

# ARMOR



**British Light Armor in the Falklands** *See Page 9*



## Saddle Up... Tonight We Ride

Platoon Leading 101 is possibly one of the toughest courses our Army has to offer. I doubt few survive the course unscathed. Wrong turns, missed LDs, bright ideas gone awry, and other embarrassments mark the course for young platoon leaders as they master their craft. Re-counted through the years, the stories take on epic proportions. Recently, I bumped into a member of my first platoon who recounted, in vivid detail, an unfortunate incident that involved me slaving a tank (it's amazing how much voltage the human body can take).

In this issue, Captain Douglas Crandall confesses the sins he committed as a new platoon leader — they look familiar. Crandall's apprehensions, concerns, and mistakes are not new. Generations of platoon leaders have made the same mistakes, wrestled the same demons, and asked themselves the same questions: "How do I prove myself to the platoon?" "How do I tell a platoon sergeant as old as my father what to do, especially when he has been doing it for 16 years?" Good lieutenants answer the tough questions, prove themselves, and move on to executive officer jobs or to the scout and support platoons.

Crandall mentions *FM 22-100, Leadership*, in his article and adds that books on leadership and the vaunted *FM* offered precious few "lessons upon which to draw," for his purposes. It occurs to me that we are literally besieged with the opportunities to learn leadership. We have *FM 22-100*, we have numerous periodicals which frequently devote entire issues to the topic, we have writing contests, awards, departments and faculty whose stated mission is the pedagogy of leadership, and there are hundreds of books written by experts, yet this young officer points out the most critical tool for him in learning to lead his platoon was simply examining his failures and learning from his mistakes. Not to disparage those engaged in the science

of teaching leadership, but anyone who hopes to become a better or more effective leader must begin by examining his failures with a critical and objective eye, as Crandall (and certainly all leadership guides) advocate.

Of course, there are a couple of prerequisites for this technique to succeed. It won't work in a "zero-defect environment" where a single mistake dooms or damages a career. You must also be willing to admit your mistake and take responsibility for it. Too often, instead of admitting an error, we seek to spin, rationalize, or explain it away. When confronted with the evidence of an adulterous affair and the prospect of divorce recently, an aging rock star shifted the blame to a disease he suffers from — he's a sex addict. "Mistakes were made." "There was no controlling legal authority." Does anyone accept blame or responsibility anymore? Admit the error, accept responsibility and learn from it — good advice for everyone.

Sure, there are mistakes one should not recover from. And I am not advocating "a get out of jail free card" for young leaders; rather, that we keep in mind the process and transformation new platoon leaders go through and allocate the room to grow while providing the time and effort necessary to AAR them on their adventures.

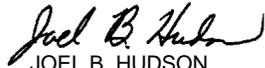
In closing, I'd like to point out that several of the articles in this issue highlight the importance of teamwork in mounted warfare. Inside the cover, you'll find a piece on the Falklands that demonstrates the importance of the combined arms team in that conflict; Major Kevin Marcus writes about AC/RC assignments and illustrates another key partnership; the development of the tank-infantry team is detailed by Captain J.L. Mudd; and our brothers in the Engineer and Air Defense community weigh in with advice on how we can fight better as a combined arms team.

— D2

By Order of the Secretary of the Army:

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

Official:

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

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# ARMOR

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Editor-in-Chief

**MAJ DAVE DAIGLE**

Managing Editor

**JON T. CLEMENS**

Commandant

**MG B. B. BELL**

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# Directory — Points of Contact

DSN — 464-XXXX  
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## ARMOR Editorial Offices

---

**Editor-in-Chief**  
MAJ Dave Daigle 2249  
E-Mail: daigled@ftknox4-emh3.army.mil

**Managing Editor**  
Jon T. Clemens 2249  
E-Mail: clemensj@ftknox2-emh3.army.mil

**Editor**  
Vivian Oertle 2610  
E-mail: oertlev@ftknox2-emh3.army.mil

**Production Assistant**  
Mary Hager 2610  
E-Mail: hagerm@ftknox2-emh3.army.mil

**Staff Illustrator**  
Mr. Jody Harmon 2610  
E-Mail: harmonj@ftknox2-emh3.army.mil

---

## U.S. Army Armor School

---

**Director, Armor School** (ATSB-DAS)  
COL Richard P. Geier 1050  
E-Mail: geier@ftknox5-emh3.army.mil

**Armor School Sergeant Major** (ATSB-CSM)  
CSM Carl E. Christian 7091  
E-Mail: christianc@ftknox5-emh3.army.mil

**NCO Academy** (ATSB-NC)  
CSM Kevin P. Garvey 5150  
E-Mail: garveyk@ftknox-emh3.army.mil

**16th Cavalry Regiment** (ATSB-SBZ)  
COL Michael D. Jones 7848  
E-Mail: jones@ftknox16cav-emh12.army.mil

**1st Armor Training Brigade** (ATSB-BAZ)  
COL William J. Blankmeyer 6843  
E-Mail: blankmeyer@ftknox5-emh3.army.mil

---

## U.S. Army Armor Center

---

**Commanding General** (ATZK-CG)  
MG B. B. Bell 2121  
E-Mail: bellb@ftknox5-emh3.army.mil

**Deputy Commanding General** (ATZK-DCG)  
BG R. Steven Whitcomb 7555  
E-Mail: whitcomb@ftknox5-emh3.army.mil

**Chief of Staff** (ATZK-CS)  
COL Frank J. Gehrki III 1101  
E-Mail: gehrki@ftknox5-emh3.army.mil

**Command Sergeant Major** (ATZK-CSM)  
CSM David L. Lady 4952  
E-Mail: ladydl@ftknox5-emh3.army.mil

**Directorate of Force Development** (ATZK-FD)  
COL Joe Hughes 5050  
E-Mail: hughesj@ftknox5-emh3.army.mil

**Directorate of Training and Doctrine Development** (ATZK-TD)  
COL Matthew L. Smith 8247  
E-Mail: smith@ftknox5-emh3.army.mil

**TRADOC System Manager for Force XXI** (ATZK-XXI)  
COL Brett H. Weaver 4009  
E-Mail: weaverb@ftknox5-emh3.army.mil

**TRADOC System Manager for Abrams** (ATZK-TS)  
COL James H. Nunn 7955  
E-Mail: nunnj@ftknox5-emh3.army.mil

**Mounted Maneuver Battlespace Battle Lab** (ATZK-MW)  
COL Richard T. Savage 7809  
E-Mail: savage@ftknox-mbbl-lan.army.mil

**Office, Chief of Armor** (ATZK-AR)  
Aubrey Henley 1272  
E-Mail: henleya@ftknoxdfd-emh13.army.mil  
FAX 7585

**Special Assistant to the CG (ARNG)** (ATZK-SA)  
COL D. Allen Youngman 1315  
E-Mail: youngmand@ftknox5-emh3.army.mil

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# LETTERS

## Let's Not Give the OPFOR Too Much Credit, He Says

Dear Sir:

Oh, c'mon. We should all be as lucky as the OPFOR. The true source for the OPFOR's success in the battles fought at the NTC is found in the article, but it is glossed over in a barrage of accolades heaped on their training, their TTPs, and their righteousness in maintaining focus. Nevertheless, it's really simple: the battle they have to fight is easier; they have the opportunity to train on a narrow set of missions frequently; and they know the terrain.

Permanently task-organized? Of course they are. They only have one operational requirement — to be the OPFOR. No other requirement is superimposed on them. They never get sent to fight forest fires or to support ROTC camps or to provide relief to victims of hurricanes, riots, ethnic cleansing, floods, or, for that matter, to screen a corps front or flank in all kinds of terrain and conditions, *ad infinitum*. Nor are they sent off once every 18 months or so to fight at a training area far from their home station against the unit that lives there and trains there. No other mission requirements exist to preclude them from training down to the individual certifiable level repeatedly on the only terrain where they will ever perform a limited set of tasks. The rest of the Army is pretty busy with a hefty schedule of operational requirements. The OPFOR's operational requirement is right outside the back gate of their motor pool.

Masters of command and control? The BOSs being orchestrated present a different and simpler challenge to the OPFOR than they do to their BLUEFOR counterparts. Choosing engagement areas, defilade positions, obstacle locations, avenues of approach, routes — whether they really do go through an abbreviated MDMP or not — have got to be a little easier when operating somewhere where every rock and depression has a first name and every action has been walked over weeks or months or years in advance.

Computerized artillery units that never get lost, never miss. Maneuvering in demi-tanks with 2-man crews instead of 60-ton main battle tanks. Chemical warfare? Ever seen an OPFOR soldier with his mask on in MOPP IV? How about logistics? Big part of the battle for the BLUEFOR — just not an issue with the OPFOR, where resupply, medevac, Class IV/VII/IX, battlefield repair, etc., is not a part of the game. The battle is simply easier.

Train more frequently? How about doing a TF-sized maneuver exercise monthly? Fatigue with all that training? Not really. Mostly company-sized exercises — day trips to the field — once a month at the battalion level. Hot chow on the objective? Hot chow is in the mess hall on main post when they return from the day's battle.

The OPFOR is a great training aid that has meant a great deal to the proficiency of the

U.S. Army in its conduct of military operations. But let's not give them too much credit for what appears to be tactical proficiency.

The OPFOR operates with profligate frequency on the only terrain on which they will ever operate. The rest of the Army is not so lucky. Operational requirements and limited budgets make the frequency of practicing combat missions problematic and the likelihood of doing it over and over on the same terrain remote. The OPFOR's mission is simple and resources are matched to it.

Train a lot over the same terrain week after week, focus on nothing else, remove logistics from the equation and negate the probability of operating in assorted terrain under varied conditions and you'll get pretty good at a simple task. They train on a narrow set of tasks a lot and they know the terrain. No one else's mission statement is quite that simple. Nice job if you can get it.

JAMES G. DIEHL  
COL, Armor  
Via email

## OPFOR Doesn't Present A Realistic Comparison

Dear Sir:

I found the May-June 1999 *ARMOR* to be a most interesting issue, especially the articles on Grozny, Dr. John Daley's piece on the fighting in Spain, and Colonel Rosenberger's lengthy article on reaching full combat potential in the 21st century. On the latter, I am impressed at how extensive preparations are for the OPFOR at the NTC. It seems to go on and on, and since OPFOR fights in the same place (as near as I can tell), well, by golly, they ought to be ready! Would a unit in combat in strange territory be able to go through this vast and repetitious routine?

He notes that incoming units cannot match OPFOR in training and preparation, and execution, so it is not difficult to see why they lose most of the time. No doubt, even so, these incoming units learn a host of useful lessons — but one must wonder how long these lessons stick and are passed on. Unless I have misunderstood Colonel Rosenberger's presentation, it looks that these returning incoming units come to NTC with nearly a clean slate. If this is a valid conclusion, then our units never will be as ready as they should be.

Throughout his article, he repeats that the rest of the Army cannot do what OPFOR does, and this is quite chilling. And then, after noting this circumstance, he admonishes us to roll up our sleeves. And do what? With what? When?

Are we as dead in the water as he claims? A pessimist probably would conclude that as long as present conditions continue to prevail (administration hostility to the military, insufficient funding and staffing, excessive deployments, inadequate effective training, degraded combat readiness, high turnover, increased

departure of those who readily see the handwriting on the wall, et al) — there is no hope. Is this the real message, colonel?

GEORGE G. EDDY  
COL, USA (Ret.)  
Austin, Texas

## Bradley IFV/CFV Design Was Driven by the Soviet Challenge

Dear Sir:

I am reaching the age at which histories are being written that cover events I lived through and, like some WWII vets I know, perhaps the best policy is silence. Still, recent discussions on the design of the Bradley Fighting Vehicle in your fine journal demand some comment — not to belabor the past but to allow the current generation of cavalymen to understand fully our combat vehicle design decisions as they begin the process of designing the Army After Next class of vehicles.

As MAJ Winstead brilliantly pointed out in his May-June 1999 letter to *ARMOR*, the Bradley Fighting Vehicle design was a compromise of many doctrinal, technological, and economic issues. Although this will always be the case, even for the richest nation on earth, and MG Sheridan understands this better than most professionals, it is very important to understand how and why these compromises were made. MAJ Winstead's conclusion that the BFV design and doctrinal employment are inadequate for 21st century warfare is correct, in my opinion, but for very different reasons.

The first factor to understand is that the fighting vehicle concept is a Soviet idea reflecting Soviet doctrine. It is every bit as much an achievement as the T34 tank and the Kalashnikov rifle — so much so that all major armies copied the concept shortly after the BMP was introduced. Imitation is the most sincere form of flattery, particularly in the field of weapons design, where original thought is so scarce. Soviet doctrine since the spectacular WWII victory that saved their country has been to concentrate forces at the critical point, conduct a mounted breakthrough under overwhelming artillery attacks and drive for deep, critical objectives. This very consistent doctrine has, until recently, driven their infantry, tank, and artillery design: large numbers of relatively simple weapons systems that support this doctrine, i.e., large, relatively inaccurate guns on small tanks; small infantry squads that fight mounted during the breakthrough (hence Infantry Fighting Vehicle); and massive artillery/rocket/missile formations.

The BFV, therefore, is a Soviet concept done in grand American style — bigger, better, and more expensive. When the BMP was being deployed, we were mired in a land war in Asia, more worried about bombers and jungle boots. When Abrams/DePuy/Stary and some outstanding Chiefs of Staff put the Army back together, we threw large dollars at modernization and came up with the Abrams tank, Bradley Fighting Vehicle, and now the Cru-

sader artillery system (20 years later). The Abrams is a world class tank, thanks to some very talented, disciplined designers at Chrysler Defense and TACOM, albeit with German armament and British armor. The Bradley suffered from uncertain U.S. infantry doctrine in the post-Vietnam era which, in my opinion, continues today and is the major obstacle to the design of vehicles for AAN. The specific Sheridan/Winstead points are:

**Battlefield taxi vs. fighting vehicle.** The Bradley was designed as a fighting vehicle but was immediately compromised by weight/size limitations and U.S. doctrine. U.S. infantry wanted to keep the large squads, did not really want to fight mounted, and was smart enough to know it didn't have overwhelming artillery support anyway, with WWII formations declining from fully one third of a division to the paltry numbers of today. Firing ports were discarded soon after fielding. Armor protection was state of the art, but completely inadequate in the face of another Soviet invention, the Sagger anti-tank missile. Ft. Benning wisely accepted the better mobility and firepower of the Bradley but avoided the fighting vehicle doctrine whenever possible. MAJ Winstead is correct that monthly NTC blood baths demonstrate vividly the error of BFV head-on engagements, and poor U.S. mechanized infantry doctrine continues to be masked by improper lessons from Desert Storm. One hopes that perceptive infantry leaders will make do until doctrine catches up with the times.

**Armament.** The TOW AT missile launcher and two-man turret were major design compromises, caused by lack of capability against Soviet tank divisions in Europe at the time, and continue to cause doctrinal problems. How can the vehicle be 2-3 kms in overwatch and still be accompanying the Abrams onto the objective? Is the 25mm a precision or area weapon? Suffice it to say that the BMP had a direct fire cannon and missile launcher — ours do, too. The advent of fire-and-forget AT missiles, such as the U.S. Javelin, may cause new thinking — soon, we hope — although the Marine AAV and the U.S. Future Scout Vehicle appear to have missed this leap-ahead opportunity.

**Mobility.** The Bradley was a great improvement in battlefield mobility for its time, although it is, in my opinion, still its greatest limitation for future battlefields. The next infantry vehicle, and tank for that matter, needs to fly over obstacles and fight successfully on the ground. Technology is not the limiting factor, only doctrine and proponent inertia. The Bradley swimming issue, another BMP mirror-image threat and infantry-cavalry compromise, can be avoided by flight if some original thinking is done.

**"The Pentagon Wars."** I should have been upset by being portrayed as ineffective and unethical in the HBO movie, but have come to realize that the few people who saw it believe it to be comic satire of our bumbling defense establishment and are not concerned with the core issues involved. This is as it should be.

Some parts of the movie are unfortunately laughably true, but the basic issues are so distorted that the only casualty is my trust in the historical record according to Washington D.C. and Hollywood, Calif.

Where do we go from here? The Future Infantry Fighting Vehicle (FIFV) concept work has begun and the Future Scout Vehicle is trying to be born as a joint U.S./U.K. demonstrator program. In the short run, relatively peaceful times and low RDTE budgets will probably mean that the 17 years it took to develop the Bradley will be exceeded. Design compromises will have to be made, of course, but can be kept to a minimum if a forward-looking, clear and consistent how-to-fight doctrine is developed for AAN and disciplined leadership rises to the occasion.

FRANK HARTLINE  
COL, Armor (Ret.)  
Tucson, Ariz.

### Future Mounted Forces, And the Shape of a New Army

Dear Sir:

I am a light infantryman by commission and experience. Therefore, read what follows with Caveat Emptor in mind. My love affair with the mounted arm began at the age of 16 when I read my father's dog-eared copy of *JEB Stuart* by John W. Thomason, a Marine — go figure. Since that time, I have read, no devoured, every book and article on mounted combat I could get my hands on, including every issue of *ARMOR* for the last 38 years. My bookshelves and filing cabinets are full to overflowing. I am comfortable with the mindset of Murat, Kellermann, and Stuart, as well as Antal, Benson, MacGregor, Rosenberger, and Thompson. What follows then are the results of the lessons gleaned from the great masters as well as the modern practitioners. Based upon these lessons, I will further go way out on a limb, and propose a mounted force structure for the twenty-first century.

There are four rules for mounted combat, as I see them:

(1) Never fight fair: Strength on strength combat, when avoidable, is a waste of men and equipment. Properly conceived maneuver, attacking C4I, fire support, and logistical assets render the enemy's maneuver assets irrelevant. Tanks and IFVs that are out of gas and ammo are useless junk.

(2) Always fight offensively (even while defending): Frederick the Great is said to have relieved any of his cavalry commanders who waited to receive the enemy's charge. The true potential of the mounted arm is in offensive combat.

(3) Organize and train the way you intend to fight: Combined arms has evolved from the army corps of Napoleon's day to today's brigade. It's time that it evolves even further to a combined arms battalion that crosses traditional branch lines. The factors of METT-T are

important when organizing for combat, but so are mutual trust, understanding, and habitual relationships. We must find a means and method of recognizing, and combining both, and at the same time dispensing with branch parochialism.

(4) Never forget history: We must place renewed emphasis on the study of past conflicts. The statue in front of the National Archives says it best. "What is past is prologue." The problems and challenges that today's commander face have been solved by someone before. The trick is finding and applying the solution. The thorough study of the history of our profession is an invaluable tool in this regard. Also, never overlook the history of our particular unit. It may seem trite, but colors, guidons, patches and crests are combat multipliers that cost next to nothing.

With the above rules in mind its "out on a limb time." My proposed mounted force structure, to meet the challenges of the next century, is along the following lines;

(1) Change our army from one based upon divisions to one based on brigades. Divisions are too cumbersome for the twenty-first century fight. Remember how long it took us to get to the Gulf? Our potential enemies are not stupid. They won't give us six months next time. Brigades are easier to station, train, modernize, mobilize, and deploy, and when properly organized can pack nearly the punch of today's "Army XXI" division.

(2) Design a mounted brigade that is self-sufficient all the time. It should contain "joint compatible" C4I, robust reconnaissance, fire support (aviation, field and air defense artillery), and a world-class logistics system, as well as the teeth arms.

(3) The combined arms battalion's organization is anybody's guess. My particular favorite is the balanced approach of two mechanized infantry companies and two tank companies, with a headquarters containing engineer, signal, mortar, air defense, and reconnaissance platoons. An organic service company would contain all of the battalion's service support requirements. No "just in time" logistics belonging to some other commander for this kid. I would want to control my own destiny. The organization described would seem to meet most of the presumed parameters of METT-T. Will it meet them all? Of course not, but it will meet most of them. Cross-attachment between battalions will become the exception, not the rule. There is just no such thing as a perfect organization.

(4) To summarize, the brigade I envision would have a headquarters battalion containing the brigade headquarters company, signal company, MI company, attack/recon aviation company, and ground recon troop. It would also contain three combined arms battalions, a field artillery battalion, and a support battalion containing very robust medical, maintenance, and supply and transportation companies.

*Continued on Page 56*

# COMMANDER'S HATCH

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## “On Point for the Nation . . .”

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

As I assume the duties as your 38th Chief of Armor, I cannot imagine a more exciting challenge or greater privilege. On the eve of the 21st century, our mounted combat force is postured as the most lethal and relevant heavy force in the history of America's Army. Our nation, by destiny and design, has growing interests in an increasingly complex and interdependent world. At home and across the globe where our military forces defend our national interests, our armor/mechanized team is respected and admired by our friends, and feared by our potential enemies. The mounted force has become the centerpiece force of choice, whether postured for intense combat on the Korean peninsula and the deserts of Southwest Asia or demonstrating American decisiveness, commitment, and will in Bosnia and Kosovo. Our mounted warriors are leading the charge in executing the National Military Strategy — they are literally on point for the nation.

The Chief of Staff of the Army has established the Army's non-negotiable contract with the nation and the American people. We are a warfighting Army — persuasive in peace, invincible in war. My goal is to provide the central leadership and vision to field an Armored Force that expands its relevance and capabilities for the Army. Our Armored Force must get to the fight fast — before the enemy prepares the battlefield — and situationally dominate. It must achieve rapid and decisive mission resolution on *our* terms. Our objectives to achieve this goal are to:

- Structure current mounted forces to achieve marked enhancements to strategic deployability.

- Develop future mounted combat systems to achieve substantially improved strategic mobility and tactical agility, while maintaining overwhelming firepower and crew protection.
- Train our soldiers, NCOs, and officers to serve and lead as decisive warriors, enlightened by the precepts of Force XXI, yet grounded in the realities of the deployed Army on mission.
- Seek, develop, capture, then rapidly adapt, relevant breakthrough information technology to the Armored Force.

In achieving these objectives, the Armor Center will review our mounted force

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*Our Armored Force must get to the fight fast — before the enemy prepares the battlefield — and situationally dominate. It must achieve rapid and decisive mission resolution on our terms.*

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METT-T. We will capitalize on our current strengths and develop innovative approaches to overcome our weaknesses. We will pursue appropriate upgrades to our M1 fleet as the dominant flagship of our full-spectrum armored force. However, we cannot afford to overwhelm scarce strategic deployment resources with massive, unwieldy formations that arrive late on the battlefield. We cannot afford to leverage superb strategic deployment platforms such as the C-17, only to find our force tactically stacked up and vulnerable behind legions of unprotected engineer formations struggling

to reinforce Class 40 bridges to pass our heavy armor. To become a more strategically mobile and tactically agile force, we will aggressively pursue scientific and technological breakthrough applications to the development of our future mounted combat systems.

Our Armor soldiers are the best in the world — by far. They out-think, out-smart, out-quick, out-react and can out-fight any other fielded Armor force. They are innovative, resourceful, courageous, compassionate, and vicious warriors. We will build on this base. We will train our soldiers to further leverage information technology to widen the overmatch they now enjoy. They will literally think, plan, and execute “out of the box,” while staying inside our proven doctrine. They will be predictably unpredictable and they will thrive on uncertainty.

We will enhance our commitment to instilling in our warriors the values and standards which are the foundation of our Army, recognizing that our volunteer mounted troopers serve selflessly, prepared to accept enormous hardship, deprivation and death to defend the nation and the ideals on which it is built.

Today, the mounted combat force has never been more important or central to the Army's ability to fight and win our nation's wars, defend its interests and preserve the peace. To cement and expand our relevancy, we will commit ourselves to ensuring that the mounted force is formed, trained, and equipped as a decisive, lethal, rapidly deployable, and agile force for the next millennium.

**STRIKE FIRST!**

# DRIVER'S SEAT

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## FORSCOM Plan to Allocate Ammo Draws Armor Center Alternative

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

It is the rare tanker who believes that he has enough ammunition for gunnery training! The STRAC (Standards in Training Commission) allowance of 90 main-gun rounds per tank per year was an unpopular reduction which permitted the purchase of the Tank Weapons Gunnery Simulation System (TWGSS). As an armor force, we have a long way to go in order to reap the full benefit of TWGSS; we need enough spare systems/PLL on hand to repair/replace bad components "on the spot," as well as a better NETT and sustainment training system. Initiatives to improve TWGSS-user training have been proposed by the Directorate of Training and Doctrine Development (DTDD), but the fact remains that most tankers want more main gun ammunition; many commanders want the ammunition in order to better resource unit collective-training tank tables XI and XII, as well as an annual CALFEX.

FORSCOM staff has been working on a STRAC XXI proposal, in order to recommend improvements to *DA Pam 350-38*. This proposal was presented by the FORSCOM Master Gunner, MSG Ronnie Ward, at the CSM Update during the Armor Conference and, more recently, at the Gunnery Conference conducted at Fort Knox 22-24 Jun 99. *For more on the STRAC XXI proposal, see "Budgeting the Bullets," pg. 49. — Ed.*

The strategy model represented a three-track approach to training and qualification: a live-fire track in which all crew-level tables are fired with main-gun ammunition, a simulation track in which all crew-level tables are fired using TADSS (Training Aids, Devices, Simulations and Simulators), and a track that combines both. The goal of this proposal is to har-

vest ammunition savings from crew-tables and shift this ammunition to collective-level training tables. This proposal emphasizes using TADSS and allowing the commander to determine the track each crew takes through qualification. This proposal utilizes the current 90-round strategy for Armor.

STRAC XXI for M1A1/A2 tank battalions w/TWGSS would make no change to current requirements for COFT/AGTS; it would require TCGST and a Dry/TADSS Tank Crew Proficiency Course prior to both Level I and II Gunnery. Live Fire Accuracy Screening Test (LFAST) and Tank Table V would remain mandatory live fire tables. Following TTV, the commander would have the option of directing his crews into one of the three tracks. If the TC/gunner had qualified live-fire TTVIII within the past 12 months, the crew could fire TTVI and VII using TADSS (generally TWGSS) and fire a "modified" TTVIII. If the crew met the standard for TTVIII-M, then they would be Qualified and would go on to live-fire TTs XI and XII and/or CALFEX. If the TC/gunner had not qualified live-fire TTVIII in the past 12 months, then TTs VI, VII, and VIII would be live-fire qualification tables. The third track, involving total use of TADSS, would only be used by experienced qualified crews determined by the commander as not needing to live-fire prior to the advanced tables. With the ammunition saved by using the combination or TADSS track for previously qualified crews, commanders would have a "harvest" for more robust TTs XI and XII and for a CALFEX.

At both presentations the consensus of attendees was that crew-level proficiency

would suffer if commanders were allowed too much latitude. This consensus was based on the current level of training and qualification with their units. Also, the Armor Center was asked to better specify the gates and prerequisites for each track.

It was during the Gunnery Conference that MSG Steven Delabar (Platoon Gunnery Doctrine Branch NCOIC, who co-authored this article) presented an Armor Center proposal for STRAC XXI. This USAARMC model is based on the FORSCOM approach and has two tracks: a live-fire track in which all crew-level tables are fired with main gun ammunition and a track that combines TADSS with live-fire to verify proficiency before moving into collective-level gunnery. This model allows the harvesting of ammunition savings from crew-level tables and shifting these savings to collective-level training tables, while maintaining proficiency and safety at crew-level gunnery. FORSCOM's third track would not be used in the "qualification" sense, but could be used by commanders if the unit was deployed to an area where there are no live-fire ranges or laser-engagement areas to sustain some gunnery proficiency.

Both tracks maintain COFT/AGTS requirements, require hands-on TCGST, and TPCP using TWGSS. Screening and TTV would remain live fire in both tracks. Following TTV, the commander could direct the crews to one of two tracks, one of which would lead to qualification and the other to "proficiency verification."

Continued on Page 14

# Tips on Being a Platoon Leader

## A Refreshingly Honest Account of a Junior Leader's Learning Curve

by Captain Douglas B. Crandall

Platoon leaders start from scratch. While we receive leadership training throughout the commissioning process, nothing can fully prepare us for our first day in charge. We can study to master the tactical and technical aspects of the job, but leadership experience only comes with experience. The responsibilities of the junior leader are numerous: develop subordinates, build the team, set the example, make sound and timely decisions — to name a few. Our lack of practice is no excuse. If we fail, soldiers die.

*FM 22-100, Military Leadership*, directs young officers to know their strengths and weaknesses and to practice honest self assessment.<sup>1</sup> Honest analysis of one's own failures can be difficult. The failures are many; the failures are inexcusable; the failures violate the confidence of our subordinates. As I look back, many of my own mistakes embarrass me. Nonetheless, those mistakes provide valuable insight. We must seek to improve upon them to lead more effectively in the future. Lives depend upon it.

The quandary for the new platoon leader is the virtual absence of lessons upon which to draw. There are books on leadership, and the Army publishes manuals on the subject. However, few of those sources describe the intimate details of failure — a crucial tool in learning how to lead. Therefore, I have recalled my mistakes as a platoon leader to help those who will soon tread that ground. Although the lessons are specific to my own experiences, they should not be too different from what most platoon leaders will encounter.

**January 1996: Taking over the platoon.** Assuming leadership of 1st Platoon, Delta Company, 1-33 Armor was the first major event of my Army career. Five years of college and four months at the Officer Basic Course all pointed to this moment. The platoon, however, could not have cared much less. While there is usually some anticipation with regard to a new leader — especially at lower levels — it is pretty much business as usual for the soldiers. Moreover, my platoon had just returned from the National Training Center. The deployment took its toll, and the platoon was ready to

rest; I was energetic and ready to get started. *Understanding the circumstances surrounding a unit that existed before me (and will exist long after me) would have put my own importance in context.*

**January 1996 - April 1996: Establishing standards within the platoon.** Although it is important to build credibility before making changes, some standards are simply non-negotiable. Even the most junior lieutenant understands the tenets of basic discipline. I observed but did not correct simple deficiencies: leaders who did not take the APFT with their soldiers, a tank commander who regularly came late to formations, sub-standard uniforms and haircuts. Even though the platoon appeared on a par with the company, I still should have immediately corrected these problems.

Throughout AOBC, our instructors inundated us with the mantra: "Your platoon sergeant will make you or break you." It is definitely crucial to establish a strong relationship with your resident expert. However, if you have high standards coming in, do not lower them as you attempt to build that relationship.

*Many new platoon leaders will not face the challenge of immediately instilling discipline; the noncommissioned officers will have things under control; but, if the NCOs do not, it is your responsibility to enforce standards from the start.*

**January 1996 - December 1996: Counseling is your duty from the first day you take control of your platoon.** Counsel your platoon sergeant on what you expect from him and ask him what he expects of you. Learn from him as you conduct the counseling. If he is a quality NCO, the counseling sessions will serve as professional development for you. If he is not, you will have to develop him. The bottom line is that he works for you, and you are responsible for rating his performance. You cannot properly do that without formal counseling.

I did not counsel my first platoon sergeant. The reason was simple: he was old enough to be my father. I felt inadequate. What was I, as a new second lieutenant, going to tell him? This is a typical mistake. Don't make it.

*Find out quickly from your commander, the first sergeant, or the command sergeant major what goes into proper counseling, and then do it. The likely result will be a quality exchange of ideas between you and your senior NCO.*

**November 1996: You will make critical mistakes; drive on.** My best tank commander taught me the importance of quickly recovering from failure. While preparing for a mobile defense at JRTC, I threw track. Instead of acting decisively, commandeering another vehicle, and accomplishing the mission, I stayed with my tank and reflected upon my misfortune and stupidity. After the battle was over — and we had lost — SGT Morningstar told me that I often took my mistakes too hard. In this case, he said, I had let the platoon down by not rebounding and continuing with the mission. I needed to quickly put it behind me and carry on. I will never forget that.

**December 1996: Never criticize the performance of your predecessor.** Following JRTC, the battalion commander chose me to take over the support platoon. Although I had heard it was a miserable job, the challenge of leading the platoon through an upcoming NTC rotation provided me with excitement. Probably the biggest mistake I made came upon my arrival to that platoon. "Right off the bat," I discussed my perception of the previous lieutenant with the platoon sergeant and some of the squad leaders.

Since that time, I have learned that there are few blunders a new leader can make which approach this one. Disparaging the previous leadership alienates those who respected their former boss. It is unprofessional at best, and springs from a lack of confidence in your own abilities. The constant need for comparison is a malady that plagues or has plagued numerous leaders — myself included. *Rid yourself of any concern for who came before you or who will come after you. Just do the job.*

As I soon found out, my predecessor had performed admirably in an extremely difficult position. It is embarrassing to think that I ever made the mistake of criticizing him.



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As a side note, complimenting your predecessor can have a proportionally opposite effect. Subtle praise for the job he did will impress subordinates and indicate that you are confident in your own abilities. I saw that quality in my battalion and brigade commanders, and I have logged it as an example of great leadership.

**January 1997 - May 1997: Hold your noncommissioned officers responsible for the deficiencies of their subordinates.** In many ways, I alienated my support platoon soldiers because I was too willing to correct them myself. In addition, this served to weaken the chain of command. Whenever possible, be tough on your NCOs and make **them** enforce the standards. The noncommissioned officers (squad leaders, tank commanders) are accountable to you; the soldiers are, in turn, accountable to them.

**June 1997: Be with your soldiers and do not take special privileges.** About half-way through our NTC rotation, SGT Kauahi, an outstanding squad leader, confronted me. The guys in the platoon felt as if I was not spending enough time with them. I had been sleeping near the Field Trains Command Post (FTCP) with the XO, CO, and ISG, instead of with my soldiers. Initially, I resented the criticism. The commander had me doing a lot of work in the FTCP, so I thought it made sense to sleep there.

When I reflected upon SGT Kauahi's comments, I realized that I had failed. My NCO was right. I belonged with my soldiers whenever possible: working beside them, communicating with them, and addressing their concerns. Taking care of soldiers is the best part of the job. Opportunities to isolate yourself and gain special privileges will arise often. Resist the temptation.

I was back with the soldiers that night and will never make the same mistake

again. *Rank has no privilege except that of caring for young lives.*

**July 1997: Act decisively when you know you are right — no matter how many subordinates or peers disagree.** Upon its return from NTC, the support platoon received a new platoon sergeant. Because he seemed to possess a great deal of initiative, I allowed the new platoon sergeant to make some ill-advised changes. In particular, I acquiesced to the alteration of our manning roster. I have regretted it ever since. The personnel moves reversed a tremendous amount of progress that the platoon had made.

I knew I was right; we did not need to make any changes. But similar to mistakes I made as a tank platoon leader, I allowed secondary factors to trump my better judgment. *When you know you are right, act decisively no matter who disagrees. You are the leader.*

**July - August 1997: Never talk about how things have improved since you arrived.** The support platoon's new platoon sergeant constantly talked about how much things had improved since he arrived — how things were now "shaping up." The rest of us thought we had done pretty well before he got there. His words proved especially embarrassing to the former platoon sergeant — a young staff sergeant who was still in the unit.

I am sure I probably made the same mistake some time in my first few months. It is a failure much like criticizing your predecessor. In effect, you are saying, "Hey! You guys are great now that I am here." Intentional or not, it causes subordinates to resent your presence. *Remember to give credit and take the blame.*

I have listed the above leadership lapses in chronological order. All of them provide perfect examples of pitfalls to avoid. While I try to reflect on each of them, there are three that I vow never to forget:

- Never criticize your predecessor
- Enforce standards from the start
- Be with your soldiers and do not take special privileges

I also learned three general lessons not directly associated with the personal disappointment of my own mistakes. They provide similar value in my quest for effective leadership.

**Basic discipline is the foundation of any good unit.** A quote from General George S. Patton, Jr., communicates the importance of making discipline the priority in every endeavor:

*"You cannot be disciplined in great things and undisciplined in small things. There is only one sort of discipline — perfect discipline. Discipline is based on pride in the profession of arms, on meticulous attention to details, and on mutual respect and confidence. It can only be obtained when all officers are so imbued with the sense of their lawful obligation to their men and to their country that they cannot tolerate negligence."*

Once you or your superiors set a standard, "perfect discipline" mandates that you enforce it. Failure to do so is a common flaw of junior officers and leads to the mediocrity of platoons and companies. One of my commanders taught me an important lesson: every time you walk by a deficiency without correcting it, you lower the standard.

**Your soldiers will not always like you.** Prior to taking charge of a platoon, I imagined that I would be able to enforce standards while simultaneously commanding the respect of all of my subordinates. No fantasy ended more quickly; it died for me when I read my name on the inside of a port-a-potty wall.

You must prepare to do what is right despite your soldiers' responses. A *good litmus test is to gauge the attitudes of*

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# The 2nd Parachute Battalion's War in the Falklands:

## Light Armor Made the Difference in South Atlantic Deployment

by Captain Daniel T. Head

Since the end of the cold war, the United States government has increasingly called upon the Army to respond to contingency situations throughout the world. Generally, American policy makers choose light infantry units as the contingency ground troops of choice because they deploy rapidly and require a minimal amount of logistical support.

Unfortunately, light forces often arrive too light, and, despite over fifty years of combined arms doctrine, light infantry forces are employed without enough support. They either cannot accomplish their mission, or they can only accomplish it with the serious risk of heavy casualties. Even against a relatively untrained force, light infantry forces need the direct fire support of armored forces as part of the combined arms team to effectively accomplish their missions with minimal casualties.

