The blacklisted personnel will probably not attempt to pass through the checkpoint for fear of being detained and will probably turn around. This separates some of the known instigators and will lessen the potential of the crowd from becoming hostile.

Sending personnel and trucks in intervals of 20 people and/or 2 trucks every five minutes should keep the demonstrators from initially overwhelming the food point and allows the security personnel there to establish order.

I sent the 1SG to move the company trains to the food point to provide security to the relief personnel there. The company trains personnel and equipment are capable of providing security with their M113s and M88.

I attached the mortar platoon to the 1SG to provide additional manpower for security of the food point. Based from experience in Operation Joint Endeavor in Bosnia, the rules of engagement extremely limit the use of indirect fires. I do not foresee the need for mortars to support with indirect fires.

I sent the fire truck and pump unit to the food point to support in case the crowd becomes hostile.

I sent the XO to the east at CP 11 because I feel that the situation there is the second most important point and I want him to control the situation there.

I will go to CP 9 in the north because I have RED 1 to control the situation in the south.

READER SOLUTION

(Submitted by Student, Cavalry Leaders Course 98-03)

Guidons, this is Blackhawk 6. FRAGO follows, acknowledge, over.

Situation: Two convoys of Athian insurgents with BRDMs, OT-64s, and trucks are currently 10 kilometers to the west, moving down the roads leading to Checkpoints 9 and 7, break. Athian use of APCs is in violation of UN accord, break. A crowd of approximately 200 pro-

Athian sympathizers is approaching Bruechville from the east, current location from CP 11 west 2.0, break. There are also 5 empty dump trucks located in the woods vicinity CP 10, break. My read is that this is a coordinated effort to raid the NGO supply and food distribution (SFD) point, break. The two armed convoys are a diversion to focus our attention away from the crowd, who will then use the dump trucks to raid the NGO SFD, break. Athian insurgents are known to be suffering food shortages, break. Athians have not used violence up to this point, break. Athian force approaching CP 9 consists of 3 BRDMs, 5 OT-64s, 12 GAZ trucks, and paramilitary forces armed with RPGs and SA-7s, break. Athian force approaching CP 7 consists of 5 BRDMs, 6 OT-64s, 9 GAZ trucks, and paramilitary force armed with RPGs and SA-7s, break. Both convoys have women and children riding on the APCs, break. Pro-Athian crowd west of CP 11 consists of 200 dismounts with known Athian blacklist personnel among the crowd, break. Dump trucks vic CP 10 consists of 5 civilian dump trucks with drivers, break. Be advised we also have a group of refugees of unknown affiliation from CP F east 2.0. Acknowledge situation, over.

Task Organization: No change within troop. Be advised we have one SWT on station, break.

Mission: No change, break.

Execution, Intent: My intent is to protect the NGO SFD point by preventing the Athians from entering Bruechville with their convoys or the crowd, break. Success occurs when we fix the armed convoys west of the river and control the crowd east of Bruechville with only use of minimum force, break. I intend to have squadron block the APCs from the west after we have fixed them, break.

Concept: We will establish roadblocks at CPs 7 and 9 to prevent Athian APC penetration of those CPs. We will establish a roadblock vic HP SADDLE to prevent the crowd from entering Bruechville en masse. We will also secure the NGO SFD point, break. We will then negotiate with the Athians to defuse the situation and allow squadron time to assist us with additional assets, Acknowledge, over.

RED, move one three vehicle scout section to CP 7 and one to CP 9. Establish roadblocks tied into severely restrictive and restrictive terrain to prevent insurgent APCs from passing through CPs, break. Halt Athian columns at roadblocks and inform them they cannot enter Bruechville, break. Inform them that unarmed trucks and civilians can proceed to Bruechville, but in no case will we allow their APCs past our CPs, break. Negotiate as necessary to separate the trucks and women and children from the APCs, break. If the APCs refuse to stop, you are authorized to fire warning shots, then engage to immobilize, then engage to destroy, break. Use minimum weapons systems to fire warning shots, starting with small arms, break. Use pepper spray, then smoke, then CS, if I authorize, to separate civilians from APCs if you must engage APCs, break. I say again, use only minimum force in accordance with ROE. Acknowledge, over.

