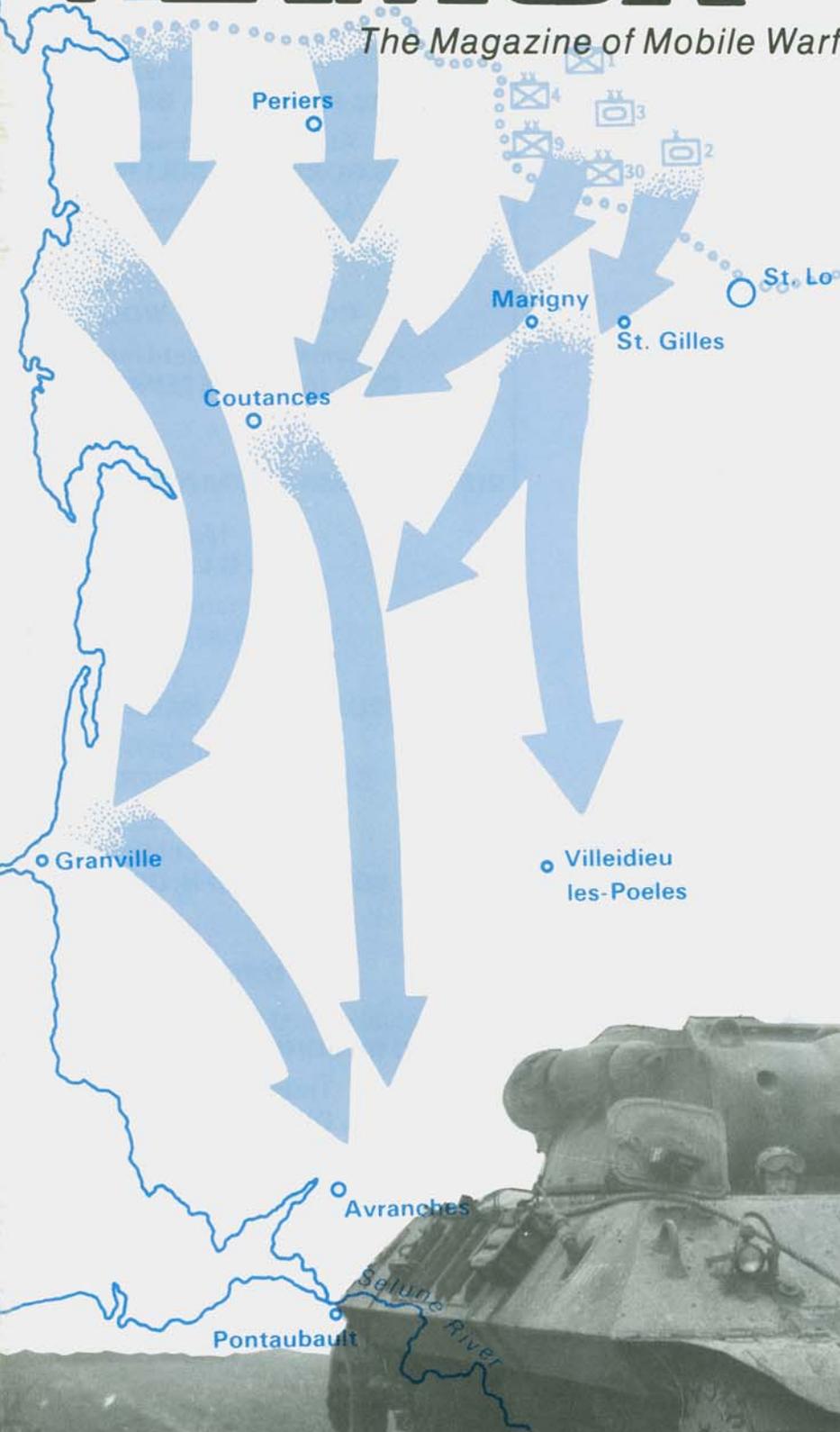


ARMOR

The Magazine of Mobile Warfare



40 Years Ago:

OPERATION COBRA

The Normandy Breakout
page 24



September - October 1984

United States Army Armor School



"To disseminate knowledge of the military arts and sciences, with special attention to mobility in ground warfare, to promote professional improvement of the Armor Community, and to preserve and foster the spirit, the traditions, and the solidarity of Armor in the Army of the United States."

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COVER

Hemmed into a small beachhead for almost two months after the Normandy landings, the Allies finally broke out in Operation Cobra, a classic example of armor in exploitation. Captain Stephen Borows recounts this exciting campaign of 40 years ago on page 24.

LETTERS

About That Tank. . .

Dear Sir,

On your May-June cover I saw an *M48A5* and when I opened the magazine was shocked to see you call it an *M60A1*! Maybe you guys need a refresher on vehicle ID. After a mistake like that, I wonder about the validity of your "Recognition Quiz."

The cover raised two questions: Why did only the TC have his protective mask on? (Maybe he was the only one who got the word?) And secondly, since the 194th Armored Brigade has *M60*-series vehicles, who does the tank on the cover really belong to?

MARK HOLLOWAY
National Training Center
Fort Irwin, CA

Dear Sir,

Having just returned from our annual training at Fort Drum, I was glad to see the current *ARMOR* Magazine on my desk, as I enjoy your entire magazine. The tank shown on the cover is an *M48A5*, our unit's assigned vehicle, but on the next page, you identify it as an *M60A1*...

GORDON GARDNER
SSG, VTARNG
Bradford, VT

Dear Sir,

I just read your latest issue of *ARMOR* Magazine and hasten to point out that you would not pass the section of the TGST on vehicle recognition. The tank featured on the cover of the May-June issue is an *M48A5*, not an *M60A1*, as stated inside. Perhaps you should feature this tank, along with other (obscure) vehicles, in your Recognition Quiz. Shame, Shame!

J.H. BOWER
Milford, NJ

(We have no excuse. . . The smoke on the cover certainly wasn't thick enough to obscure that curving frontal plate, those distinctive fenders, that commander's station. We just plain looked too fast. Sources at the 194th tell us they drew the *M48s* at Fort Drum, rather than taking their *M60s* with them. Ed.)

MILES Off Target

Dear Sir,

Although we really hate to nitpick, we must comment on the cover photo of the May-June issue. (Yes, we noticed that the tank is not an *M60A1*, but we're sure

you've heard about *that* already!) We refer to the *MILES* (Multiple Integrated Laser Engagement Simulation) equipment in use by the soldiers and on the vehicle.

Obviously, we don't know the tactical situation under which the action is occurring; however, we noted some discrepancies which would negatively affect the training value of the tactical engagement simulation exercise.