The Falkland Islands War of 1982 provides a perfect example of this. The experiences of the 2nd Battalion, the Parachute Regiment (2 Para) in the Falklands prove, with a recent and relevant example, that rapid deployment infantry must have armor support in order to ensure success in combat operations with low casualties. 2 Para's experience is instructive because the battalion fought in two battles during the war, Goose Green and Wireless Ridge. Goose Green was the first major land battle of the war, and in it, 2 Para fought almost entirely with dismounted infantry. Wireless Ridge was the decisive point of the larger battle for Port Stanley that ended the war, and during that fight, the battalion received support from a combined arms team including one troop of light armor, two Scorpions and two Scimitars. The contrast between these battles highlights the importance of combined arms warfare, particularly the impact that direct fire support from armored vehicles has on light infantry

operations. Armored vehicles allow the light infantry commander to effectively mass fires anywhere on the battlefield in order to achieve direct fire superiority; this allows him to develop simple plans, maintain freedom of maneuver, and retain the offensive throughout the battle.

Argentina invaded the Falkland Islands on 2 April 1982. The British government immediately began assembling a joint task force in order to conduct a show of force in the South Atlantic and, if necessary, to recapture the islands. The 3rd Commando Regiment of the Royal Marines made up the bulk of the ground forces initially deployed, but it had several attachments. Among other units attached, two parachute battalions (2 Para and 3 Para) and two troops of light armored reconnaissance vehicles, 3 and 4 Troops of the Blues and Royals, deployed with 3 Commando to the Falklands.

The British government felt that speed was essential to the domestic political success of the mission to recapture the islands, so the deployment quickly became rapid deployment. Due to the speed of the deployment, space aboard British ships was critically tight and the terrain and weather in the Falklands uncertain, so only limited logistical lift assets, mostly Volvo tracked vehicles designed for use in snow, deployed with 3 Commando. 3 and 4 Troops' squadron commander was denied permission to deploy with his units due to limited space available, and so the reconnaissance troops deployed under the command of a 24-year-old lieutenant.<sup>1</sup> The last of the British forces deployed for war on 9 April 1982.<sup>2</sup> 3 Commando would operate with little helicopter support and under conditions of air parity throughout the war. Fortunately for 3 Commando, the ground war in the Falklands could not start until

naval supremacy was established, so the brigade stopped at Ascension Island during the voyage to the South Atlantic, while the British Navy established naval dominance in the area of operations. Ascension Island, about midway between the Falklands and England, was designated as the staging area. At Ascension, the British had a chance to conduct some training, including gunnery for 3 and 4 Troop and landing techniques for 3 Commando,<sup>3</sup> and the task force had a chance to reorganize its jumbled supplies prior to combat following the chaos of rapid deployment.<sup>4</sup>

British Royal Marine infantry battalions and parachute battalions were organized similarly. Each battalion consisted of three rifle companies of approximately 120 men each. Each rifle company contained three troops (the size of American platoons) and a headquarters section, and each troop was further subdivided into three sections (squads) and a headquarters element. Additionally, each battalion contained a support company and a headquarters company. The infantry were armed with 7.62 semi-automatic rifles (with no burst selection as on the M16A2), and each section had one General Purpose Machine Gun (GPMG) and 66mm Light Anti-Tank Weapons (LAW). Each troop also had a Carl Gustav (84mm) Medium Anti-Tank Weapon (MAW). Each battalion support company was equipped with a mortar troop with six 81mm mortars and an anti-tank troop with 14 Milan anti-tank wire-guided missiles.

The regiment was supported by its organic artillery battalion, 29 Commando Regiment Royal Artillery, with three 105mm gun batteries with six guns each.<sup>5</sup> 2 and 3 Para also each had a Patrols Company, C, in addition to their three line companies. Brigadier Julian Thomp-



Photo at left of a Chinook cargo helicopter hovering over two British armored vehicles gives some sense of the barren landscape, devoid of cover. Above, a lightweight Scimitar (only 8 tons) moves easily over the boggy terrain.

son commanded 3 Commando throughout the Falkland Islands War.

3 and 4 Troops are part of B Squadron, Blues and Royals, one of the regiments that, together with the Life Guards, make up the British Household Cavalry. They were equipped to conduct armored reconnaissance with Scorpions and Scimitars.<sup>6</sup> A total of four Scorpions, four Scimitars, and one Samson light recovery vehicle deployed to the Falklands. The Scorpion light tank weighs eight tons, has very low ground pressure, and can traverse even very boggy, restrictive terrain. Additionally, the Scorpion has a crew of three, aluminum armor, a full NBC system, and a 76mm main gun with a 7.62mm coaxial machine gun. The main gun fires high-explosive squash-head (HESH), high-explosive (HE), canister, smoke, and illumination rounds, and the turret has a second generation day and night thermal sight. The Scimitar is very similar, but has a Rarden 30-mm high-velocity cannon which fires sabot, HE, and armor-piercing special effects (APSE) rounds.<sup>7</sup> These vehicles proved to be perfect for the Falklands because they could deploy rapidly (two can fit on a C-130, but the Blues and Royals traveled by ship) and they were light enough to move on the islands and could be recovered easily... so easily that when one hit a land mine during the final battle for Port Stanley, the vehicle was recovered by Chinook helicopter.<sup>8</sup>

By mid-May 1982, 3 Commando had successfully landed on East Falkland, the location of the islands' principal town, Port Stanley, while 2 Para waited in an assembly area on Sussex Mountain. On 23 May, 2 Para received a warning order to conduct a battalion-sized raid on Argentine positions at Darwin and Goose Green, two towns containing a set of strongpoints that controlled the isthmus between East Falkland and the rest of the

island chain, approximately 11 miles away. As with all military operations, terrain was a major factor. First, the Falkland Islands in general can be considered an obstacle to movement because they are made up of rocky outcroppings surrounded by bog. There are virtually no improved roads on the islands, and wheeled vehicles could not hope to move through the terrain when they were loaded down with supplies. Thus, because the British did not have air superiority and had few helicopters in general, 2 Para had no choice but to attack from their assembly area in the north along the obvious avenue of approach down the isthmus to Darwin and Goose Green. The Argentines were dug in on the only defensible terrain nearby, and, at the time, the British ground commanders believed that their light armored vehicles could not maneuver effectively through the boggy ground. Also, there was no real cover and concealment available to the light infantry that were to attack Goose Green because the Falklands have no trees or other vegetation to hide attacking forces. Additionally, the battalion could be supported by only three 105mm artillery pieces that would be moved into position by helicopter, along with their ammunition. One frigate, the *Arrow*, would provide naval gunfire support, but it could only fire during hours of limited visibility due to the Argentine air threat. Since the infantry would have to carry everything that they took to battle, they could only take two mortar tubes with ammunition.<sup>9</sup> Moreover, ammunition would be critical throughout the battle due to the difficulty of resupply.

Nonetheless, the battalion moved out for the attack on 27 May 82 with two days basic load of rations and ammunition.<sup>10</sup> 2 Para's commander, LTC H. Jones, had a relatively simple plan that depended on stealth to accomplish his mission. He

would use his C (Patrols) Company to conduct area reconnaissance up to his line of departure. Then he would attack at night with two companies, A and B, abreast down the sides of the isthmus and infiltrate through Argentine positions to Boca House, a major strongpoint adjacent to Darwin. There, D Company would pass forward to take this major strongpoint while B Company would continue around to Goose Green Airfield in order to complete the destruction of the Argentine outer ring of defenses and envelop Goose Green. Once Goose Green was encircled, the battalion would clear the town in daylight to avoid civilian casualties.<sup>11</sup>

The battle went basically according to plan until daylight. C Company moved out at 1800, and at 280235MAY82, A Company crossed the LD. B Company began its attack approximately 45 minutes later.<sup>12</sup> The two companies moved up together and cleared or effectively bypassed bunkers in the dark due to superior training, night vision capability, and naval gunfire support. The battle was going well, but slowly, when the artillery began to run out of ammunition around dawn. When dawn began at 0530, the battalion had reached its secondary objectives and had taken few casualties. However, once daylight illuminated the battlefield, the battle began to go against 2 Para. The relatively untrained Argentine conscripts began to pour machine-gun fire into the exposed British infantry. Since the British had bypassed several bunkers during their infiltration, they found themselves surrounded and in poor terrain. The battalion bogged down around Darwin Hill and Boca House, and ammunition became a serious issue. The mortars ran out of ammunition shortly after sunrise and the *Arrow* had to withdraw to safety about two hours after sunrise. 2 Para's attack was halted and in

danger of failing. At around 0830, 2 Para's commander was killed as he led an assault on an Argentine machine gun nest in an attempt to get his battalion moving.<sup>13</sup> However, about that time, A Company began to break through the defense by using LAWs against Argentine bunkers. Additionally, LTC Jones had ordered his Milan and Machine Gun Troop to move to support B Company. By massing their fires against Argentine strongpoints, B Company was finally able to achieve direct fire superiority and break through the line at Boca House.<sup>14</sup> Once Boca House was taken, the British had broken through the Argentine's first line of resistance and victory became only a matter of time and determination.<sup>15</sup> 2 Para slowly encircled Goose Green, and, by sundown, they demanded and received the Argentine garrison's surrender. The poorly trained and led Argentine troops could not cope with the collapse of their initial line of resistance. 2 Para, a battalion of 450 men, captured 1200 prisoners of war. 2 Para lost 17 men killed and 35 wounded and achieved a great victory, but overall the battalion was basically lucky. The battle had gone very well in darkness, but once daylight hit, the Argentine conscripts were able to fix the entire battalion for several hours and kill many of its key personnel. Clearly, a well-trained force would have been able to defeat and probably destroy the British parachute battalion attacking without support at Goose Green.<sup>16</sup>

2 Para learned a lot at Goose Green. By the time the British forces marched across East Falkland to the climactic battle with the Argentine garrison at Port Stanley, the Scimitars and Scorpions of the Blues and Royals had proved their mobility through the boggy countryside of the Falklands. 2 Para was assigned to seize Wireless Ridge, the ridge overlooking Port Stanley itself and the suspected location of an Argentine regimental command post. Again, terrain was important. During this battle, the Argentines were dug in along several pieces of key terrain. Two Argentine companies occupied Wireless Ridge itself while company strongpoints were sited on several nearby hill masses. All Argentine positions were well dug in, with overhead cover and ammunition cached in bunkers throughout their positions. 2 Para's new battalion commander, LTC D.R. Chandler, had a simple combined arms plan. 2 Para would conduct an infantry assault supported by 3 Troop from the Blues and Royals, both 2 and 3 Para's mortar platoons, two 105mm artillery batteries, naval gunfire from the *HMS Ambuscade* and the battalion's or-

ganic Milan and Machine Gun Troop. He would first seize Rough Diamond, a hill mass northwest of the ridge itself, with D Company supported by direct fire from 3 Troop. Then A and B Companies would attack on line to seize Apple Pie, a ridge adjacent to Wireless Ridge. Then D Company would move up to the western flank of the defensive line along Wireless and envelop the Argentines, again supported by direct fire from 3 Troop and A and B Companies.<sup>17</sup> Clearly, the battalion had learned the value of both direct and

the flanks or rear this time. Once Rough Diamond was seized, A and B Companies moved to attack Apple Pie. The direct and indirect fire support quickly broke the defenders' spirit, and 2 Para watched as the Argentines fled down the ridge to the dubious safety of Wireless Ridge itself. While D Company moved to its next start point west of the ridge, 3 Troop and the Milan and Machine Gun Troops moved to Apple Pie. D Company moved out and captured the first half of Wireless fairly easily, but the Argentines



The four Scimitars deployed to the Falklands first stopped at Ascension Island, where their training included gunnery in preparation for the invasion. Their 30mm Rarden cannons were later used to pick off Argentine bunkers.

indirect fire support in infantry operations.<sup>18</sup> The attack was to take place entirely at night.

The preparatory bombardment of Rough Diamond began at 132115JUN82, and at 2145, D Company crossed its LD with 3 Troop and the battalion Machine Gun Troop in support. 3 Troop conducted reconnaissance by fire to locate and destroy Argentine bunkers. They called this technique "zapping."<sup>19</sup> "Zapping" involved engaging Argentine bunkers with machine-gun fire in order to provoke a response. Once the Argentines returned fire, usually with 7.62 machine guns, the Scimitar crew would engage the machine gun crew with 30mm cannon fire. This technique proved highly effective, and by the time that D Company got up to their initial objective, they found the entire position occupied by only a few Argentine dead; the Argentines forces had withdrawn.<sup>20</sup> Additionally, the light armor's night sights enabled 2 Para's commander to get good intelligence on enemy positions as his troops assaulted their various objectives.<sup>21</sup> 2 Para was able to destroy all of the Argentine bunkers during their initial assaults, so no bypassed enemy would engage 2 Para from

withdrew in an orderly fashion and forced the company to fight from bunker to bunker. The attack might have stalled but for the highly accurate direct fire support from the Blues and Royals into the enemy's bunkers. This enabled D Company to assault and push the enemy out of his prepared positions and off of their strongest defensive position.<sup>22</sup> At dawn, the Argentines mounted their only counterattack of the war, and D Company quickly repulsed it with indirect fire from 3 Commando's 105mm battalion. Shortly after dawn, 2 Para began preparing to continue its assault into Port Stanley, but peace intervened, so the battalion entered the city unopposed. 3 Troop led the way with infantry riding on their Scimitars and Scorpions.

Clearly, today's rapidly deployable forces can learn a lot from 2 Para's experience in the Falklands. By examining the war using the principles of war of mass, maneuver, the offensive, and simplicity, one can readily explain the necessity for armored forces in the light infantry fight. Light armored forces enable the rapid-deployment light infantry commander to easily mass overwhelming direct fires on any specific point or area target. This, in turn, allows the com-



Paratroopers hitch a ride on a Scorpion over the barren Falklands terrain after the conclusion of hostilities. Rapidly deploying light armor made the difference in this unexpected conflict over a distant British South Atlantic colony long claimed by Argentina.

mander to retain freedom of maneuver. Additionally, light armored forces can be transported more easily than their heavy counterparts, and so cause little loss in operational or strategic mobility. Since the light infantry commander now has a way to readily achieve direct fire superiority, he has the ability to retain the offensive, and this allows him to keep his plan simple and flexible. MG Nick Vaux, then a battalion commander in 3 Commando, called the Falklands, "The last place we expected to fight."<sup>23</sup> Clearly this statement can be applied to any number of potential battlefields for American forces. However, despite all of the challenges, 2 Para fought well both at Goose Green and at Wireless Ridge. The difference came in the appreciation for the combined arms fight that the battalion learned at Goose Green. MG Vaux said, "Once we cracked their defenses, they collapsed quickly, as any ill-trained army would. Their officers simply lost control."<sup>24</sup> Light armor enables the infantry commander to crack initial defenses quickly with overwhelming fire and shock effect; infantry can then effectively close with and destroy the enemy with minimum casualties, even in a rapid-deployment scenario.

## Notes

<sup>1</sup>Max Hastings and Simon Jenkins, *The Battle for the Falklands* (New York: W.W. Norton and Company, 1983) pp. 91-93.

<sup>2</sup>Julian Thompson, *No Picnic* (Glasgow: William Collins Sons & Co. Ltd., 1985) p. 14.

<sup>3</sup>LTC Andrew R. Jones, "British Armor in the Falklands," *ARMOR*, March-April 1983, pp. 26-27.

<sup>4</sup>Hastings and Jenkins, pp. 91-93.

<sup>5</sup>Thompson, pp. 3-4.

<sup>6</sup>Jones, p. 26.

<sup>7</sup>Jones, pp. 26-27.

<sup>8</sup>Jones, p. 30.

<sup>9</sup>Hastings and Jenkins, pp. 235-238.

<sup>10</sup>Hastings and Jenkins, pp. 238.

<sup>11</sup>Hastings and Jenkins, p. 240.

<sup>12</sup>Hastings and Jenkins, p. 241.

<sup>13</sup>Hastings and Jenkins, pp. 243-245.

<sup>14</sup>Hastings and Jenkins, pp. 245-246.

<sup>15</sup>Hastings and Jenkins, pp. 247-248.

<sup>16</sup>Hastings and Jenkin, pp. 250-252.

<sup>17</sup>Thompson, pp. 175-177.

<sup>18</sup>Hastings and Jenkins, p. 304.

<sup>19</sup>Jones, p. 30.

<sup>20</sup>Thompson, p. 177.

<sup>21</sup>Jones, p. 30.

<sup>22</sup>Thompson, pp. 177-178.

<sup>23</sup>Lt. Gen. Bernard E. Trainor, "Reflections on the Falklands," *Marine Corps Gazette*, January 1989, p. 70.

<sup>24</sup>Trainor, p. 71.

CPT Dan Head graduated in 1995 from the U.S. Military Academy with a BS in European History. Following the Armor Officer Basic Course, he was stationed with the 3d ID at Ft. Stewart, Ga., where he served as a tank platoon leader, company XO, and brigade staff officer. He recently graduated from the Armor Captain's Career Course and Combined Arms and Services Staff School and is headed to the 2d ID in Korea.

## Platoon Leader

(Continued from Page 8)

*your quality noncommissioned officers. If the good NCOs respect you and follow you willingly, then you are likely striking a proper balance.* There will always be those who complain and despise you — your high standards will ensure as much. (It is important to note, however, that there is a difference between enforcing standards and abstractly wielding the power of authority. Even the best leaders have their detractors, but if **no one** can stand you, then you may be the problem.)

**The difference between great lieutenants and poor lieutenants is in the small things.** Almost every tank platoon leader comes to the table with limited experience. Simple things delineate between those who succeed and those who fail: being on time to formations and meetings, paying attention to detail, meeting commanders' deadlines, and following established policies are good examples. It is impossible to cultivate an environment committed to basic discipline if you fail to demonstrate discipline yourself.

The single most important contributor to your performance is your attitude. Soldiers follow — and commanders desire — platoon leaders with a positive outlook. *A combination of confidence, humility, enthusiasm, and hard work will capture the attention of your platoon and guarantee your success.* A negative perspective will destroy your unit.

If I succeeded in any form, it was because of a positive attitude and a willingness to learn from my mistakes. As I indicated, I often look back on my errors with horror. However, the daunting responsibility of serving as a role model demands that we acknowledge our faults and seek self-improvement. Our soldiers deserve nothing less.

## Notes

<sup>1</sup>Department of the Army, *Field Manual 22-100, Military Leadership* (Washington, D.C.: U.S. Government Printing Office, 1990), p. 4.

CPT Douglas B. Crandall graduated from the U.S. Military Academy in 1995. He served in 1-33 Armor at Ft. Lewis, Wash., as a tank platoon leader, support platoon leader, tank company XO, and battalion adjutant. Currently, he is completing Infantry Captains Career Course and CAS<sup>3</sup>.

## AC/RC Assignments: One Officer’s Perspective

by Major Kevin B. Marcus

For many soldiers, duty with the Reserve Components has become more than just an option. Congressional mandates have made AC/RC assignment a foregone conclusion for many officers and senior noncommissioned officers. This trend will likely continue in the future; as our reserve components play a larger role in the Total Army, the active component’s personnel commitment to them will certainly remain significant. The good news is that an AC/RC tour is a worthwhile experience for any active component soldier. This article will describe the benefits and frustrations of an AC/RC tour in an attempt to provide an overview for those soldiers pending assignment to AC/RC duty.

Relatively little is known about an AC/RC assignment. Branch representatives can usually tell you where you’ll be working, and for which major command (i.e., FORSCOM vs. TRADOC), but little more. TOE battalion/brigade commanders (who were captains in an era of few AC/RC assignments) usually have few insights into the duties and responsibilities of the job. While I am far from an expert, my almost two years in an AC/RC assignment provided some insights. I should first mention that there are many different types of AC/RC assignments out there, in literally hundreds of locations. I’m assigned as a training/operations officer in an ARNG TASS (Officer Candidate School) battalion. My specific job notwithstanding, many of my experiences are universal and are worthwhile to pass on.

Probably the single most important benefit of an AC/RC tour is the exposure to the reserve component environment. As does any unit, both Guard and Reserve units have their own languages, missions, and cultures. Learning to appreciate that provides the AC soldier with valuable insights into an increasingly important part of the Total Army.

The first “unique” aspect you’ll learn to appreciate is the importance of time, and how it constrains RC training and readiness. RC units train collectively 39 days a year. Of these 39 days, 24 days are spent

during monthly “drill” periods, which usually focus on individual/crew training. Only 14 days are focused on collective training at platoon/company or higher level. Time is the largest constraint in the RC environment; there’s only so much you can achieve in a weekend. Your success in large part depends on your ability to realize RC capabilities; you must understand what they are really able to accomplish in a time-constrained environment.

Next is the unique “dual nature” of the Army National Guard. As most of us know, the Guard is under state control when not activated. Their commander-in-chief is their governor. Although they receive the lion’s share of their funding through federal budgeting; their day-to-day activities are driven by state, not federal, chains of command. You must understand their sense of “self”; the ARNG is justifiably proud of its dual mission. However, we all must realize that the AC soldier is assigned there to promote the primacy of their federal, war-fighting mission.

Within both Guard and Reserve units, there’s a curious division between “M Day” or “traditional” soldiers and full-time unit support personnel. “M Day” or “traditional” soldiers are those who have civilian jobs/careers and drill once a month and two weeks a year, although many (especially those in leadership positions) will put in more time. Full-time unit support personnel are, as the title suggests, full-timers. They are a combination of Active Guard/Reserve (AGR) soldiers or federal (GS) technicians who maintain membership in a Guard/Reserve unit. The majority of command positions are filled by “M Day” soldiers; while the “full-timers” are the ones who oversee the day-to-day activities of RC units. You must always balance the day-to-day necessity of coordinating with the “full-timers” with preserving and supporting the chain of command (largely “M Day” soldiers).

You’ll also be disabused of many of your preconceived notions regarding the RC. You’ll find that many of the popular

myths regarding the Guard/Reserve just aren’t true. Far from being “weekend warriors,” most are dedicated soldiers who are doing what they do because they honestly love it. Most want to succeed and do the very best job they can. However, just as in the Regular Army, there are some who are in it only for the paycheck. We all must realize that standards of professionalism, conduct, and expertise must be *total* and apply to all components of the Total Force. You, as the AC soldier, will be expected to embody those standards.

The RC gains from your assignment as well. Aside from the obvious benefits of your effort and experience, they’ll gain a better understanding of the active component. Some ARNG/USAR soldiers have extremely limited exposure to active duty soldiers and lack an understanding of the reality of the current AC operations and personnel tempos. You’ll be able to provide a ready reference for them; as well, you’ll be able to personify the “total army.”

Your AC/RC assignment will also provide/enhance skills you’ll use throughout your career. The first is the ability to be an effective trainer. Any AC/RC assignment will rely on you to either train RC units or their leadership. You’ll be expected to be an expert in training management and execution. You’ll be expected to be the subject matter expert on your specific area of expertise and be able to apply this knowledge. This will entail some self-development time. You’ll have to dig into our doctrine in order to know and apply it. This expertise will directly affect your credibility. They’ll check up on what you’ve told them. And if they find out you’re wrong, you’ll not be as credible as you need to be.

As well, you’ll learn to be an effective staff officer. You’ll learn to analyze situations, recognize issues, and form recommended courses of action. You may be rated by an ARNG/USAR “M Day” officer or NCO; these soldiers have full-time jobs/careers and don’t have the time to digest a lot of material. They’ll rely on you, and your judgment, for the basis of

their decisions. The ability to provide well reasoned, thoughtful staff recommendations will stand you in good stead throughout your career.

Finally, you'll learn how to coordinate. You'll very quickly learn that, with few exceptions, command (in ARNG units) doesn't extend across state boundaries. In my specific situation, my ARNG battalion commander is responsible for all OCS training in a six-state school region. Yet he has command authority over only one company (the company in "his" state, Minnesota). Thus, you'll have to coordinate training/training support activities without the accompanying command and control resources. Principles of staff coordination apply and are integral to your success, both in an AC/RC assignment and in your future assignments.

There will be times and situations when you'll be frustrated. Some you can address, others you cannot. The first is the *lack of command authority*. While no staff officer, in his own right, has any command authority, AC soldiers are used to working for commanders who can delegate the authority we need to do the job. In AC/RC assignments, you may not work for a boss who has that authority. For instance, in my situation, my boss has no command authority over five of "his" companies. You may be assigned to a training support unit and tasked to coordinate training events, but you may not have the authority to "make it happen." The bottom line is that you may find yourself without the authority to match your responsibilities. You'll just have to

do everything in your power to coordinate to the best of your ability.

Finally, you'll see that the "Total Army" isn't yet "total." We're making progress, but we've got a long way to go. Your assignment is critical to making the theory reality. As the Army continues to lose resources and structure, there's a fierce competition for remaining resources. Both active and reserve components are scrambling to "preserve" what they see as their traditional, appropriate missions. As well, neither active nor reserve component seem to have a common understanding of what each component can, and should, do. While this "friction" is declining, it will never go away until we clearly define expectations (standards), missions, and roles. We must have a common set of standards and understand what real, "no kidding" wartime missions will be assigned to RC units to drive training and resourcing. We have to make the hard calls on force structure. Those units without wartime missions should be disbanded. We cannot let our pride in unit lineage and capabilities override a realistic understanding of training and resource constraints.

We also have to understand that each component must compromise to find an agreeable, effective "middle ground." The AC has to realize the complementary and supplementary role of the RC and think outside the box to make every training program, unit organization, and piece of new equipment suitable for the RC as well as the 1st Cavalry Division. The RC needs to realize that you don't always get

what you want; sometimes you just have to salute and accomplish the mission.

Finally, life "away from the flagpole" has its own rewards and frustrations. Life without ready access to exchange/commissary services, military medical care, and post support agencies can make life interesting and challenge a family budget.

In conclusion, there's much to be learned from an AC/RC assignment. You'll gain an understanding and appreciation for the RC training environment, while becoming a better trainer and staff officer. You will have some challenges to overcome; the Total Army isn't "total" yet. On the balance, however, assignment to any type of AC/RC assignment can enhance any soldier's personal and professional life.

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MAJ Kevin Marcus was commissioned in 1986 as a Distinguished Military Graduate from Officer Candidate School. His Armor assignments include platoon leader/support platoon leader with the 8th ID (Baumholder) and tank company commander with the 1st ID (Ft. Riley). Other assignments include O/C on the Scorpion Team at the NTC and duty as a training and operations officer (AC/RC) in TRADOC's Total Army School System. He is currently assigned as the Senior Staff Officer-Operations for the Multi-National Force and Observers in the Sinai.

## DRIVER'S SEAT, Continued from Page 6

In order to proceed along the verification track, crews must meet the following criteria: 1) Crews must be previous Q-1 on TTVIII within the last 12 months; 2) Crews must achieve RA Level 301 in the COFT. Crews would then fire TTVI using TADSS and must qualify 4 of 5 TT VII tasks (Tasks A-2, A-5, A-6, B-1, and B-3) in live fire with 70 points on each engagement and a score of 350 points overall. Meeting the TTVII(5) standard would achieve proficiency verification, and the crew would continue into collective-level training. The tasks selected for TTVII(5) are listed below:

**A-2 (Offense)** Engage multiple targets with multiple weapon systems from a moving tank.

**A-5 (Defense)** Engage multiple targets from a defensive firing position.

**A-6 (Defense)** Engage multiple targets with multiple weapon systems from a defensive firing position.

**B-1 (Offense)** Engage multiple targets with multiple weapon systems from a moving tank.

**B-3 (Offense)** Engage multiple targets with multiple weapon systems from a moving tank.

New TC/gunner combinations, and crews that did not qualify in the last gunnery cycle (Q-2) must fire TTVI, TTVII, and TTVIII live fire to achieve the proficiency required before proceeding to advanced tables. This comprises the qualification track which leads to collective-level training.

The Armor Center position is that all crews firing TTXII must be qualified on gunnery Table VIII within the preceding

12 months and, as a minimum, qualify 4 of 5 TTVII engagements live fire with 70 points on each engagement and total 350 points or more within the preceding six months. To require any less of our crews will lead to unacceptable proficiency and safety risks as units enter collective-level training. Either of these tracks requires we noncommissioned officers to verify proficiency or qualify all crews in the unit, and to confidently hand them off to commanders for collective-level training.

This approach to STRAC XXI for Armor and Cavalry will allow commanders to utilize more ammunition for collective-level gunnery, and remain confident that NCO-led, crew-level gunnery training will set their units up for success. Discussions with FORSCOM continue, meanwhile...

"SERGEANT, TAKE THE LEAD"



Art by Jody Harmon

# Development of the American Tank-Infantry Team During World War II in Africa and Europe

by Captain J. L. Mudd

The American tank-infantry team was the key maneuver element that led to the overwhelming number of tactical successes enjoyed by the United States in the Second World War.<sup>1</sup> However, this winning combination of men and machines had developed throughout the course of the war, and included a number of variations based on the theater and areas within each theater. Original development came from training and lessons learned in the decades between the two world wars by infantry tank and cavalry combat car units.<sup>2</sup> When General Marshall was made Army Chief of Staff on 1 September 1939 (the day of Germany's attack on Poland), he began a major reorganization of the service in order to put it on a wartime footing more like that of its European counterparts.<sup>3</sup> One of the changes was the creation of the Armored Force, a combination of the armored elements of the infantry and cavalry branches, as well as sufficiently mobile components of artillery, communications, and other services.<sup>4</sup>

## Tanks

Tank combat doctrine developed in the 1920s and '30s called for two types of tanks: a light tank armed with machine guns and a small-caliber cannon to engage "soft" targets and a medium tank with machine guns and a heavier cannon

to destroy antitank weapons, bunkers, and unarmored or lightly-armored vehicles.<sup>5</sup> When the United States Army entered World War II, the two main tanks in its arsenal were the M3 light tank and the M3 medium tank.<sup>6</sup> The Light Tank, M3 Series weighed approximately 14-16 tons, depending on the model, and was armed with a 37-mm cannon and up to five .30-caliber machine guns. Its thickest effective armor was 1.75 inches on the turret front and 3 inches on the hull front. However, most units armed with M3s replaced them with the M5 light tank prior to combat overseas. The M5 was very similar to the M3, but had some engine and other design improvements. (Later models of the M3 incorporated some of these improvements.)<sup>7</sup>

The Army's first wartime medium tank was the M3 series, nicknamed variably "Lee" or "Grant" by the British.<sup>8</sup> The Medium Tank, M3 mounted a 75-mm cannon in a starboard hull sponson, a 37-mm gun in the turret, and three .30-caliber machine guns — one each in the bow, coaxial in the turret and in the commander's cupola. Its heaviest effective armor was 6.5 inches on the turret front and 4.3 inches on the front slope of the hull.<sup>9</sup> During the fighting in North Africa, the M3 began to be replaced by the Medium Tank, M4 — the Sherman. The M4 appeared in a number of varia-

tions, and its weight ranged from 33 to almost 36 tons. Typically, the tank carried a 75-mm gun, but many were later fitted with a 76-mm higher velocity cannon. It bristled with bow and coaxial .30-caliber machine guns and a flexible turret-mounted Browning .50 caliber machine gun for anti-aircraft use. Armor on the turret front was 3.75 inches in effective thickness, while the hull front was effectively up to four inches thick.<sup>10</sup>

Both medium tanks employed five-man crews. The tank commander's job was to select targets, defensive positions and routes of advance, and supervise and lead the tank crew at all times. In the five-tank platoon, the platoon leader (usually a first or second lieutenant) and the platoon sergeant, a staff sergeant, each commanded a tank. Sergeants commanded the remaining three. The gunner, a corporal or technician 5th grade, was to identify and engage targets with either the main gun or the coaxial machine gun. The remaining three crewmen were junior enlisted soldiers — technicians, privates first class or "buck" privates. The driver controlled the speed and direction of the vehicle in accordance with the commander's orders. The assistant driver/radio operator ensured that vehicular communications (both internal and external) were functional, and engaged targets with the bow-mounted machine gun. The

loader was typically the most junior crewmember. His job was to load the main gun during engagements and to assist the commander in looking for targets when not in actual combat. Only four crewmen manned light tanks; the tank commander assumed the duties of loader as well.<sup>11</sup> All members participated in crew-level maintenance of their tank, and usually assisted mechanics assigned to the company.<sup>12</sup>

Normally, all tankers underwent initial training at Fort Knox, Kentucky's Armored Replacement Training Center (ARTC).<sup>13</sup> In theory, men inducted under the Selective Service Act were to be trained in accordance with their civilian occupations, prior training, even hobbies, whenever possible. Under this theory, if a man were a professional wilderness guide, he went to the infantry; if a ham radio buff, to the Signal Corps; a heavy equipment operator, to the engineers or the Armored Force. Although this consequently benefited some of the more technical services of the Army, the combat arms received mainly "any arm or service" inductees.<sup>14</sup> Training was lengthened from 12 to 13 weeks in 1941, and was later increased to 17. Conducted in two phases, the first was devoted to basic soldier skills such as infantry drill, physical fitness training, and small arms marksmanship. The second phase introduced the trainees to tank skills: driving, maintenance, tactical movement, and gunnery. Much of this was conducted under "combat conditions," including flares, explosions, gunfire sound effects, and even a special aggressor unit dressed as German soldiers.<sup>15</sup> Upon completion of training, the majority of new tankers reported to the armored divisions or separate tank battalions.

The combat elements of a tank battalion included the reconnaissance and assault gun platoons of the headquarters company, three companies of medium tanks and one of light tanks.<sup>16</sup> Each tank company had three platoons of five tanks and two tanks in the headquarters section. Additionally, a medium company boasted an assault gun — an M4 armed with a 105-mm howitzer as its main armament. Each medium company was assigned five officers and 117 enlisted men; a light company was somewhat smaller with only 92 enlisted personnel. The tank's advantage in close battle was its relative imperviousness to small arms and indirect fires. Its array of weapons gave the

tank awesome firepower against almost any target. However, the tank was highly vulnerable to both antitank guns and infantry antitank teams, as well as antitank mines and obstacles. Against these foes, the tank had a partner in a man and his rifle — the infantryman.

### Infantry

The American infantry squad in World War II consisted of 12 men armed mainly with M1 semiautomatic .30-caliber rifles.<sup>17</sup> The linchpin of the squad was the Browning Automatic Rifle (BAR), a light automatic weapon with a cyclic rate of fire of either 300-350 or 500-600 rounds per minute. The rifle squad of the armored division's armored infantry battalions was similar, but one squad member was assigned as the M3 half-track personnel carrier driver who normally remained with the vehicle, and had no BAR.<sup>18</sup> The mechanized rifle platoon was mounted on five M3 halftracks and boasted a vast array of weapons. There were three rifle squads, as in a dismounted infantry platoon, but the armored infantry platoon leader also had a 60-mm mortar squad (an eight-man mortar crew) and a light machine gun squad (12 soldiers manning one .50-caliber machine gun and two .30-caliber machine guns). The dismounted infantry company centralized these special squads in a separate weapons platoon. There, the platoon fielded a section of three 60-mm mortars and a section of two .30-caliber machine guns. Additionally, the mechanized company had a platoon of towed 57-mm antitank guns, each operated by a ten-man squad.

Both mechanized and traditional infantry battalions possessed three rifle companies plus an additional complement of organic combat forces. The armored infantry battalion had a reconnaissance platoon of half-track mounted scouts, an assault gun platoon with three 75-mm self-propelled assault guns, a mortar platoon with three 81-mm tubes, and a machine gun platoon with four .30-caliber machine guns. The infantry battalion had a single antitank platoon of three 57-mm guns, and a heavy weapons company with a platoon of six 81-mm mortars and a platoon of four .30-caliber machine guns.

The age-old mission of infantry is to close with and destroy the enemy. The usual method employed by the American infantry squad was based on the covering

fire tactics as used in the final phase of World War I,<sup>19</sup> referred to as "fire and maneuver."<sup>20</sup> Two riflemen, often accompanied by the squad leader scouted ahead of the squad.<sup>21</sup> When they encountered an enemy force, the leader called for his four-man fire team (Baker) to place suppressive BAR and rifle fire on the enemy position. With the enemy pinned, the leader ordered his remaining five-man maneuver and assault team (Able) into a position where they could assault by fire, then overrun the enemy. If enemy fire was such that assaulting riflemen were unable to maneuver, tank support was necessary. Infantry units from squad to corps used a variation of this tactic under most circumstances in all theaters of the war, typically sending specialized reconnaissance units to scout the front and flanks; providing supporting fires with artillery, machine-gun and antitank fires; and finally assaulting with infantry and tanks.