BLUE, move two vehicle scout sections, the fire truck, and the TPU to the road vic HP SADDLE, break. Establish a roadblock and civilian holding area (CHA) to prevent the crowd from entering Bruechville and raiding the NGO SFD, break. Move a two vehicle scout section to identify and secure in place the refugees from CP F east 2.0 to prevent possible factional violence and protect them from harm, break. Have your dismounted patrol commandeer the five dump trucks and use them to reinforce your roadblock, break. Search and detain the dump truck drivers in the CHA, break. Halt crowd vic HP SADDLE and inform them that they cannot enter Bruechville in an unorganized manner, break. Use vehicle sights and LP/OPs to identify crowd leaders and blacklist personnel, then dismount teams to snatch and detain them in the CHA, break. Negotiate with crowd to defuse situation, break. You are authorized to offer them food that we will bring to them, break. If crowd gets out of control, you are authorized to use the KWs rotorwash, water cannons, smoke grenades, pepper spray, and, if I authorize, CS, to control disperse the crowd as necessary, break. Break contact if the crowd gets out of control and you have used nonlethal weapons, then reestablish subsequent roadblocks to delay the crowd, break. I say again, use only minimum force in accordance with ROE, break. Acknowledge, over.

WHITE, Set in overwatch vic CP 9 to assist RED, break. Make your tanks a visible show of force, break. Take all commands from RED 1, break. On my order, you are to attack by fire to immobilize, then destroy, if necessary, Athian APCs if they ignore the roadblock and RED's warning shots, break. I say again, use only minimum force in accordance with ROE. Acknowledge, over.

GREEN, Set in overwatch vic CP 7 to assist RED, break. Make your tanks a visible show of force, break. You are in command of CP 7 roadblock, break. On my order you are to attack by fire to immobilize, then destroy if necessary, Athian APCs if they try to ignore the roadblock and RED's warning shots, break. I say again, use only minimum force in accordance with ROE. Acknowledge, over.

DELTA TROOP KWs, Request you assist BLUE in crowd control operations vic HP SADDLE, break. Be prepared to assist RED in destruction of Athian APCs vic CPs 7 and 9. Acknowledge, over.

MORTARS, Move to bridge in Bruechville and block it to prevent all non-troop vehicular traffic, break. Allow civilian dismounts to pass after searching for arms and blacklist personnel, break. Be prepared to fire smoke in support of line platoons, Acknowledge, over.

TOC, Blackhawk 5, inform squadron of situation and my intent, break. Request OPCON of Delta Troop SWT, additional SWTs, release of CS authority, release of mortar firing authority, CA teams, and SCO's intent, break. Recommended COA to squadron is to move a blocking force west of the armed convoys while we fix them at the roadblock to allow the squadron to confiscate or destroy the unauthorized APCs, break. Coordinate with civilian police, militia, and local leaders to keep civilians off the streets and to assist in crowd control or negotiations, break. Coordinate with NGO running SFD for emergency release of food to crowd, break. Collocate with the trains vic NGO SFD for additional security, break. Acknowledge, over.

BLACKHAWK 7, move the trains to the NGO SFD point to provide security, break. Establish a CHA vic the NGO SFD to process any civilians that approach for food, break. Assist the NGO in the issue of food and/or medical supplies to authorized civilians by providing security and crowd control, break. Search all civilians who attempt to enter the NGO SFD site for arms and blacklist personnel, break. Be prepared to move food to BLUE to defuse situation with crowd. Acknowledge, over.

I will collocate with BLUE vic HP SADDLE, break.

COORDINATING INSTRUCTIONS: Use only minimum force in accordance with ROE, break. Use of CS is not authorized without my permission. Acknowledge, over.

Regular Army Officer Commanding Iowa Army National Guard Cavalry Squadron

by Lieutenant Colonel Robert C. King, Iowa National Guard Public Affairs Officer

LTC Timothy C. Touzinsky recently became only the second active duty Army officer to assume command of an Army National Guard battalion-sized element in the modern era of the Guard. During the change of command ceremony recently conducted at the squadron's headquarters in Sioux City, Iowa, Touzinsky received the colors of the 1st Squadron, 113th Cavalry, from MG Rodney Hannula, 34th Infantry Division commander. MG George H. Harmeyer, Commanding General of the United States Armor Center and Fort Knox, attended the ceremony.