First of all, the dismounted soldier in the lower right corner has no helmet detector harness installed. This has the effect of negating the "kill" effect of incoming fire by the opposing force. This defect should have been corrected immediately by the exercise controller. If an operable helmet harness was not available, the soldier should have been eliminated from the exercise. (See "Rules of Engagement" in any *MILES Field Controller's Guide*)

The tank and its crew are cheating both themselves and the opposing force. The commander and leader (both of whom are riding high on the turret) are not wearing Man-Worn Laser Detectors (which are supplied in *MILES* tank kits), and are thus "un-killable" by incoming fire. Again, this is a violation of the *MILES* Rules of Engagement. Secondly, the tank cannot deliver effective machinegun fire since neither *M60D* machinegun is equipped with a *MILES* transmitter or blank adapter (the *M219* coaxial machinegun has no blank fire adapter available: hence, it cannot be used to deliver fire.) As shown, the tank can deliver only main gun fire.

One of the *MILES* cables is hanging off the side of the turret near the rangefinder bubble. This could easily be damaged. It should be secured to well-applied hook fastener tape on the turret roof.

We do not mean to "come down hard" on the soldiers in the photo, or their leaders; again, we don't know exactly what's going on. However, by pointing out discrepancies, we hope to assist *MILES* users in getting the most out of their tactical engagement simulation training.

CHARLES R. SOUZA
SFC, USATC
Fort Eustis, VA

Rebuttal on "A New Concept"

Dear Sir,

I was struck by the ironic contradiction between the title and content of 1LT John J. McGrath's "A New Concept for Combined Arms" in the Professional Thoughts department of the January-February issue of *ARMOR*. The body of 1LT McGrath's contribution advocates nothing less than the *de facto* abandon-

ment of the combined arms concept at battalion level and below.

1LT McGrath envisions a major role in the modern battlefield for the pure infantry battalion. This newborn independence of the infantry results directly from the fielding of the Infantry Fighting Vehicle (IFV): "... the IFV gives properly-deployed mechanized infantry the capability to fight the enemy toe-to-toe without tanks."

While this might be mathematically possible under ideal conditions, say, upon a properly configured classroom terrain board, it is clearly hardly applicable to the European scenario, where the terrain more often than not precludes full exploitation of *TOW* capabilities. In the middle range band (out to maybe 2,500 meters), where one can reasonably expect the vast majority of targets to first appear, the traditional dominance of the main battle tank (largely as a result of its much greater volume of fire) remains unchallenged by ground missile systems. Indeed, the potency of the tank has been, if anything, enhanced in this range band through the fielding of the latest generation of main battle tanks featuring greatly improved fire control and stabilization systems, special armor arrays, and quantum improvement in cross-country sprint capability.

One would be foolish not to acknowledge that the mounting of the infantry in *TOW*-equipped vehicles gives them an enhanced antitank capability. 1LT McGrath errs greatly, however, in postulating a pure role for IFV-mounted infantry. The ideal employment of the IFV is as an integral component of the combined arms team/task force, where the *Bradley's* 25-mm cannon remedies a long-standing inability to deal with light-armed targets, particularly the *BMP* and variants, short of tank cannon fire. The IFV/MBT mix ideally weds the long-range, heavy antitank capability of the *TOW* with the intense volume of antiarmor cannon fire, both 25- and 105-mm, critically necessary to "bust" a standard Soviet armored array at normal combat ranges.

That the doctrine accompanying Division 86 states that companies will fight pure most of the time is not primarily resultant from a recognition of the enhanced capabilities of the latest generation of combat vehicles. Rather, it stems primarily from the reorganization of the battalion into smaller, more numerous companies, providing the battalion task force commander more flexibility in employing his companies than was previously the case. An avenue of approach that might formerly have been the sole responsibility of a single cross-attached company team is now more likely to be the shared responsibility of two pure companies, tank and infantry, operating

alongside one another. In this case, the individual companies' unity and camaraderie (by virtue of their organic employment) would heighten their combat effectiveness while the combined arms effect of their mutual employment would be retained — at battalion level. The doctrine writers probably went too far in postulating that companies would fight pure "most of the time." At the Armor School, the doctrine is being more realistically interpreted to mean that one does not automatically cross-attach platoons. The "Catch-22" is that the cross-attachment will often prove necessary despite its inherent reduction of unit cohesion and its logistic headaches. The general trend is toward somewhat less frequent cross-attachment of a more temporary duration, thereby minimizing the logistics problems and capitalizing on unit cohesion whenever possible. The prescription for the maneuver force is clearly the development and adoption of Army-wide SOPs specifically governing combined arms operations at the company and battalion level.

1LT McGrath would retain a trace of combined arms capability in his conceptual tank battalion by trading the fourth tank company for a mech infantry company. The combined arms battalion does have attractive features, not the least of which are its enhanced cohesion and teamwork, the inherent product of daily contact and far more frequent combined arms training opportunities. The concept is, however, fundamentally flawed in that it "fixes" the infantry/armor ratio, robbing the maneuver commander of the flexibility to configure his force in order to most effectively accomplish his mission in light of prevailing METT considerations. One can imagine a few situations in which a brigade commander might desire to employ a pure tank battalion, and a great many situations where the single organic mech company would prove inadequate. An army that expects to fight outnumbered and win can afford neither to squander scarce assets where they are unneeded nor field battalions whose configuration limits their tactical employment options.

A consideration of the more complex supply, maintenance, personnel, and weapon systems training demands of the organic combined arms battalion was undoubtedly a further reason for its rejection by the Division 86 organization wizards.

In 1LT McGrath's writing, I sense a more fundamentally disturbing notion — that armor and infantry perform separate and distinct functions on the battlefield, that each arm "does its thing" alone, their sum equating to success. The battlefield of tomorrow demands quite the contrary. Victory there will demand a full exploitation of the AirLand Battle Doctrine and the enhanced capabilities of current and future weapon systems. Armor and infantry certainly have unique strengths and weaknesses; success demands, however, a closer, more fundamental interaction than ever before. The

infantry must free itself of the mindset that it exists solely to clear "tank-proof terrain" (what's that?), "take the high ground," and "dig in." That is not to say that these capabilities of the infantry are not important, but rather that our vision of the next battlefield is of one characterized by bold maneuver and frequent meeting engagements, violent collisions of rapidly moving armored forces. On that battlefield the rapid and temporary occupation and exploitation of favorable terrain, coupled with the synergetic massing of the firepower of complementary weapon systems, will yield victory. Maneuver units employed in essentially static roles, particularly those astride obviously dominant terrain, will be located by increasingly sophisticated and accurate stand-off target acquisition systems and either lamed or rendered combat ineffective by increasingly more lethal area attack cluster munitions, scatterable mines, chemical munitions, or nuclear fires.