Another style of assault tactic developed during the war — the marching fire offensive.<sup>22</sup> General Patton's 3rd Army used it to good advantage in northwestern Europe, and though it was sometimes effective in Italy, the terrain generally did not favor it. The method placed tanks and halftracks at intervals within dense skirmish lines of dismounted infantry. The entire line moved abreast, firing at possible strongpoints and other targets as they advanced. Although it maximized mutual support, it reduced shock effect and tended to increase casualties. Its use was often the result of a lack of mental flexibility on the part of commanders.<sup>23</sup>

### Officers

The main roles of the Army officer in World War II were to plan operations and training, administer military justice under the Articles of War, and lead soldiers in combat. Officers held their commissions not only in the Army, but also in one of the several arms or services, called a "branch." When the Armored Force was established, it was not created as a separate branch, but was made up of personnel of all arms and services. Tank officers and crewmen typically came from the infantry or cavalry branches, but wore the Armored Force insignia: the profile of a World War I British Mark IV tank.

Tank and infantry officers came from one of four commissioning sources: the United States Military Academy at West Point, New York (USMA); the Reserve



Officers' Training Corps (ROTC); one of the officer candidate schools (OCS) run by the Armor or Infantry Training Centers; and for a deserving few, direct battlefield commissions. USMA graduates were appointed Regular Army officers, and their pre-commissioning training included instruction in all of the arms. Graduates of ROTC programs located at civilian universities trained in one of the arms or services as cadets and were commissioned into their respective branches.<sup>24</sup> Until the mobilization of 1940-42, the majority of these officers did not enter active service, but were placed in an inactive status in the Officers' Reserve Corps (ORC).<sup>25</sup> The ORC provided a trained pool for the great number of officers needed when the Army expanded in the early 1940s. The Armored Force School at Fort Knox, Kentucky, and the Infantry School at Fort Benning, Georgia, each established an officer candidate school to train and commission qualified enlisted soldiers and warrant officers.<sup>26</sup> Candidates were carefully screened and selected based upon demonstrated performance and leadership aptitude. As combat losses began to take their toll on the officer corps, the practice of commissioning combat-experienced sergeants with proven leadership talents was revived in the form of the battlefield commission.<sup>27</sup>

For USMA and ROTC graduates, as well as officers transferring into the Armored Force from other branches, the Armored Force School conducted an orientation course to familiarize students with tank tactics, gunnery, maintenance, Armored Force organization, and to refresh other military skills.<sup>28</sup> The three-month Infantry and Armored Force OCS courses taught candidates the skills needed to be effective platoon leaders in their respective specialties, including small-unit tactics, Army organization, philosophy of leadership, and enemy

combat doctrine. Those veteran combat leaders selected by their commanders to become officers generally were young noncommissioned officers who had proven their abilities under fire. They received no additional training; their experience was considered sufficient.

### Growing Pains

The fighting elements of the Armored Force consisted originally of the 1st and 2nd Armored Divisions, which formed the I Armored Corps,<sup>29</sup> and a number of separate tank battalions. The divisions reflected the new "triangular" infantry division organization, with a brigade comprised of two light tank regiments and a medium tank regiment. By March of 1942, as the number of armored units grew, this was changed to two tank regiments, each now with two medium and one light battalion, and an armored infantry regiment — three infantry battalions equipped with halftracks.<sup>30</sup> The assignment of infantry to the armored division eventually afforded commanders the opportunity to develop combined arms tactics and train their soldiers to use and refine them.<sup>31</sup>

The separate tank battalions were to keep an infantry flavor. Doctrine for these "infantry tanks" specified a two-echelon attack.<sup>32</sup> The lead echelon consisted of medium tanks and would destroy enemy antitank weapons. The second wave included light tanks advancing with infantry to neutralize machine guns and targets of opportunity. Infantry divisions and separate tank battalions rarely enjoyed the benefits of sufficient combined training prior to actual combat. Habitual associations between tanks and infantry generally did not develop until well into the war, but there are examples of early training relationships. One of these was the partnership of the 3rd Infantry Division with the 756th Tank Battalion (L) while they were stationed at Fort Lewis, Wash-

**This photograph shows all of the men and machines that made up the 66th Armored Regiment, part of the 2nd Armored Division, assembled on a hillside in Southern England about a month prior to entering the war in Europe.**

ington, from the summer of 1941 until spring 1942.<sup>33</sup> The tankers took advantage of all possible training time to improve their abilities to use their speed and firepower in support of dismounted infantry. On two occasions in the immediate aftermath of the Japanese attack on Pearl Harbor, the tank-infantry teams reacted to alerts that brought them to the mouth of the Columbia River on the Washington coast, prepared to repel Japanese invasion.

As part of Amphibious Corps Pacific Fleet, the soldiers of Fort Lewis were expecting to be employed in the Pacific Theater. Company B of the 756th and the 15th Infantry moved to Monterey Bay to practice amphibious landings at Fort Ord, California.<sup>34</sup> At this very early stage of the war, the specialized equipment and techniques that would later make amphibious tank assaults a realistic proposition were not yet available. The Navy's solution was to lower the new M3 light tanks by crane from the ship's deck into violently bobbing landing craft several yards below. A number of tanks were lost this way before the naval crane operators became reasonably proficient.

The combined arms training undertaken by the 3rd Infantry Division and the 756th Tank Battalion (L) reflected a major push by the Armored Force to increase infantry-tank proficiency.<sup>35</sup> In early 1942, COL Edwin K. Wright, Armored Force Assistant Chief of Staff, G-3

(Operations and Training), began stressing the need for combined arms training, emphasizing tank support of infantry divisions in the attack. Army Ground Forces, the Armored Force's higher headquarters, "replied with a supplement to its initial training directive, stating that 'combined infantry division-tank unit training will be emphasized,' and that problems for the maneuver period should include infantry-tank unit operations."<sup>36</sup> However, this training often did not occur, or at least not to levels which made for real combined operations proficiency. COL Wright, in analyzing reports from the North African battlefield in May 1943, wrote the following:<sup>37</sup>

*In spite of constant attempts to provide infantry division-tank battalion cooperative training in this country, practically no success has been obtained. All infantry division commanders, whether contacted direct or through Army Ground Forces, have indicated the desirability of such training but fend it off on the excuse that "Time is not available," "After we complete our unit training," "After we finish maneuvers," etc. Army Ground Forces has been of no assistance to us in forcing this training.*

*The results of this failure to provide cooperative infantry-tank training is being reflected in the combat zone. For example, Lieutenant Colonel Lou Hammack's very fine 751st Tank Battalion (M) was practically wiped out because in four successive attacks, the infantry refused to follow him. Four times he took the objective and each time had to pull back, trying to pull the infantry forward, the Germans in the meantime re-obtaining the position.*

Finally, by September 1943, Army Ground Forces had published *FM 17-36, Employment of Tanks With Infantry*. The publication of this field manual allowed units still training in the United States to learn some of the lessons learned the hard way by forces already in contact with the

enemy. Unfortunately, the manual alone was insufficient. The commanding general of the 84th Infantry Division wrote: "We have worked constantly with armor, and with no training in the U.S., it was hard to receive our training on the battlefield. I cannot stress too much the absolute necessity for combined tank-infantry training even in replacement training centers. We have worked with the 2nd, 3rd, 5th, and 7th Armored Divisions. They are all excellent units, but it is difficult to teach infantry-tank tactics actually on the battlefield. We now have our own tank battalion, and I spend every available minute in training my infantry to operate with tanks."<sup>38</sup> The tactics kept evolving, however, and tankers and infantrymen continued to send hard-fought lessons home from combat theaters around the world.<sup>39</sup>

### North Africa

The first major employment of tanks with infantry by the United States was on November 8, 1942 — the *Operation Torch* landings on the North African coast. Amphibious assault technology still required the use of LCMs (Landing Craft Mechanized) to transport heavy vehicles from ship to shore. The LCM was capable of carrying only one tank or large artillery piece at a time.<sup>40</sup> Nevertheless, tanks made it ashore and were able to assist the infantrymen right from the outset of combat. During the initial assault from the beaches, the tank's speed and armor were exploited to seize key mission objectives and destroy enemy positions.

One example comes from the 3rd Infantry Division's landing at the town of Fedala, about ten miles northeast of Casablanca. The 7th Infantry Regiment

had as an initial objective the seizure of French anti-aircraft, coastal and field artillery batteries located on the Cape north of Fedala. COL William H. Wilbur, a senior liaison officer from MG George S. Patton Jr.'s headquarters, took control of 2nd Platoon, Company A, 756th Tank Battalion (L), which was just coming off landing craft. COL Wilbur sped through town to assist the regiment's first battalion in silencing the coast artillery battery, which had been engaging landing craft en route to the beach.<sup>41</sup> After the tanks assumed an assault position, Company A, 7th Infantry opened fire on the battery's fire direction center. The M5 tanks made an initial breach in the defensive wire, and infantry quickly seized the objective.<sup>42</sup>

Units not in contact in North Africa continued to train while others eventually met the enemy in Tunisia. By the spring of 1943, Allied forces had made considerable progress in driving the Germans out of Africa. While the British 8th Army under General Bernard Law Montgomery pressed from the east, American, British and Free French units advancing from the west beat back the *Afrika Korps* into a tight perimeter on the Tunisian peninsula. At the end of April, the American II Corps was attacking German defenses along an east-west row of hills near the town of Mateur. The main defenses were atop Djebel Tahent, identified on U.S. maps as Hill 609. Riflemen from the 34th Infantry Division had fought their way to the base of the hill, but by April 29, had reached an impasse. Both sides had been exchanging mortar and artillery fire incessantly and the infantry could advance no further. Company I of the 1st Armored Division's 1st Tank Regiment, another II Corps unit, was assigned to assist in breaking the stalemate. In the early morn-

**Troops and equipment disembark from one of the tiny LCMs used to land in Algeria, North Africa in 1942. Compare this quiet beach landing scene with the complexity of the later Normandy invasion. But at the time, this was the largest seaborne invasion in history.**

**In photo at right, opposite page, troops are crammed in a landing craft. They wear American flag patches for identification, in the hope that Vichy French in Algeria would capitulate and not fire on Americans.**



ing of April 30, the tanks picked up the infantry and proceeded up the hill, at times literally pulling the riflemen along where the slope was too steep. The tanks destroyed a number of enemy positions, and when antitank fire became too deadly, the American infantry conducted a bayonet charge against the gun crews, allowing the tanks to continue. The absolute summit of Hill 609 was inaccessible to the tanks, but they supported the infantry with cannon and machine-gun fire until the position was secure. The tank-infantry team repelled counterattacks both at 609 and at the neighboring Hill 531. On May 2, the GIs saw heavy traffic moving north. The Germans were leaving.<sup>43</sup>

The North African Campaign of 1942-43 demonstrates some of the earliest combat techniques of the tank-infantry team. There was yet no permanent affiliation of specific units with one another, so there was often no way to retain lessons learned from one engagement to the next. The infantry typically fought without the aid of armored forces, and called on the tanks to penetrate defenses or advance in the face of heavy small arms and artillery fire. Tank units were used to break through enemy formations, destroy tanks and other pieces of equipment, and reduce hardened fortifications and wire obstacles. However, the general lack of prior training created some major deficiencies in effective prosecution of the campaign.<sup>44</sup>

## Italy

The push against the Germans in Italy, which had been launched by General Mark Clark's 5th Army in September of



1943, was to prove a long and bitter struggle that would continue for most of the next two years. Italy was not particularly suited to tank warfare, but the infantry went, and they needed tanks to see them through. One of the hardest-fought engagements of the entire Italian campaign was the first phase of the Battle of Cassino. Cassino was the anchor of the German "Gustav" defensive line to which they had steadily withdrawn by the end of November. Located near the western coast of Italy, Monte Cassino overlooked the main highway to Rome. By the end of January 1944, when the Americans were ready to launch an attack against the town as a diversion to attract the German 10th Army's attention away from the imminent amphibious invasion at nearby Anzio, the soldiers of the XIV *Panzerkorps* had been digging in for two months.

On the night of January 20, two regiments of the U.S. 36th Infantry Division conducted an opposed river crossing of the Rapido River just downstream from where Cassino stood.<sup>45</sup> The German defenders soon repulsed the Americans, so the U.S. II Corps decided to try for another foothold, this time with the 34th Infantry Division slightly upriver from Cassino. The division began its attack on the 24th of January, but the Germans had demolished a small dam about two miles north of Cassino. North of town, the Rapido was fordable and normally only about 50 feet wide; now, however, the dam's destruction had allowed the river to flood the east bank and the land had become a marsh hundreds of yards across — impossible for tanks to negotiate. For more than two days, the riflemen of the 34th tried to establish a bridgehead on the west bank of the river. Opposing them were barbed wire entanglements, antipersonnel mines and a series of machine gun nests stretching from the water's edge nearly to the top of the towering hills. These were supported by hidden mortar pits and artillery dug into the back side of the mountain.

Finally, on the morning of the 27th, combat engineers had emplaced enough "corduroy road" to allow CPT Charles "Wilkie" Wilkenson's Company B, 756th Tank Battalion to cross at a small bridge.<sup>46</sup> However, it still was not sufficient. The battalion had transitioned from M5 light tanks to M4 mediums in December. All but four of the company's 18 tanks became stuck in the mud. Those four crossed and tore through the enemy defenses near the shore. The infantry failed to cross with the tanks, and the

absence of dismounted support allowed the Germans to lay out antitank mines quickly. One of these stopped a tank. The remaining three began to move back across the river, but the first got hung up on the bridge and blocked passage of the other two, one of which had been commandeered by CPT Wilkie. As the crew on the bridge dismounted and ran for friendly lines, the tank's commander, LT Wayne Henry, was machine-gunned down. It was his first day in combat. The crews of the remaining two tanks were captured.

The tanks managed a more successful crossing in the late afternoon of the 29th. Again, the bulk of the infantry hesitated, but the tank battalion commander, LTC Harry W. Sweeting called for them to cross. A smaller, grass-covered hill nicknamed "the Pimple" was an initial objective for the 34th Division, which it seized soon after dark. The maneuver elements of the division closed on the objective area and expanded up the hills over the next few days and into the village of Cairo. The division next turned its attention south toward the town of Cassino and the narrow path between the sheer rock face and the abrupt drop to the river that led to it. On the morning of February 2nd, elements of the 133rd Infantry and Company B of the 756th moved south to secure the road to Cassino. As the tank-infantry team progressed, the file of tanks poured armor piercing shells (high explosive would have been too close to friendly riflemen) and machine-gun fire onto any suspicious-looking points on the hillside above. The infantrymen followed through and captured about 150 prisoners.

The 34th Division never did secure Cassino. At one point in the first week of February, the division held about four square blocks on the northern edge of town, but they were relieved soon thereafter by the 4th Indian Division.<sup>47</sup> The experience of the 34th Infantry Division and the attached 756th Tank Battalion is an example of some of the problems often faced by units without a standing support relationship. The tankers were unfamiliar with the strengths and weaknesses of the particular infantry leaders and the infantry were not used to using the tanks' advantages in combat. This unfamiliarity took time to overcome, and in war, wasted time can mean wasted lives. Eventually, the men of the 756th were reunited with their old friends from Fort Lewis and Morocco — the 3rd Infantry Division. The battalion remained

attached to the 3rd from August of 1944 (Operation ANVIL) until the end of the war in Europe. MG O'Daniel writes, "The extent to which the various expedients adopted to increase mutual confidence succeeded was well exemplified by a statement made by an officer of the 3rd Infantry Division toward the close of the campaign. He was asked his opinion of the relative merits of the various tank battalions then doing duty in the Sixth Corps, to which the division belonged. He listed a number of the battalions in the order of his opinion of their efficiency. His questioner then remarked:

'Funny you didn't include the 756th.'

'Oh!' He replied hastily. 'That's part of the Division. They don't come any better than that.'"<sup>48</sup>

### Northwest Europe

Another tank-infantry team that enjoyed "permanent" attachment was the 745th Tank Battalion and the 1st Infantry Division.<sup>49</sup> Attached in April 1944, the battalion remained part of the division until the war's end. However, until the Normandy invasion was completed, the companies of the battalion had no support relationship with any unit in the division, nor did the tanks and infantry conduct serious training together. In France, a company of medium tanks was attached to each of the infantry regiments, and the regimental commanders attached a tank platoon to each battalion. Save for certain missions, this arrangement remained unchanged. Within the infantry battalions, the tank platoon could be further attached to a rifle company for a particular task. This permanency fostered mutual respect and trust in the other's capabilities and made it easy for standing operating procedures (SOPs) to develop.

Upon landing on June 7, the tanks were able to help speed the infantry into the hedgerow country by protecting the division's exposed flanks and being alert to the enemy armored threat. The advancing infantry, meanwhile, was available to repel potential tank-hunting infantry teams and clear away antitank mines. Once in the hedgerow country, tanks aided the highly vulnerable infantry by spraying the next and flanking hedgerows with machine-gun fire and clearing enemy machine gun nests with white phosphorus rounds. Advancing infantry made sure to shoot or take fleeing Germans prisoner. When attacking wood lines, tanks placed machine gun fire into the trees from 400-500 yards while the infantry advanced below the covering fire. If

antitank guns were suspected, the infantry infiltrated into the positions at night, then destroyed the gun positions at dawn. In breaching the Siegfried Line, the 745th's tanks moved into the woods, where engagement ranges were much shorter. There, often as close as fifty yards, the tanks opened concrete pillboxes with armor-piercing rounds, then dispersed the occupants with white phosphorus shells. This allowed the infantry and engineers to destroy the remnants in detail with grenades and explosives.

In Aachen, small teams of two tanks and an infantry platoon cleared blocks building by building. As the riflemen cleared, the tanks provided security with longer range fires. At intersections especially, tanks fired at all four corners and down cross-streets to suppress possible enemies. In turn, the dismounted soldiers protected their protectors with constant reconnaissance against antitank rocket (*Panzerfaust*) teams and antitank gun positions. Additionally, four infantrymen were detailed to stay with the tank as last-line defenders and runners. In small towns, the tanks provided an initial attack by fire, then accompanied the infantry in clearing the town. In crossing rivers, the tanks provided direct suppressive fires on the far side as the infantry made the initial crossing. When all was secure, engineers laid bridges for the tanks to cross. Although tank fire was not too accurate in night attacks, their presence was a morale booster to American infantry and a psychological weapon against the Germans. In the defense, 1st Infantry Division units sometimes used tanks as part of the main defense, at others they were kept back as a mobile counterattack force. The experience of this tank-infantry team shows the benefit of a close, long-term support relationship. Early in the hedgerow fighting, the veterans of the "Big Red One" recognized the value of what the tanks brought to the fight, and in the spirit of mutually beneficial cooperation, did what they could to help the tankers.

### The Tank-Infantry Team In the Armored Division

The Armored Force expanded from two to sixteen armored divisions during the course of American involvement in World War II. As mentioned above, the organization of the division was materially altered several times. The overall trend of the modifications was to reduce the number of tanks, eliminate middle levels of command, increase the amount of infantry in the division, and favor the

use of medium tanks over light.<sup>50</sup> The armored divisions developed two ways of employing the tank-infantry team.<sup>51</sup> The use of the armored division reflected its origins in cavalry tactics. The essence of armor is speed, firepower and shock effect. The armored division was used to gain ground rapidly and to exploit penetrations of enemy defenses and attack his rear or flank.

The division consisted of five basic elements: command, reconnaissance, striking, support, and service.<sup>52</sup> The chief command structures of the armored division were its divisional headquarters and three subordinate "combat commands" — CC A, CC B and CC R(serve).<sup>53</sup> These combat commands were in control of one tank and one infantry battalion. The division's cavalry reconnaissance squadron fielded four recon troops, an assault gun troop, and a light tank company. The squadron performed the reconnaissance function for the division, advising the commander on terrain navigability, obstacles, and enemy presence.

The support echelon consisted of the division artillery's three field artillery battalions, which provided indirect fire support; the armored engineer battalion conducted mobility (obstacle and mine clearing), countermobility (obstacle building and mine laying), and survivability (defensive earthworks) operations; and the signal company established the division's communications networks. The armored division trains formed the service echelon. This included an armored medical battalion, which provided ambulance service and medical clearing facilities for the wounded; the maintenance battalion gave repair support beyond the abilities of the mechanics on the front lines; and the division's military police platoon provided security to the rear areas occupied by the trains.

Three tank battalions and three armored infantry battalions comprised the striking echelon. There were two possible ways to create the armored division's combined arms team under control of the combat command.<sup>54</sup> The first was to create "tank-heavy" and "infantry-heavy" teams by attaching an infantry company to the tank battalion and a tank company to the infantry battalion, respectively. This way, each team had strengths suited for certain types of missions. Crossing rivers, clearing woods, and seizing towns were prime examples of tasks assigned the "infantry-heavy" team. The "tank-heavy" team would assume the lead mission if, for example, enemy tanks or other armored



Infantry find cover behind an M4 Sherman as it brings fire on a German pillbox in Lammersdorf, Germany. They communicated with the tankers by hand signals, wire phone, infantry radios, and sometimes by banging on the hull with their rifle butts.

vehicles were expected. Either way, the team not in the principal role would remain in close support, prepared to react to any change in the situation.

The second method of forging the armored infantry-tank team was to meld the two battalions together fully, creating a sort of “super battalion.” The staffs of the two headquarters would combine to run the combined arms battle. Each line company joined with its counterpart, giving tremendous fire- and manpower to the company command team. This “dual captaincy” did not violate the principle of unity of command; rather, each commander assumed the lead on those missions in which his unit specialized. For example, if the mission was to destroy a series of bunkers, the tank commander took charge and the infantryman assisted. On the other hand, if the company was ordered to secure a tree line, the infantry commander planned and directed the operation.

MAJ Edward Bautz notes that the armored division conducts two types of offensive operations: the “Rat Race” and the “Slugging Match.”<sup>55</sup> The former is essentially an exploitation or pursuit, characterized by rapid terrain gains of up to a hundred miles a day against light to moderate resistance. In this type of operation, the infantry would ride in their half-tracks or on the tanks, while the battalions’ “specialty platoons” and light tanks secure an exposed flank or provide a more robust reconnaissance force. Proper spacing and placement of elements within the moving force was critical in ensuring the ability to “crash through moderate resistance, to remove obstacles, or to provide a base of fire for other elements deeper in the column to maneuver.”<sup>56</sup> Typical objectives were essentially strategic — key terrain, road and

rail centers, bridges, sealing a pocket of resistance, etc.

The goal of the “Slugging Match” was to seize a series of dominant terrain features until the main objective was secured. Characterized by constant and heavy resistance, the armored team counted its gains in thousands of yards per day. Here, the balanced or combined team was used. The division assigned CC A and CC B a series of objectives, which they then attacked in a leapfrogging sequence; after one team secured its objective, it could support the other team in its advance with direct and indirect fires. This left one whole team in reserve to reinforce one of the other teams as necessary or react to possible counterattack. Again, the infantry and tanks worked nearly shoulder-to-track to seize their goal. The light tanks would normally provide rear or flank security while the medium tanks and riflemen conducted the attack.

### Tank-Infantry Communications

A serious problem faced by the combined arms team at the tank company, platoon, and individual tank levels was that of communication with the supported infantry. The soldiers in World War II developed a number of methods to communicate, some of which were impractical, while others were quite efficient.<sup>57</sup> The six that were developed are: radio, external tank interphone, wire, visual signals, sound signals, and messenger or liaison.

During the war, the radio sets used by the infantry platoon (SCR-536) and by the tank platoon (SCR-508, SCR-528, AN/VRC-3) weren’t compatible. Although the tank platoon leader could talk to the infantry company commander’s SCR-300 via his AN/VRC-3, no one else

could talk via radio to anyone on the ground. Several fixes were tried, and some units made them work, such as placing an additional infantry-compatible radio in the tank with the antenna through the hatch, or even through a bolt hole.

An important means of communication was an external telephone handset mounted in a steel box on the tank linked with the tank crew’s intercom system — the interphone. This developed from a series of field expedient methods. At first, the tank would trail a phone wire connected to a field telephone inside the tank. Accompanying infantry could connect the end to another field telephone and talk to the crew. This was ineffective because the wire was constantly torn off the tank.

Wire was an effective option if the tank was to remain in position for any considerable length of time. In the defense, for example, field telephones could be installed and quickly dismantled. However, in World War II, tanks were rarely used as a defensive weapon.

Visual signals included standard hand and arm signals, pyrotechnics (flares and smoke) tracer ammunition, and lights. Sound signals, such as tapping on the hull of a tank were also used. These signals were, however, somewhat limited in their use and had to be supplemented by the external interphone or radio.

Finally, the use of messengers or command liaison was a necessity. At the tank platoon level and below, it was necessary for the infantry commander and the supporting tank commander to make face-to-face contact from time to time. Typically, at the tank company and above, a representative from the tank unit remained with or near the supported commander’s headquarters.

### Summary

The World War II American tank-infantry team was the product of numerous factors, foremost among which were the men who fought the tanks and the

*“By the late summer of 1944, as the Allies began the final long drive to Berlin, the tank-infantry team had come together and were finding ways to use their respective talents to the utmost.”*

men who carried the rifles. These men were willing to come together as a team, frankly recognize each other's strengths and weaknesses, and use the best of what they had to drive the enemy from the field of battle. For their commanders, this coming together was a sort of laboratory experiment, with sometimes frustrating, even disastrous results. In North Africa, the United States Army began to realize that without closer cooperation between tanks and infantry, the war could be lost. In Italy, the desire to build a team was there, but it often took some painful experiences to make it work. By the late summer of 1944, as the Allies began the final long drive to Berlin, the tank-infantry team had come together and were finding ways to use their respective talents to the utmost.

## Notes

<sup>1</sup>CPT James J. Butler, “Individual Tank-Infantry Communications,” *The Armored Cavalry Journal*, v. LVI #4, July-August 1947, p. 43.

<sup>2</sup>Geoffrey Perret, *There's a War to Be Won* (Ballantine Books, New York: 1991) p. 40.

<sup>3</sup>*Ibid.*, p. 26.

<sup>4</sup>*Ibid.*, p. 41.

<sup>5</sup>David E. Johnson, *Fast Tanks and Heavy Bombers: The United States Army and the Development of Armor and Aviation Doctrines and Technologies, 1917 to 1945*, Duke University Ph.D. Dissertation, 1990 (UMI Dissertation Services, Ann Arbor, Mich.: 1993) p. 365.

<sup>6</sup>Charles M. Baily, *Faint Praise: American Tanks and Tank Destroyers During World War II* (Archon Books, Hamden, Conn.: 1983) p. 5.

<sup>7</sup>Ian V. Hogg, ed., *The American Arsenal* (Stackpole Books, Mechanicsburg, Pa.: 1996) pp. 13-17.

<sup>8</sup>Baily, p. 148.

<sup>9</sup>Hogg, p. 23.

<sup>10</sup>*Ibid.*, p. 29.

<sup>11</sup>Armored Division Organizational Charts, T/O 17, 15 September 1943 (Reprint, Armor School Library, Ft. Knox, Ky.: 1985) p. 15 (T/O 17-27) & 16 (T/O 17-17).

<sup>12</sup>Interview with David W. Redle, 5-6 March 1999 at his home in Akron, Ohio. Captain Redle was commissioned in 1941 ROTC from Creighton University, Omaha, Nebraska. He served as a tank platoon leader, company executive officer and company commander in Co. B, 756th Tank Battalion. He served in North Africa, Italy, Southern France, and Central and Southern Germany. His awards include the Silver Star, Bronze

Star, Purple Heart, Presidential Unit Citation and French Croix de Guerre.

<sup>13</sup>Historical Section, Army Ground Forces, Study #27: The Armored Force Command and Center (Headquarters, AGF: 1946) pp. 71-83.

<sup>14</sup>Lee Kennett, *G.I. — The American Soldier in World War II*, 2nd ed. (University of Oklahoma Press, Norman, Okla.: 1997) pp. 37-38.

<sup>15</sup>Historical Section, AGF, pp. 76-78.

<sup>16</sup>Armored Div Org Charts, pp. 15-16 (T/O 17-27 & 17-17).

<sup>17</sup>George Forty, *U.S. Army Handbook 1939-1945*, 2nd ed. (Sutton Publishing Ltd., Gloucestershire, UK: 1995) p. 74.

<sup>18</sup>Armored Div Org Charts, pp. 19-20 (T/O 7-26 & 7-27).

<sup>19</sup>Forty, p. 174.

<sup>20</sup>Redle interview.

<sup>21</sup>*FM 21-100, Soldier's Handbook* (War Department Basic Field Manual: July 23, 1941) p. 181.

<sup>22</sup>Forty, p. 175.

<sup>23</sup>LTC William D. Duncan, “Tanks With the Infantry Division” *Military Review*, v. XXIX #3 p. 49.

<sup>24</sup>*The Officer's Guide*, 9th ed. (Military Service Publishing Co., Harrisburg, Pa.: 1942) p. 107.

<sup>25</sup>CPT Addison F. McGhee, Jr., *He's in the Armored Force Now* (Robert M. McBride & Co., New York: 1942) p. 226.

<sup>26</sup>*The Officer's Guide*, pp. 78-79.

<sup>27</sup>Redle interview.

<sup>28</sup>McGhee, pp. 234-235.

<sup>29</sup>Edwin P. Hoyt, *The GI's War* (Da Capo Press, New York: 1988) p. 10.

<sup>30</sup>Forty, pp. 71-76.

<sup>31</sup>MG John W. O'Daniel, “The American Infantry-Armor Team” *The Cavalry Journal*, v. LV #3, May-June 1946, p. 42.

<sup>32</sup>Johnson, p. 365.

<sup>33</sup>Redle interview.

<sup>34</sup>*Ibid.*

<sup>35</sup>Historical Section, AGF, Study #27: p. 52-54.

<sup>36</sup>*Ibid.*, p. 52.

<sup>37</sup>*Ibid.*, p. 54.

<sup>38</sup>*Ibid.*, p. 69.

<sup>39</sup>*Ibid.*, p. 59.

<sup>40</sup>Donald D. Taggart, ed., *History of the Third Infantry Division in World War II* (Washington D.C., 1947) pp. 13-14.

<sup>41</sup>*Ibid.*, p. 18; see also Ralph Zumbro, *Tank Aces — Stories of America's Combat Tankers* (New York, 1997) pp. 106-107.

<sup>42</sup>Taggart, p. 18.

<sup>43</sup>Zumbro, pp. 110-113. The account comes from a CPT Gwinn, the tank company commander.

<sup>44</sup>O'Daniel, p. 42. See also Historical Section, AGF, p. 54.

<sup>45</sup>Fred Majdalany, *The Battle of Cassino* (Riverside Press, Cambridge, Mass.: 1957) pp. 67-76.

<sup>46</sup>Roger Fazendin, ed., *The 756th Tank Battalion in the Battle of Cassino* (Stories Unlimited, Carefree, Ariz.: 1991) pp. 43-48. Majdalany describes this action, but indicates that infantry crossed with the tanks and were able to consolidate a bridgehead, but Dave Redle in Fazendin's book specifies that no infantry followed.

<sup>47</sup>Majdalany, p. 99.

<sup>48</sup>O'Daniel, p. 44.

<sup>49</sup>MAJ. William R. Campbell, “Tanks With Infantry,” *The Armored Cavalry Journal*, v. LVI #5, September-October 1947, p. 49-51.

<sup>50</sup>Forty, p. 78.

<sup>51</sup>MAJ Edward Bautz, “The Tank-Infantry Team in an Armored Division,” *The Cavalry Journal*, v. LV #3, May-June 1946, p. 21.

<sup>52</sup>*The Officer's Guide*, p. 38.

<sup>53</sup>The 2nd and 3rd Armored Divisions did not adopt this new organization in September 1943, but retained the previous structure of one regiment each of tanks and armored infantry.

<sup>54</sup>Bautz, p. 21.

<sup>55</sup>*Ibid.*, p. 22.

<sup>56</sup>*Ibid.*

<sup>57</sup>CPT James J. Butler, “Individual Tank-Infantry Communications,” *The Armored Cavalry Journal*, v. LVI #4, July-August 1947 p. 43-45.

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Captain J. L. Mudd is a 1990 ROTC graduate of the College of William and Mary. He served in the Regular Army for four years as a platoon leader in the 82d Airborne Division and in the XVIII Airborne Corps G-3, operations staff. Additionally, he spent two years as a platoon leader in the Kentucky ARNG and served in the 100th Division (IT) in a number of staff assignments. An Armor officer, he is currently a Tactical PSYOP Detachment Commander in the 10th PSYOP Battalion in St. Louis and is a graduate student at Southern Illinois University in Edwardsville.

# From Warrior to Logistician

## Learning to Run the Support Platoon, The Biggest in the Armor Battalion

by Captain John D. Fio Rito

*At 0233 hours, your radio comes to life as some XO pleads for three quarts of Turboshaft. It seems that one of his tanks cannot LD at 0600 without it. As you drift in and out of consciousness, wondering if you're dreaming, the thought of fumbling around in the dark for a few cans of oil, not to mention the 20 km trip up to his assembly area, almost convinces you to roll over and pretend you didn't hear it. What do you do? Your job, of course. You roll out of your sleeping bag into the front seat of your HMMWV, go find the oil, and start your trip. You are the support platoon leader.*

The support platoon is, arguably, the most complex and important platoon in the Armor battalion. With 40-plus vehicles, and more than twice that in personnel, it has the mission of providing all the food, fuel, ammunition, and medium transportation to a 600-man armor battalion, a prodigious task to say the least.

With all that said, I know of no doctrine, besides the MTP and a few short paragraphs in *FM 71-2*, and *FM 71-123*, that gives the support platoon leader any idea how to lead his platoon or, at the very least, how it's supposed to function or operate. It seems that, while the scouts have SPLC, and the mortars have IMLC, the support platoon leader has only OJT.

The purpose of this article is to share some of my experiences as support platoon leader of an armor battalion. It is based on 15 months experience, including deployments to Kuwait and the Joint Readiness Training Center (JRTC). I will address the shock of going from warrior to logistician, taking command of your new platoon, working for your boss (or rather bosses), and good attributes to possess as the support platoon leader. I will use examples, both good and bad, of what happened to me.

"Congratulations, lieutenant, you're the new support platoon leader! I know you wanted the scouts, but I convinced the commander that support was right up

your alley. You don't have to thank me; the look on your face is thanks enough!" With that, the CSM left the room and so began what would be one of the most difficult and rewarding experiences of my career. For a young 2LT who has been led to believe that the warriors ride off into the sunset with the princess and the REMFs clean up after the horses, this was a traumatic event. The removal from my tank platoon after only 10 months and the thrusting into this unknown entity of support is equivalent to an infant being yanked from the womb. Hell, no, I didn't

*"In my ignorance and inexperience, I thought food, fuel, and ammo 'just showed up,' like manna from heaven deposited from on high when I needed it."*

want to go, and I made it clear to every deaf ear I could find. In the end, however, my new call sign was Support 1 and my battle chariot reduced to an M998 cargo HMMWV.

I share this with you because most support platoon leader "elects" have the same reaction. The world of logistics is not only an enigma to be feared, but for a bold, audacious lieutenant of armor, it's a position to be scorned. In my ignorance and inexperience, I thought food, fuel, and ammo "just showed up," like manna from heaven deposited from on high when I needed it. As a tank platoon leader, I definitely could not even begin to tell anyone what the support platoon leader did or what made up his platoon. The world, however, is a lot larger and more complex than my limited perception, and I was about to be introduced to a world of responsibility I had not known existed.

The platoon has almost 100 soldiers moving in about that many directions, and meeting it for the first time borders on terrifying. Fortunately for me, it was almost 60 days before I met my platoon in its entirety. Of course, I'm being somewhat facetious, but with everything the support platoon does, I couldn't correctly identify members of my platoon two out of three times in a line-up. To mitigate this "knowledge deficiency," first acquaint yourself with your platoon on paper. Read the MTOE, look at the current organization of equipment and personnel to see if it differs. Look at the current personnel strength and OR rate and look at names and bumper numbers to have a general idea of who is a "cargo," who is a "fueller," who is a cook, and what bumper numbers belong to each type of their trucks. Do all this before you sit down with your platoon sergeant for the first time. This will show you are interested in your new job, that you're a competent officer, and that you're on top of things right from the start.

All units "test" their new leaders, but support platoon soldiers are a different breed from 19Ks, and you need to show your strengths and abilities right from the start. Also, all the things your PSG tells you during your first meeting will make a lot more sense if you've done your homework. The first impression you give will be how the entire platoon views you by the end of the day.

After meeting your platoon sergeant and getting an overview, go meet and be briefed by your section sergeants. Again, do your homework before you get there — bumper numbers, OR of his trucks and equipment, names of soldiers, and any major problems they may have that you as the platoon leader should know about. I also suggest having each section sergeant walk you through a PMCS of his equipment. This will give you an idea of the pride he has in his fleet, his proficiency, and his ability to teach a new soldier about the section's equipment. It's

good for you because you need to know the capabilities and limitations of your equipment. When I took over, I couldn't even spell HEMTT (heavy expanded mobility tactical truck) let alone know what to check on this vehicle that was so different from a tank.

Following your section sergeants, meet your ammo NCO. Nothing will ruin your day quicker than losing accountability of CL V, or having the battalion's ammo account frozen because of delinquent documents. A good ammo NCO won't let either happen to you (it's your signature on the 581s). Sit down with him and have him brief you on his entire operation — from the time the S3 forecasts ammo until the last residue is turned in. Beware of things that seem "shady" to you. It's nice when your ammo NCO can produce CL V on request; however, if he does this by getting it out of his garage at home, you may have something to worry about.