The first active duty officer to assume command of a Guard battalion was LTC John Hennigan, who assumed command of the 1st Battalion, 141st Field Artillery, Louisiana Army National Guard, a year ago. Just prior to the change of command ceremony, Touzinsky was sworn into the Iowa Army National Guard. The "red bull" shoulder patch was already sewn on his BDUs.

As the ceremony was about to begin, he commented, "What a perfect setting to begin my assignment in the Iowa National Guard. The backdrop of the cornfield is the roots of this state. There along the reviewing stand are the fighting vehicles we will train with, and may have to fight with. This is perfect!" 'Old Bill,' the mounted cavalry soldier, was also part of the ceremony. F-16 fighters from the Iowa Air Guard's 185th Fighter Wing and a Cobra attack helicopter from one of his own air troops conducted flyovers during the ceremony.

Touzinsky has served in a variety of command and staff assignments in the United States, and Korea. His most recent assignment was as the Inspector General for the United States Army ROTC Cadet Command at Fort Monroe, Va.

Touzinsky's new command is an important part of the Army Chief of Staff's program to enhance the cooperation and interoperability between the Army and the National Guard. This program will result in a better mutual understanding of each component and closer interoperability during future operations. Cross-assignments such as this will provide active duty officers with first-hand experience in leading and training National Guard units. They will provide the National Guard with an opportunity to learn from the Active Duty officer's skills and experiences. "It's the idea that I'm not here helping," Touzinsky said, "but rather, I'm part of the organization. I'm here to command and lead. It's not a helping thing. My assignment will provide a valuable mutual benefit for the Army and the National Guard. The unit will benefit from what the Army has taught me. The soldiers will benefit by knowing their leaders are enforcing Army standards."

LTC Touzinsky receives the squadron colors from MG Rodney Hannula, 34th Infantry Division

Photo: MAJ Allen Bloemendah

"This isn't a matter of whether we have capable Iowa Guard officers to command the 1st Squadron," said Iowa National Guard Adjutant General Warren G. Lawson, "Because we do. The situation is that the regulars don't know enough about the Guard and we don't know enough about them. The reluctance of the regulars in accepting the Reserve Components comes from their lack of understanding of our capabilities."

Touzinsky's command assignment, and those of other highly competent Regular Army officers, will enable them to go on to future active duty assignments and educate others in the Active Component about who the National Guard is, and how we are part of 'America's Army'," added Lawson. "I think this is a huge step in closing the communications gap between the Army and the National Guard," continued Lawson. "I'm glad the Iowa National Guard can be a leader in this very important process. I'm anxious to have the regulars join our Iowa team."

"From what I can tell, everyone from General Lawson on down to the soldiers on the ground is excited about a Regular Army guy coming in," Touzinsky said. "'New blood will be good' is the way it was described." Touzinsky will serve a two-year command tour with the Iowa Army Guard. The command will then revert back to an Iowa Guard officer.

The Iowa Army Guard recently assigned two Regular Army majors into its organization. MAJ Marvin Russell will serve as the 109th Aviation Battalion's support operations officer. MAJ Ivan Bradley will be the maintenance operations officer of the 734th Maintenance Battalion.

The 1st Squadron, 113th Cavalry's roots go back to prior to World War II. The squadron was mobilized for federal active duty in January 1941 as a horse-mounted cavalry reconnaissance regiment. They were soon transitioned to mechanized equipment and were part of the D-Day invasion at Normandy. While Touzinsky noted the 1st Squadron's distinguished honors and lineage, he also spoke of his expectations for the squadron. "I expect us to be trained and ready to meet our federal and state missions," he said, "and to meet all of our soldier recruiting and retention goals."

Touzinsky's 650-soldier squadron is headquartered in Sioux City, Iowa. It has ground and air cavalry troops at Camp Dodge, Lemars, Sioux Center, and Waterloo, Iowa.

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