The synergetic interaction of armor and infantry was previously realizable only within a relatively positional context because of the battlefield vulnerability of the personnel carrier and the lack of firepower of the infantry squad when operating mounted. The IFV-MBT combination opens up a dynamic new range of tactical options. The IFV does not, as 1LT McGrath would have it, free tanks "to do what tanks do best." Rather, it offers the infantry the opportunity to abandon the "battle-taxi" mentality of the M113 and extends them the capability to maneuver alongside the main battle tank on a battlefield where the absolute difference between attack and defend has lost much of its significance, at least at the lower tactical echelons.

Brother, we need each other alongside now like never before. Have some of my mobility, shock action and firepower; mount 'em up, let's roll!

PETER ALBERT HENRY
CPT, Armor
Tuebingen, Germany

Ancient Tenets Still Apply

Dear Sir,

Recently I was glancing through a 41-year old book (*The Infantry Journal Reader*, Doubleday Doran and Co., Inc., Garden City, N.Y., 1943) that I've re-read a thousand times and I came across an article that I had dog-eared as being particularly worth re-reading.

The article is entitled "Leadership" and was the product of the combined thinking of the country's leading psychologists of the day. It was compiled from a mass survey made among enlisted men in 1942, shortly after this nation had gone to war against Germany and Japan. The survey was an extensive, in-depth probing into what that citizen-soldier (read draftee) thought about the Army. Undoubtedly there were some pungent comments that had not been re-

corded! However, one important aspect of the survey was the sub-section entitled "What Soldiers Think of Leaders." The 12 points covered below are as valid today as they were four decades ago. I quote from the article:

"1. Ability. Competence comes first. The good officer must know his stuff, for on this depends the men's confidence in his leadership.

2. Next is interest in the welfare of the soldier. The officer who can be trusted to help the soldier in time of need, or who would be accessible for personal advice, is a good officer.

3. Promptness in making decisions is next.

4. Good teacher or instructor follows. The leader who has the patience and the ability to make things clear to the men under him is valued for that reason.

5. Judgment, common sense, and the ability to get things done are next in order.

6. The good leader does not "boss you around where there is no good reason for it." Soldiers dislike an officer who throws his rank around, who tests his own authority continually. They sense that he is not sure of himself.

7. The man who tells you when you have done a good job rates well as a leader. Failure in commendation is a common complaint among men in the ranks. The best incentive to good work is the prospect that it will be noticed and remembered by the leader.

8. Physical strength and a good build come next.

9. Good education, a sense of humor and guts or courage follow in that order.

10. Impartiality is next. Leaders who do not "save the dirty jobs for fellows they don't like" are valued. The good leader is fair to all in his command.

11. Next in importance is industry. Leaders who "do as little work as they can get away with" are not respected by the enlisted men.

12. When an officer "gives orders in such a way that you know clearly what to do," that, too, is a mark of merit as a leader. Soldiers also like an officer with a "clear, strong voice."

These requirements of a good leader, so important to the GI of World War II, are still valid with today's enlisted man.

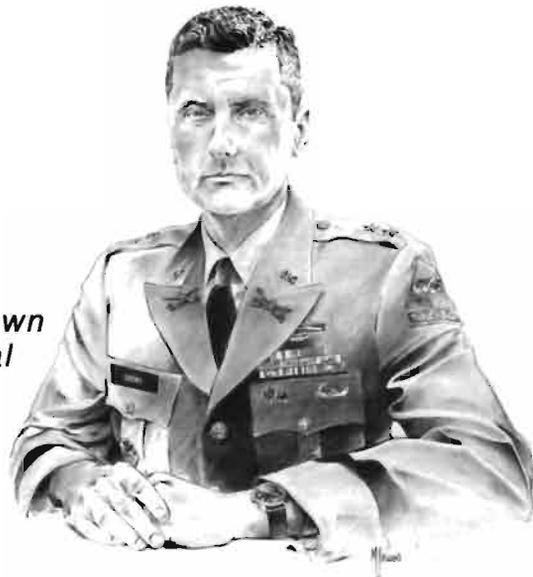
ROBERT E. ROGGE
MSGT, USAF (Ret)
Radcliff, KY

Armor Trainer Update

The Armor Trainer Update will take place 29 October to 2 November at Fort Knox. In addition to briefings, seminars, and conference time with the leadership of the USAARMC, a full day has been set aside for an update on cavalry. Questions should be directed to Mr. Sanders, AUTOVON 464-8247. Major Marshall, AUTOVON 464-1240, is POC for the cavalry update.

COMMANDER'S WATCH

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



New Realism in Tank-Pure Training

In my last column, I suggested ways our training must change if we are to exploit a new generation of weapons to win the AirLand Battle. In this column, I'd like to expand on that theme, focusing on tank-pure training — individual tanks, sections, or tanks with wingman, or platoons. In the next issue, I'll tie that into the bigger, combined-arms training picture; but for now, I want to discuss what we've been doing at USAARMC to train our force up to platoon level.

While some individual armor crewman training goes on in units as regular Soldier's Manual sustainment work, increasingly, the baseline, foundational individual training takes place in the institution during OSUT and in officer and NCO courses. It is for this reason that we've been placing so much stress on improving the effectiveness of institutional training and also why we are moving to teach all Skill Level 1 tasks in OSUT.

We're making training more effective by making it more realistic: potential combat situations faced by the student in training parallel the situations we anticipate he will face in actual combat. His success in combat will depend on the realism of our peacetime training preparations, hence the emphasis on training as we would fight.

Collective unit training begins as crews are formed and learn how to work together in each tank. Tank-pure associations — the tank-wingman combination and the tank platoon — are also formed during this stage of training, which is covered in the newly written and redesigned Tank Combat Manuals (FM 17-12-1 thru FM 17-12-3). Each manual is

divided into two parts: *how* to train for tank combat (the techniques and procedures) and *what* to train — the skills, drills, and exercises that comprise the combat tables.

Introducing the Tactical Tables

In the past, the Armor Force has concentrated on crew gunnery exercises in its tank-pure collective training. Traditionally, this level of training culminated in Table VIII. The new tank manuals present a revised tactical gunnery program which goes beyond this point, through crew and tank-with-wingman training to platoon-level proficiency (Table XII).

The new manuals also present a new training challenge, the tactical proficiency tables which train those tasks that cannot be practiced on a live-fire range because of safety or cost constraints. These tactical proficiency tables fill many gaps in the realism of past training, and I think it's important to stress here both those past weaknesses that we have all acknowledged need correction and what we're doing about them.