Your ammo NCO should have a good relationship with the S3 shop, specifically the master gunner, and be present when ammunition is the topic of conversation. It's not uncommon for a great plan produced in the S3 shop to go amiss for lack of input from the guy who actually has his hands on the rounds. I suggest you visit the division ammunition office/officer (DAO) and see their operation firsthand. Also go to the ammunition supply point (ASP) and the ammunition holding area (AHA) to view their operation. One way to do this is to go on an ammo pick-up to get a feel for the time involved in the procedure. It's very easy to sit in your office and wonder why it's taking so long to draw ammunition if you've never done it. This will keep you from promising ammo and not being able to deliver. The more you know about the mechanics of the operation, the more informed decisions you can make.

Your POL NCO is responsible for stocking and operating the Class III package shed and bulk Class III. This includes ordering, issuing, and securing package products; and the request (forecast) and pick-up of the Class III bulk. He ensures the fuel HEMTTs are all topped off and sufficient package products are on hand. He tracks consumption and loss; requests and submits the monthly reports for your approval prior to them going to the battalion XO/CDR. Like you did with the ammo NCO, you should have him brief you on his operation from start to finish. It's very easy to fear the unknown and shy away from his operation, but you should know the POL NCO's job well enough to ensure it is being done cor-

rectly. Finding out the day you're going to the field that the battalion is zero balance on fuel or critical package products is the wrong time to realize he may not be doing his job correctly.

Now, tour the dining facility and see what your food service section does. Shortly after I took over the platoon, all the food service sections were consolidated into a brigade section. Even though they still fell under me for vehicle maintenance, accountability, and administrative actions, their day-to-day operations were controlled by the brigade DFAC NCOIC.

Before I move on to the next group of people, I want to reiterate the importance of knowing what everyone in the platoon is supposed to do and know yourself how to do it and how long it takes. This will obviously take some time and effort, but it will benefit you in the long run if you are well versed in everything your soldiers do. It can't hurt to know how to submit an ammunition request, forecast fuel, or lube a HEMTT.

Next go meet everyone that supports you at the forward support battalion (FSB). Believe it or not, or like it or not, the world of logistics, at least in my experience, is a lot of "back scratching." Whereas one of the permutations of the golden rule is that "those who have the gold make the rule," here "those who have the supplies can make things easy or hard." This sounds pessimistic, I know, but what is going to streamline things when you're in a crunch is how good your working relationship is with those who support you. What's going to make a clerk in the CL III yard go that extra "mile" at 1630 on Friday is not your bar, but your attitude. It's a lot harder to deny someone something when you've met them and have a good impression. In that vein, the world of the FSB is a world unto itself (imagine your platoon times 10) and its soldiers a slightly different breed. Soldiers no better or worse than your own, but still different. Your ability to modify your leadership style to the situation will be a great asset.

You probably have not gotten this far without meeting your "boss," but this area can be somewhat sticky and so it deserves some mention. Your boss is the S4. He is the logistical planner and you are the executor, and, in a utopian world, it would end there and everything would be great. However, it is my experience that there is a shortage of captains to fill positions such as the S4 and so the job falls to a first lieutenant. You are probably a first lieutenant or a senior second

lieutenant and it is here that the problem may arise. Although it is not unprecedented for a lieutenant to rate a lieutenant, it is frowned upon. Therefore, in the above scenario, the HHC commander will rate you. This in itself is not bad, the HHC commander is a huge help with the FSB as the primary liaison between it and the battalion. It's when the lines between boss and rater become blurred that the delicate synergy between planner, executor, and liaison breaks down and problems may arise. I'm not speaking of careerism and saying that some may only do what their rater says so they get a good "grade." However, even if we don't want to admit it, there is the underlying thought of pleasing our rater and also the supposition of the rater that he must develop you. This is all personality dependent; in some cases, this is never a problem and in some cases it is.

Additionally, be aware that in the field, with the scouts and mortars working for the battalion commander, the medics with the companies or in the MAS/FAS, and the mechanics also with the companies or with the BMO, there is no one left in the BSA except you and your platoon. Therefore, you may receive a lot of attention. This is not necessarily bad but, although your soldiers live in the BSA and are at the HHC 1SG's disposal for guard and details, your primary duty is to run LOG-PAC and execute the S4's plan. Finally, I need to mention the S3. He has the oak leaf cluster trump card, and when it comes to procuring CL V for the training he has planned, you will definitely work for him. As far as people in your food chain, there you have it — at least three people (not including the battalion commander) that at any one time will offer input. I can't really offer a solution here as it is a matter of the group dynamics of your unit. In some cases it's a juggling act, and in some cases it's not. I thought it might help to offer this as insight.

In May of 1996, Team D from 3-8 Cav deployed to JRTC in support of the 2nd Bde, 25th ID. The team was composed of 10 M1A2 tanks, six M2A2 BFVs, a platoon of mechanized engineers, and the company headquarters vehicles. In support of the team, I deployed as the CSS LNO. My package consisted of four fuel HEMTTs, four cargo HEMTTs, one 25-ton low-boy, a maintenance support team (MST) from the FSB with six vehicles, my HMMWV, and a total of 30 soldiers. Similar to our mission at Ft. Hood, our mission at JRTC was to provide the team with food, fuel, ammunition, and transportation. Unlike Ft. Hood, I was the only officer from HHC deploying, and in addi-

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tion to my regular mission, I was responsible for performing the duties of S1, S4, BMO, and HHC commander for the heavy team. Additionally, I was the only "heavy" guy in the BSA and soon realized that the light infantry didn't have the assets or any idea how to support us. Without replaying the entire month-long rotation, I'll address the lessons learned:

First, set yourself up for success. I mistakenly brought the two squads I thought would benefit the most from a training center. I quickly realized that bringing the weakest squads in my platoon to JRTC to train them was not a great idea. Although they did learn a lot, a better idea would have been to bring well-trained squads with members of the weak squads as augmentees. I found myself continually pulled away from my duties to deal with problems that never should have happened. Also, I didn't bring my platoon sergeant or a section sergeant. I thought that since 80 percent of the platoon was still at home station, they should remain behind. I soon recognized that mistake as well.

Second, delegate your authority. I tried to do everything myself. I didn't feel comfortable delegating anything because I had never worked in the BSA in my current capacity, acting as the S1, S4, BMO, and HHC commander, in addition to my usual duties. I also didn't have faith in anyone else doing it correctly. I guess this is a very arrogant and inexperienced way to think (although I think most people do it), but I learned my lesson. Very quickly I was overwhelmed by the sheer number of tasks I had to accomplish. Toward the end of the time in the "box," I began to delegate duties down to my NCOs and some of my soldiers. This not only took a huge burden off me, but the soldiers enjoyed the increased responsibility.

Third, become fully integrated into the unit you are working with. Know what you can do for them and what they can do for you. The "light" guys were very eager to be of any assistance, but knew nothing about supporting a heavy team and I knew nothing about being light. To illustrate this, let me indulge in a war story. I had a tank forward module waiting on the D-rear airstrip for two days. When I finally asked when it was going to be lifted to the BSA, the SPO told me he had limited air assets and that my CL IX was not an urgent priority. I explained to him that for a light infantryman CL IX probably is not a priority, but for a tanker it means that I've had a vehicle out of the fight for two days, not to mention that

one tank probably has the firepower of an entire light battalion. Of course, he didn't like the firepower comparison, but he did understand my point and my part was on the next helicopter. Had I voiced my concerns earlier, instead of thinking "someone" was taking care of it, I could have put a tank back into the battle earlier. This entire episode was an illustration of poor integration and communication.

Finally, force protection is of the utmost importance, especially for CSS assets. Logistics are the soft under-belly of any operation. Tankers think of fighting in the deserts of the Middle East, not in the forests of Louisiana. Subsequently, the CSS soldiers in an armor battalion have the same notion of the enemy. They are used to being at least 15 km behind the FLOT and relatively safe, hardly ever seeing the enemy. Therefore, they are more lax in security and lacking in basic soldier skills such as building a fighting position, reacting to contact, and dismounted patrolling. These are things we never practiced because we never needed to, but which resulted in many "casualties" during the rotation. The perception of wide open spaces and seeing the enemy at 4,000 meters is quickly shattered when a six-man squad destroys an entire LOGPAC and the tanks can't get into the fight because they're out of fuel. The OPFOR quickly realized they never had to engage the heavy team, all they had to do was to destroy the LOGPACs. We learned the hard way that we needed to get back to basic soldiering skills and fieldcraft.

Those are some lessons learned from JRTC that can be applied to many situations. It was the most difficult operation I had done until that time and remains one of the best learning experiences I've had. It was an eye-opening experience for a cocky young lieutenant and soon I would get the chance to put those lessons to use on another deployment.

On September 19, 1996, the 1st Cavalry Division alerted 3-8 Cav for a possible deployment to Kuwait on a show of force mission. Five days later, we were in Doha drawing our equipment in a sand storm. Once again, I'll spare you all the gory details and concentrate on the lessons learned.

Force protection was again paramount. We faced a very real threat in Kuwait even after we realized the Iraqis weren't coming south. Every day we were briefed on the terrorist threat level. We carried live ammunition in our weapons, and we practiced ambush reaction drills. But I did make a few mistakes. LOGPAC turnaround in the first two weeks took well

over six hours, unlike the two-hour window allotted by SOP. My mistake was that I was only worried about a threat while we were traveling between the BSA and the kabals. Once we arrived at the logistics release point (LRP), I felt we were out of danger. However, we were actually more at risk while we waited for the ISGs to return their LOGPACs because we were a sitting target. We would sit at the LRP, in the middle of the desert, literally for hours, waiting for one truck to return. It took me about a week of this nightly ritual to realize my mistake. Very simply, I instituted an early return and a late return. Those trucks returning in the allotted time went back immediately with my platoon sergeant. Any company who couldn't make the window would deliver their LOGPAC to me at the CTCP kabal, and, once I got them all back, we would depart for the BSA. It was not an option for the ISGs to bring their LOGPAC back to the BSA because it was a 100 km round trip and, on the return trip, they would be traveling alone.

My second learning point was to keep strict accountability of our ammunition. This sounds pretty obvious, but it wasn't until the third week "in-country" that I realized, that although we had the correct quantity of each type of ammunition, we also had some incorrect lot numbers. This turned into a nightmare that lasted several weeks. On the first day in country, each support platoon will draw the battalion's unit basic load (UBL) from the ammunition transfer point (ATP). The ATP is nothing more than a spot in the desert with stacks and stacks of ammunition as far as you can see. It's almost a free-for-all in the sense that you show up with your trucks, the DAO hands you a stack of 581s, and you go to the designated pile and start uploading. The problem was that three support platoons, including mine, hit the ATP at the same time and started to upload.

Things were hectic to say the least. It was dark, and on the first day in country, it still looked like the Iraqis were going to cross the border. Once we had our ammunition, I signed the 581s and we were off. It wasn't until we issued the ammunition that we realized our mistake. In the end, we had to upload several trucks with the mismatched ammo and drive to every kabal in the brigade. Much to the surprise of every other support platoon leader, I showed them that we all had mismatched ammunition. It was no small task, but I

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Photos by LTC John Paulson

# Three Tanks Featured In Russian Arms Show

by Colonel James H. Nunn and Lieutenant Colonel John C. Paulson

In early June, Russia held its third International Exhibition of Military Land Equipment, Armament, and Conversion Products at Omsk, Siberia, more commonly called the Omsk Arms Show. Military representatives from around the world attended, including the Project Manager and TRADOC System Manager - Abrams as part of the U.S. team.

We attended for two reasons, both to know the enemy — since many potential enemies are likely to be using Russian weapon systems — and to know the competition, since both the U.S. and Russia make foreign military sales in order to lower their own unit costs and so enable them to afford the quantity and quality of tanks they want and need. Russia's need to export has improved Western knowledge of Russian systems.

Russia recently closed one of its three tank plants, leaving two, at Nizhniy Tagil, where the T90 is built, and at Omsk, the T80 factory. Cost is the key factor in Russian export success: both T80 and T90 enjoy a significant cost advantage over the M1A2, LeClerc, or Leopard 2. In years past, buyers were concerned with the survivability of Russian tanks after seeing the poor performance of the T72 in Desert Storm, but the passage of time has eased these concerns.

Moreover, Russia has made improvements in the lethality and survivability of their tanks, which improves export prospects. Russian tank design remains strong in areas of armor, firepower, and mobility, and they are also making great improvements in survivability with introduction of systems like the Shtora elec-

tronic self-defense suite and the Arena active protection system.

Key systems displayed by Russia at the exposition included: the T-80U improved tank, T-90 tank, Black Eagle tank, BTR 90 wheeled armored personnel carrier, and the tracked BMP-3 APC. They also showed a recovery vehicle based on the T-80 chassis and a mine clearing engineer vehicle.

## T-90

The T-90 tank is manufactured at the tank plant in Nizhniy-Tagil, southeast of Moscow. The T-90 is based on the T-72 tank, but the fire control system is similar to the basic T-80. The gunner has a thermal sight and laser rangefinder. Like the T-80, the tank has a hunter-killer system for the tank commander, but the TC's sight at this time is daylight and IR only. There is no independent thermal sight for the commander. The tank comes with the Shtora active protective system as standard equipment, with the Drozd or Arena system optional.

The primary differences between the T-80U and T-90, according to the Russians, is that the T-90 has a diesel engine, a different suspension system, and the ability to start the engine electronically or through an air power system. The latter system improves reliability in cold weather or when battery power is low.

## T-80UM1 (Improved)

The T-80UM1, made at the Omsk plant, includes several improvements over the last few years. The T80U on display at Omsk had digital computers for the TC and gunner. It also had a built-in test system and self-tests for various fire control

**Above, a T-90 races through a mobility demonstration at the Russian arms show at the Omsk proving ground.**

checks. The tank did not appear to have a digital data bus system. The Shtora, Arena, or Drozd system warnings are integrated into the computer's digital displays.

The gunner has a thermal sight, and both the TC and gunner have small video screens that display what the gunner is viewing through his thermal sight. The Russians advertised that foreign customers can also choose to add a foreign-made thermal sight to the tank, as the Ukraine has done with its T-84, which demonstrated the incorporation of the French SAGEM second-generation FLIR.

The T80UM1 has the 2A46M-4 main gun, but now there is a muzzle reference sensor (MRS) on the end of the gun tube. The Russians advertise a 20 percent increase in fire effectiveness over the 2A46M-1 main gun in the standard T-80U. The tank is capable of firing APFSDS, HEAT, HE-Frag main gun rounds, and 9M119/9M119M anti-tank laser-guided missiles.

The T80U brochure states that the "RE-FLEKS" laser-guided missile system is intended to engage land and low-altitude aerial targets at a range of 100-5000M. During the firepower demonstration, both the T-80U and T-90 shot missiles at a range of approximately 4K, and all rounds were dead-center target hits. The tank carries a basic load of 45 rounds, with 28 in the autoloader carousel and 17 stored in the hull.



The T80UM1 has an air conditioning system, a fire-suppression system and NBC protection.

Russia also offers the Shtora electro-optical countermeasures system, which covers a 360-degree arc, and is capable of detecting laser emissions and launching aerosol grenades to screen the tank. The brochures claim Shtora triples the tank's protection.

The more complex Arena-E defensive countermeasures system is an active protection system against rocket grenades and ATGMs. A radar mounted on top of the turret scans 360 degrees. It is linked to a series of grenade launchers mounted on a ring along the frontal 110 degree arc of the turret. Incoming missiles moving at 70 to 700 meters per second are detected at 50M. The automatic system reaction time is .07 seconds. Once a ground- or air-launched missile is detected, the Arena system launches a grenade in that sector at approximately a 70 degree angle. The grenade then shoots down at the incoming missile to destroy or deflect it before it hits the tank. The Russians claim Arena doubles the protection of the tank, and that the combined protection level of a tank with Shtora and Arena increases five-fold. The Arena system is available for the T80 tanks, T-72C, and BMP-3.

The tank has "dazzle paint" over most of its surface. This paint is an electromagnetic wave deforming/absorbing coating used to prevent radar detection. Another improvement is that the driver's steering laterals have been replaced with a steering wheel.

According to a brochure, the tank's improved GTD 1250G HP multi-fuel gas-turbine engine has a hydraulic volume tuning mechanism that produces a 29 percent increase in average speed on winding routes. Fuel consumption has been trimmed 9 percent over the standard GTD 1250 turbine. The tank is listed at 46 tons. With a 27.2 horsepower-to-ton ratio, the T-80U has a higher power to weight ratio of any modern main battle tank in the world. It was dubbed the "flying tank" at the show.

Other features on the tank include a small turbine 18kW GTA-18 auxiliary power unit. This under-armor APU can operate all the tank's systems when the main engine is switched off. The engine has an automatic air cleaning system, and there is a one-point refueling location for the fuel tanks. Maximum range for the tank is listed at 440 km with external fuel tanks and 335 km without them. Maximum speed is listed as 70 kph highway and 40-45 kph cross-country.

**The Black Eagle's blocky turret resembles recent Western designs. The chassis of this Black Eagle was longer, with seven road wheels on each side, compared to the tank identified as the Black Eagle in a 1997 exhibition.**

### Black Eagle

The Black Eagle tank is also made at Omsk. It was demonstrated during the last five minutes of the live fire mobility demonstration. The Black Eagle represents a major change in Russian tank design. It has a Western tank-style turret with a bustle rack, which appears to be designed to hold main gun rounds. It is the first Russian tank with a bustle, which gives them the capability to make lethality improvements in ammo and increase crew space. The Black Eagle has a turbine engine. Some changes seem to have been made to the hull. When first seen in 1997, the Black Eagle had six road wheels and appeared to be built on a T-80U hull, but in this showing, the hull appeared longer and had seven road wheels. During the mobility demonstration, the tank appeared to have an excellent power-to-weight ratio and suspension system similar to the T80U. The gun stabilization system also appeared to be very good.

In the exhibition hall, the Russians displayed a model of the Black Eagle which appeared to be an exact replica of the mobility demo vehicle, although the top of the tank's turret was covered by a camouflage screen during the demo. A display board indicated it had a three-man crew, autoloader, a weight of 48 tons and a 1,500-hp turbine engine. Exhibitors stated that the current gun tube was the 2A46M-4, 125mm, but that it could be fitted with a 140mm cannon. Not much else is known about the Black Eagle. The



**The BMP-3 infantry fighting vehicle goes through its paces on the mobility course. This vehicle can be ordered with the Russians' Arena active protection system, which detects incoming rocket-propelled grenades and AT missiles and shoots them down or deflects them before they hit.**



T-80, left, and T-90 on static display, painted with an electromagnetic wave deforming/absorbing coating to prevent radar detection.



The view from the top of the turret of a T-90 is impressive for the sheer number of hatches, boxes and accessories that clutter the turret roof, much of it related to the tank's self-protection system.

At right, a Russian show card outlining the features of the Black Eagle, although the vehicle on display had another road wheel station. At right below, a T-80 is hooked up for retrieval.

key question is not whether the Russians can design a new tank, but if economic realities will permit them to bring this tank into production.

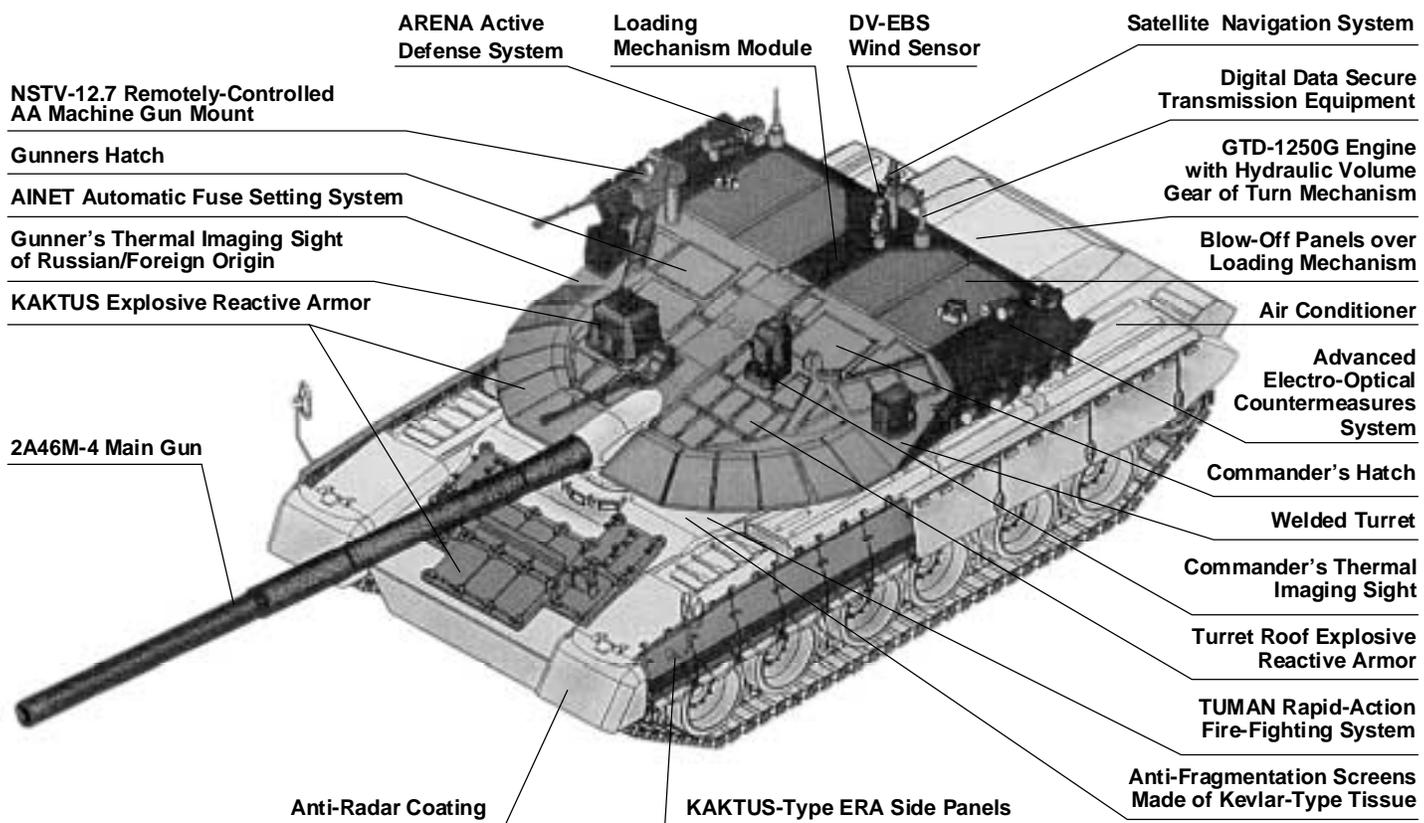
The Omsk military show was a world-class exhibition. The Russians were excellent hosts and were very open about the improvements to their equipment. The show was well organized and displayed a broad range of the country's military and civilian industrial capability.

COL Jim Nunn is a 1976 ROTC graduate of the University of Florida where he received his Armor commission. He served as a tank platoon leader, battalion S3 and S4 with

HHC, 2-32 AR; commander of CSC and A Co, 197th Infantry Brigade; Separate Troop Commander, 15th Cavalry; TRADOC DCST operations and plans training officer; brigade S3, 5ID; and brigade S3 and XO, 2AD; battalion commander of 3-8 Cavalry, 1CD; deputy chief of staff, 1CD; and political-military affairs planner (J5) at EUCOM. Currently, he is the TRADOC System Manager (TSM) for the Abrams tank system, at Ft. Knox, Ky.

LTC John C. Paulson was commissioned as a 2LT of Armor from the U.S. Military Academy at West Point, N.Y. in 1981. He has served in a va-

riety of Armor assignments with 2-64th Armor in Schweinfurt, Germany; 2-10 Cav, 194th Armored Bde, Ft. Knox, Ky.; as the S3 and XO of 3-8 CAV, and G3, Force Modernization, 1st Cavalry Division, Ft. Hood, Texas. He has also served in several acquisition assignments, first as M1A2 Test Officer for PM Abrams, APG, Md.; Training Division Chief, TRADOC Program Integration Office - Army Battle Command System (TPIO-ABCS), Ft. Leavenworth, Kan.; and currently as Assistant Project Manager (Tank Fielding and Foreign Military Sales), Abrams Tank System, Warren, Mich.



# ENGINEER BASICS

## Some Rules to Improve Mobility and Countermobility

by Captain Wayne Skill

The following compilation of lessons learned and observations from the National Training Center, the CMTC, and even Bosnia is intended for all of us involved in the combined arms fight. Although it is about mobility, countermobility, and survivability, this article is not just for engineers. If you've ever watched your combat power dwindle away at the breach site, or had your battle position overrun by the OPFOR, this article may be for you. Few of these techniques are original on my part, but rather are a collection of methods successfully executed on the ground.

### Mobility

Mobility means maintaining freedom of maneuver and making sure we can get the force from one place to another on the battlefield. At the task force level, what we're really concerned with is finding a way around or through obstacles. Breaching is about as difficult an operation as we can execute at the task force level. At the NTC, we see most units struggle with breaching operations, particularly during force-on-force battles. Problems generally fall into four areas:

- **Plan.** Units fail to account for the five breaching tenets, including the breach fundamentals, during both course-of-action development and wargaming. Of the breach tenets, intelligence (OBSTINTEL) and synchronization prove to be the biggest problem areas. Engineers are not getting involved in the R&S planning process and are not coordinating to make sure PIR and resultant NAIs develop the information to get us to the objective. Finally, we often see the staff fail to effectively wargame the plan, including enemy reactions and realistic estimates of combat power losses at the breach site.

- **Order.** Orders tend to lack definition of the specific sub-unit tasks required to set the conditions to breach, or fail to define what "good" looks like in terms of the breach fundamentals. The orders gen-

erally do not define where smoke needs to go and what it must accomplish. Orders also fail to define what, or how much, the support force needs to kill on a particular enemy battle position in order to successfully suppress.

- **Preparation.** Units usually always conduct some form of rehearsal, but not full mounted rehearsals that include use of mine plows. As a result, units lose an opportunity to synchronize actions at the breach site.

- **Execution.** When units do have a good plan in place, we often see them fail to maintain tactical patience when setting the conditions to breach, and then, once they commit, they do not execute quickly and violently.

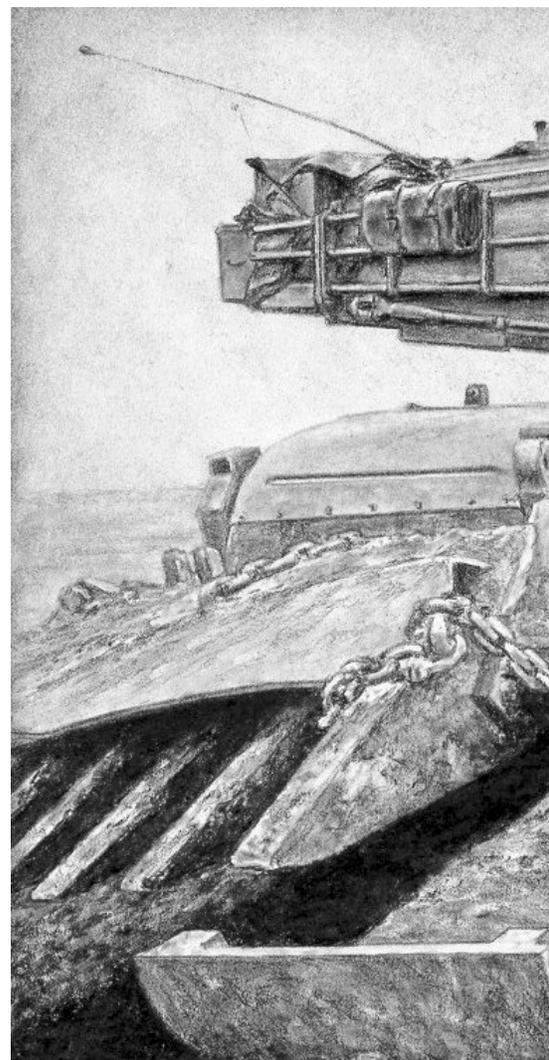
Here are some tips and lessons learned:

- **TerrabaseII.** If your unit doesn't have it, get it. It's free from the Engineer Center, or you can download it off the Web. Teach your TOC NCOs how to use the program and build your products for you. It's easy to learn and pays huge dividends as a tool to help you analyze the terrain, build the situational template, pick OP/RETRANS locations, or locate possible support by fire or battle positions. Terrabase allows you to quickly understand how intervisibility lines will affect the fight.

- **CFZ.** Activate a radar zone over both the proposed breach site, and the assault position where you plan to conduct final MICLIC preparation. This helps reduce the operational risk of excessive losses at the breach site due to OPFOR artillery.

- **ADA.** Coverage is a must over the breach site, particularly once the breach lanes are passing combat power forward, and over the assault position where we prepare the MICLICs.

- **Smoke.** Use obscuration, not just to obscure breach site but also to screen the movement of the support force into position. Without smoke to cover the move-

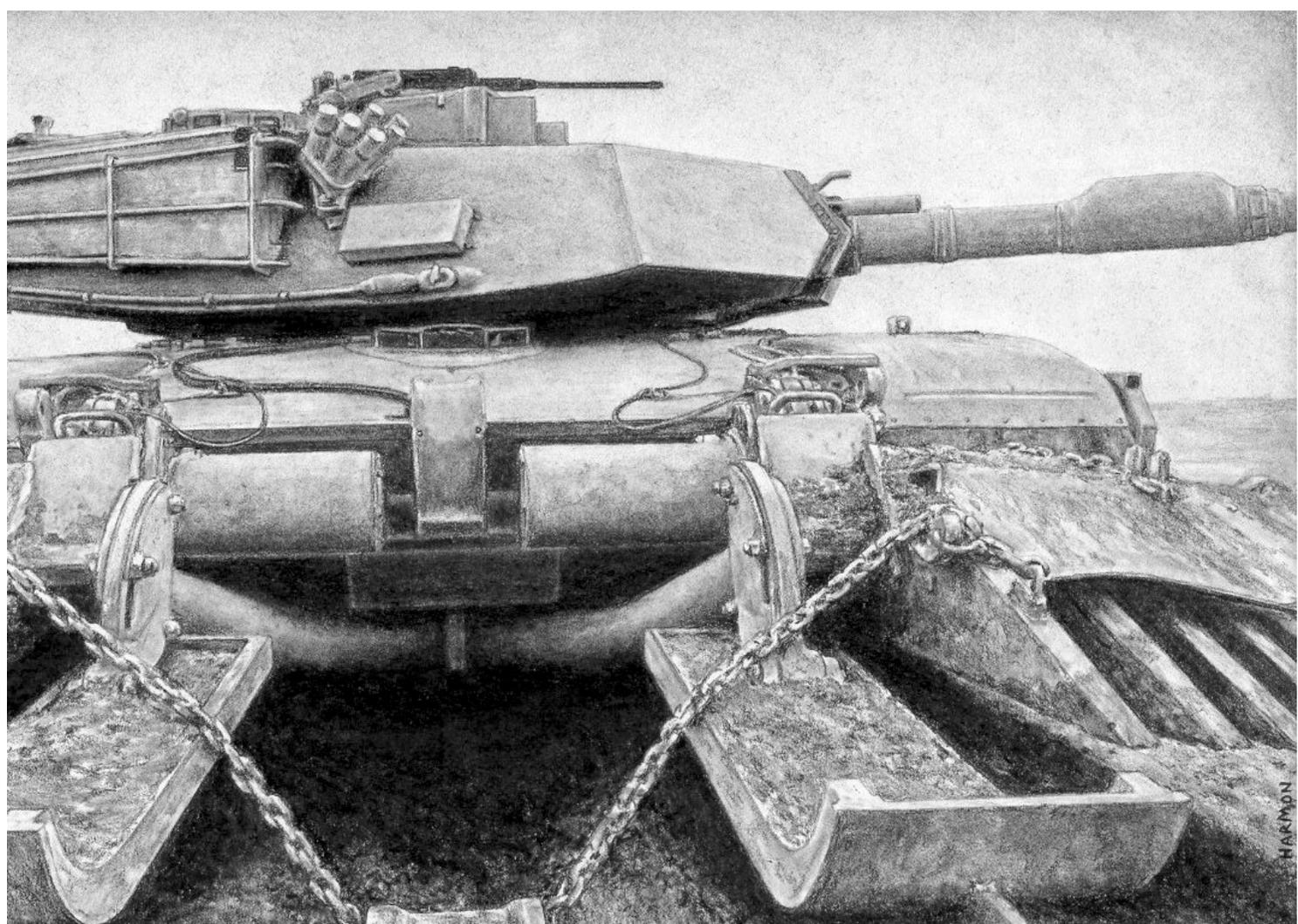


ment of the support force, you may not have a support force left to suppress the bad guys by the time you commit reduction assets. Consider infiltration of FISTs/ COLTs with scouts in order to get accurate indirect fires prior to the arrival of the support force.

- **More smoke.** The breach force needs smoke pots or smoke platoon support in order to execute the breach fundamentals, suppress, obscure, secure, reduce (SOSR), locally at the breach site. Remember to include smoke grenade launchers, and onboard smoke capabilities.

- **Lots of Smoke.** You can never have too much, even if it causes some confusion for friendly forces. Take advantage of our optics. The technology works in our favor.

- **Mortars** are not enough. It takes more smoke rounds than you can carry to get effective obscuration for a mechanized breach. Use additional methods if FA smoke is not available. Think about using



your mortars to suppress, while artillery fires your smoke.

**Reverse Breach Planning.** Analyze backwards from “actions on the objective” (in this case the breach lanes, including assault breach lanes) to derive breach force (and engineer) task organization. Analyze what it will take to open each lane, down to the individual vehicle and squad. Everybody is not entitled to a fair share of engineer or other reduction assets. Put them where they have to be in order to accomplish the mission. Use the same methodology to determine the composition of support and assault forces. Each of these represents a combined arms team.

**Have a Plan.** Saying we’re going to conduct a TF in-stride breach, handing the designated company/team some engineers, and pushing the planning responsibility down to company/team level is not adequate. That maneuver company still requires assistance from the TF to set conditions, and it will need other assets,

such as smoke, to successfully breach. You also have to define the criteria for transition to a deliberate breach and plan for that scenario as well. Determine exactly what criteria will trigger transition to a task force deliberate breach, and include it in the OPORD. Too often, planning at the task force level ceases when we identify a task force in-stride breach as our course of action.

**Redundancy.** If you think one MICLIC is enough to clear one lane, it means you need two. Use the same rationale for each individual vehicle, squad, and task in the reduction element (engineers, plows, and rollers) of the breach force. Include a redundant means of proofing each lane. This must be done in conjunction with the reverse breach planning process. Plan to lose half the reduction assets you commit to the breach. Use this factor in your wargame process.

**Direct fire planning.** Fire control measures are a must at the breach site, particularly for trailing units and the as-

sault force. A lack of control measures will result in killing your own. It’s happened. Consider a release line on the far side of the obstacle. The assault force remains in a weapons hold status until clear of this control measure. This prevents fratricide of the breach force occupying support by fire positions securing the exit to the breach lanes, or the engineer vehicles marking and proofing the lanes. Carefully plan the control measures and plan to lift or shift fires as the breach force moves forward to reduce a lane. Synchronize through mounted rehearsals.

**Have a Plan.** Even in a movement to contact mission, you need a plan to transition to a task force deliberate breach. You also have to have a plan at task force level for how you will execute a task force in-stride breach. An in-stride breach at task force level is not just that designated company/team’s problem, and your job is not done just because you’ve allocated them some engineer support. A task force in-stride breach is a deliberate

breach for the breaching maneuver company team. That maneuver company commander must have at his disposal all the tools to set the conditions to breach. That means he's got to have some additional help from the task force, to include smoke for obscurity, priority of fires for suppression, plows, dismounts for security, a plan to gather OBSTINTEL, and enough reduction assets to provide redundancy.

**Breach fundamentals (SOSR).** What does "good" look like? Define your criteria in the OPORD for commitment of reduction assets. Define who suppresses, from where, against what enemy formation, and how many enemy combat systems you need to kill on that position in order to set the conditions to breach. Use the same type of language to describe what the security element of your breach force is supposed to accomplish. Define the basics and mechanics of your obscuration plan. Define who calls for the smoke, who controls it, where it needs to be, and what effect it needs to have. Define all of this in terms of task and purpose in the sub-unit instructions of paragraph three of the OPORD.

**Rehearsals.** Conduct a mounted rehearsal at TF level. A mounted rehearsal is your most effective method to *synchronize* actions at the breach site. Your first attempt will prove why you need to do this. Plan time for multiple iterations. If you are passing another unit through your breach lanes, they need to be there, too.

**Marking.** Set up your lane marking system at the task force "rock drill" site. That way everybody knows what it looks like. In addition, show how you plan to mark obstacle bypasses, and enemy FASCAM. If possible, do this in terrain that is similar to the terrain where you plan to breach. The NTC OPFOR does this for every attack.

**Traffic Control.** You have to have a method to control forward and rearward movement through the breach site. Rehearse it as well. This brings up the issue of who controls the breach site. Our doctrine does a good job of outlining this for river-crossing operations, but *FM 90-13-1* doesn't really address it. It's best to have one person controlling passage and fires in the immediate vicinity of the breach site. It may be the breach force commander, or it might be the S3. Regardless, you need to develop a method, publish it in your SOP, and practice it. At some point, you also need to consider when



**Mine rollers are the best method to find the edge of a minefield and the best way to proof a breach lane, according to the author.**

you can afford to go to two-way traffic to allow for casualty evacuation, etc.

**MICLIC Reloads.** Plan for it. You may need those systems again in order to get through the assault breach. Also a tool for trench clearing if you are in a bind.

**MICLIC Trailers.** Even if you plan to put your MICLICS on an AVLM, bring the trailers as least as far forward as the assault position. The M-60 and M-48 chassis are not the dependable platforms they once were. You need lift to do a reload, so you can also have a trans-load plan as well, just by taking the trailers forward behind one of your other vehicles. You can always drop the trailers in the assault position before you move forward to breach.

**MICLIC Maintenance.** This is critical. Next to the M-105 trailer, it's probably the most neglected piece of equipment in your motor pool. Train the operators, and **use** the TM.

**Mine Plows.** Tank crews must practice actual plowing with the MCB on a regular basis. They need to be as proficient with engaging the plow as they are at boresighting. They need to do it every day during a rotation, and get familiar with what types of soil allows them to use the plow.

**Mine Rollers.** Use them. They are the best method to find the edge of a minefield and the best way to proof a breach lane. If you are worried about the plows slowing your movement, consider hooking your plows up in the assault position at the same time engineers prep their MICLICS.

**Situational Obstacles.** Have a plan, during attacks or movements to contact

for using battlefield shapers. Consider the flanks, or defeat of the OPFOR's combined arms reserve (CAR).

**OBSTINTEL.** We often identify this as a PIR, but fail to adequately address it in the R&S plan. The task force engineer must be a player in both the development of the situational template and the R&S plan. The engineer must work with the S2 to template the enemy's use of battlefield shapers, including FASCAM, and then help prepare a plan to confirm or deny the template. The collection effort should also include locating where the combat systems that cover the OPFOR obstacles will fight. This will help you effectively position your support force.

**Covert Breaching.** This can be a low cost, high payoff operation. A covert breach may allow you to get at least some of your lanes in using a minimum of combat power, allowing you to preserve the rest for actions on the objective. You have to go after OBSINTEL anyway if you hope to successfully negotiate the OPFOR's prepared defense. With a little extra planning and coordination, you can move straight through to the objective using a defile drill. In order to make this work, your covert breachers must learn how to find the enemy overwatching the site and kill them with indirect fire.

**More on OBSINTEL.** Getting your engineers to the point on the ground where they can give you good OBSINTEL, in one piece, may be your biggest challenge. In order to really get you the information that you need, including mine type, obstacle composition, and depth, they need to get right up on the obstacle. Finding a safe route to that point poses the biggest risk. Consider using

The ACEs (Armored Combat Earthmovers) have to be used selectively because they were not designed to be bulldozers, and can be damaged when used on rocky ground.

task force scouts to pull your engineer reconnaissance into zone on routes they have already proofed. In essence, the scouts hand over the obstacle to the engineers, and continue to concentrate either on deeper NAI, or on finding the OPFOR's over-watching forces

**Assault Breach.** You may need to conduct final assault breaches in order to get onto the objective, once you've breached his tactical obstacles. If your template says he will use protective obstacles, then you need a collection plan to confirm or deny this point, and a plan to get through the obstacles if they're there.

**Engineer Reconnaissance and OBSTINTEL.** Reconnaissance is a sapper squad mission. All the tools for conducting reconnaissance exist within an engineer platoon, including a HMMWV. Sappers need to train on a regular basis with the task force scout platoon and be familiar with their TTPs and SOPs. Do not overlook the value or opportunity of conducting covert breaching operations.

**More on OBSTINTEL.** Look before you breach. Make sure someone actually puts eyes on the obstacle, and determines both depth and composition. You might find that the obstacle you are stacked up and dying behind is not a real obstacle to tracked vehicles after all. The OPFOR will put in berms instead of tank ditches if they are running low on time. Tanks and Bradleys can usually get over these without difficulty, but because no one goes to get a good look, we stack up behind the phony obstacle and take casualties trying to set the conditions to breach. The same goes for wire obstacles. The OPFOR will put wire with no minefield behind it, to make their obstacle system appear more formidable. From a distance, the BLUEFOR assumes that there's minefield behind it. Wire by itself does not stop tracked vehicles (unless it's 11 rows deep). The bottom line is you have to look.

**MEDEVAC.** Think about FAS or MAS support in the vicinity of the breach site. Even if everything goes well, this is where you stand to take the most casualties within the task force. Engineer units

Before tank fighting positions are dug, crewmen need to sight in their positions by lying flat at the same level as the gun tube.



lack adequate organic MEDEVAC assets, so having one of those task force assets in position is important.

### Survivability

At the task force level, this translates to fighting positions. The trend at the NTC is wasted blade hours due to a lack of planning at the task force level, lack of preparedness to put blades to work at the company team level, and a failure to analyze terrain at all levels.

**ACEs Aren't Dozers.** They were never designed to be, and they can't dig in all the places dozers can. Train your operators to recognize where they can and can't dig. If possible, use Terrabase or other tools to produce "no dig" overlays before an operation. At the NTC, high ground is still high because it's rock, and hasn't eroded. Plan to dig smart. Rocky soil will bend an ACE every time.

**Priorities and Time.** Set priorities, make a time-line, and enforce it. The task force commander must set his priority by battle position and by combat system. Make it the gaining company/team's responsibility to escort the blades to the next battle position.



**OPORD.** Publish the time-line in the order. Put responsibilities and times in the "Sub-unit Instructions" portion of the order so that maneuver company commanders understand that the times involved are directed by the task force commander. If the information is buried in the engineer annex, no one will read it.

**Dig Smart.** No forward slope positions. They take much more time to dig and leave the tank or IFV with no good way to reposition or withdraw. Take advantage of the terrain. If the ground offers you an opportunity for reverse slope, use it. Think about reverse slope positions that look like a fan with the wide end toward the enemy. That gives the combat vehicle the opportunity to execute a berm drill so he pops up in a different position each time that he engages.

**ACE/Dozer Chains.** Chains can be a big aid to your equipment operators. The chain has a weight on the end that is marked with the correct depth for M1, and M2 fighting positions. That saves time on the battle position, instead of constantly moving vehicles in and out of holes to proof for depth. You should only

have to proof the hole once. In a different color, you can also mark the width required for each type of position on the chain, and stake it out beforehand.

**Proofing/Sighting Positions.** The tank crew must sight the position before the blades start to work. Sounds basic, but it doesn't always happen. Sighting needs to be done from the height of the gun tube when it fires. That means the crewmen need to get down on their bellies to sight in the position. It does no good to stand on the battle position and say, "I can shoot from here." I've seen tanks have to fight above ground, 10 meters in front of their perfect hole, because the crew failed to do this. Finally, before the blades leave, proof the position with the actual vehicle that's going to fight from that hole.

**General Support Assets.** Have a way to track the progress of GS engineer assets working in your sector. If you're the task force engineer, it's your responsibility to keep the task force commander informed on the progress of all engineer work done in your sector, regardless of who is doing the work. This goes for obstacle work as well. GS engineers don't report to you, and extracting information out of a higher headquarters may present a problem. Establish direct communications with the unit if possible, and use an LNO to monitor their progress and coordinate with your task force on the ground. To get started, you have to be able to put a timeline and plan in the GS engineers' hands when they arrive.

### Countermobility

Countermobility equals effective obstacles integrated with fires. The trend at the NTC is that units are not executing obstacle groups with sufficient minefield density to achieve the desired obstacle effects or sufficiently integrating obstacles with both direct and indirect fires.

**Class IV/V.** Coordination, ordering, movement, and distribution of mines and wire for the defense are a maneuver S4 responsibility. It is not an engineer task. The engineer company must have a technical representative at the CL IV/V point, but responsibility for its operation rests with the S4. This includes a work detail to unload and uncrate mines. It takes a company day to uncrate 3,600 mines. If sappers are doing this, who is going to put in the minefields?

**It Doesn't Take Engineers to Build a Fence.** In order to get effective obstacle groups in place to support a task force defense in 36-48 hours, it's going to take more than just an engineer company. The

bottom line is that the engineer platoons are going to need help in the form of manpower, particularly in the erection of minefield marking. A 20- to 30-man detail from the task force nearly doubles the manpower available within an engineer company to construct obstacles. If the detail is building the fences, engineers can concentrate on getting the mines on the ground, and getting them armed.

**Seven Steps of the Defense.** These are the steps to building a defense that the Cobra Team coaches during the NTC Leadership Training Program (LTP) and during rotations. *Build your defense from inside the engagement area (EA) out.*

- Know the enemy and visualize how he will fight
- Select where, and determine how, to kill the enemy
- **Position obstacle groups to support direct fires**
- **Plan indirect fires to support direct fires**
- **Position forces to kill him with direct fires**
- Complete the plan: Site and execute obstacles, and prepare positions
- Rehearse

*Note: Steps in bold can be simultaneous, and should be repetitive*

**Cover the obstacles by fire.** Everybody's heard this before, but few units actually do it. That means sighting in the individual obstacle with the unit it supports prior to beginning work. One well-sighted obstacle is worth 10 that nobody can cover by fire.

**OPORD.** Publish the time-line in the order. Put responsibilities and times in the "Sub-unit Instructions" portion of the

order so that maneuver company commanders understand the times involved are directed by the task force commander. Define which company/team has responsibility for each obstacle group and when company/team commanders must be ready to site the individual obstacles with which engineer platoon leader. Avoid burying the information in the engineer annex.

**Situational Obstacle Planning.** Situational obstacles must have a target, a trigger, and a desired obstacle effect. By definition, situational obstacles have a trigger that allows execution to be withheld until specific criteria are met. You only execute if the specific event you identified during the planning process occurs. The criteria, or trigger, should be based on enemy or friendly actions, **not time.** Timing, between defined events, however, is critical if you're going to successfully get the obstacle on the ground in the right place at the right time to achieve the desired effect on the enemy.

- Define your trigger (event-based). If it is an enemy action, then it defines a specific place on the ground, and is therefore an NAI.

- Assign someone to observe the NAI in the R&S during the window of time you expect the trigger event to occur.

- The obstacle location also defines a specific place on the ground, and is therefore a TAI. Someone must have the responsibility of observing the TAI as well.

- Choose your delivery system.

- Do the time-distance analysis between the NAI and TAI. How long does it take the bad guy to get from your trigger point to the obstacle site. Does this give you enough time to execute the obstacle, given location of your delivery system



"It takes a company day to uncrate 3,600 mines. If sappers are doing this, who is going to put in the minefields?"

and how long it takes to execute the minefield?

- Integrate fires with the obstacle. If nothing is shooting at the enemy when he encounters the obstacle, then you've just wasted your time and assets.

- Position your delivery system so it can execute the obstacle. Sounds simple, but this requires planning, and additional time-distance analysis. For ground systems, consider a series of positioning areas along a route. Each positioning area is tied to one or more situational obstacles. Have a criteria that triggers movement of the ground system from one positioning area to the next. The trigger for movement should be event-based and linked to the DST in the same way as obstacle execution triggers.

**Because it's a FASCAM doesn't mean it's a situational obstacle.** FASCAM, particularly ground Volcano, provides us with a great tool to get a high density of minefield frontage down in a hurry in the defense. Think about using 48-hour duration Volcano minefields in order to get the requisite density of minefields in to achieve the desired obstacle effect. Because the minefield goes in quickly, you can take more time up front to make sure it's sighted properly and integrated with sufficient fires. As the number of sappers coming out of the back of tracks dwindles, we've got to rely on this system to achieve what we used to plan on conventional mines to do.

**Minefield Marking.** Do it, all four sides, period. There is a saying at the NTC, "If you want to find your 1SG, CSM, or chaplain, look in the nearest minefield first." If the bad guys see the minefield, and avoid it, you've effectively shaped the battlefield. The purpose of the minefield is to shape the battlefield so that we can kill him with fires where we want to. A minefield by itself is not a killing system except to civilians and friendly forces.

**Brigade Directed Obstacles.** Brigade-directed obstacles represent a double-edged sword, and are often misunderstood or misinterpreted. Brigade commanders use these obstacles to shape the brigade fight, particularly the deep battle. What they should not be used for is a tool to "get engineer effort going early so we don't lose work hours while the task forces develop their plan." If brigade-directed obstacles fall within the task force battle space, they require bottom-up refinement like any other obstacle group. That means that the engineers can't start to work on these obstacles until the task

force has refined the exact location and arrayed forces to integrate the obstacle with fires. Otherwise, you encourage engineer anarchy, resulting in ineffective obstacles that really are a waste of work hours.

The issue that is often lost on the task force is that they have an implied task to integrate the brigade directed obstacle with fires. In essence, the brigade commander is providing guidance in how the task force will array forces and fires when he issues graphics with brigade-directed obstacles or obstacle groups. The task force staff must recognize this fact during mission analysis, and then start the refinement during COA development and actual on-the-ground reconnaissance.

If the obstacle is deep, then the only obstacle effect you can achieve is to disrupt. Without direct fires, it is impossible to turn, fix, or especially block. In order to make deep obstacles work, you've got to have an observer plan, and indirect fires. Think about using in conjunction with CAS or attack aviation.

**Volcano Consolidation.** Avoid consolidation of Volcano assets into a single platoon controlled at brigade level. Ground Volcano assets are a task force commander's tool to shape the battlefield. Brigade-controlled ground Volcano obstacles are rarely coordinated with task force maneuver, and are not refined at task force level. As a result, task forces generally do not know when or where they go in and do not cover the obstacles with fires. The end result is usually fratricide and restricted maneuver for task force logistics assets.

**Obstacle Group Design.** Read *FM 90-7*. Plan your obstacle groups with sufficient minefield density IAW *FM 90-7* to achieve the desired obstacle effect. In addition, integrate obstacles with sufficient direct and indirect fires, as outlined in *FM 90-7*, to achieve the obstacle effect. Insufficient obstacle density and integration of fires is a recurring trend at the NTC. Engineer company XO's generally understand the calculation to determine how many minefields an obstacle group requires to achieve a specific effect, but often don't apply the full width of the avenue of approach to the calculation. The result is too little obstacle in too big an area to have the desired effect on OPFOR maneuver.

Engineers need to be able to rapidly do the math, on the ground with the task force commander, in order to tell him how much is needed in terms of minefield effort to achieve a specific effect, and how much he can realistically expect

to get on the ground based on time and assets.

**Lanes.** You have to plan for lanes, and put them on the graphics. A very common question to task force engineer is, "All right engineer, where are **all** of the obstacles?" The real question asked is, "Where can I drive my tanks?" The graphics already have the obstacle control measures on them, but that doesn't give exact locations. The exact location of minefields is unknown until each one is sighted in and executed. What the maneuver commander really needs to know is where can he plan to be able to move without blowing a hole in the bottom of his vehicle. Develop lanes. Publish them. Enforce their use by all equipment moving around the battlefield.

**Think about fencing obstacle groups instead of individual minefields.** This can save you time and resources. It takes less time to put in one fence around the outside of where you plan to put the obstacles than doing individual fences one at a time as you go along. It also takes less CL IV. Fencing the group can also confuse the enemy as to the exact location and orientation of your obstacles, causing him to expend more of his breach assets than necessary. If you fence the group, and don't get all the mines on the ground, the bad guys might not realize it, and go somewhere else.

**Integration of Fires.** It isn't enough to be satisfied with merely covering an obstacle by fire. In order to achieve your desired obstacle effect, both direct and indirect fires need to attack the enemy in a particular way for each type of obstacle group.

**Obstacle Siting.** This is where the rubber meets the road in terms of getting effective obstacles on the ground. In order for an obstacle group to be effective, it takes effort on the part of the engineer platoon leader, the maneuver company commander, and his FIST. The following represents "a way" to make this happen.

- The maneuver company commander and engineer platoon leader position on the BP.
- The engineer platoon and other vehicles attack as if they were the enemy.
- Plan where to mass fires.
- Put fire control measures on the ground.
- Locate key weapons on the BP (at least one per platoon).
- Site the obstacle group (all obstacles) with flags.

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## General

Here are some additional points that don't fit into any one category. These all relate to trends at the NTC. If you're able to fix these areas, you will do well in the rest.

**Engineer Battlefield Assessment (EBA) /Estimate Process.** Overall, this is probably the biggest demonstrated weakness among engineer company XOs during NTC rotations. Without a solid estimate process, you handicap your ability to effectively plan because you lack a firm grasp on the issues. The EBA need not be a formal product, but it should be a formal process that results in an understanding of the terrain, how the enemy will fight using the terrain, and our own capabilities. A number of units have good checklists in their SOPs, but fail to follow the process, use tools such as Terrabase, or coordinate with the rest of the staff to derive the information in a timely manner. During the mission analysis brief, it's not enough to merely be able to rattle off enemy engineer capabilities. The engineer has got to work with the S2 to show the "so what" of enemy engineer actions on the situational template and then wear the red hat during the wargaming process.

**Use a Decision Support Template (DSM/DST).** It's the only way you can track all the actions and reactions that you have planned or should have planned for a battle. It's the best way to keep your situational obstacle plan on track. Like the shoe company says, "Just Do It."

**Seeing Ourselves.** Have a good system in place to track the status of equipment, preparation tasks, and defensive preparations. Words are OK, but pictures are better, especially for tracking the current status of defensive preparations. Think about using a Commander's Card, which is nothing more than a cartoon showing each BP, the number of holes planned, the number complete, the obstacles planned, and the number complete. Use this to keep the commander updated so he can adjust priorities if you are ahead or behind schedule.

**Engineer PSG.** Use him. He is the most experienced NCO in the platoon, and we can't afford to have him out of the fight. Get him out of the HMMWV and forward into a track. It doesn't take an SFC to handle CASEVAC for a platoon; you've got the 1SG to handle that. Use him to control the tracks if the PL is on the ground. Use the wingman concept like the tankers do. In the defense, it's critical to get him on the ground pushing the troops who are building obstacles.

**NCOs Pass Information.** The engineer company XO cannot afford to spend his time during the fight glued to the radio mike. If he's doing that, he's in the reaction mode. He's the only person in the engineer company who is in position to be able to analyze information, perform predictive analysis, and think clearly without the distraction of bouncing across the ground in the cupola, trying to control formations, and react to threats. The engineer XO needs to think, predict, and make recommendations. This goes for engineer battalion XOs as well. We've got good, experienced NCOs. Use them.

**Reporting.** Do it. The reports you send are your input to decisions made by your boss that impact your unit in the immediate future. So, if you're told to do something that doesn't make sense, check the reports you have been sending higher. Garbage sent up the chain may mean something unpleasant coming back your way. A technique to use is to push information before someone asks for it. That way, you are sending it on your terms, not when you are in the middle of some other stress-producing event. You cannot afford to make the boss ask you for a location or a status. It's too late by then, because that means he doesn't have a clear picture, and if he doesn't have a clear picture, chances are the bad guy's are going to have a good day at your expense.

**MEDEVAC.** Get the TF to commit to helping or providing coverage for the engineers. We don't have the assets, they do.

**Use the Task Force Commander** to get what you need in order to support his task force. Make him your advocate to higher headquarters when it comes to getting the resources you need to make him successful. His voice carries more weight with the staff at the next level.

**Risk Assessment.** Everybody talks about it, and for the most part everybody understands the Force XXI model. However, unit emphasis is usually on accident prevention at the expense of taking a hard look at tactical risks. As engineers, we need to pay particular attention to how and where we execute FASCAM minefields and the risks they represent to the force. Lane planning and dissemination of graphics help.

### Other Notes of Wisdom

I found the following notes on a sheet of paper taped to a desk in the Cobra trailer at the NTC, titled "102 National Training Center Rules to Live By." I didn't reprint all 102, but picked out the ones applica-

ble to the M/CM/S BOS. They are based on common sense and get validated every rotation.

- Time spent on RECON is never wasted.
- Conduct a rehearsal.
- Don't drive toward blinking lights or yellow smoke.
- Resource your most dangerous COA.
- Hope is not a method (nor a battlefield operating system).
- Wire is not an obstacle to mounted movement.
- Don't put obstacles where you want them to come.
- An obstacle not covered by fire is not an obstacle.
- Any action not rehearsed will fail.
- Kill sacks are called kill sacks for a reason.
- Put smoke on, or behind your enemy, not on yourself.
- To waste engineer blade time is the same as wasting lives.
- If the enemy's range is greater than yours, execute a reverse slope defense.
- DSTs work.
- Terrain is neutral. The advantage is gained in how it's used.
- A berm is not always an obstacle.
- At stand-to, check your obstacles.
- Just because you build an EA, doesn't mean they will come.
- The time to cease defensive preparation is when you see the dust cloud on the horizon.

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CPT Wayne Skill is currently the Engineer Trainer on the Armored Task Force/Cavalry Squadron Training Team (Cobras) at the National Training Center, Fort Irwin, Calif. He commanded Company A, 40th Engineer Battalion in direct support of 1/4 Cav during Operation Joint Endeavor in Bosnia. Previously, he served in a variety of staff position in both Europe and CONUS, including deployments to both Honduras and Macedonia. He is a graduate of the Engineer Officers Advanced Course and holds a Bachelors of Architectural Design from the University of Oregon.

# Employing the Bradley Stinger Platoon In Support of Task Force Operations

by Captain Douglas J. Waddingham

How should a Bradley Stinger Fighting Vehicle (BSFV) platoon fight when placed in direct support of task force/squadron operations?

Few commanders understand the new benefits and tactics BSFV platoons bring to support TF operations. For many years, task forces and squadrons fought with self-propelled or towed Vulcans. Because of logistical challenges, these systems were split into sections and attached to individual CO/TMs. To the detriment of proper air defense employment, this simplified the Vulcan section's scheme of maneuver, allowing it to simply integrate into the CO/TMs orders process, rehearsals, casevac plan, etc.

While this plan briefed very well, it presented two major problems. First, both towed and self-propelled Vulcans failed to keep up with the faster Bradleys and tanks. Second, the platoon leader lost his ability to maneuver and emplace his teams at critical points on the battlefield. The combination of these two factors meant that air defense weapon systems were unable to mass combat power at critical times and defeat the enemy air threat. Now, with the advent of the BSFV, TFs can overcome these limitations.

The BSFV is a fully functional IFV with the addition of a two-man Stinger crew. The platoon is also equipped with an M977 for missile/ammunition resupply and an M113 for casevac and logistical missions. The BSFV platoon enables air defense to share the same speed and flexibility as its combined arms brethren. The challenge is educating both commanders and BSFV platoon leaders on the BSFV's capabilities and tactics in order to preclude commanders from employing their BSFVs using the outdated employment tactics of yesterday's Vulcans.

A BSFV platoon is designed to provide AD for the entire task force, not just one or two CO/TMs. The platoon leader must take the commander's air defense priorities and build an air defense design that includes early engagement, weighted coverage, defense in depth, and balance



of fires. To provide this type of protection, the platoon leader must have the flexibility to maneuver all of his fire units. The old habits and SOPs of the Vulcan days set the precedent for S3s and commanders to task-organize the Vulcan sections with CO/TMs. This method of task organization is outdated and must be revised for the BSFV. The platoon leader must retain command and control. He cannot effectively command and control from the inside of a TF TOC. He is issued his own M2A2 to place himself forward on the battlefield, where he can best influence the fight.

He must be integrated into every step of the decision-making process in order to provide the appropriate type employment as the battlefield framework changes and develops. He is a key player and must brief his air defense design to the CO/TM commanders and task force commander. In each phase, everyone must understand the air order of battle and how air defense coverage must maneuver, adjust, and weight coverage to defeat the current threat. He briefs this AD design at the task force rehearsal. The platoon leader must conduct extensive platoon-level operations orders and rehearsals, to include mounted rehearsals. The platoon must understand the task force scheme of maneuver, air defense design, and commander's intent.

With respect to logistical self-sufficiency, the platoon's MTOE is equipped to support the platoon without

**The Bradley Stinger platoon leader can't effectively command from a distant TOC. He needs to be forward on the battlefield to best influence the fight, author argues.**

All photos by Greg Stewart

being 'attached' to a CO/TM. The BSFV platoon sergeant supports his platoon in the same manner a first sergeant supports his unit. He must attend all CSS rehearsals. His resupply truck must be integrated into the trains, and during a battle, the platoon sergeant retains control of his resupply truck to expedite resupply. He coordinates Class III and casevac support during the CSS rehearsal. The platoon also utilizes the task force UMCP.

Under this new configuration, the platoon has the flexibility to mass at critical points on the battlefield. Fire units no longer follow an assigned CO/TM through the battlefield. This does not negate the ability of the commander to place a section with a CO/TM (if METT-T driven), but this is the exception, not the rule. The air order of battle and hostile air threat changes throughout the squadron's battle space, requiring the platoon leader to constantly maneuver and readjust his coverage. The platoon leader is focused on denying the most likely hostile air avenues of approach (AAA). This is where he will earn his money, because with only four firing units available, he is forced to "vote" where to emplace his assets.

The bottom line is that the platoon is now focused on shutting down the air avenues of approach threatening the task force, not AAAs threatening an assigned CO/TM.

In order for the platoon leader to maneuver his BSFV platoon, specific and rehearsed movement criteria are established in order to maximize AD coverage and eliminate fratricide. It is essential that every member of the platoon understands the commander's intent and air order of battle to guarantee fluid execution in the absence of orders and/or the loss of communication. A well rehearsed chain of command is essential.

These tactics have proven themselves lethal at National Training Center Rotations 98-01 and 99-01 and Joint Readiness Training Center Rotations 98-09 and 99-02. At the NTC, BSFV sections traveling 500-1000 meters behind and to the flanks of a CO/TM targeted by air were not only successful in defeating the air threat, they were credited with destroying numerous opposition forces targeting the TF flanks.

Not tying the BSFV sections to the CO/TMs allowed the BSFVs to become extremely survivable. Individual teams were not targeted by the OPFOR's chemical strikes, FASCAM minefields, etc. Situational awareness was achieved with a non-stop flow of information monitored and passed from the TF com-



mand net down to individual teams. Front line traces, chemical strikes, FASCAMs, enemy TRPs, enemy situation, etc., were annotated on squad and team graphics, painting a detailed picture of the battlefield. Teams cross-leveled information via the platoon net and the platoon leader passed critical information back up to the TF.

In summary, a BSFV platoon is a battlefield operating system that must have the freedom to be employed throughout the entire battlefield framework. This requires intense synchronization with the other operating systems, which cannot occur if the BSFV platoon is attached/OPCON to a CO/TM maneuver element.

CPT Douglas J. Waddingham, outgoing commander of ADA Battery, 1/3 ACR, earned a BA in Education from Slippery Rock University. His military education includes ADA Basic Course, Basic Airborne Course, Air and Ground Operations Course, and the ADA Advanced Course. Previous assignments include Stinger platoon leader, Avenger platoon leader, Bradley Stinger Fighting Vehicle platoon leader, executive officer, and brigade liaison officer, Ft. Stewart, Ga.; Officer Basic Course Mentor, Ft. Bliss, Texas.

## From Warrior to Logistician, *continued from Page 25*

learned the important lesson of tracking everything not only by quantity, but lot number as well.

The distances traveled during LOGPAC made it critical that the LOGSTATs from the companies were correct and the packages built at the BSA contained everything listed on them. In the field at home station, the BSA or field trains were never very far from the assembly areas. If a LOGPAC was missing something, I could always go back and get it. It is sad to say, but in my experience (prior to Kuwait) there was never any real emphasis put on logistics. When we went to the field at home station, the focus rested solely on maneuver; we never trained our logistic tail. In Kuwait, however, it was apparent that the logistic tail had the very real probability of "wagging the dog." Our logistic plan was based on reaction instead of anticipation and it was not going to work in our current AO. ISGs who were not used to submitting a complete

and correct LOGSTAT found themselves wanting for essential items. It was no longer possible for me to just turn around and go back to the field trains.

This aspect of the rotation taught me, and a few others I believe, how important a well-thought out logistical plan is. Logistics is based on anticipation and planning. Reacting to events as they arise will not only put undue stress on yourself and your soldiers, but it will also have a disastrous effect on the morale and welfare of the soldiers you are supporting.

These are a few of the lessons learned from my experience as a support platoon leader. I've omitted some and covered others in a perfunctory manner, but it runs the gamut from wide-eyed ignorance to a successful overseas deployment.

Being the support platoon leader is a fantastic job because you do your job every day. Whether in garrison or in the field, every day you are supplying the

food, fuel, and ammunition that allows the battalion to function. Everyone is different and obviously what worked for me may not work for you. However, this piece should offer the novice support platoon leader the opportunity to learn from some of my experiences (and mistakes). Good luck!

CPT John D. Fio Rito is a 1994 graduate of the United States Military Academy. He has served as an M1A1 and an M1A2 tank platoon leader, support platoon leader, tank company executive officer and S3 Air, all in 3-8 Cav at Ft. Hood. He is currently assigned to ODCSOPS, 7th Army, USAR-EUR. CPT Fio Rito is a graduate of the Armor Officer Basic Course and the Engineer Officer Advanced Course.

# Using Flag Signals to Speed Combat Casualty Evacuation

## Marking Technique Tried at the NTC Shows Who Needs Help First

by Major Joseph M. Nolan

There is an alarming trend at the NTC and throughout the Army, the lack of adequate force protection considerations in all operations. This trend is emerging at every CTC and is addressed by numerous tactics, techniques, and procedures. The Army Safety Center and the Center for Army Lessons Learned regularly publish articles about force protection; however, none of these articles discusses a proposed solution to a major cause of "KIAs" at the NTC, which is "soldiers dying of their wounds." The purpose of this article is to propose an interim solution to this problem and to encourage further discussion that might result in development of a permanent solution.

Maintaining task force strength is a difficult task at best during a rotation to the NTC. Normally, we lock in personnel in key positions, assign augmentees for the rotation, and try to send a 100% manned task force. In spite of careful planning, factors like illnesses, emergency leaves, and real world injuries drain away soldier strength before units "enter the box." The result is that most units enter "combat" at approximately 95% strength. Shortly after the first battle, they will have about 60 casualties, and about 48% of these are lost because they died of wounds (DOW).

In the July-August 1998 issue of *ARMOR*, CPT King discusses medic allocation for better casualty evacuation, better planning, and aggressive use of doctrine to reduce DOW casualties. While CPT King's suggestions will certainly reduce these casualties, I believe there is a more basic problem. Units do not have recognition signals for casualty triage that can be seen from a distance. The largest causes of DOW are "time" and "never evacuated



from the battlefield." Clearly, task force commanders cannot afford this level of loss in soldiers' lives and still sustain sufficient combat power.

Units must have and display a recognition signal for casualty triage before help ever arrives at the flashing combat vehicle kill indicator (CVKI). Without such a signal, first sergeants and medics spend valuable time going to vehicles that may or may not have casualties requiring their attention. As a result, soldiers who need immediate attention are not receiving timely care or are "dying" without ever being evacuated from the battlefield. By

**This Armored Medical Treatment Vehicle (AMTV), a variation on the MLRS chassis, is seen as a possible replacement for the M577A2 battalion aid station. This prototype at the NTC participated in one of the Advanced Warfighting Experiments.**

**The AMTV, like the prototype C2V vehicle that it resembles, shares many common parts with the Bradley Fighting Vehicle and the Multiple Launch Rocket System carrier.**

**Casualty evacuation times to include NBC are:**

<b>PRECEDENCE</b>	<b>Buddy Aid</b>	<b>Combat Lifesaver</b>	<b>Medic (91B)</b>	<b>BAS to FSB Medical Company</b>
Urgent	1 hour	1.5 hours	2 hours	2 hours
Priority	2 hours	3 hours	4 hours	4 hours
Routine	6 hours	8 hours	12 hours	12 hours

the end of a rotation, most units have improved their average DOW rate to 35%, an improvement from 48%. But, losing 18 soldiers after every battle quickly drains away combat power. Even the most lethal, technologically superior vehicle is useless without a crew.

The high rate of DOWs is not a medical problem but a leader problem. In today's Army, force protection is of paramount importance. There needs to be a solution to the DOW problem. Though there is extensive analysis from the Center for Army Lessons Learned and numerous CTC publications address force protection, no standard system has been proposed to identify, treat, and evacuate wounded soldiers from the battlefield in a timely, efficient, or effective manner.

*“The vehicle commanders do not have a method to visually tell the first sergeant or medics who needs attention first. While some units have developed recognition signals, most units do not have a system to prioritize which vehicle needs medical evacuation...”*

Casualty evacuation times at the National Training Center are listed in the table above. “Died of Wounds” occurs when one of four things takes place: improper medical treatment, improper transportation methods are used, evacuation times are not met, or the casualty arrives at the treatment facility without a MILES casualty card or DD Form 1380. As discussed earlier, the major reason for DOWs is not meeting the casualty evacuation time.

One clear reason time standards are not met is because leaders fail to establish a system to properly identify and treat

casualties. To illustrate this point, consider this vignette.

*“Stetson Six, this is Blue One. I am observing artillery at NK142356, time 1800, continuing mission, over.” “Stetson Six, this is Green One, Runner 1, 3 BMPs and 1 T80 vicinity NK177300, over.” “Green One, this is Stetson Six, engage the T80 and if possible fix the BMPs, break, White One action left. Out.” “Stetson Five contact Seven and get some help to Green.” “This is Seven, monitored and am moving to Green’s location, Out.”*

You are Stetson Seven (1SG). Which of Green’s tanks do you go to first? Moving in desert formation, there is 250 meters between each vehicle in the platoon. Three vehicle CVKI lights are flashing and more are likely to be flashing before you arrive. You need to know where the urgent, priority, and routine casualties are, and the clock is running according to the ROE. All you have to guide you to the vehicles with wounded soldiers is the standard bumper number marking system in 2-inch block letters. On top of all that, it will be dark in 30 minutes.

Unfortunately, medics going to the wrong vehicles, or getting to casualties after the “clock” has expired, is what happens during many fights at the NTC. This will probably happen to our soldiers in combat because leaders failed to provide a standard marking and identification system for casualty triage. Subordinate leaders have no technical means to visually tell combat service support personnel where they are most critically needed on the battlefield. The vehicle commanders do not have a method to visually tell the first sergeant or medics who needs attention first. While some units have developed recognition signals, most units do not have a system to prioritize which vehicle needs medical evacuation, during day or night operations.

Today the Army relies on more and more technology to detect the enemy, mass direct and indirect fires, maintain situational awareness, and deliver supplies. Yet with all the investments in technology, we have not developed an accurate, Army-wide system to triage casualties at a distance. Until the Army

develops a standard marking system, here is a proposal. It is cost-effective, visually recognizable from a distance, and works day or night. It is the standard flag set (NSN 8345-00-357-0223) recommended for daylight operations, with a minor modification. Take a caliber .50 link and place it on the antenna. Insert a flag for the highest level casualty on board — red for urgent, yellow for priority, and green for routine. At night, the same caliber .50 link will hold a chem-light, using the same colors. (This will work provided the chem-lights are not already used as a marking system.) With these visual signals, the 1SG and the medics will know, as they approach, which vehicles contain urgent, priority, and routine casualties. Clearly, not every vehicle will contain urgent casualties. These signals will greatly reduce the “time” medics spend going vehicle to vehicle.

Commanders, from the Joint Task Force (JTF) to the troop/company/battery, are entrusted with their most valuable resource — soldiers. Losing soldiers by failing to adequately plan and rehearse casualty evacuation is unforgivable. A mural in Skidgel Hall states, “Let no man’s soul cry out, had I been better trained!” Soldiers must be trained to survive on today and tomorrow’s battlefield and Army systems must work to ensure their survival. Let us push for a system that will save more soldiers from those three dreaded words, DIED OF WOUNDS, and keep our task force strength at the highest possible level.

MAJ Joseph Nolan is the squadron XO of 2nd Squadron, 4th Cavalry Brigade. He has served as an Assistant Professor of Military Science at Johns Hopkins University; troop commander, 3rd Armored Cavalry Regiment; S1 for 5th Squadron, 9th Cavalry; and troop XO for HHC, 25th ID (L). He is a graduate of the Armor Officer Basic and Advanced Courses, and the Battalion Adjutant Course. He earned his masters at Johns Hopkins University and his bachelors at the University of Kentucky.

# The Joint Readiness Training Center And Light/Heavy Integration: Defensive Operations

by First Sergeant Paul E. Thompson Jr.

*The first article in this series appeared as the cover story in the July-August, 1998 issue of ARMOR ("Light/Heavy Integration at the JRTC"). The series was written to help armor platoon leaders or platoon sergeants facing light/heavy situations, either at the Joint Readiness Training Center (JRTC) or in an actual deployment.*

*The first article gave an overview of the JRTC battlefield and "experience," along with some tips to make training successful. Future articles will cover offensive operations, planning considerations, and the capabilities and limitations of light infantry and armor. —Ed.*

## Planning Phase

Tank platoons participate in the company defense by performing one or more of the following operations:

- Participating in the counterreconnaissance/security zone effort
- Defending a BP
- Displacing
- Counterattacking
- Acting as a reserve

When defending a battle position, the platoon may be asked to destroy, block, or canalize enemy forces. They may be asked to retain terrain, or displace to occupy subsequent battle positions. In the counterattack or reserve mission, the tank platoon conducts tactical movement to occupy BPs or attack-by-fire positions.