While our past emphasis on gunnery tables has been adequate to train use of sights and fire control, fire adjustment, night firing, ammunition selection, and a full exercise of crew duties, this past emphasis had its limitations. Targets were not realistic, were relatively easy to acquire, couldn't shoot back or evade, and were presented in unrealistic "bowling alley" situations, rather than the 360-degree, in-the-round challenge of the real battlefield.

These limitations have prevented us from training as we would fight. One example: our AirLand Battle doctrine calls for penetrations into Threat rear areas to engage high-value targets such as regimental artillery groups, command posts, trains, and second-echelon units as yet uncommitted to the main battle. This task has been virtually "untrainable" in the past; there was no way to realistically practice the 360-degree target array, the surprise targets and the crucial maneuver necessary to win this kind of fluid battle. This is about to change.

Using our newly acquired simulation technology, we now can augment the traditional, straight-ahead, Threat first echelon-oriented training of the current live-fire range. We can do it by teaming our new training devices with the new training exercise we call the tactical table. Now we have VISMOS, modified vehicles that present a more realistic Threat target signature. They will be tough to acquire, they are evasive, and — given the potential of laser-engagement systems MILES — capable of shooting back — a smart enemy.

Crews will have to know how to use their own mobility and agility to defeat the Threat targets. The tactical tables are designed to focus the improved capabilities of our modernized equipment.

Like gunnery tables, tactical tables are progressive, from basic (the crew) through intermediate (the tank working with a wingman) to advanced (the tank platoon).

Each level includes a "gate" table, which qualifies a crew to move on to the next level. The tactical tables, which carry letter designations rather than Roman numerals, culminate at platoon-level proficiency. Table India is equivalent to Table XII, the platoon-level gunnery qualification course.

Tactical Table Training

Tactical tables progress in difficulty, and in two directions. The tables progress horizontally — from basic to intermediate to advanced — and vertically, from individual tasks through crew drills to crew reaction exercises. Let's review the progression with some examples.

The three basic tables, A, B, and C, take the soldier from individual combat-essential tasks (negotiate a route using terrain for cover and concealment, for example) through crew drills (Table B) to crew reaction exercises (react to ambush) in Table C. Table C uses the skills trained in tables A and B and challenges the crew to make rapid tactical decisions faced with a controlled OPFOR. MILES adds a degree of realism and stress. (When the Tank Weapons Gunnery Simulation System (TWGSS) or the Full Crew Interactive Simulator (FCIS) are available, either can be used instead of MILES to permit reinforcement of gunnery skills while training tactical tasks.) Table C is also the "gate" to the next level. The three intermediate tables, D, E, and F, deal with two tanks supporting each other — the wingman concept. These tables progress as the crew-level tables do. Table D trains the tasks required for coordination between tank crews in the wingman pair; Table E drills the two crews to work together, and Table F — like Table C — ties it all together.

Further along, in Tables G, H, and I, the platoon comes together to perfect its skills as a fighting unit. Table India places the platoon in a scenario that simulates combat as closely as possible: the platoon faces a MILES-equipped OPFOR as it advances through a maneuver area, reacting to a series of combat situations that can be expected in the offense or following a friendly force penetration.

Combining the Tables

Since gunnery skills decay and tactical application is forgotten quickly, the tactical tables should be trained as closely

as possible to the gunnery tables *and ideally should be interwoven*. It is recognized, of course, that this is not possible very often but, if it were, it would be advantageous to follow Table F, the tactical qualification table for a tank with wingman, with Table X, the live-fire qualification table for section gunnery. Similarly, it would be more effective to have the intermediate gunnery tables (IV thru VIII) interwoven with the intermediate tactical tables (D thru F) and the advanced gunnery tables, IX thru XII, with tactical tables G thru I.

But interweaving the two types of tables will require careful planning. The tactical tables should be located near the gunnery ranges and that will not always be possible, so the next best thing would be to conduct the tactical tables immediately after the gunnery tables, and thereby reinforce as well as expand capabilities.

The method of conducting tactical tables is limited only by the training creativity and experience of the unit setting up the tables. The course should be similar to a leadership reaction course with the tactical tasks set up as stations. The tables can be run in any environment, day or night, based on the commander's decision and the available equipment.

The tank platoon that successfully completes the performance gates of combat tables XII and India will be well prepared to take the next training step as they become part of a combined arms team. The descriptive exercises that follow combat tables proficiency are laid out in the ARTEP Mission Training Plan's series of STXs, FTXs, LCXs, and FCXs. Then, combat table proficiency training and platoon/company team AMTP training come together and are demonstrated on a company/team combined-arms, live-fire exercise (CALFEX). This final element on company/team unit training provides for an evaluation of combat capability — fire-power, protection, maneuver, and leadership — against a desired standard. (It is, in effect, the next level of combat training above our platoon "gates" — Tables XII and India — and I plan to go into it in greater detail next issue with a discussion of ARTEP/CALFEX training in depth.)

Summary

The new tactical tables allow a much greater level of realism in our tank-pure training while overcoming many of the limitations of earlier gunnery-based training. This crew/platoon training will be cheaper, too, because we're using fewer live rounds to sustain the same level of training proficiency at the tank level. This allows us to allocate more live rounds of our main gun ammunition to the multi-tank advanced gunnery Tables X and XII and the CALFEX, where these rounds will offer a much better training payoff.

The outcome will be better trained crews, tanks with wingman sections, and platoons. We feel that we are collectively heading in the proper direction with our gunnery and tactical training being combined. The end result of all of this will be more lethal combat units. Forge the Thunderbolt!





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

Please Send Your Very Best

(The following comments by Command Sergeant Major Joseph Bossi, CSM, 2d Support Group, VII Corps, Stuttgart, West Germany, are pertinent to the Armor NCO corps, Active, Reserve and National Guard. There are legitimate problems presented here, problems that need our undivided attention if we are to maintain our credibility as Armor force NCO instructors and mentors to our Reserve and National Guard units who rightfully look to us for leadership.)

There has been a plethora of comment, both in the national media and within the Armor force, regarding our Reserve Component and our National Guard units. The majority of these comments have been unjustifiably negative. No military unit is perfect in every way and it behooves each of us in the Active Component to remember that in addition to our primary duty of learning how to fight and survive, we are also responsible for passing on our hard-won knowledges and skills to our supporting elements.

In keeping with this latter responsibility, we have developed the Full Time Manning Program in which Active Component NCOs (and officers) are assigned on 3-year stabilized tours of duty to Reserve and National Guard Armor units to provide a leavening of skill and experience upon which those units can elevate their combat readiness standards.