The platoon also executes hasty attacks, assaults, or other actions based on the commander's intent. Tank platoons should be retained under the tank platoon leader's control and made an integral part of the company's defense.

Reconnaissance and efficient time management during the planning phase are keys to a successful, coordinated company defense. Planning will continue into

the preparation phase as the company commander gains more information.

It is critical that the infantry company commander identifies where he wants to kill the enemy. The commander must make sure all the platoon leaders are clear in this regard. At JRTC, there is little open ground, aside from the drop zones. OPFOR armor will avoid open areas at all costs. JRTC is close, wooded terrain that is broken up by dense underbrush in wet, low-lying areas. This terrain provides perfect avenues of approach for enemy dismounts. The streams that are characteristic of Fort Polk (and other less than ideal examples of "tank country" in the world) also have stream crossings for various types of vehicular movement. At times, the place where the infantry commander wants to kill the enemy will only have a kill zone extending out to 100 or 200 meters. Planning for employment of the tank platoon should include potential displacement routes, additional positions, and counterattack contingencies.

During the commander's reconnaissance, the tank platoon leader must identify, record, and mark the tentative TRPs, decision points, fighting positions, and routes he thinks the platoon will use in executing the defense. It is important that the platoon leader bring sufficient day and night marking materials (i.e., engineer stakes, tape, chem lights, or thermal paper). The tank platoon leader should record exact eight-digit coordinates of each position in the platoon. This will allow him to relay this information to the commander. The tank platoon leader should also know the location of all the other units in the company. This will aid him if he gets called to help one of these other units, will reduce the chances of fratricide, and will allow him to plan and rehearse routes to and from those positions.

## Intelligence

Identification of mounted **and** dismounted avenues of approach and prob-

able enemy formations/support-by-fire positions enables the commander to best position the company's platoons. This will include analysis of available fields of fire and observation. Platoon leaders can then determine positions (to include individual tank positions in the tank platoon) which best allow their platoon to mass fire into the company engagement area.

Subordinate platoons should complete reconnaissance by conducting initial coordination between adjacent platoons. The establishment of mutual support is vital. Mutual support allows the coverage of dead space. It also promotes infantry's understanding of the positioning of the tank platoon in addition to subsequent movement plans during the operation.

An additional consideration is the need to analyze terrain to best utilize the capabilities of the infantry and tanks in the defense.

## C2

The primary concern in selecting fighting positions for the tank platoon is the platoon's ability to concentrate and mass lethal fires into its engagement area(s). The tank is the commander's fastest tactical asset and the best killer of enemy armor.

Dispersing positions laterally and in depth helps protect the company from enemy observation and fires. Establish company and platoon positions in depth and provide sufficient maneuver space in the tank platoons' positions to establish in-depth placement of tanks. Tanks will be placed 150-200 meters apart based on METT-T. Dispersal of tank positions reduces the tanks' vulnerability to enemy fires; however, it also increases the demands for local security in the area between the tanks. The commander should consider co-locating infantry with armor to assist in providing local security if he plans to have such wide dispersion in restrictive terrain.

Whenever possible, primary and alternate fighting positions should allow engagement of the enemy in the flank and from two directions. This provides the defender with a larger and more vulnerable target and, at the same time, confuses the enemy as to the actual location of the defense.

The commander should plan disengagement criteria and develop a resulting disengagement plan. The plan should identify a break point and provide overwatch between platoons. The tank platoon must prepare to provide internal overmatch if it is not provided by another platoon. The plan should designate disengagement criteria; routes to alternate, supplementary, and subsequent fighting positions and BPs; direct fire suppression; cover, concealment, and rehearsals; indirect fire and smoke; and obstacle integration.

### Fire Support

Platoon leaders can provide the FIST with nominations for additional targets in the battalion fire support plan. Platoon leaders should plan or request artillery targets on/at potential avenues of approach, choke points along the avenues of approach, possible enemy support-by-fire positions, obstacles, and dead space within the platoon battle space. When approved, each and every target will be registered with the firing data recorded in the firing element's FDC according to the availability of ammunition to ensure accurate and timely fires. Each target in the armor platoon's area should have a decision point overwatched by at least a tank crew or section. The decision point triggers the call for fire on a target to ensure the impact of rounds coincides with the enemy's arrival at the area targeted. The tank platoon's laser rangefinders or target designation capabilities (on the M1A2) enhance its effectiveness in triggering artillery fires using decision points. Consider the use of DPICM or FASCAM in an area where an enemy armor advance is expected.

### Mobility and Survivability

The company's survivability effort is in the BPs or strongpoints to protect vehicles, weapons systems, and dismounted elements. The defensive effectiveness and survivability of tanks is greatly improved by the preparation of hull or turret defilade firing positions. Two-tier fighting positions are the best. The company may consider using engineer assets to dig in ammunition prestocks at platoon BPs or in individual tank fighting positions.

The commander must prioritize the survivability effort.

In countermobility operations, the commander's intent should guide the emplacement of obstacles based on the following:

- Reinforcement of the scheme of maneuver and direct fire plan.
- Integration with existing obstacles.
- Employment in depth and positioning where they will surprise enemy forces.
- Coverage by direct and indirect fires at all times.

If the commander does not specify intent for obstacles, the armor platoon leader should plan hasty or deliberately employed obstacles to meet these purposes:

- Block the final assault of an enemy force in front of the platoon.
- Block the seams between tanks.
- Disrupt enemy forces that are assaulting on the flanks of the platoon.
- Shape the engagement area by forcing the enemy elements to turn, slow down, stop, or flank themselves at known ranges in the engagement area.

When supervising the digging effort, dig down, not up. Berms attract attention. Reduce spoil so that it blends into existing terrain. Tie down all antennas and cover all reflective surfaces. Make sure each firing position has a covered and concealed route to the next firing position.

### Combat Service Support

The platoon sergeant should ensure that basic loads are fully restocked. Consider pre-stocking and pre-positioning ammunition on the battlefield. The vehicles of the heavy team are the only ones that the tank platoon will be able to rely on for movement of this Class V should the need arise. Know locations of the forward and main aid stations. Plan and rehearse the CASEVAC plan. The combat capability of the tank platoon is directly related to logistics. Plan for tank recovery and maintenance.

### Preparation Phase

Preparation of the defense begins after the company commander has issued his order and ends at the "defend not later than" time specified in his OPORD. The infantry will put out a priority of work

and the armor platoon leader should issue his in accordance with the commander's wishes. Remember, there's a better than average chance that this commander has never worked with a heavy team and the armor platoon leader must be ready to offer suggestions as the resident "subject matter expert."

### Intelligence

OPSEC is critical during defensive operations. Effective OPSEC procedures will limit enemy reconnaissance efforts. Consider recommending to the commander the establishment of a screen forward to deny the enemy information through aggressive counterreconnaissance. The counterrecon force must have disengagement criteria, routes back out of the security zone, and a coordination made as to who will close the gap left for the counterrecon force to get back into friendly lines, along with recognition signals. The armor team, with remote sensors and the integration of infantry on dismounted avenues of approach, can give the task force a decided advantage.

### C2

The tank platoon can occupy BPs by hasty or deliberate occupation. Hasty occupation can occur during counterattack missions, after disengagement and movement to subsequent or supplementary BPs, or in response to FRAGOs reflecting a change of mission. Deliberate occupation can occur when the enemy is not expected or has not been located within direct fire range or a friendly element is forward of the BP with the mission of providing security for the occupying platoons. Begin from the enemy's perspective in the engagement area, with the reconnaissance party looking toward the BP. Driving the engagement area from the enemy point of view is very useful in confirming that the selected positions are tactically advantageous. Driving the engagement area also allows the killers in the BP to identify where and when the enemy will be engaged and destroyed in the engagement area.

Reconnaissance of the engagement area is complete when all leaders are certain as to where the commander wants to kill the enemy. The platoon leaders should then back brief the commander on the following issues: trigger lines, engagement criteria, fire patterns, disengagement criteria and plan, routes to supplementary or subsequent BPs, marking of primary and alternate fighting positions, individual tank positions, platoon sector or engagement areas, TRPs, OPs (if used), obsta-

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cles (if used), indirect fire targets including FPFs (if allocated), and dead space.

The commander must focus special attention on the addition of tanks to his task organization. The tank platoon leader coordinates with adjacent platoons and other company elements and ensures sectors of fire overlap and that his CS and CSS requirements are fulfilled.

Rehearsals are critical to ensure every soldier understands the plan. Specific areas include: passage of the counterreconnaissance force or other security force, closure of the lane, movement from hide positions to the BP, use of fire commands, triggers to initiate fires, preparation and transmission of critical reports using FM and digital systems, execution of the fire support plan, assessment of the effects of enemy weapon systems, displacement to alternate, supplementary, or successive battle positions, and the evacuation of casualties. Rehearsals begin as soon as the company issues its warning order. The company XO can move a series of vehicles through the engagement area to depict an enemy force while the commander and platoon leaders rehearse the battle from the company/platoon BPs. You can never do too much coordination and rehearsal.

Operations in restrictive terrain offer special challenges in the defense. A thorough reconnaissance is required to identify all mounted and dismounted avenues of approach. Special care is required to coordinate with adjacent units to ensure the maximum coverage of all approaches.

### Fire Support

All platoon leaders should confirm locations of artillery and mortar targets, adjust them if necessary, and mark them for daylight and limited visibility recognition. Decision points that will be used to request artillery on moving targets must be marked. Decision points are identified based on the enemy's doctrinal rate of movement, the terrain, the time of flight of artillery or mortar rounds, and the priority of the target.

### Mobility and Survivability

Engineer assets are key during defensive preparations and will be working except for maintenance checks and services. A member of the tank platoon leadership must physically link up with the engineers at the time directed in the company OPORD. They should physically escort them to each firing position, provide local security on site, supervise the digging of the position, and proof the position using

one of the platoon's vehicles. A logical choice to carry out this task is the senior tank commander because the PLD and PSG will be occupied handling other aspects of the defensive preparations. An escort should always remain with the engineer assets during their time with the company. Inform the commander of their progress and coordinate for movement between platoons. Your unit then escorts the engineer elements over to another company when all of your work is completed. The key factor is that the engineers must never be by themselves. The engineers are far too valuable and vulnerable an asset and every bit of their time must be monitored and productive.

Make sure firing positions are in the best place to maximize stand-off distance and/or the platoon's ability to mass fires from survivable positions. Make sure that firing positions are complementary, taking advantage of knowing the exact location of the start point, end point, and turns of any obstacles, and locating pre-plotted artillery targets on the enemy side of obstacles to ensure accurate calls for fire. This will help the platoon increase the number of kills it achieves in the defense. Delay of the enemy will also allow other assets of the brigade to be brought to bear on them, such as TACAIR or attack helicopters.

### Execution Phase

The tank platoon will be located in good hide positions behind its primary battle and/or fighting positions. While in the hide position, the platoon should employ all applicable OPSEC measures to limit aerial, thermal, electronic, and visual detection. It should deploy OPs to provide surveillance of its sectors of fire and early warning. It should be at the REDCON status prescribed in the OPORD. The hide position will not be located on or near obvious artillery targets.

During the defense, all leaders in the reporting process must avoid sending redundant or inflated descriptions of the situation. Report what you see. Do not analyze over the air. Leave that to the commanders and the intelligence types.

In a direct firefight with enemy armor, a tank platoon can expend main gun ammunition quickly. Planning and care must be taken to transfer ammunition and retrieve pre-stocks while continuing to keep fire on the enemy.

Displacement criteria are established in the OPORD. Time permitting, pre-stocks will be retrieved or destroyed to prevent use by the enemy. Displacement criteria

are based on a specific type and number of enemy vehicles reaching a specified location (sometimes called the break point) to trigger displacement. The platoon may have to cover its own displacement in bounds to subsequent positions.

The tank platoon is capable of conducting limited counterattacks. It can complete the destruction of the enemy forces in the company's assigned area, regain key terrain, relieve pressure on an engaged rifle platoon, or initiate offensive operations.

Some counterattack considerations follow:

- Counterattack by fire: Maximize weapon standoff and/or cover.
- Counterattack by fire and movement: Close with and destroy the enemy.

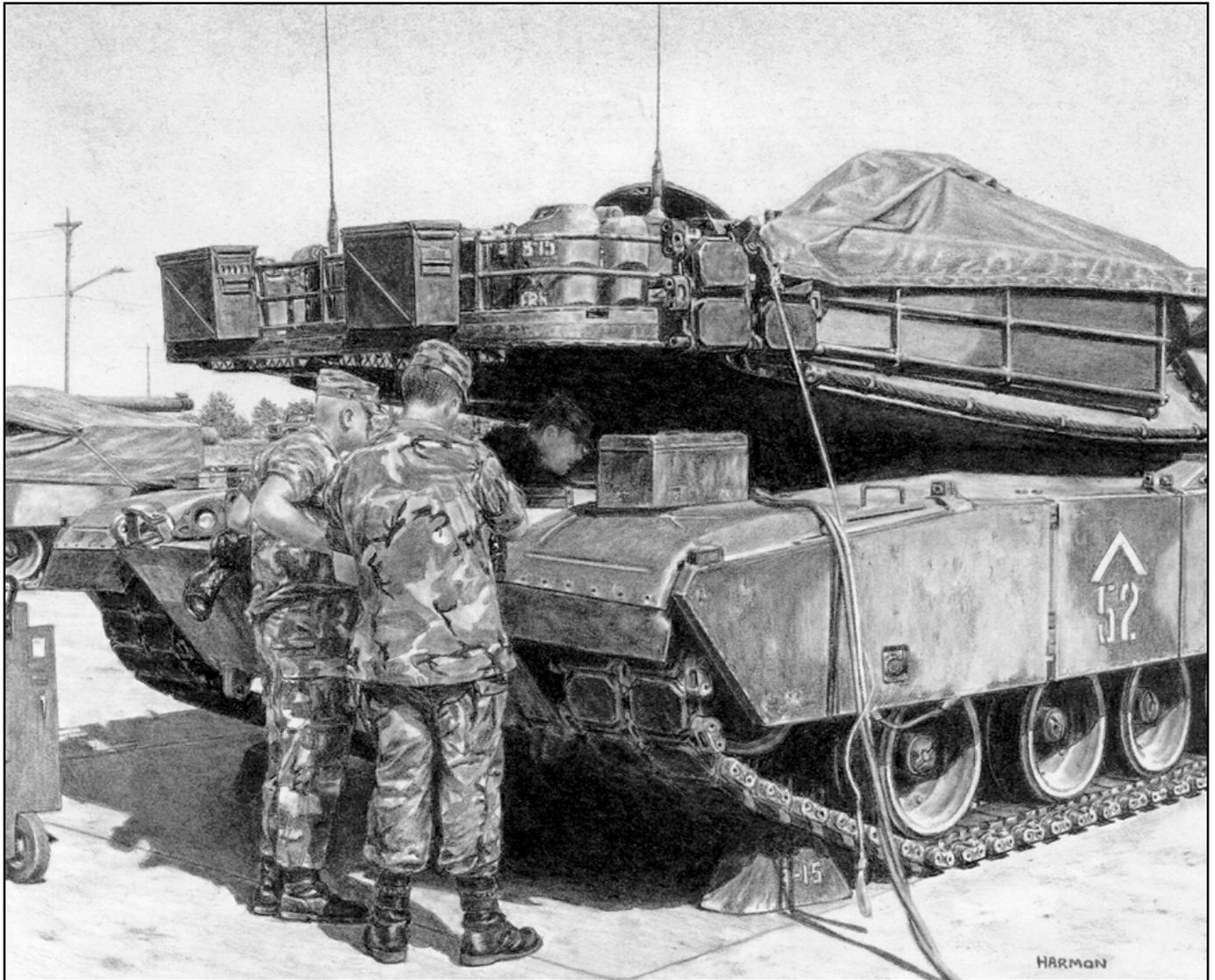
Some of the preceding information is covered in the draft copy of "Tactics, Techniques, and Procedures for Light Infantry Company Employment of Tank Platoons in Restrictive Terrain." It may or may not be the actual beginning of doctrine for Light/Heavy Integration in the U.S. Army. This information and the additional remarks are to give Armor leaders a starting point for reference. It is the Joint Readiness Training Center's hope that the information contained in this series of articles will be a real help to Armor leaders in the immediate future. Finally, there are again undoubtedly plenty of old tankers and cavalymen out there that could teach us more. If you have any comments please forward them to:

Operations Group-Bde C2  
Attn: Armor/Mech Team  
7154 Alabama Ave.  
Fort Polk, LA 71459-5313

Or contact us e-mail [harzbeprd@polk-emh2.army.mil](mailto:harzbeprd@polk-emh2.army.mil)

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First Sergeant Paul E. Thompson Jr. enlisted in the Army in 1976 as an Indirect Fire Infantryman. His assignments include 2-325 AIR and 1-320 FA in the 82nd Airborne Division; 4-333 FA, 428th FA Brigade; 2-64 Armor, 3rd Infantry Division; Cincinnati Recruiting Battalion, Recruiting Command; 4-67 Armor, 1st Armored Division; and Operations Group, Joint Readiness Training Center. He is currently assigned as a first sergeant in E Co., 1-81 Armor at Fort Knox, Ky.



## New Ideas for Armor Company Maintenance Plans

by Captain Paul J. Taylor

In today's Army, maintenance has become even more vital in sustaining readiness than ever before. Advancing technology such as the M1A2 increases our lethality on the battlefield but at the same time makes our equipment more susceptible to maintenance problems. But just at the time when maintenance is becoming more critical, many units are struggling with issues such as shrinking budgets and understrength maintenance platoons that make a maintenance program even more difficult.

How can a company commander manage the competing demands of budget, time, and personnel, yet still run an effective maintenance program?

The answer is to not bite off more than each company can chew, so to speak. And although this may seem obvious to many of you, there are many units out in the force attempting to do too much with too little (people, money, time). They ultimately pay the price when it is time to roll out the gate.

A good company maintenance plan consists of two things: accomplishment of scheduled maintenance checks and services, and soldier training on maintenance-related tasks. The first element ensures that all equipment, including stand-alone equipment such as radios and weapons, receive the Preventive Maintenance Checks and Services (PMCS) required by the -10/-20 manuals. These include crew-level inspections, periodic services, and oil analysis (AOAP) sampling. The second element ensures that all

**Table 1 - Sample Maintenance Training Schedule**

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Week 1</b>	1st Plt- M/A	<b>COMPANY TRAINING</b>	2nd Plt- W	A.M. - SGT's Time P.M. - Family Time	BN Training Holiday
<b>Week 2</b>	1st Plt- AUX	HQ Plt - M/A 3rd Plt - M/A	<b>COMPANY TRAINING</b>		2nd Plt- AUX
<b>Week 3</b>	<b>COMPANY TRAINING</b>	2nd Plt - M/A	3rd Plt - W HQ Plt - W		3rd Plt- AUX HQ Plt- AUX
<b>Week 4</b>	1st Plt - S		RED CYCLE TASKINGS		

M - Monthly PMCS    W - Weekly PMCS    A - AOAP sample    AUX - Weapons, NVGs    S - Services

soldiers are knowledgeable enough on the associated equipment to perform quality maintenance checks.

Planning is critical to any maintenance program. Field training is conducted according to the standards of 25-101, *Battle Focused Training*; there is no reason why maintenance does not deserve the same attention. The commander must consider several factors when planning maintenance periods. First, the old motor stables concept, where the entire company marches to the motor pool weekly and performs maintenance, is an impossibility for many units today. Let's face it: in today's world of red cycle taskings, training holidays, Sergeant's Time, Family Time, and training dictated by higher (to name only a few), it may seem hard to find time to breathe, let alone perform quality maintenance. However, just because the entire company cannot come to the motor pool at one time does not mean that a company cannot have an effective maintenance program. Table 1 outlines a sample monthly maintenance training schedule that works around training, duty cycle, and services.

You will notice in Table 1 that instead of finding one set day for company "command maintenance," the commander plans platoon maintenance periods. This has several advantages. First, the company and platoons still have time to execute other training during the week. It also lightens the work load of the maintenance team, which more than likely is understrength due to critical 63/45-series MOS shortages. Last, it more evenly distributes the work load of the ULLS/PLL clerk, who normally finds it impossible to update an entire company

**A good company maintenance plan ensures that quality maintenance continues when units go to the field. In the photo at right, an M1A2 crew cleans their air filters during an NTC Rotation.**

Photo: Greg Stewart

set of 5988-Es in a timely manner. Of course, this system is harder for the company commander and XO to control, but platoon leaders and platoon sergeants are more than capable of executing this level of training. If they are not, then it is an excellent training tool for the company commander to teach accountability and maintenance concepts to his platoon leadership.

Second, the company commander must ensure that the maintenance platoon can support his plan. While the cavalry troop is a wonderful thing, because the commander actually owns his mechanics, the regular armor community does not have this luxury. The maintenance team is often torn between supporting its assigned company and BMO/HHC commitments. The only way to defeat this problem is to plan maintenance training with the maintenance team chief so that he can deconflict it with his maintenance platoon training schedule. The maintenance team chief is an integral player and should be a regular attendee at company training meetings. The executive officer should provide that critical link between

the maintenance platoon (BMO) and the company to ensure that the battalion's assets adequately support the company maintenance team and that the battalion commander's maintenance priorities are met.

The bottom line is that maintenance training, just like other training, should be planned and resourced at least six weeks in advance. We do this for other training events and should give maintenance training equal priority. Also, by decentralizing maintenance into smaller elements, such as platoons, the company commander makes scheduling easier and lightens the work load of his maintenance team and ULLS/PLL clerk.

Actually finding the time to conduct maintenance training is only half the battle of effective maintenance. The other portion is training subordinates to maintain properly. Focused maintenance training is vital to sustaining the force. A company will not conduct quality maintenance periods if its soldiers are not proficient at performing PMCS, diagnostic checks, and other maintenance-related procedures. All soldiers should receive basic PMCS and administrative skills from the unit's driver training program. But special emphasis is required to teach soldiers the specifics of technical areas such as air induction, mine plows, or the fire control system, that the -10 manual may not cover in sufficient detail. A matrix like Table 2 can help commanders structure maintenance training. Training



should be executed at platoon level by knowledgeable NCOs, unless time does not permit or there is no one qualified to teach the subject. The XO can coordinate for the maintenance team chief or other specialized personnel, such as the battalion maintenance technician, to teach specific subjects if there is no one qualified in the company. Each class should be immediately followed by hands-on application supervised by the platoon leadership. Platoons can be left to schedule these classes independently, ensuring that they meet the suspense listed, and completion can be tracked by the XO (or reported during company training meetings). Monthly intervals are listed here, but depending on the company training schedule and level of maintenance proficiency, the interval could change accordingly. The matrix can be easily focused to support other training events as well. For instance, using Table 2 as an example, the AACs, fire control checks, and prep-to-fire checks might be part of preparation for gunnery in February. Companies can very easily execute these classes in a field environment as well, instead of falling into the all too common trap of performing quality maintenance only in garrison.

In conclusion, it may seem that the result of today's increased OPTEMPO, decreased resources, and many competing demands for an armor company's time is that maintenance suffers. This article discusses several ideas that differ from the traditionally accepted methods of company command maintenance but have proven successful in maintaining equipment and increasing readiness rates. The success of plans like Table 1 depend on the commander establishing maintenance as a priority in his company and scheduling the time for subordinates to conduct effective maintenance. The ability of subordinates to operate somewhat independently is also a crucial factor. Lastly, the success of any maintenance plan depends on the level of proficiency of every soldier in performing Preventive Checks and Services. If a company commander sends his soldiers to the

motor pool for an entire day to check MIAI air induction systems, but does not accurately define the standards for checking them, he has only wasted his most precious resource — time. A maintenance skill training plan like Table 2 can address any weaknesses in the company, allowing them to make effective use of what little maintenance time can be “carved” out of an already hectic schedule. Hopefully, by integrating concepts similar to those discussed above, company commanders can conduct good, quality maintenance and not pause at the LD, waiting for a tank repair.

*Author's Note:* This article is actually an adaptation of the battalion maintenance plan planned and executed by 1-13 AR at

Fort Riley in 1997. The author is indebted to LTC Rick Jung, CW2 (Ret.) Roger Behrens, and MSG Steve Murphy for their assistance in developing this program.

CPT Paul Taylor was commissioned in Armor in 1993 from the U.S. Military Academy. He served as a tank platoon leader, company XO, and battalion maintenance officer for 3-37 Armor (later 1-13 Armor) at Ft. Riley, Kansas. He later commanded E/1-81 Armor and HHC/1-81 Armor at Ft. Knox, Ky. He is currently assigned as the S-3 for 3rd Army (ARCENT) forward headquarters in Doha, Qatar.

	Jan	Feb	Mar	Apr	May
<b>TANKS</b>	AACs Fire control system Prep-to-fire checks	Brake system Steering system	Suspension Walk track	Air induction system	NBC system Mineplow
<b>LIGHT TRACKS</b>	Heaters Cooling system	Brake system Steering system	Suspension Walk track	Air intake system Drive lines, prop shafts, U-joints	Check fuel lines
<b>HEAVY WHEELS</b>	Heaters Cooling system	Brake system Steering system	Suspension Tires	Air intake system Drive lines, prop shafts, U-joints	Check seat belts Check lights horn
<b>LIGHT WHEELS</b>	Heaters Cooling system	Brake system Steering system	Suspension Tires	Air intake system Drive lines, prop shafts, U-joints	Check seat belts Check lights horn
<b>SUSPENSE</b>	COB 13 Jan	COB 28 Feb	COB 28 Mar	COB 18 Apr	COB 30 May
	Jun	Jul	Aug	Sep	
<b>TANKS</b>	Radios and mounts Intercom	Batteries Charging System	C/S gun tube C/S breech	Walk track Suspension	
<b>LIGHT TRACKS</b>	Radios and mounts Intercom	Batteries Charging system	Check weapon mounts	Walk track Suspension	
<b>HEAVY WHEELS</b>	Fuel/Water separator Drive belts	Batteries Charging system	Hose reels Static reels	Crane mechanisms	
<b>LIGHT WHEELS</b>	Radios and mounts Drive belts	Batteries Charging system	Check ring mounts Check troop seats	Gen/Starter brackets Winches	
<b>SUSPENSE</b>	COB 27 Jun	COB 20 Jul	COB 29 Aug	COB 24 Sep	

**Table 2 - Sample Maintenance Focused Training Matrix**

# Fire Support: *Killing System or Battlefield Shaper?*

by Robert Doughty



If artillery is given credit for a large amount of battle damage, but doesn't set the conditions for successful maneuver, was this fire support successful?

Often, as I've watched a maneuver after-action review or fire support AAR, the Fire Support Officer (FSO) was credited with a "job well done" if the artillery killed many enemy combat systems, and criticism if it didn't. There didn't seem to be much consideration given to whether the fire supporter met the commander's intent or supported the commander's scheme of maneuver. As long as there are many enemy vehicles destroyed, fire support did well, according to this judgment.

But in reality, even if the indirect fires did not cause a large amount of battle damage, but set the conditions for maneuver to be successful, then the fire support was used correctly and should be remembered in the back-slapping that follows a successful mission.

Even "success" can be a murky concept: If the commander wanted his fire support (FS) to destroy a motorized rifle battalion (MRB), and the indirect does indeed accomplish this task, but with the majority of kills coming from the third MRB when the battle is all but over, did the fire support do its job? My contention is that if the OPFOR was able to get through a maneuver commander's defenses and decimate his unit with his first echelon because the artillery was not focused at the right place at the right time, then regardless if the number of enemy vehicles killed, we do not have success.

If the maneuver commander is unable to get enough combat power on the objective to finish his mission because the artillery is counter-firing, rather than suppressing and obscuring the objective, the fire support did not do its job. I have often seen TF commanders, even after los-

ing, lean over and give his FSO a pat on the back merely based on the battle damage assessment (BDA).

When I was going through advanced individual training (AIT) back in April 1976, I was told that the best anti-tank weapon was another tank. I know there are other systems that will also do well against armor. The point was that artillery may destroy some combat vehicles but its primary mission was to assist in the battle, not win it.

The task force commander does have a tool for giving the FSO better guidance, called Essential Fire Support Tasks (EFSTs), but if not used correctly, they still will not make for a successful mission. In most EFSTs, I see the same statements, depending on the type of battle being fought. "Destroy the Regimental Artillery Group (RAG)," or "Destroy one MRB or motorized rifle platoon (MRP)," or "Fire artillery FASCAM (family of scatterable mines) to separate the Forward Detachment and the Main Body," or "At 0600, Fire SOSR."

These EFSTs will not assist the maneuver commander in attaining success unless they are linked with what the maneuver forces or the engineers are doing at the time. Firing counter-fire while the maneuver forces or engineers are doing a breach, or when the enemy has moved up to breach our obstacles, may not be in the best interest of success. I'm not saying to ignore the counter-fire fight at this time, but if the maneuver commander has told the FSO he wants a critical friendly zone (CFZ) over the point of penetration, that does not mean a CFZ that is 1 kilometer by 1 kilometer. The artillery can quickly become so overwhelmed with Priority One acquisitions that they cannot effectively engage any. Or they try to engage all acquisitions with a lower volley count,

having little or no effect on OPFOR artillery.

If the CFZ had been made small enough to cover just the breach site, just those incoming artillery missions that affect that very critical event in the battle will be answered. This would have freed up assets that would have better been used to shoot smoke and suppression missions. This type of scenario may not destroy a MRP but it will get enough combat power on the objective so that the maneuver force can take it down. If the fire support element (FSE) had planned numerous radar zones, they may destroy the RAG, but at what cost? If, after destroying the RAG, they concentrate on the objective, they may even destroy a MRP or more, but did the maneuver commander lose too much combat power going through the breach because we focused on the enemy artillery, whether or not it was firing on our forces at the breach site? The EFSTs might have been met; we may have checked the block and credited artillery in the BDA for that night's AAR, but did we shape the battlefield for the maneuver element's success?

Another problem concerns the firing of the artillery-delivered family of scatterable mines (FASCAM). As Col. Anderson noted in his September 1998 *Field Artillery Journal* article, units at Combat Training Centers (CTCs) rely heavily on FASCAM, but these minefields are seldom adequately covered with direct or indirect fire systems. He further states that, "Commanders and FSOs tend not to understand the tradeoffs they incur firing this resource-intensive munition."

An EFST that has the artillery firing a FASCAM to separate the FD (forward detachment) and MB (main body) is an example of that. Artillery-delivered FASCAM is not a blocking obstacle or a turn-

ing obstacle by itself. If we fire the FASCAM too deep to be covered by direct fire systems, or there are no eyes on it that can call indirect fires, then the best it can do is delay. An enemy with a good breach drill will be through it in 10 minutes. If the maneuver commander had wanted to destroy the FD with direct fire systems and only needed an extra 10 minutes to do it, perhaps FASCAM would be useful, but in most cases, this would not be true. The maneuver commander might not have realized how long it takes to emplace the FASCAM, during which he will not be able to mass indirect fires. If the artillery-delivered FASCAM had been used to reseed an obstacle that was already being overwatched and covered by direct fire, it may be more useful, but if the maneuver commander is not willing to give up his ability to mass indirect fires, then perhaps it shouldn't be fired at all.

Just because brigade or division has given the brigade or task force commander release to use FASCAM doesn't mean that it has to be used. There may be a few vehicles destroyed in the FASCAM and maybe even one or two vehicles killed going in or coming out of the minefield, but this is another case where the fire supporter could accomplish an EFST and not shape the battlefield or set conditions for success.

When the maneuver commander is sitting in an AAR discovering how well he did, before offering his congratulations or criticism to his FSO, he should look at the whole battle. Just because the artillery is given credit for a large amount of BDA, and if it didn't set the conditions for a maneuver success, then his fire support was not successful. On the flip side, even if the indirect fire is not credited with a large amount of BDA, but the conditions were set for maneuver to be

successful in their battle, then the fire support was used correctly and should be remembered in the back-slapping that follows a successful mission.

There will be those fire supporters who will complain that because CTCs cannot replicate the terror and proper suppressive effects that indirect fires cause, they are hampered in shaping the battlefield; however, if we can learn to do the job with the tools we have, we will be even more effective when fighting a real enemy shooting real bullets.

Robert Doughty is currently a Fire Support Maneuver Analyst at CMTC, Hohenfels, Germany. Previously, he was a Brigade Maneuver Analyst and NCOIC, Fire Support TAF at the CMTC, Hohenfels. Additionally, he has served as Battalion Fire Direction Chief, 2/78 FA, Bamberg.

## The First Lieutenants to Korea Program

by Captain Ron MacKay, Adjutant, 1st "Iron" Brigade, 2d Infantry Division

The purpose of this article is to draw attention to the First Lieutenants to Korea Program, which offers lieutenants an excellent opportunity to expand their experience prior to assignment to the Career Course. We currently are looking to fill between six and eight junior officer positions, such as tank company executive officer, headquarters company executive officer, mortar platoon leader, scout platoon leader, and support platoon leader. Some of these jobs are currently filled with second lieutenants, but the majority are currently filled with capable NCOs.

You may be asking yourself as you read this, "Why are there no first lieutenants in Korea?" Not true, we have some, but need MORE! Korea is typically a one-year tour. So once a second lieutenant makes first lieutenant, he is close to the end of his tour, and he leaves us for a CONUS assignment. We get first lieutenants two ways. The first way is we grow our own, by retaining a certain number of officers. Armor Branch allows us to do this by granting Foreign Service Tour Extensions to lieutenants who want to stay in Korea. Occasionally, these are turned down because that lieutenant is already scheduled to fill a slot somewhere else in the Army.

The second (usually lesser known) method we get first lieutenants is the First Lieutenants to Korea Program. You may have heard about it, or seen it at the bottom of the PERSCOM Armor home page. The prime candidate is an Armor lieutenant with a minimum of two years on station and at least one year left as a 1LT. He volunteers, contacts Armor Branch, comes

down on orders for Korea, and PCSs from his current duty assignment. Upon completion of his one-year tour, he again PCSs to the Career Course.

There are several advantages to volunteering to come to Korea as a lieutenant. First of all, Korea provides unique terrain and mission challenges. Fighting in Korea is very different than anywhere else in the world. While in Korea, you will enjoy a high OPTEMPO training environment without a lot of the stateside distracters. Units usually shoot at least three gunnery densities a year. Additionally, they conduct extensive maneuver training, and are working more with light-heavy integration. Korea is truly a combined arms fight. There are few places where you will experience combined arms like you will in Korea.

Second, those that volunteer will avoid Korea as a tour after the Advance Course. For some, this is a significant reason. But since Korea is considered a hardship (unaccompanied) tour, Armor Branch takes that into consideration, and volunteers will get one of their top three assignment choices after the Career Course, as opposed to someone who did not volunteer to come to Korea as a lieutenant. A growing number of Armor officers are being selected to serve as TDA commanders, and for an Armor officer who really wants the experience of an MTOE command, the First Lieutenant to Korea Program is a good way to assure you of a command in an MTOE unit.

Third, the joy of no movement books! You are already here! Korea is the forward edge of freedom, with a real world enemy about 20

kilometers away. No manifests, no flights. The horn goes off, you get on your tank, and you drive to your BP! How easy is that? This certainty and defined mission provides a bit more stability than found in some of the stateside units. It also really puts the mission, sense of urgency, and readiness requirement into perspective for both the leaders and the soldiers.

Fourth, many here will tell you that you will find the units in Korea are tighter and more cohesive than stateside units. Soldiers here enjoy a better quality of life than they did four or five years ago. Many of the camps, specifically Camp Casey, are enjoying a large influx of money for area and facility improvement. Several barracks are under renovation, and many more are being built, in addition to new gyms, theaters, and other soldier amenities.

The fifth, and probably most interesting, is Korea is a country filled with friendly people and an ancient history. It enjoys a growing economy with much to see and do. If you like to travel, Korea is a good base to start from. The USO and other travel agencies offer trips to China, Australia, Thailand and other exciting places in the Far East at very good prices, if Korea doesn't offer what you want.

So if you are looking for something new, or you want an opportunity to travel, you definitely need to look into volunteering for the First Lieutenant to Korea Program. If you are interested, please contact CPT Tom Cipolla at DSN: 221-5533, or email him at:

*Cipollat@hoffman.army.mil*

## STRAC XXI

# Budgeting the Bullets: The Master Gunners' Concerns

by Sergeant First Class David Cooley

A master gunners conference was held at Fort Knox, Ky., 22 through 24 June 1999, with master gunners from across FORSCOM, USAREUR, 8th Army, and the U.S. Marine Corps, as well as Crew/Gunnery Doctrine and Master Gunner Branch. Discussions covered the *FM 17-12* rewrite, TWGSS training, ammunition allocations, and numerous other subjects, with perhaps the most contentious issue being STRAC XXI. This article will try to explain the reasons behind changing *DA PAM 350-38*, known as "STRAC," the issues involved (from the master gunner's point of view), and the consensus of the conference members.

First, it is important to understand — and accept — that Army doctrine as it applies to gunnery training is going to change. Assumptions that used to hold true, such as every crew firing a full Table VIII at least twice a year, are no longer valid. Modifications to that strategy, whether "legal" or not, have become a fact of life. "Validation," in its many forms, is the most familiar example. Validation has, in fact, become unofficial doctrine across the Armor Force, and it is too late to shove that particular genie back in the bottle. One problem with validation is that, as it is not derived from any published Army doctrine, each MACOM has implemented it differently, and standardization has been lost. Once doctrine is updated, we can ensure that everyone is on the same sheet of music and that a common standard is achieved.

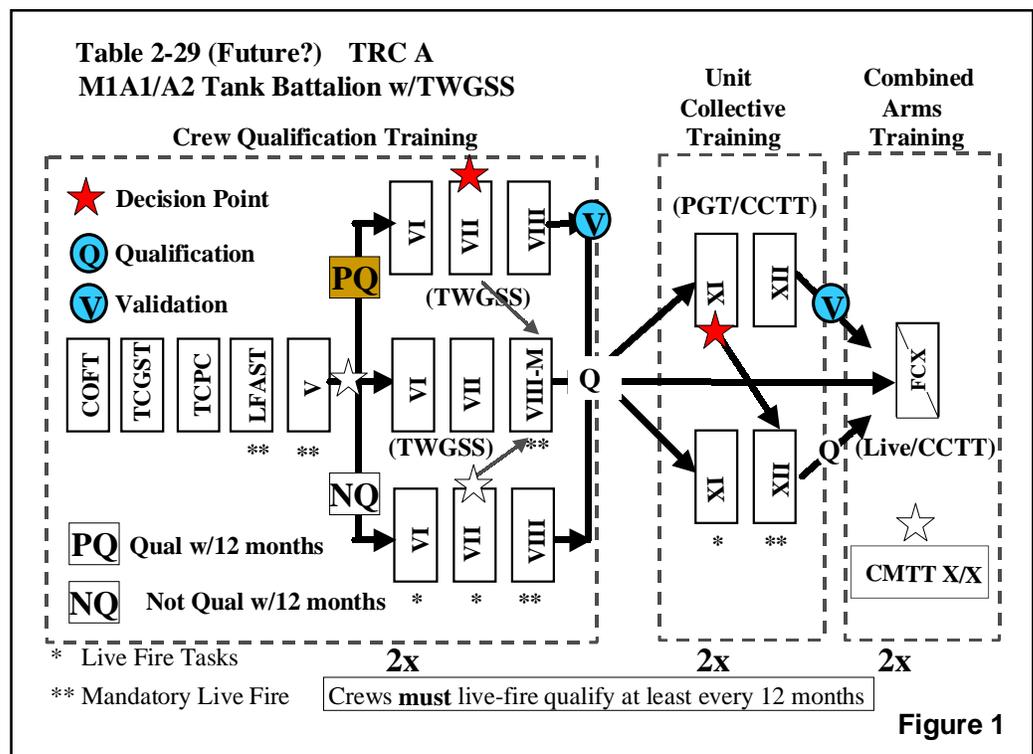
Another force driving the changes now underway is the desire to better train collective

tasks by allocating more ammunition to training events such as Table XII and CALFEX. The current STRAC allocates 12 rounds (per platoon), less than required by *FM 17-12* to conduct Table XII, and there are no rounds allocated for CALFEX.

A FORSCOM working group has been addressing these issues, and the results of their labors have come to be known as STRAC XXI. Bear in mind that, as we discuss tank-specific aspects of STRAC XXI, changes will affect the training programs for every weapon system in the Army. STRAC XXI is on the FORSCOM web site, and interested readers are encouraged to take a look at the entire package.

The first wide dissemination of STRAC XXI to the Armor enlisted community was at the Sergeants Major conference at the 1999 Armor Conference. Shortly thereafter, Crew/Gunnery Doctrine and Master Gunner Branch got their first detailed look. The heart of the concept can be seen in Figure 1.

A crew's track through gunnery would depend on the previous qualification of the gunner and TC. If a TC or gunner did not qualify the previous Table VIII, live-fire, the crew would take the bottom track and fire Tables VI through VIII full up, main gun. If the TC and gunner both fired the last Table VIII live, but not together, their crew would take the middle track and fire TWGSS through VII and live-





**Big Bullets... Big Money.** Each practice sabot round (M865) costs the taxpayers \$490. Practice HEAT rounds (M831A1) cost \$520 each. Each crew is allocated 64 sabot and 26 HEAT practice rounds per year, so the ammo cost of a single crew's gunnery allocation is \$44,880. A battalion of 44 tanks runs up an ammo bill of \$1,974,720 per year.

fire a modified Table VIII. If both TC and gunner both live-fired Table VIII together during the last gunnery, the crew would fire through VIII using TWGSS, then move into collective training. Remember, the goal is to save rounds for Table XII and CALFEX. Rounds for collective live fire have to come from existing allocations, without increasing the current authorization of 90 rounds per tank, per year.

The sergeants major, master gunner instructors, and Crew/Gunnery Doctrine personnel have many concerns with this approach. They include, but are not limited to, the following:

- Table VIII, as a qualification table, should never be modified or fired dry.
- A crew should never arrive at Table VIII without having fired any main gun rounds since last gunnery.
- A crew should never move into collective training without having fired main gun rounds (the screening test does not count as main gun training). The major concern here is that a crew could find

itself on Table XII with a loader or driver that has no live fire experience at all. This leads to safety concerns when a loader has to perform actions, such as clearing an aft cap jam, which he has not faced before, while his TC is distracted by what's happening to the rest of the platoon and not what is happening inside his own tank.

- Currently, the only place that commanders and master gunners can assess proficiency on individual and crew gunnery tasks is during the intermediate tables, VI through VIII. Once the crew moves into platoon level exercises, the jump radios and TCEs are no longer there to capture data on crew performance.
- There was nearly unanimous agreement at this conference, and it was brought up by a few participants at the Armor Conference, that one of the root causes of our current retention woes is that tankers don't get to do enough of what keeps tankers in the Army — tanking. This strategy would only make the problem worse.

In summary, collective live fire training is important, but it will only be as good as the individual and crew training that it is based on. We should not be in a position where we have to choose one or the other, but when forced to choose, most participants agreed that the crew level training should get priority for resources.

The vast majority of participants at this conference favored the Armor Center approach, as outlined in the "Driver's Seat" on page 6, over the FORSCOM concept, for the reasons listed above. As noncommissioned officers, our focus is training individuals and crews for combat. To do so, we require resources that are expensive and that can never be completely replaced by simulators or training devices. Our final consensus was that the FORSCOM concept was too much, too fast. Before going to a virtual Table VIII of any kind, we had better take "baby steps" and see how it affects readiness.

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SFC David Cooley is currently assigned as a gunnery instructor at the Master Gunner Course.

# The Graphical Spot Report

*A multi-echelon technique to quickly track and record battlefield information*

by Captain Brandon K. Herl

Battle tracking is a fundamental skill every combat arms leader must have, from tank commander through brigade commander, but it is one of the most difficult skills to learn. Once upon a time, a combat leader had the luxury of having every piece of information critical for his unit's survival within eyeball range or earshot. Only high-level commanders received reports "transmitted" by messenger or other signals. But in modern warfare, the first-line leader is forced to gather a large portion of his combat intelligence from radio transmissions rather than first-hand observation. With the increase in battlefield complexity, the radio has become an additional sensory system that supplements the sights and sounds of battle. The leader must absorb both the multiple inputs he sees, hears, smells, as well as the constantly blaring radio traffic.

## Battle Tracking and Spot Reports

One of the hardest parts of battle tracking is managing "spot" reports, the heart and soul of battlefield information. This information generates intelligence on enemy movements, strengths, dispositions, and probable courses of action. The information from one vehicle commander's spot report can make the difference in a brigade commander's decision to launch an assault or counterattack. Great leaps in battlefield technology still have not and will not replace this aspect of combat.

From the grimy, grease pencil smudges on a new platoon leader's map case to any echelon's tactical operational center, soldiers must track engagements and battles. At platoon level, battle tracking is usually something learned through trial and error. At the battalion and higher level, intricate battle tracking and spot report SOPs have evolved. Either way, the need for quick documentation, dissemination, and analysis of battlefield information exists. The graphical spot report is one way to help.

## Graphical Spot Reports — The Overall Concept

All the graphical spot report does is provide an alternative method to track a battle on a map. It is not intended to replace the information flow pattern or SOPs. Graphical spot reports are designed to help the leader and battle staff speed up the process of tracking current information, reconciling and analyzing enemy movements, and "painting" a more complete tactical picture.

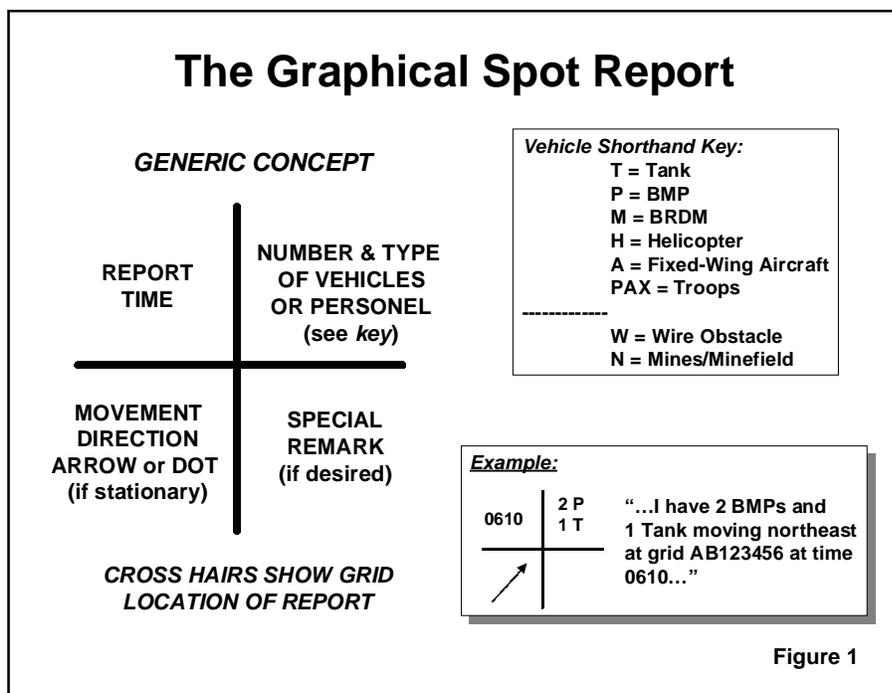
The basic information in a good spot report is in SALUTE or SALT format. The graphical spot report is no different. Figure 1 shows what a single graphical spot report looks like. Notice that all the information basics are depicted.

Upon hearing a spot report on a radio net, the leader quickly finds and draws cross hairs on the reported location on a

separate overlay placed on top of the operational graphics (preferably in a fine-tip, red pen). In the upper right corner of the cross hairs, he gives a shorthand description of the size and equipment seen. Two tanks would become "2T;" three BMPs with four dismounts would be "3P, 4PAX."

The upper left corner will have the time the report was rendered. The lower left corner gives an indication of the unit's activities. If the unit is moving, an arrow is drawn indicating its direction. For example, if a report had the unit moving north, the arrow would be drawn pointing north. If the unit is stationary, a dot (or an "X") would replace the arrow.

The bottom right hand corner is not used and left for remarks. A battalion S2 could annotate "CRP" if he believed the report was an attacking combat reconnaissance



patrol. Likewise, a “PLT BP” could be used if a unit came in contact with three stationary, dug-in BMPs. Another possible use for this corner is to quickly track battlefield damage assessment (BDA).

Once the battle is finished, label the overlay with the usual marginal data and the date-time groups the overlay spans. This overlay can now be used as a record of contact for later reference. While not always helpful at company level or below, a staff may find this documentation useful in analyzing past enemy trends and predicting his next course of action.

### Advantages

Graphical spot reports are designed to be posted *directly* to a map overlay once the report is received over the radio. This overlay becomes a hard-copy, graphic record of unit contacts. The benefit is that a commander (or his staff) can glance at the map and quickly reconcile redundant spot reports and enemy movements without sorting through hastily scribbled, map margin notes or heaping mounds of spot reports. This saves a lot of time and effort, especially in the middle of an action.

As more reports trickle in, a better picture of the enemy is painted. Over time, this overlay will illustrate certain enemy trends that some tracking systems tend to miss. Instead of giving an instantaneous enemy picture “snapshot,” the leader now has a “moving picture” of the enemy.

By “connecting the dots” of similar spot reports, other information is gained. Enemy concentrations, main efforts, front-line traces, march rates, and axes of advance/battle positions become instantly readable. Likewise, blank spots on the overlay show a distinct absence of enemy activity — a result of either no enemy presence or enemy activity that is unseen (see Figure 2).

### Drawbacks and Limitations

While this method is easy to learn and implement, it does have some drawbacks. The first is at the headquarters level. A TOC crew that is new at using this system will be tempted to quit “wasting” effort writing down reports and recording them in their logs. Graphical reports are not designed to replace this system; they are designed to complement it. The hard-copy reports are still needed later to reconstruct the battle and more accurately determine battle damage assessment.

Map skills and familiarity are paramount when using this system. A leader who fumbles around with locating grid coordinates on a map will not be able to keep pace with the incoming information flow. Likewise, unfamiliarity with the shorthand can also lead to confusion when repeating or disseminating a report.

A third drawback with this system is that analysis depends upon the user’s familiarity with enemy tactics, tech-

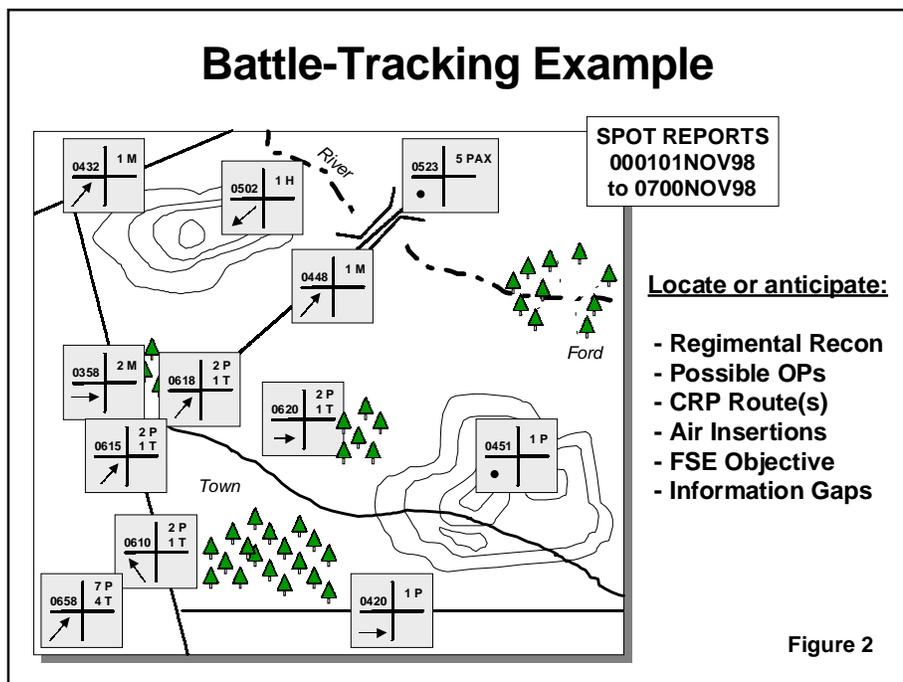
niques, and procedures. No good intelligence can come of looking at a bunch of cross hairs if you do not understand their significance or patterns.

Another caution is to be careful how much information is recorded. *Too much* information can negate its usefulness. This method is very useful for tracking friendly reports, such as the locations of minefields or booby traps, downed aircrews, fuel convoys, or LZ/PZ operations. Unskilled or unguided personnel will be tempted to put everything on the overlay, cluttering it beyond recognition.

### Conclusion

Graphical spot reports are designed to supplement and enhance existing unit SOPs. This system gives leaders at all levels a simple method for acquiring (or refining) the necessary military skill of battle tracking. Additionally, it reinforces leaders to use and teach proper spot report submission techniques.

The graphical spot report battle tracking technique documents and follows the modern battlefield’s swift information flow. It also quickly generates combat-critical intelligence on the enemy’s maneuver scheme, a crucial element when considering preplanned countermoves. While the technique does have some major drawbacks, properly trained leaders or units can reap numerous advantages when fully employing this system.



Captain Brandon K. Herl is a 1990 graduate of the U.S. Military Academy. He has served as a tank platoon leader, asst. squadron S1, troop XO, and asst. regimental S1 in 3d ACR, Ft. Bliss, Texas; squadron S1, asst. squadron S3, and HHT commander, 3-17 Cav, Ft. Drum, N.Y.; and Support Group J1, U.S. Support Group-Haiti, Port-au-Prince, Haiti. His military schooling includes Airborne School, Air Assault School, AOB, SPLC, JOMC, IOAC, CLC, CAS3, and the U.S. Marine Corps Amphibious Warfare School. Upon completion of his MS degree in forest science from Colorado State University, he will become an instructor in the Geography and Environmental Engineering Department at the U.S. Military Academy.

# A Technique to Get Organized and Manage Your Career

by Captain Christopher H. Engen

You have most likely heard or been advised that you are your best career manager. Yet, how many times have you found yourself shuffling through papers looking for that award which did not get added to your Officer Record Brief (ORB), or perhaps your last Officer Evaluation Report (OER), or maybe even a copy of your Permanent Change of Station (PCS) orders? If you have never found yourself in such a predicament, then you must be well organized, but some of us can relate to this situation. The simple technique which follows will help you manage the paperwork, which often proves critical to the management of your career.

A three-ring binder with document protectors is a simple, inexpensive way to easily manage your important career documents. While other techniques, such as file folders, will certainly do, a binder comes in handy when you need to just grab your files and go, such as when you must visit your servicing Personnel Service Battalion (PSB) to update your ORB. Once you have your binder, collect

all of your important documents and organize them.

Place your ORB in the front of your binder. You will use this document the most and be required to update it annually. In addition to posting the current copy, consider saving the past two copies so that you have a history of what items were posted or what changes were made. In the next section, post copies of all of your permanent orders, organizing them in chronological order. Ensure you include copies of any amendments. You now have the documents that outline your assignment history.

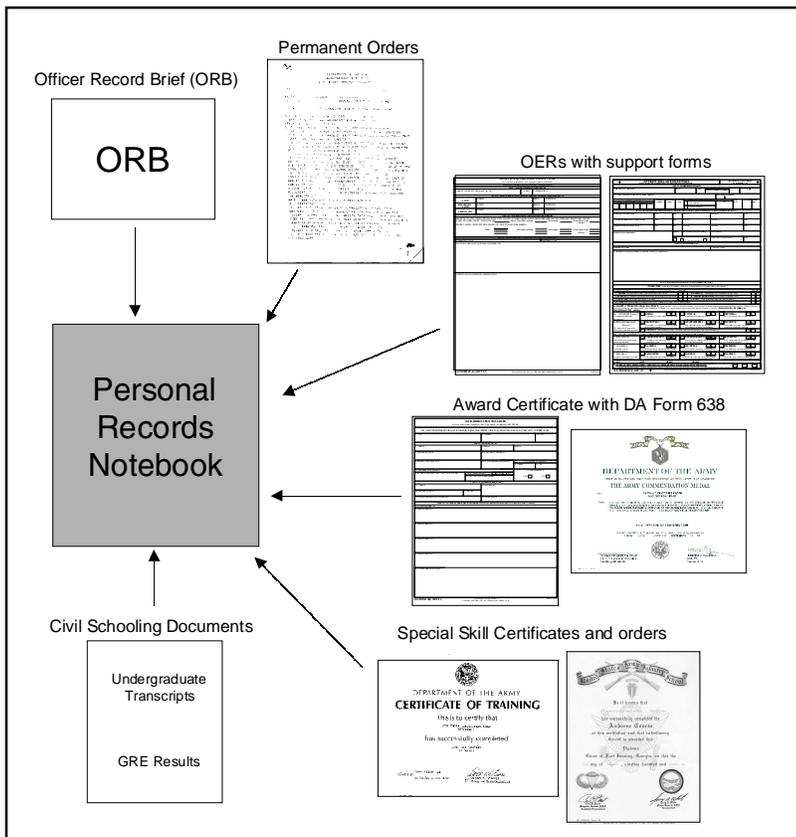
The next, and one of the most important sections, of the binder includes your past evaluation reports. Hopefully you have retained copies of both academic evaluation reports as well as officer evaluation reports. Ensure that you have official copies with all signatures and PSB blocks complete. Incomplete copies will not be accepted when attempting to add them to your fiche. If you did not receive an official copy of a recent report, request a copy through your S1 or PSB. Place cop-

ies of past OER support forms with the corresponding OER. These come in handy when queried about past accomplishments, or when your replacement asks for a copy of your job description.

After organizing your evaluation reports, gather your past awards or special skill qualification certificates. These are the most common items omitted from your ORB or fiche, so keeping copies proves important. Although the award certificate itself serves as proof of an award, keep the DA Form 638 if you have it. Likewise, hang on to both your certificate or any authorization orders generated from a special skill school such as airborne or air assault.

Once you have organized the documents discussed above, you may wish to add some additional sections to your career book. Records pertaining to civilian schooling, such as undergraduate transcripts or GRE results, will prove useful if you plan to apply for advanced civilian schooling. Once you have chosen and been designated within a functional area/career field, you may wish to create a section to organize those important documents. Finally, you may want to retain copies of military correspondence to include letters of recommendation. These will become important when applying for advanced schooling or seeking a special assignment.

After you have built your career book, keep it in a safe place. As you progress through your career, you will find it more and more useful as you update your ORB, prepare for selection boards, and manage your career. Do not procrastinate getting organized, for those who do often find themselves spending more time searching for lost documents or requesting copies.



CPT Christopher Engen was commissioned in Armor from the U.S. Military Academy in 1991. He served as a tank platoon leader and battalion adjutant for 2-37 Armor, in Vilseck, Germany; BMO in 3d Bde, 1st AD, at Ft. Riley; and Commander, C Co., 2-70 Armor, then HHC, 2-70 Armor. Following graduate school, his next assignment will be as a company tactical officer at the U.S. Military Academy. He has completed AOB, Scout Commander Certification Course, and AOAC.

# Trouble for the Redball Express - Rear Area Security

WHAT'S YOUR NEXT MOVE??



**Situation:**

**Friendly Situation:**

You are "Rubicon 6," the brigade commander of 3 Bde, 4th AD. Your brigade is preparing a defense in sector. A mechanized infantry division is expected to attack NLT 110530AUG99. TF 1-23 and TF 1-78 are defending forward in sector while TF 2-78 is the brigade reserve. C/1-23(-) is attached to 1-1 FA protecting an MLRS platoon and Q37 radar located in the brigade sector. The brigade is currently at 90% strength. Your task organization is in Figure 1 and the current graphics are in Figure 2.

**Enemy Situation:**

The brigade cavalry troop has had sporadic contact with enemy reconnaissance elements for the last 12 hours. The forward task forces have reported no contact in the main battle area. The division S2's assessment indicates that the enemy 66th MID will LD its main body early in the morning on 11AUG99. Based on experience over the last few weeks, division believes that the enemy will increase its activity in our rear area using partisans,

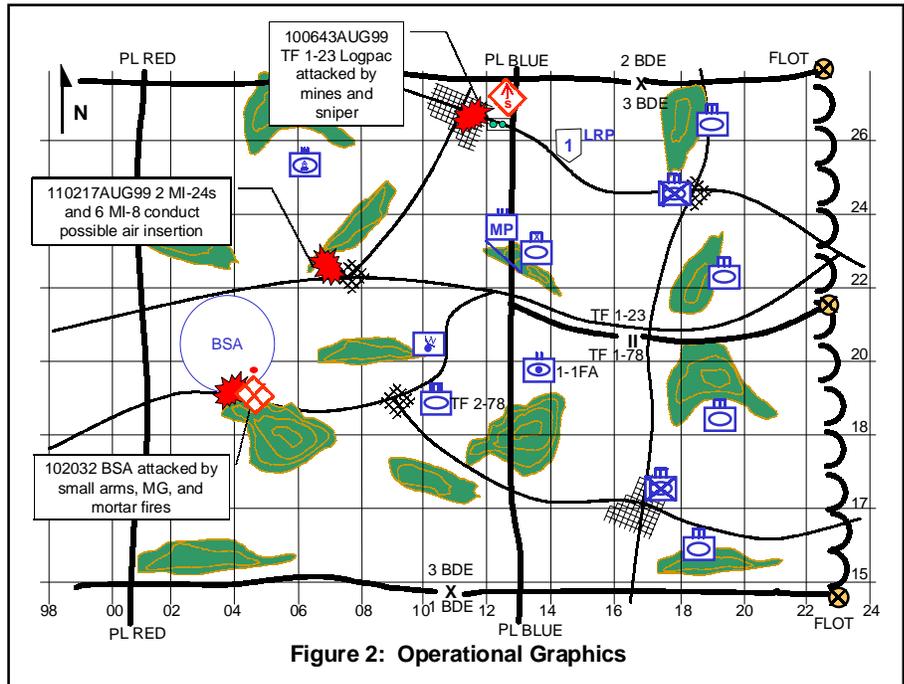


Figure 2: Operational Graphics

SOF, and air-inserted forces. These attacks will likely target logistics, command and control, and artillery assets to desynchronize our operations while the enemy division attacks into the main battle area.

**Event #1:** At 100643AUG99, TF 1-23 reports that its LOGPAC, en route to LRP1, ran into a point minefield roadblock over-watched by a sniper. The convoy reacted to the ambush, forcing the sniper to withdraw. The LOGPAC lost of one HEMTT fueler and three soldiers were wounded. The convoy is continuing to the LRP1.

**Event #2:** At 102032AUG99, the FSB commander reports that the BSA is under attack by a squad-size element equipped with small arms, machine guns, and mortars. The enemy position is vicinity grid 047193. The FSB security forces have prevented any penetration of the BSA perimeter, but are unable to destroy the enemy position. The FSB

security forces are continuing to man their perimeter. Most logistics functions are on hold.

**Event #3:** At 110217AUG99, 2 MI-24s (HIND-D) and 5 MI-8s (HIPs) penetrate the brigade's air space and land vicinity grid 070225. Each Hip has the potential to carry 28 troops. Reports indicate that 1 MI-24 and 1 MI-8 were destroyed by ADA fires, but the rest of the element successfully exited the brigade sector.

**Requirements:**

Assess the situation presented by each event and formulate a course of action. Issue instructions to your staff or a FRAGO to your commanders to deal with the threats to your rear area. Issue your FRAGO as if talking on the radio to your commanders. Submit your solutions to the BN/BDE Branch by email at: [armordoctrine@fknnox5-emh3.army.mil](mailto:armordoctrine@fknnox5-emh3.army.mil), or mail your solution to ARMOR, ATTN: ATZK-TDM, Fort Knox, KY 40121-5210.

*Solutions to this vignette will appear in the January-February 2000 issue.*

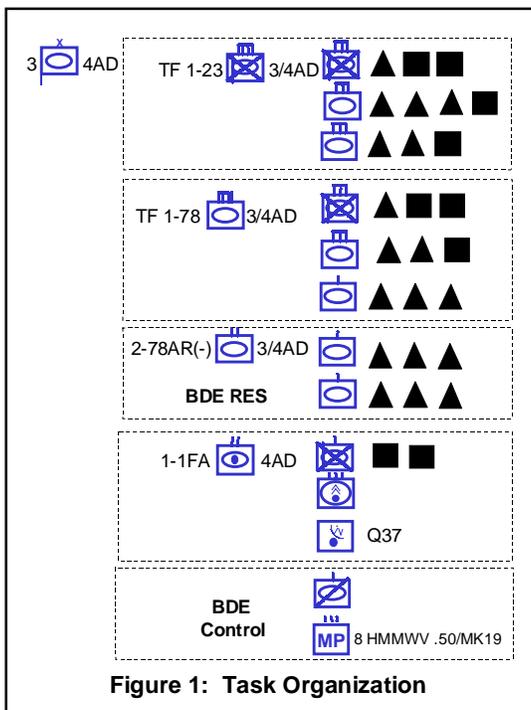


Figure 1: Task Organization

## Solution — Tactical Vignette 99-3

“Screen in a Snowstorm,” from the May-June 1999 issue of *ARMOR*

### Author's Solution

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

**SITUATION:** There are three T-34s moving south vicinity NAI 3. WHITE has eyes on but will lose them quickly. Bulldog reports one T-55 moving east, last seen grid 1.5 kilometers NNW of NAI 16. BULLDOG has one downed aircraft at GV299123, currently being observed by five apparently unarmed personnel 500 meters to their north. Additionally, S2 reports that weather conditions are worsening, and the snowstorm moving in will probably last for two days. The air troops are currently grounded and are likely to remain that way for at least 48 hours.

**MISSION:** A Troop, 1-201 CAV screens along PL SILVER from PL GOLD to PL LEAD and along PL GOLD between PL BRONZE and PL SILVER NLT 051030JUN1999 to identify and track insurgents entering PRU.

### EXECUTION.

#### Tasks to Subordinate Units:

**RED:** Move two vehicles from OP 1a to establish OP b1a VIC GV299123, to provide security for the downed aircraft and crew. Be prepared to accept a three-vehicle section from GREEN VIC GV352104. Move one HMMWV from GREEN to reinforce 1a, and the other two to establish b2a VIC GV 305102 oriented on NAIs 12-13.

**WHITE:** Continue to track the three T-34s moving in your sector. Reposition a two-vehicle section within your sector to pass the tanks off to 1st BDE south of PL BRONZE.

**BLUE:** Continue mission.

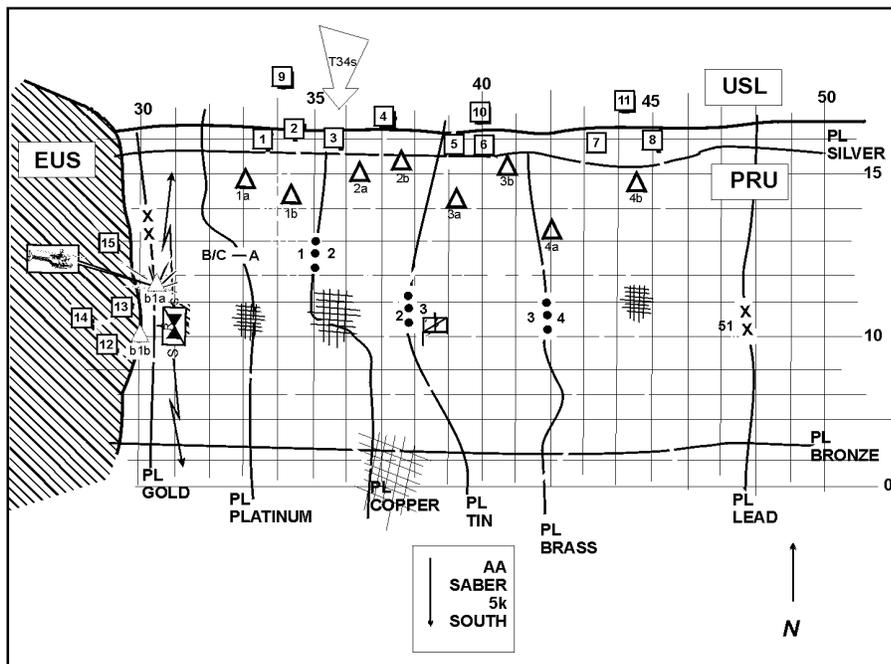
**GREEN:** Collapse OP 4a and move a three-vehicle section into first platoon's sector VIC GV352104. This section is attached to RED upon link-up.

#### Coordinating Instructions:

Report when moving and set.

RED report when you have secured the downed aviators. Your sector now extends east to and along PL GOLD.

GREEN move to WHITE's **FREQ** while moving through their sector. Avoid contact with the T-34s. Move to RED's **FREQ** at the link up point.



WOLFPACK 7 move to the squadron TOC to advise SABER 6 of our situation. Ensure the squadron TOC notifies F Troop to launch the Downed Aircraft Rescue Team (DART) and informs 1st BDE they have three T-34s moving to them. I will remain at my current position and continue to try and raise SABER TOC.

What are your questions?

### RATIONALE

The squadron commander has ordered me to screen along PL SILVER from PL PLATINUM to PL LEAD. The situation has changed, however, with the weathering in of the two flight troops on my flank. Also, two contacts force me to make one quick move with RED, to secure the downed aviators, and one more deliberate move with GREEN, to establish a new OP in B/C sector. The shifting of force gives the number of OPs I want in sector with enough soldiers at those OPs to establish them for long duration operations. The decision to shut down OP 4a is based on the belief that GREEN can cover both NAIs 7 and 8 from OP 4b. I am not overly concerned with the T-55 moving around in EUS, with the establishment of the two new OPs in the old B/C sector, he should be identified if he crosses into PRU. Having contact with the three T-34s center sector only adds to the problem, but WHITE should be able

to track them with their displaced section. I decided to send WOLFPACK 7 to approve my plan because I did not want to be out of contact with my platoon leaders should problems arise during this reposition, with tank moving in sector. If GREEN can avoid bumping into the T-34s and the SCO approves of my plan, we are in business until the storm subsides.

### Reader's Solution

(Submitted by 1LT Nathan A. Cox, ACCC 99-03, Section 1B, Ft. Knox, Ky.)

“White 1, this is 6. Roger. Continue to monitor until you lose visual. NAI 3 is still in your sector. Attempt to move to a position that better suits visual on the T-34s. Break. Red 1, this is 6. White 1 reports seeing three T-34s vic NAI 3. He may lose visual. I need you to see if you can get a visual on NAI 3, just in case White loses contact. Red 1, also be prepared to send a section with MK-19 and .50 cal. vic GV305120. Bulldog has a bird down with engine trouble. Leave your AT assets to monitor enemy tanks. I'm going to call Bulldog 6 and let him know I've got contact with his guy, then I'll let you know. Break. Guidons, this is 6. S2 reports a big snowstorm coming. It's supposed to last for two days. Continue to monitor your NAIs, and let me know when you lose visual contact. Red 1, stand by. Over.”

## LETTERS (Continued from Page 4)

(5) Remember that history stuff I mentioned above? Well here is where those patches, crests, and colors come in. Any reorganization such as that outlined above will make most of us trip on our old school tie. It does not have to be that way. We must keep a link with our historical past. Redesignate divisions as brigades (1st Armored Division becomes 1st Armored Brigade). There would be no change in history, patch, insignia, etc. It just becomes a smaller unit designed with today's and tomorrow's requirements in mind. All it takes is a one-line entry in the lineage and honors certificate. Regiments have been the historical backbone of the army, ever since there has been an army. Under this proposal, I would redesignate battalions as regiments. Thus the 1st Battalion, 32d Armor, becomes the 32d Armored Regiment. Brigades would be assigned regiments associated with the former divisions. Therefore, the 1st Infantry Brigade would have as its assigned combined arms regiments the 16th, 18th, and 26th Infantry; 4th Armored Brigade would have as its combined arms regiments the 35th, and 37th Armor and the 51st Infantry. There would be enough to go around to fit in all those LTC requirements that the branches guard so jealously. Lets face it, we are not British; we fought a war about that, you will remember. Then why should we blindly adopt a regimental system based upon the British model, which has failed miserably to preserve our unit's history since it was first placed into effect in 1957?

I want to close by thanking all those associated with *ARMOR* Magazine, and the Armor Association, for 38 years of pleasure and professional stimulation. As I write my check today to renew my membership, I hope you will continue to stimulate what's left of the brain of this broken-down old infantryman.

CHARLES W. TREESE  
LTC, USAR (Ret.)  
Colorado Springs, Colo.

### Be Kind to the Infantry: Pick Up the Phone

Dear Sir:

I read your editor's note in the May-June 99 issue of *ARMOR* and must chastise you! I found myself bristling when I read how you and your loader went out of your way to make a young foot soldier's life more difficult, forcing him to slog through the mud to use a broken phone, and gloating about it. I suppose dismounting never occurred to you. (Just how long was that phone inoperable, anyway?)

As a Bradley company commander in 1st Cav, I had the pleasure of working with many fine armor officers, from platoon to brigade level, all of whom had a tremendous appreciation for dismounted infantry. Likewise, we grunts have great respect for the capabilities our armored brethren bring to the battlefield.

I would think you might show a little more respect for infantrymen. It's a life fraught with

peril and hardship and worthy of respect. Having been a light fighter too, I have an appreciation for what it's like living in the mud. As such, the humor in your joke is lost on me. That infantry trooper could very well protect you from the RPGs you fear so much... then again, given the lack of respect you showed him, maybe not. Try clearing a defile, a woodline, or a city block without us.

And I close with a quote...Omaha Beach, 6 June 1944.