The selection and assignment of these NCOs to Reserve and National Guard units deserves the deepest consideration on our part, for upon these men rests, literally, the credibility of the Active Component.

If an NCO assigned to one of these units is not the most fully-qualified man in every respect, not only does the gaining unit suffer, so does the Active Component that assigned him. That man is looked upon as the expert in his field. If he is anything less than that, everybody hurts.

There are pitfalls in the program that must be avoided. If the position calls for a master gunner on the M60A1 tank, then the assignee must be a fully-qualified master gunner on the M60A1 prior to his assignment. Anything less is a disservice not only to the gaining unit, but to the Active Component as well.

There may be times when the job description supplied by the gaining unit is not complete in its detailing of the duties

to be performed by the Full Time Manning NCO. If, for example, the job description calls for a tank commander but, in reality, the gaining commander also expects that NCO to coordinate and manage the unit's training program when the unit is not drilling at inactive duty training, that fact should be clearly spelled out. Such clarity is the responsibility of the gaining commander.

Also, Reserve and National Guard units must make clear exactly the type of armor equipment they have, for it does nobody any good to assign a highly-qualified and motivated NCO of M60A3s to a unit equipped, for instance, with M48A5s. An NCO assigned under such circumstances cannot possibly meet the criteria expected of him by the gaining commander. As a result, the NCO must understand that there are no training schools available to him and that he must learn the system on his own. Such intensive learning has been done in the past and undoubtedly will be done in the future, but it should not have to happen. It is the cause of much frustration for all concerned and denigrates the NCO's training program. The prevention of such misassignments lies in the domain of both the Active and Reserve Component personnel systems.

Another vitally important consideration that must be thoroughly examined by the Active Component prior to assigning an NCO to a Reserve Component unit is his proven ability to manage his personal affairs — including those of his family. If that NCO did not think too highly of his home base's personnel support activities, he is in for a rude awakening when he is assigned to a Reserve Component unit for he will be totally dependent upon the community where he lives. There will be no PX, no commissary, no base hospital, no on-base quarters. There will be no chaplain nor legal officer, nor any of the profusion of friends, technical libraries or "inside dope" to which he had been accustomed. He will be on his own and if he cannot manage his personal affairs, he becomes a burden to his gaining unit and may well be relieved of his duty there. Once again, this reflects adversely upon the credibility of the Active Component and it is incumbent upon that commander to ensure that every NCO he assigns to a Full Time Manning position can handle

his own affairs.

An additional problem often faced by the Full Time Manning NCO is that of the increased cost-of-living expenses at his new post. Cost-of-living allowances only partially ease this burden and it is one that needs serious study at the highest levels of command.

Perhaps the most important duty of an NCO in a Full Time Manning slot is that of setting the example. In no way can this be overlooked. Not just the standards of personal neatness and military bearing — these are expected of every senior NCO and need no further comment. What I am referring to is the application of those standards of training, maintaining, caring and leading on which the NCO corps is based. These standards have been constantly raised over the years and many of those that applied as recently as 1982 no longer apply. They have been raised for mission accomplishment and survival, not just because somebody dreamed them up.

The selection of the right NCO for a Full Time Manning position to teach these standards is of vital importance and concern to the total force. This selection can only be made by the losing commander. He must certify that the selected

NCO is fully capable of training and of managing that training. He must certify that the NCO is capable of applying those training and management skills without supervision.

All of which places a great burden upon the selected NCO. Once assigned to a Reserve or National Guard unit, he is essentially on his own. He must stand on his own two feet and give his total integrity and loyalty to his new commander and unit. He will be alone, without all the influences (good or bad) he was exposed to at his home unit. Only the staunchest of personal characters and the most professional of attitudes can overcome these factors.

The above comments must be taken with due consideration and deliberation, for only ten percent of the Full Time Manning Force is drawn from the Active Component. The remaining 90 percent of these vital positions are filled by Reserve Component personnel. Since the Active Component personnel fill so few of these positions, it is especially incumbent upon us to ensure that only our finest NCOs are selected, for we owe it to ourselves, the Armor force, and to our nation that only the most highly-qualified individuals are selected.

Only the best will do.

Who's Who at MILPERCEN's Armor Branch



LTC James Quinlan
Armor Branch Chief

PHONES: AUTOVON - 221-6340, 6341,
9696, 9658

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CPT Mark Williams
LT Assignments



CPT George Edwards
CPT Assignments



MAJ James D. Martin
MAJ Assignments



MAJ (P) Alblon Bergstrom
LTC Assignments



CPT Gerald Ferguson
AOAC Assignments



Mrs. Evelyn Ruffin
LT Asgmts Tech



Ms Kathy Williams
CPT Asgmts Tech



Miss Kolleen McGrath
MAJ Asgmts Tech



Mrs Gloria Johnson
LTC Asgmts Tech



Mrs Dorothy Groomer
AOAC Asgmts Tech

MASTER GUNNER'S CORNER

Send Us a Winner!

In recent years, too many administrative, academic, and unit-related problems have been adversely affecting the master gunner program. These problems have led to complaints from unit commanders about the quality of master gunner graduates.

In many of these cases, candidates arrived at Fort Knox unqualified to attend. They failed to meet the course prerequisites outlined in DA Pamphlet 350-1 (September 1983) and the USAARMS school catalogue and should never have been selected.

Because the course is expensive and few can attend, it's in the sending unit's best interest to make sure that only the best qualified NCOs are selected.

Briefly, they should meet these prerequisites:

- Be in the grades E6, E7 or E8.
- Have a minimum of two years' experience as a tank commander. The course is vehicle-specific — M60A1, M60A3, and M1. The 2-year minimum requirement is waived for soldiers in the M1 track. (Instead, they must have at least six months' experience, but this waiver will not be authorized once the M1 is in the field for two years.) Candidates from M1 units must have attended and qualified as tank commanders during NETT and M1 transition training. National Guard and Reserve component students who are to attend the M60A1 track should have two years' experience as tank commanders on the M48A5.

- Candidates must be qualified as tank commanders on the Tank Crew Qualification Course within the preceding 24 months. Active duty candidates must be qualified on Table VIII, National Guard and Reserve on Table VII, and M1 students on NETT and M1 transition Table VIII.

- Candidates must also have qualified on the tank commander's portion of the Tank Crew Gunnery Skills test (TCGST) within the previous six months.

- Additional qualifications are that the candidate hold a SECRET security clearance, be selected by his battalion commander, and be a true volunteer.

Once a candidate has completed the course, he is eligible to be retained in his unit for a minimum of two years in the duty position of master gunner.

As part of his introduction to the course, the student fills out a candidate survey form. This is usually when we discover that a prerequisite is missing. The most common deficiencies are too little experience in the tank commander's slot, absence of Tank Crew Qualification Test certification within the preceding 24 months or failure to qualify on the TCGST within the required six-month period.

Another common deficiency is that the candidate was not selected by his battalion commander, nor was there a one-on-one interview of the candidate before selection. This may indicate poor command level interest.

Statistics show that students who do not meet the course prerequisites tend to be the ones who drop out, or are released for academic reasons. But aside from the problem of prerequisites, some common administrative problems also arise.

Leave. If students plan to take leave after completing the

course, they must obtain authority *before* they leave their home stations. The DA Form 31 is important, especially if the student is attending the course around the Christmas holidays.

Hold Baggage. When orders are cut assigning the student to the Master Gunner course, they should authorize shipment of his course manuals back to his home station at government expense or provide an additional weight allowance for personal baggage.

Quarters. Upon reporting to the Student Detachment, US Army NCO Academy, at Building 1479, Eisenhower Avenue, the student will be billeted at the detachment if space is available or, if not, may be authorized to utilize post BEQ. This may create an additional financial burden.

Separate Rations. Students reporting to the Student Detachment should be in TDY status. Their orders should state that separate rations are authorized because there are no dining facilities at the Student Detachment. Without this authorization, the student may bear an additional financial burden.

Pay Options. Students who plan to have their paychecks sent to their units should understand that there will be a delay while checks are redirected through the finance center at his home station.

Transportation. Classes are within walking distance of the Student Detachment and government transportation is provided to ranges during the course. While use of privately owned vehicles is not authorized to get to and from classes, students may wish to have their cars with them after duty hours. If so, they must register the vehicles with the student detachment TAC NCO during inprocessing. Students must have documents proving ownership, state registration, and insurance coverage when reporting.

Some academic problems arise because students need and do not have certain documents and data used for class projects. Before leaving his home unit, the candidate should obtain the most recent after-action report from his unit's last Level I and II tank gunnery, the skill level and proficiency (SQT score) of each CMF 19 and 45 soldier in his unit, a list of his unit's current strength, showing positions held and DEROS dates, and a copy of each vehicle's 2408-4.

Other projects may require certain items that can be purchased at the school if the student doesn't have them. These include a calculator, drawing compass, map protractor, ruler, notebook, pens and pencils, marking pens, paper or tablets.

Units suffer by not having their very best tankers become master gunners. And the individuals suffer, too. They may feel that their units are unconcerned about their career development by placing them in situations where they may fall short of meeting standards.

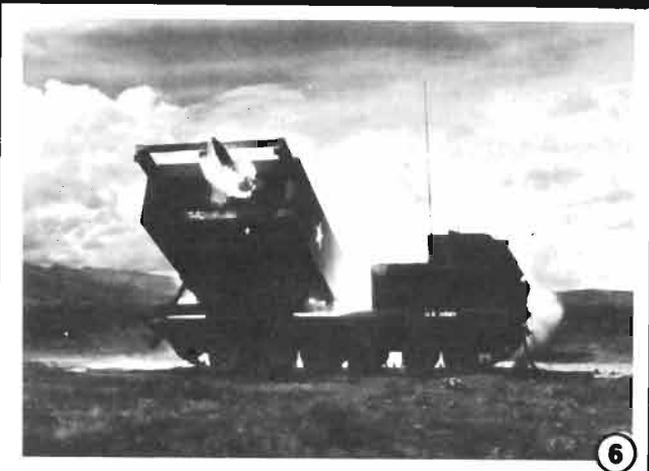
By strictly applying the course prerequisites and by going over some of the administrative pitfalls mentioned here, we can minimize the problems and hardships the student encounters while learning to be a master gunner. And by doing so, we can provide the units with a graduate who is a true master gunner in every sense of the word.

RECOGNITION QUIZ

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

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

(Answers on page 48)





Honduran cavalry defending the Amatillo Bridge used Israeli RBV armored vehicles and armed quarter-ton jeeps.

Cavalry Action in Central America

by Lieutenant Colonel Sewell Menzel and Colonel William Said

On Friday, 29 April 1983, at 0200 hours, Farabundo Marti guerrilla forces numbering approximately several hundred men conducted a surprise night attack on the Salvadoran end of the Amatillo International Bridge separating Honduras from El Salvador (Map 1). This critical bridge carries much of El Salvador's trade with Panama, Costa Rica, and Honduras, and was thus a prime target for the communist guerrillas fighting to bring down the government of El Salvador.

The first volleys of rifle and machinegun fire cut down the sentinels guarding the bridge, decimated the Salvadoran customs officials, and wiped out the dozen-man security police detachment sleeping in their wooden billets. The commander of the police detachment was captured, tortured, and shot.

While this was taking place, other guerrillas looted and burned the nine cars and commercial trucks waiting to be processed through customs that next morning. The occupants, caught by surprise and unable to fight back,

died in their cabs and seats.

The remainder of the local population, keeping low and under cover from the streams of bullets spattering about the bridge and customs houses, clustered in their adobe huts trying to avoid antagonizing the guerrillas. Some were not fortunate enough: eight houses were grenaded and burned out with Molotov cocktails. A few terrified people made their way down the embankments of the Goascoran River and crossed the semi-dry stream bed to safety on the Honduran side of the bridge. The screams of women and children were distinctly audible to the Honduran customs personnel who attempted to observe the obvious carnage taking place in the dim moonlight some 400 meters away.

The Hondurans reported the events taking place on the other side of the river to their military district commander some 48 kilometers east, in the vicinity of San Lorenzo. He ordered the men manning the border post to occupy observation posts and previously prepared security positions to detect

any intruders who might attempt to cross the bridge.

Some three hours later, at about 0500, this small defense force came under intense rifle and machinegun fire as two squad-sized guerrilla units began working their way along each side of the bridge toward them. A third group was detected as it began to set demolition charges along the underpinnings of the bridge. The Hondurans returned the fire with rifles and pistols, killing two guerrilla sappers. The guerrillas on the bridge withdrew.

At 0600 hours a demolition charge was fired and a six-meter span of the bridge fell into the river bed. The guerrillas again opened intensive fire and began to mass for a charge across the river bed with the objective of capturing the entire bridge.

The fire was returned at every chance as the attack preparations built up.