"It was not a miracle. It was Infantry. The plan had called for the air and naval bombardments, followed by tanks and dozers, to blast a path through the exits so that the infantry could march up the draws and engage the enemy, but the plan had failed, utterly and completely failed. As is almost always the case in war, it was up to the infantry. It became the infantry's job to open the exits so that the vehicles could drive up the draws and engage the enemy." - Stephen E. Ambrose, *D-Day*

KARL E. SLAUGHENHAUPT  
MAJ, Infantry  
Via email

*I'd hoped the vignette would illustrate how far we have come and, in a self-effacing way. My goal was to point out the necessity of a combined arms team and I thought this would be apparent as the column fleshed itself out and by the other pieces in the issue. My apologies if it appeared otherwise to you, as I'm sure some of my infantry friends will testify that I have always held them and their craft in highest regard. — Ed.*

### Writer Recalls Army Lab Problems Developing Novel Ammo Solution

Dear Sir:

I noticed another article from Don Loughlin on cased telescoped\* ammunition and how it may adversely impact the Scout/Tracer program. I have regarded his previous articles in *ARMOR* magazine as factual, very candid, and quite informative on matters pertaining to Armor.

I would like to add my support to Loughlin's hypothesis on cased telescoped ammo. In the late 1970s, while assigned to the small caliber lab at Picatinny, I had a chance to observe up close the many attempts to make this technology work, all to no avail. The Army Chief of Staff and Marines were also enthralled/involvement with the failed super 75mm (cased telescoped) Mobile Protected Gun System (MPGS) — a precursor to the AGS. In short, the Army labs have tinkered with cased telescoped in several calibers and numerous permutations of designs without success. Both insolvable cost and technical problems kept this novel ammo packaging solution from becoming more than a pipe dream. Institutional memory being what it is — very short nowadays — it seems cased telescoped tech-

nology has become a hobby shop for users and developers over the past 20+ years.

I would caution the Armor development community that cased telescoped falls into the category of "promising but not realistic" for a mature weapon system. It is much like the liquid propellant fiasco advocated by the same lab for our artillery comrades on Crusader. CT, then and now, is not ready for putting onto any platform, and especially the scout vehicle, within the foreseeable program schedule.

ROBERT F. GAUDET  
Armor, USA, Ret.  
Via email

*\*Cased telescoped ammunition is an experimental system that shortens the length of a cannon round by carrying the projectile within the propellant case. — Ed.*

### Military, Civilians Supported Both Sides of Maneuver Question

Dear Sir:

Responding to CPT Coglianese's Nov-Dec '98 letter, "More on Maneuver Warfare: Can We Change a Culture?," I must disagree with much of the content of his letter's second paragraph. He claims that the concept of maneuver warfare "still carries a tremendous amount of emotional baggage" from the mid-1980s debates "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," and the Army "naturally resisted these upstarts, especially their nerve at telling us how to do our business..." He laments, "much of the debate took on the form of personal attacks..."

As someone who was aware of the maneuver warfare controversy and who participated in it with many published letters to the editors of several publications, I must in fairness to historical truth point out that many military personnel became interested in and supported maneuver warfare as an alternative to the "win-by-attrition-through-firepower" approach to fighting they had experienced in Vietnam, and which they, uniformed members of the Army, found reflected in the 1976 edition of *FM-100-5 Operations*, the Army's doctrinal statement, which called for pulling back and wearing down the enemy, "attrit[ing]" him through firepower, and counterattacking and otherwise taking the initiative only after the enemy had been attrited through firepower.

While some civilians did become involved in the debate for maneuver warfare, some civilians entered the debate against maneuver warfare. And many in the military argued for maneuver warfare. These active duty soldiers were supported in their advocacy by some civilians and opposed by other civilians.

CPT Coglianese's picture of maneuver warfare as an entirely or at least essentially civilian-generated concept, which civilians tried to ram down the throats of an unwilling Army

whose members opposed it and resisted it because it came from outside, is inaccurate and misleading.

From what I could see, most of the sparks flew because the opponents of maneuver warfare, both uniformed and civilian, continually and stubbornly saw only the word maneuver in "maneuver warfare" and believed that maneuver warfare, was supposed to be merely about just moving around, and mistakenly believed that maneuver warfare's opposition to winning by firepower-induced attrition was an opposition to firepower in general, when in fact maneuver warfare, properly understood, involves using firepower.

I dispute strongly Coglianese's claim that "much of the debate took on the form of personal attacks." I concede that personal attacks do creep into heatedly discussed issues, but it is certainly untrue to say that "much" of the maneuver warfare debate "took on the form of personal attacks."

But I agree that, as Coglianese claims, the debate "left the heart of the issues essentially unexamined," as regards, as I've stated above, the aspects of maneuver warfare being more than just moving around and of opposition to winning by firepower-attrition, not being opposition to firepower per se.

JOSEPH FORBES  
Pittsburgh, Pa.

### Advantage of Sling Loads Is Their Quick Insertion

Dear Sir:

In "The Case for an Airmobile, Amphibious Scout Vehicle," Mr. Crist states that "the HMMWV is a little too wide to fit into a CH-47." As a CH-47D aviator, I can say without doubt that this is not the case. The HMMWV fits quite nicely inside the CH-47D.

As to his contention that carrying vehicles as sling loads "exposes the personnel, rotorcraft and vehicle to a number of hazards," well, this is arguable. Sling loading allows an aircrew to insert the vehicle, land, and offload passengers very quickly, limiting exposure time for the aircrew in the LZ. Internally loading the vehicle is time consuming, as is offloading it, exposes the crew to extended ground time in the LZ, and often results in airframe damage when drivers are in a hurry to exfil. What internal loading *does* provide is a higher degree of stealth during ingress/egress.

THOMAS CARLSON  
CPT, AV  
ACCC 99-4

### History Slighted Italian Role In Spanish Civil War

Dear Sir:

As a recognized historian of Italian armor and an *ARMOR* subscriber, I would like to point out some inaccuracies I found in COL

Candil's article ("Soviet Armor in Spain: Aid Mission to Republicans Tested Doctrine and Equipment," March-April 1999 *ARMOR*).

I am afraid the author has not read some of the essays about the Spanish Civil War, especially the most recent ones from the Italian Army Historical Branch (Rovighi-Stefani, *La partecipazione Italiana alla Guerra Civile Spagnola*), four thick volumes, the last of which was published in 1994, and my modest *Motori!!!, Le Truppe Corazzate Italiane 1919/1994 (Start Engines!!! Italian Armor 1919-1994)*...

...(At) Seseña, on 29 October 1936, some German Pz 1 and Italian CV 35s met a number of Russian gun tanks T-26B. That is recorded as the first tank engagement in Spain and its outcome is still controversial. Colonel Candil seems to trust in the anti-Italian sources only. But we must remember that others (General Emilio Faldella and the Italian War Department of the period) give an almost opposite version of the episode. Only one CV 35 was destroyed and another damaged; three Russian tanks destroyed by our 65/17 anti-tank team and another disabled. Emilio Faldella, in his *Venti mesi di guerra in Spagna (Twenty months of war in Spain)*, Le Monnier, Florence 1939, at page 129, reports that Barresi's flamethrower tank succeeded in stopping a Russian tank but the latter's gunner hit the Nationalist tank, killing the crew. (According to the citation)... I translate literally:

*Careless of the danger to which he was exposing himself, he attacked, with his flamethrower tank, an adversary gun armed tank. In this unequal struggle, his vehicle being hit by the enemy gun, he heroically lost his life, together with his driver, still staring, even after his death, at the enemy tank stopped at five meters distance.*

Guadalajara, I would say, was not a real defeat for the Italians. They did not withdraw on their original lines of departure. On the contrary, they stopped the Red attack 20 km **ahead** of those lines, according to a Communist account in a book based on the documents of the *Corpo Truppe Volontarie*... In my opinion, several of our tanks were hit but were recoverable (at least nine), while the "Republicans," it is certain, lost twenty T-26Bs, some of them captured... It was not a complete Red victory because they were so worn down that they could not exploit their success. In addition, a lot of factors contributed to the Italian retreat: bad weather, which meant no air support, and difficult terrain; a low training level of most units; and that their motor vehicles were tied to roads....

I found in our State Archive one roll on the Spanish War and, in particular, about Guadalajara, with some notes from witnesses and a still unpublished secret report. Here it is, to make a long story short:

On 10 March, our advance stopped at Trijueque, but the Italian divisions had to retreat a little because some units were left behind. There they remained in the mud, under rain and snow, with few dry provisions. After five

days, a whole division left the lines to seek shelter, so exposing to encirclement the best unit of the corps, the *Littorio* Division, which was compelled to retreat in its turn.

The responsibility fell mainly on the generals. (I found an anonymous letter to the Duce claiming a treason hypothesis.) The officers lacked practice and the services appeared badly organized. Only the *Littorio* looked like a proper infantry division, with the others being improvised...Moreover, the enemy air force was stronger and closer to their lines, while our air groups were too far from the battlefield.

A last question: If the Italian contribution was so poor after Guadalajara (finally conquered by the Italian tanks on 28 March 1939), why did General Franco order that, at the victory parade in Madrid (March 1939), the CTV had to be the first to march past him, with its 70 surviving tankettes?

DR. NICOLA PIGNATO  
Italy

### Seeking U.S. Contacts

Dear Sir:

One of the members of the Finnish Armour Guild, Dr. Stig Nyström, is a retired professor of neurologic surgery at the University of Oulu in northern Finland. He has served in the Armoured Division under Gen. Lagus in our last wars and has, upon his retirement, started a research on injuries in tanks. He is looking for literature from the USA and/or a medical collegial contact.

The address of Professor Nyström is:

Prof. S. Nyström  
Bulevardi 34 A a 8  
FIN-00120 HELSINKI  
FINLAND

RURIK WAHLSTEIN  
Chairman  
Finnish Armour Guild/Helsinki Div.

### Photo Search Seeks U.S. Vehicles in U.N. Service

LTC Paul Malmassari, French Army, is assembling a photo book documenting peacekeeping operations and is seeking photos of U.S. armored vehicles deploying during U.N. operations, such as Haiti, Somalia, etc. Examples might include U.S. M113A3s in service with UNPREDEP in Macedonia. Also sought are photos of U.S. vehicles in foreign service peacekeeping roles; e.g., a Pakistani M88 in Yugoslavia, a Ghanean M578 in Rwanda, etc.

The author is a French Army tanker. All photos will be returned.

LTC PAUL MALMASSARI  
Commandant en second le 501/503rd RCC  
Quartier Selestraint  
51401 Mourmelon-Le-Grand  
France

# New Book Offers Definitive History of U.S. Armor

Review by Gunnery Sergeant Leo J. Daugherty, USMCR

**Camp Colt to Desert Storm: The History of U.S. Armored Forces**, edited by George F. Hofmann and Donn A. Starry, Lexington, University Press of Kentucky, September 1999, 610 pages, \$35.

General George S. Patton, Jr. wrote in a February 1928 paper, while serving at the Schofield Barracks, Territory of Hawaii in 1925, that "The tank, in reality, is a modern version of heavy cavalry, as that arm was understood by the first Napoleon. When satisfactory machines are available, they should be formed into a separate corps and used, when terrain permits, for the delivery of the final shock in some great battle, when so used they must be employed ruthlessly and in masses."

George F. Hofmann's and Donn A. Starry's *Camp Colt to Desert Storm: The History of U.S. Armored Forces* is by far the single best compendium yet published on the history of the development of armor and armored fighting vehicles in the United States, from World War I to the present. Beginning with the organization of the U.S. Army's Tank Corps at Camp Colt, Gettysburg, Pa., through Desert Shield/Desert Storm, the book provides an in-depth examination of the role armor has played in the development of the combined arms team in both the U.S. Army and Marine Corps.

This collection of essays, written by military historians, analysts, and technicians, examines the role armor has played in forging U.S. Army and Marine Corps doctrine, as well as its important function in the amphibious assault. What is even more important about this book is the fact that it provides coverage of the lesser-known controversies that plagued the acceptance of armor in both services, and how this oftentimes served to hinder its effective employment during World War II, Korea, and Vietnam.

The book begins with Dale Wilson's essay on the birth of American armor during World War I and the organization of the 1st Tank Battalion during that conflict under the command of a cavalry officer named George S. Patton. What makes this particular essay important is the story Wilson tells about the battles of acceptance that armor proponents had to wage inside an Army bureaucracy that

was conservative to the point of being reactionary. Many saw the tank as nothing more than a passing fancy; for these leaders, the horse remained paramount in battle. But others saw the tank as an excellent adjunct to infantry, and later as an offensive weapon in and of itself. They included Brigadier General Samuel D. Rockenbach, who was the American Expeditionary Forces' (AEF) first commanding general of the infant Tank Corps, Lieutenant Colonel LeRoy Eltinge, and Captain (later Lieutenant Colonel) George S. Patton, Jr. Patton's detailed report, submitted to General John J. Pershing's headquarters, remained the cornerstone of U.S. armor doctrine up until its revision in the 1980s.

Captain Patton outlined the mission and tactics of this new Tank Corps, envisioning the tank as being the perfect infantry support weapon: Tanks could clear wire obstacles, suppress enemy crew-served weapons and prevent the enemy from manning the parapets or trenches after a preparatory artillery barrage, help the infantry mop up the objective, guard against counterattack by patrolling ahead of the most advanced infantry positions, and exploit the attack supported by reserve infantry, seeking 'every opportunity to become pursuit cavalry.'

What is important here are two themes of Patton's report that remained constant throughout the integration of armor into the Army's combined arms team. The first theme is the constant referral back to cavalry and the use of tanks, like cavalry, as a "shock" weapon. The Tank Corps leadership during WWI were cavalrymen and saw the tank and motorized vehicles as an arm of the cavalry. This theme would dominate Army thinking up to the advent of the helicopter, which in time supplanted the tank as a cavalry weapon.

The second theme describes how Army and Marine leadership viewed the tank by and large as an infantry support weapon. In fact, Joseph Alexander's essay on Marine Corps use of the tank as an infantry support weapon in the Pacific during WWII illustrates how the lessons of WWI confirmed in many of the Corps' senior leaders that the tank was merely a moving pillbox. Marine Corps armored development was influenced by its experience in World War I, and much of what was practiced as a combined arms

team during World War II had been inculcated into Marine doctrine during the interwar period in lessons drawn from the battlefields of France. The Marines' interest in the tank began almost as the war itself ended. In fact, during the occupation of Germany by the Marines, the lectures and classes Leatherneck officers attended at Army-sponsored schools, and recorded dutifully in reports and student papers during the period (1918-20), illustrate the strength of this influence inside the Marine Corps. This theme was constantly reinforced in the interwar period at the Marine Corps Schools at Quantico, Va.

Colonel Alexander's essay is focused on the period after 1943, and is superbly written, but it fails to discuss the interwar period, the most critical period in Marine Corps thinking on armor and its association with combined arms warfare. This remains a glaring omission in light of an otherwise good essay on tank and armored fighting vehicle development in the Marines.

In contrast, historian George Hofmann, one of the editors of this book, covers the developments of inventor Walter J. Christie's revolutionary tank designs in that era, which included an early experimental amphibious tank. Alexander's failure to discuss the Corps' interest in tank warfare as it applied to combined arms warfare is a significant shortcoming since the Corps leaders during the interwar period, including Major General John A. Lejeune, the commandant of the corps (1920-29), saw combined arms warfare as critical to the Corps' survival.

Historian Timothy K. Nenninger, an expert on the history of the pre-World War II Army, provides a thought-provoking and comprehensive essay on the development of both the tank and its missions and roles in an Army still dominated by infantrymen and cavalrymen. The dominant theme in this chapter is the resistance generated by opponents of an independent armored corps against those who had kept abreast of both British and German experiments with armor during the 1920s and 1930s. At this point, the editors might have better served readers by inserting an essay on foreign developments, with special emphasis on the British mechanization experiments. They codified the first field regulations and set

up the first totally mechanized formations in the mid- to late 1920s. Another foreign area to be explored is the German and Russian collaboration during the 1920s, which have been discovered to be far more comprehensive since the opening of the Soviet archives. There were also German experiments with mechanized formations, beginning even before the Nazi Party assumed power and tore up the Versailles Treaty, in 1935, which prohibited Germany from having tanks.

Christopher R. Gabel's essay on U.S. armored operations in Europe during World War II is thorough and thought-provoking, covering how the Army recovered from its first poor showing at Kasserine Pass in Tunisia up through the Third Army's relief of Bastogne and push into Germany. Despite the fact that the Americans went to war with inferior tanks, compared to those of both the Germans and Russians, the trusty old Sherman with its 76mm gun proved sufficient to provide armored support to the real victors of the ground war in Europe and in the Pacific: the combined arms team of infantry, combat support, artillery, armor, and air. In fact, Gabel's essay clearly illustrated the necessity of combined arms warfare and the importance of a team effort in overcoming superior equipment and doctrine, and it was here that the U.S. Army triumphed during World War II. It wasn't the efficacy of armor or air; it was the combined arms team that brought victory in this and subsequent wars.

Philip Bolté's essay covers armored doctrine and the use of tanks during the Korean War. His underlying theme is the Army's unpreparedness in the field of anti-armor doctrine, due mainly to the fact that it lacked an adequate anti-tank weapon to deal with North Korea's Russian-supplied T-34 tanks. Kenneth W. Estes' essay on Marine armor during this same period picks up on Bolté's theme that, despite the lack of an adequate tank to deal with the T-34, it was the countermeasures that turned the tide in the U.S. favor at the Pusan Perimeter and later at Inchon. While the Korean countryside was less than ideal for tank warfare, armor nonetheless proved to be indispensable in supporting the infantry and in stopping the North Koreans and Chinese Communists. Not only did armor provide effective close-in fire support, it also provided excellent mobile artillery against the mass attacks by the Chinese Communist forces in the perimeter fighting that took place from 1951 through the armistice in 1953. Estes' essay covers primarily the Marines' post-Korean reorganiza-

tion of their tank battalions (both active and reserve), as well as the adoption of the M48 Patton tank as the Army transitioned to the M60 series.

In seeking to counter the Soviet Union's newly-developed line of tanks, beginning with the T-54 up through the T-62 series in the mid-1960s, both the Army and the Marine Corps sought a tank that could qualitatively counter the Soviet Army's quantitative advantage in armor. The M60 Patton series proved a stopgap measure during the 1960s and early 1970s, but the advent of the Soviet T-72 and T-64 tanks moved the Army toward the eventual development of the M1 Abrams, as well as the NA4701 Mechanized Infantry Combat Vehicle (MICV), the forerunner of the Bradley. Thus began a period of tank development that few historians have yet covered, the role of armor during the Vietnam War and the necessity of developing a vehicle capable of effective fire support that could also carry infantry into battle and protect soldiers from enemy fire and mines. While the Vietnam War has been touted as a helicopter war, tanks and armored vehicles like the M113 and Marine LVTH-5 series of armored personnel carriers often carried the day, providing soldiers and Marines effective fire support despite the design and material construction flaws of both vehicles.

The book's chapter on the development of AirLand Battle doctrine and the impact of Generals Creighton Abrams and William DuPuy are excellent. With the lessons of the 1973 Arab-Israeli Yom Kippur War still fresh, the after-action discussions pointed to the Army's need to reshape its thinking on armored warfare and the use of combined arms. With the advent of man-portable anti-tank weapons, such as the Soviet AT-4 "Sagger" and the TOW missile system, as well as the proliferation of rocket-propelled grenades (RPGs), commanders could no longer think just in terms of tanks, infantry, or artillery, but had to plan in terms of combined arms. The lessons of the 1973 War pointed toward the need of an effective mechanized doctrine. General DePuy answered with his revision of *FM 100-5, Operations*, the Army's standard war-fighting battle plan. This field manual became the blueprint for what later emerged as AirLand Battle, a doctrine that challenged what had become an overwhelming Soviet/Warsaw Pact advantage in tanks and AFVs in the 1970s and 1980s.

Diane L. Urbina's and Robert J. Sunell's essays cover the development of

the Bradley Fighting Vehicle system and the "king of the killing zone," the M1 Abrams tank. Both are extremely well written and heavy with technical details, and both essays demonstrate how these two weapons complemented AirLand Battle. Despite bureaucratic roadblocks and branch infighting, as well as budget cut after budget cut, both the MICV and XM1 tank emerged as the two dominant weapon systems to enter the Army since the organization of the Tank Corps at Camp Colt.

As the Yom Kippur War of 1973 demonstrated, the ability to protect infantry and move them into battle, as well as development of a tank that could dominate the battlefield, became the most important technological and doctrinal problems during the 1970s and 1980s. The United States and NATO faced a tank-heavy Soviet Army across the inter-German border. As both Urbina and Sunell's essays illustrate, the Army planners at TRADOC eventually resolved these complicated issues and introduced into the Army one of the best armored warfare fighting doctrines ever conceived.

Stephen Bourque's essay on Desert Storm is a sobering analysis of the effects of this new doctrine and technology and how they aided General H. Norman Schwarzkopf's "end run," decimating the Iraqi Republican Guard with General Fred Franks' VII Corps slamming into the flanks of the once-vaunted Iraqi armored formations in a four-day ground war. The performance of the U.S. Army's Bradleys and the Marines' use of Light Armored Vehicles (LAVs) vindicated the pioneers of the Army's infant Tank Corps in 1917. The same spirit of those who led America's first tanks into battle was also present in late February 1991 as U.S. armored forces won perhaps their greatest victory. It was armor that led the way.

Supplemented by excellent photographs and maps, as well as a full bibliography and a post-analytical reflection by General Donn A. Starry, *Camp Colt to Desert Storm: The History of U.S. Armored Forces* is a book that will remain as the most important single volume on armored warfare in the U.S. armed forces for some time to come. Despite the lack of a chapter on foreign developments (most importantly, on Soviet armored developments), this is a book that will find its way into the curriculum at Army and Marine Corps schools and is highly recommended as a book that will be unrivaled for some time to come.

*Gunnery Sergeant Leo Daugherty is a graduate student at Ohio State University.*

# REVIEWS

**Fighting for the Future: Will America Triumph?** by Ralph Peters, Stackpole Books, Mechanicsburg, Pa., 1999, 224 pages, \$19.95.

To many readers of *ARMOR*, retired Army Lieutenant Colonel Ralph Peters is probably best known for his periodic "Back Talk" columns in *Army Times*, or as the author of any of seven military fiction novels he published in the past ten years. In either format, Peters has never been known to shy away from a controversial topic or to abandon an intellectual position just because it wasn't politically correct. This book is a collection of essays, previously published and expanded upon in concept if not verbatim, in professional journals such as *Parameters*. It is a book professionals will want to read.

In *Fighting for the Future*, Peters is, by his own admission, waging a war of attrition upon the Army establishment and bureaucracy. This collection deals in issues of political affairs, international relations, U.S. military force structure and the nature of the Army's relationship to technology, among other things. More often than not, it reads like a "how-to" manual for the U.S. in the 21st century. Peters is willing to take on just about any sacred cow, and he does so here with a decidedly irreverent wit. Warning: If you are a rabid nationalist, a tribal warrior, or a screaming fundamentalist, this book may offend you. Since many of the chapters apparently originated in *Parameters*, they are fairly short and therefore easy to digest in a single sitting. The origin and focus of the essays might put some readers off at first glance. This should not be the case.

*Parameters* is the journal of the U.S. Army War College. It deals with issues at the strategic, not tactical, level. The authors are almost exclusively lieutenant colonels, colonels, and Defense Department civilians, and generals writing for each other. Because of this focus, it would be easy to assume that Peters' topics and style would be well above the heads of the average *ARMOR* reader, this reviewer included. Happily, this is not the case. Peters writes in an easy, almost conversational style that would alienate neither the majority of civilians nor the average soldier. In short, he writes about global issues in a manner that would be equally appropriate in *PM Monthly*. Reducing complex topics to their basics, even issues of international affairs make sense when explained and dissected by the author's acid wit.

If there is a chink in Peters' armor, it is in the chapter when he deals specifically with the future of armor. Peters' contention — that much of future combat will be dominated by the urban terrain of expanding cities — is one that has been repeated over and over in the past two decades, but we have yet, for some reason, seen this as a reality. It is beyond this reviewer to postulate why that is so, merely to observe that this has been the case in very few instances. Peters may be wrong in this. Yet he takes this as the starting point for his foray into what can only be described as science fiction. Peters sets no dates on his fore-

cast, but it is decidedly in the far future. This is Peters' weakest chapter because it deals with non-issues of an impossibly distant future. (Impossibly distant, that is, given our current and forecasted budgets.) In just about every other chapter, Peters is both entertaining and informative. His personal theories of international relations and military conflict are appropriate for a professional of any pay grade. I strongly recommend this book.

ROBERT L. BATEMAN  
CPT, Infantry  
West Point, N.Y.

**Warmaking and American Democracy: The Struggle over Military Strategy, 1700 to the Present** by Michael D. Pearlman{PRIVATE }, University of Kansas Press, Lawrence, Kansas, 1999, 442 pages, 11 maps, \$45, hardcover.

The issue of how a democracy conducts war is complex and as relevant today as it has ever been. Since the founding of our country, the political system of the United States has profoundly affected the manner in which the United States has waged its wars — it is a story literally as old as the republic itself. Somewhat surprisingly, however, as central as the topic is to American military and political history, it has rarely been addressed effectively in recent scholarship. Dr. Michael D. Pearlman, an associate professor of history at the United States Army Command and General Staff College at Fort Leavenworth, Kansas, has written a broad ranging and insightful account of how American military strategy has developed due to domestic considerations. Expansive in scope, yet concise in its prose, Dr. Pearlman's book is an absolute delight to read.

What is most striking about *Warmaking and American Democracy* is its very premise: although war is most effectively waged as a united effort of political, military, and popular will, the American experience has been quite different. Dr. Pearlman argues that the method by which wars have been waged throughout the history of the United States has had less to do with overall grand strategy and more to do with a continuous struggle between competing governmental and military factions. In the beginning of the work, the author makes it clear that the book is not about political, diplomatic, or military history but instead the area where these fields overlap. The topic is a challenging one and Pearlman's unique approach is up to the task.

Structured around the major military conflicts of American history, each of the nine chapters of *Warmaking and American Democracy* is superbly written. The chapter devoted to the Second World War is arguably the strongest of the book because it starkly reveals the degree to which our national strategy against the Axis powers was the consequence of competing and often contradictory interests. Dr. Pearlman dispels many misconceptions about how the United States fought the Second World War, often remembered as the "last good war" in which the enemy was

clearly evil and the nation banded together in response. Rather than being a unified and consensual military, political, and popular effort, Dr. Pearlman reveals just how difficult it was to implement a coherent strategy since inherent domestic divisions remained throughout the duration of the war. Because Nazi Germany and Imperial Japan posed such a dangerous threat, they had to be soundly and permanently defeated, and thus required a concerted struggle and inspired military leadership. On the other hand, domestic opinion demanded that military reversals be avoided and casualties be minimized, which in turn discouraged risky military options. One of the more surprising revelations from the chapter is the astonishing "lack of wartime fervor, even during wartime" that affected mobilization, strategy, and operations.

It is hard to find fault with this book. A welcome addition would have been an analysis of the American involvement in the Balkans beyond a few thoughtful lines in the final chapter. It is in this part of the world that many of the points raised by *Warmaking and American Democracy* are most starkly demonstrated. As a whole, however, Dr. Pearlman has made an important contribution to our understanding of the intersection of politics and strategy. As the line between war and peace seemingly becomes more confused with each passing year, recognizing how domestic factors shape strategy has never been more important.

The excellent sources and extensive notes make this a work of scholarship of the first order, while the simple and informative maps are an added bonus. *Warmaking and American Democracy* is essential reading for the military professional and anyone interested in how America goes to war. Dr. Pearlman has aptly proved his point that "Constructing military policy in a pluralistic society has never been a bed of roses." Although the notion is simple to understand, explaining the difficulties involved with formulating American military strategy so clearly is indeed a remarkable achievement.

MAJOR KEVIN W. FARRELL  
Fort Leavenworth, Kan.

**Seven Roads To Hell: A Screaming Eagle at Bastogne** by Donald R. Burgett, Presidio Press, Novato, Calif., 1999, 225 pages, \$24.95.

It is always professionally rewarding to read a good memoir written by a soldier who has served in combat. Donald R. Burgett's account of his experiences as a private in the 101st Airborne Division at Bastogne, *Seven Roads to Hell: A Screaming Eagle at Bastogne*, is no exception. But it is his depiction of the more mundane and ordinary events of a soldier's life, not the story of battle, which makes this book important and worthwhile.

As far as personal accounts of combat go, Burgett's is average in terms of scope and emotional influence. His accounts of the battles around Bastogne, fought by various elements of the 101st, are compelling to be sure, but there is nothing that sets them apart from

other personal narratives in either intensity or poignancy. There are, however, two aspects of Burgett's work that distinguish it. First, he does an exceptional job of relating to the reader the daily trials and travails of the average GI, ranging from the simplistic implications of a lost entrenching tool to instructions on keeping a foxhole dry. The author's portrayal of the long periods of relative inactivity and anxiety between brief minutes of furious combat bring home to the reader the life of the average GI in a way that complements the writings of Stephen Ambrose.

Second, the reader can actually see and feel this young soldier mature as the battle progresses. Although this is a very recent publication, Burgett wrote the original manuscript shortly after the events occurred. A veteran of the European Theater since Normandy, Burgett had seen plenty of combat by December of 1944, yet his words and actions relay some of the jocularity and cockiness found in many elite units before the German counteroffensive. When his platoon first hears about the impending operation, he remarks casually that, "We were gonna stack bodies. Germans, give your souls to God, 'cause your asses are ours." (28) This cavalier attitude fades as the campaign progresses. It is replaced by reflection on combat and by realistic appraisals of the fighting and the author's relation to it. While the initial arrogance never completely disappears, it is tempered by the trials of Bastogne. The process is both interesting and thought-provoking.

Thumbs up to Burgett. He does an admirable job relating an original account of a proud moment in American military history.

MICHAEL A. BODEN  
MAJ, Armor  
Department of History  
U.S. Military Academy

**Storm Over Iraq: Air Power and the Gulf War** by Richard P. Hallion, Smithsonian Institution Press, Washington, 1997, 352 pages (paperback), \$17.95.

I received this 1997 paperback reprint of Dr. Richard Hallion's analysis of the Gulf War air campaign during the second week of the NATO air campaign against Serbia. I thought that his work might provide me with a keen insight on the conduct of a decisive air onslaught. However, much as the air war over Serbia has so far been a disappointment, so too is Dr. Hallion's book. (*This review was received before the Serbs agreed to withdraw from Kosovo.* — Ed.)

Hallion puts forth the premise that the advent of precision air-delivered weapons has allowed nations the ability to strategically target things instead of people. As a result, he believes, air power has turned the tide of decisive battle in favor of air forces; that navies and armies (to include their air power, to a great extent) are obsolete in the context of modern war. While Hallion could have argued his point by examining the effects of precision air power across the broad spectrum of war-

fare and environments, instead he falls too often into service parochialism, indeterminate statistics, and vague language.

*Storm Over Iraq* begins with four chapters dedicated to an overview of air power since its inception in World War I to the eve of battle in August, 1990. While Hallion provides a worthy compact survey of the origins and development of modern air power and its weaponry, he uses 120 pages — half of his text — to do so. This leaves the author with very few pages to review the Gulf War. His haste to do so becomes evident as the reader tugs through much techno-speak and little substance. Virtually none of his figures are referenced in the text and many of his facts and tables seem superfluous to his arguments.

Hallion closes with a sparse chapter of analysis derived from the Gulf War. In it, he attempts to validate his concept that precision air power has risen to become the primary, dominant form of war. While it is difficult to contend with the idea that air power is indeed decisive and necessary for successful campaigns, Hallion's blatant parochialism (even against the Navy) is often too strong to garner agreement with his "determinant of victory" and "primary instrument" arguments.

Hallion also fails to acknowledge how external factors affect the logic of his argument in a non-ideal environment. Iraq was an open desert with a cooperative enemy and relatively decent weather. How about the effects of terrain, weather, finite ordnance resources, political limitations, enemy tenacity, and the increasing media impact of even small numbers of collateral casualties, on the effectiveness of air power relative to land power? Hallion dismisses the need for decisive ground forces at all when he states that air power "can hold territory by denying an enemy the ability to seize it...and can seize territory by controlling access to [it] and movement across it." I find this hard to believe!

The paperback edition of this book includes a new preface that mentions the Bosnian air campaign, but offers no modifications to the original text. However, the course of events in Serbia and Kosovo are, by themselves, challenging Dr. Hallion's theories. As Slobodan Milosevic holds out and the talk of ground troops in Kosovo grows, the balance of air to ground power is proving to be more tenuous than the author would have us believe. In a theoretical world, maybe Hallion's theories would hold up, but our world will never be this way. Just as Douhet and Tedder failed to deliver on the promise of the singular decisiveness of strategic air bombardment, so too does Richard Hallion.

*Storm Over Iraq* does provide a good survey of the development of American air and missile power since the First World War. The 44 pages of appendices outlining the development of numerous high-technology systems are a useful reference. This book is worth reading to better understand how our Air Force thinks and operates in the stealth era of air warfare. However, I do not recommend keeping it on your bookshelf. Borrow it from

your local library, read it once, and save your money for a more balanced view of modern warfare.

CPT SCOTT MAXWELL  
Fort Polk, La.

**Zhukov's Greatest Defeat: The Red Army's Epic Disaster in Operation Mars, 1942** by David M. Glantz, University Press of Kansas, 1999, 421 pages, \$39.95, hardcover.

While the long-term consequences of the fall of the Soviet Union remain open to debate, one of the most positive short-term effects has been an ever-increasing insight into Soviet military history. As more and more previously unavailable primary sources have been attained by military historians, our view of Soviet military history has been steadily corrected as historians compensate for our earlier reliance on sources outside the Soviet military. The result has been a much more balanced history in the books published since the fall of the Soviet Union.

David Glantz takes advantage of many previously unavailable unit histories, personal memoirs, and other primary sources to bring to us the little known story of a major Soviet offensive in 1942 that failed miserably and was subsequently ignored by official Soviet history. The sister offensive to the famous encirclement of German forces in Stalingrad, Operation Mars, was at least as broad in purpose and resources, but until now was almost completely forgotten to history. Glantz brings the story to life in vivid detail, and offers the student of military history not only an interesting story of war on the Eastern Front, but considerable insight into the difficulties and perils of warfare at the operational level. He devotes almost 100 pages to notes and extracts to support his reasoned and articulate view of the campaign.

The military reader is likely to find fault with *Zhukov's Greatest Defeat* on only two issues. First, the maps, although well-drawn and plentiful, do not use standard NATO conventions for unit symbols, and it takes some time to become comfortable with the way units are represented (the size of the type corresponds to the echelon of the unit). Second, Glantz attempts to infer the inner thoughts of several key Russian and German commanders, but this is purely speculation and adds little to the worth of the book. The value of this work is in the detailed record of Soviet operations and the underlying decisions that drove them.

*Zhukov's Greatest Defeat* is well written and extremely well researched. Military professionals need this work, and others like it, to balance our former reliance on German sources as the basis for our view of warfare on the Eastern Front during World War II. Glantz has written a history that offers fresh insight while managing to be enjoyable reading at the same time.

CPT JOSEPH MCLAMB  
Fort Knox, Ky.



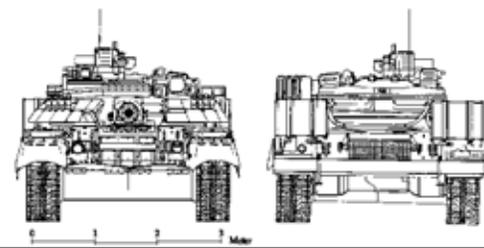
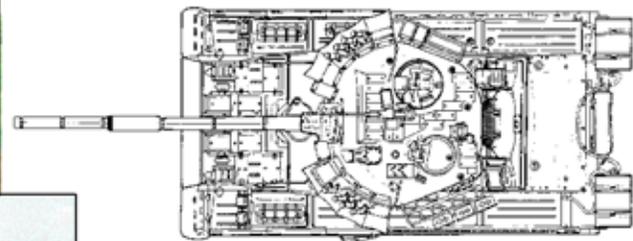
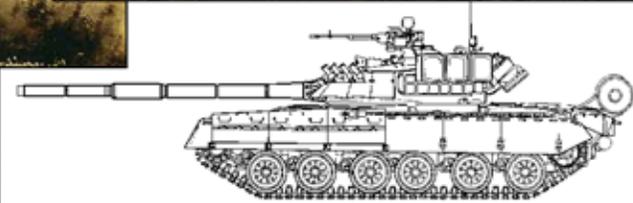
# T-80U

Threat Branch



Fort Knox, Kentucky

## Russian Main Battle Tank



### Characteristics

Crew Size	3	Max Road Range	440km
Combat Weight	46,000kg	Max Road Speed	70km/h
Height (without machinegun)	2.202m	Armament (main gun)	125mm
Length (hull)	7m	Armament (coaxial)	12.7mm
Length (gun forward)	9.656m	Armament (commander's)	12.7mm
Width	3.589m	Armament (ATGM)	AT-11

Using countries: China, Cyprus, Pakistan, Russia, South Korea, Ukraine

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