Honduran Reaction

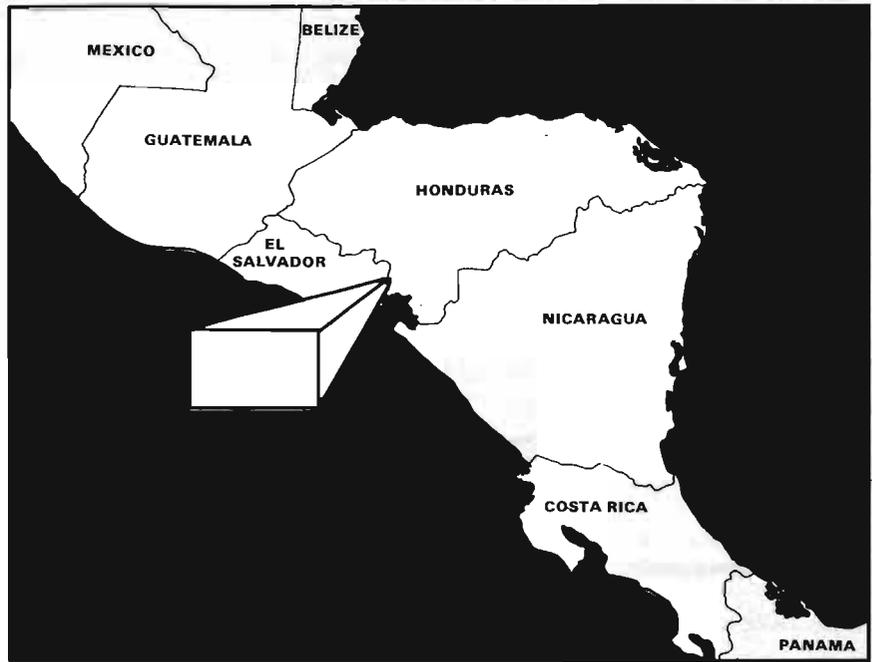
The Honduran military district commander at San Lorenzo was kept

abreast of the situation and at 0620 ordered two platoons of light infantry from Co A, 11th Infantry Battalion, and two platoons of the 2d Squadron, 1st Armored Cavalry Regiment, to reinforce the beleaguered forces at the bridge. (A squadron in the Honduran Army is equal to a troop in the U.S. Army.)

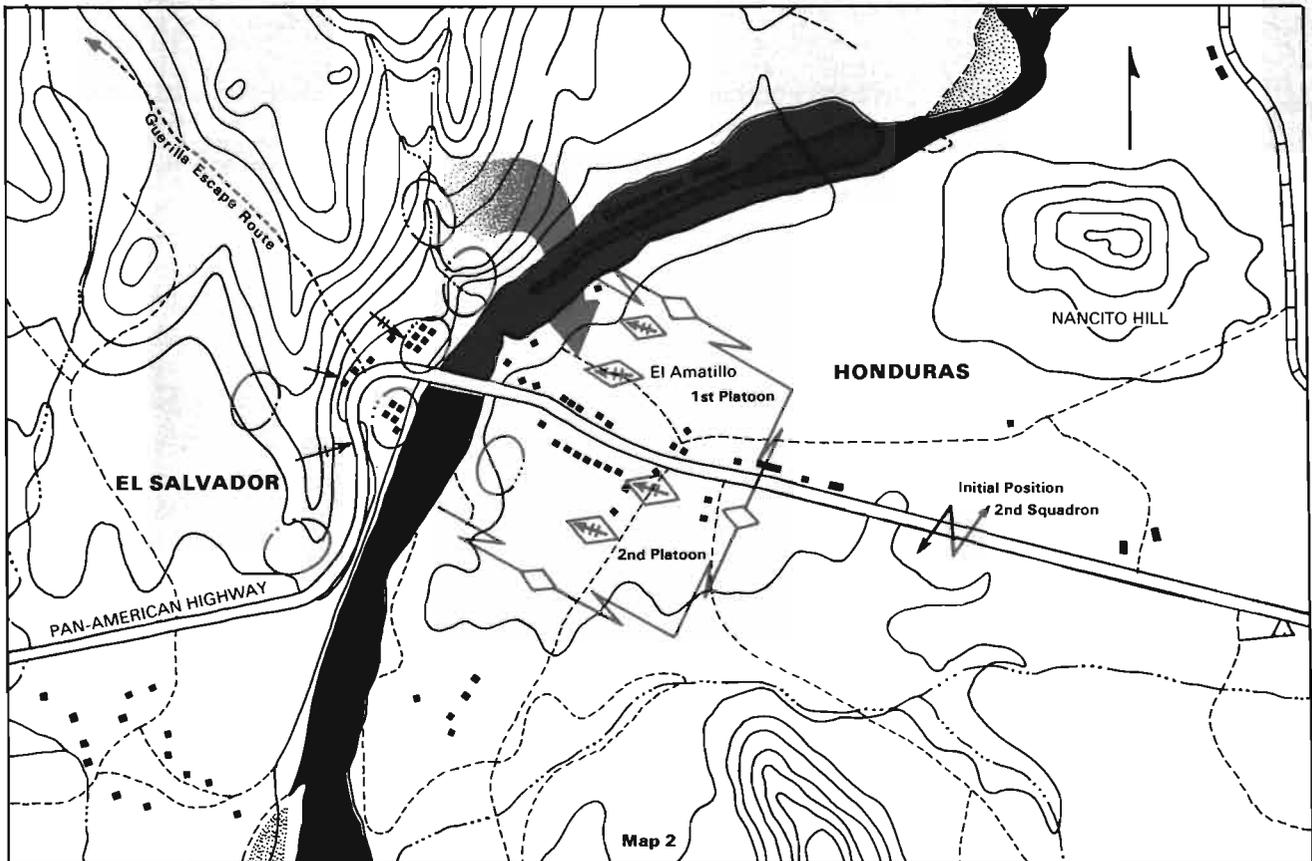
When the 2d Squadron, located some 81 kilometers from Amatillo, received the alert, the troopers were already at their morning formation and in less than five minutes, the two platoons, with full combat loads, were on their way.

This force, basically organized for reconnaissance and screening operations, consisted of two Israeli-made *RBYs*, wheeled, armored reconnaissance vehicles, each armed with a 106-mm recoilless rifle; three additional Israeli *RBYs* scout vehicles armed with 7.62-mm machineguns, and three ¼-ton jeep vehicles armed with M2 .50-caliber machineguns; a total of eight well-armed and highly mobile fighting vehicles — ideally suited for the action at hand.

Traveling at a high speed by road, the Honduran cavalry force reached the Amatillo bridge in less than an hour. Upon arrival, the two platoons went into covered and concealed positions about 1 kilometer east of the bridge and south of Nancito Hill (Map



Locator map, above, pinpoints location of the border checkpoint attacked by guerrillas in the action described. Map 2 shows how Honduran cavalry and infantry deployed to pin guerrillas down, preventing them from crossing the river and destroying the bridge, a crucial link in the Pan American Highway.



2). Captain Carlos Andino — a 1981 graduate of the AOAC at Fort Knox, Ky., — made a quick reconnaissance to establish contact with the local forces and the two platoons of infantry from Co. A that had arrived a few minutes earlier from their base a short distance from the bridge. Both infantry platoons were under heavy machinegun fire and were unable to relieve the besieged bridge defenders.

The guerrillas had now formed a 100-man force with the objective of storming the river bed to attack the Honduran defender's right flank (Map 2).

Captain Andino, who had stationed himself with one of his motorized platoons, ordered mechanized units into the attack to relieve the infantry.

Using the highway as a guide, the 1st platoon took the right (north) zone and the 2d platoon the left (south) zone. All vehicles opened fire simultaneously and the vehicles proceeded by bounds toward the river, closing the distance to the enemy. Automatic weapons fire was directed first at guerrilla machinegun nests, then against antitank weapon sites, and finally at groups of infantry.

As the 106-mm recoilless rifles and .50-caliber machineguns opened fire, the scout vehicles moved to the flanks of the moving force to screen and provide early warning of any enemy movements (Map 2).

A guerrilla machinegun nest in the former Salvadoran customs building was destroyed by a direct hit from a 106-mm shell at 800 meters.

The fire from the recoilless rifles and the heavy machineguns was an unexpected shock to the guerrillas and they ceased fire as the Honduran cavalrymen concentrated on the machinegun nests. The force that had massed to storm the river, had sensed the slackening of their supporting fires, panicked, and began to run away up and over the barren, grass-covered hills. They were driven by Honduran machinegun fire back into the Salvadoran houses.

By 1030, the Honduran infantry had worked its way forward and completed the relief of the customs and militia personnel who were almost out of ammunition. The Honduran military district commander had by now arrived and ordered that the bridge be defended at all costs to prevent further structural damage. A second order preserved Salvadoran sovereignty by directing that Honduran soldiers remain on their own side of the river. The Honduran commander believed that Salvadoran forces would soon arrive

to attack the guerrillas on their side of the river. He was wrong.

The action had been so intense and prolonged that strict ammunition conservation was now ordered for the Honduran forces. Fire superiority had been gained over the guerrillas and their return fire was, at best, sporadic.

Guerrilla sharpshooters and grenadiers using U.S. 40-mm grenade launchers tried to reverse the fire situation and killed a civilian and wounded three Honduran infantrymen. These were the only Honduran military casualties of the action.

Honduran 81-mm mortars fired suppression missions throughout the afternoon and, early that evening, were reinforced by a three-piece 160-mm mortar battery that pounded the guerrillas into the night.

Action Terminated

The battle died during the night as the guerrillas began to withdraw through the hills to the northwest. The Hondurans were now able to take stock of the situation.

In addition to the burned-out trucks, cars, and buildings, with the bodies of the slain civilians still in them, a dozen customs and police security officials had been killed and the bridge had been damaged.

The bodies of 60 guerrillas were found in a draw where they had been partially consumed by gasoline fires.

Honduran estimates of guerrilla casualties ran to some 96 killed with scores of wounded. The hard-hitting cavalry had saved the day.

Some Observations

- The cavalry commander used the factors of mission, enemy, terrain, time and space to quickly size-up the enemy and then he took the initiative.
- In encounter-type engagements, the action usually goes to the side that plasters its opponent with fire. In this case, the cavalry opened fire with all its weapons simultaneously and quickly gained fire superiority.
- The Hondurans kept the structural base of the bridge (lower abutments and pilings) under continuous rifle fire and significantly reduced the threat of further demolition.
- The enemy snipers could have been better suppressed had the Honduran machineguns saturated their tree-top hiding places.
- It was noted that the 40-mm grenade launcher gave off a distinctive pop when fired giving an alert soldier a second or two to seek cover. This time-lag was especially true at ranges of more than 200 meters.
- Combat operations in Central

America are no different than those in other parts of the world and they demonstrate that, in counter-guerrilla actions, cavalry forces employed in accordance with their capabilities, and resolutely commanded, can often defeat enemy forces many times their size.



LIEUTENANT COLONEL SEWALL MENZEL was commissioned in artillery from the Citadel in 1964 when he received his bachelor degree in history. Two years later he transferred to armor and later commanded armored cavalry units in Vietnam. More recently, he served for 2 years as Chief, Army Section, for the U.S. Military Group in Honduras. He is fluent in Spanish and conversive in Portuguese. Currently, he is assigned to the DAMO-SSA, DCS-OPS, the Pentagon, Washington, D.C.



COLONEL WILLIAM SAID, a cavalry officer in the Honduran Army, is a 1977 graduate of the Command and General Staff College, U.S. Army School of the Americas, in Panama. He has been associated with the Honduran armored force since its formation in 1977 and currently commands the 1st Honduran Armored Regiment.

A World War II Formation Lives on in Afghanistan



Soviet Enveloping Detachments

by Captain Gilberto Villahermosa

The Soviet Army places great emphasis on rapid offensive action and has developed a number of special formations to ensure continuous movement of its forward elements. Some of these special formations, such as the forward detachment and the operational maneuver group (OMG), have been publicized in the Western press, but others remain unknown despite widespread use during WWII and in the current fighting in Afghanistan.

One such formation, the enveloping detachment, is widely discussed in the Soviet military literature but little mentioned in the West. Seldom a month goes by without an article on this type of formation appearing in *Military Herald* (*Voenny Vestnik*) and *Military Historical Journal* (*Voenny Istoricheskiy Zhurnal*). Indeed, it is not uncommon to find three or four articles in a single issue on this formation.

According to the Soviet definition, the enveloping detachment can vary greatly in size, from a platoon to a regiment. It is administratively self-contained. Its mission is "to envelop the enemy with the aim of striking him in the flanks and rear in order to seize his positions."

The Soviets specifically define the enveloping detachment as an offensive formation which — while it can be used under normal terrain conditions — lends itself to difficult terrain, specifically mountains, deserts, forested areas, swamps, and northern regions.

"Depending on the trafficability of the terrain, the enveloping detachment is normally composed of motorized rifle (platoons, companies, or battalion-size) elements reinforced with portable antitank weapons, mortars, artillery and other special (units) such as engineer troops."¹

The *Soviet Military Encyclopedia* also

notes that the enveloping detachment usually operates on foot "in those sectors where terrain proves difficult," working in cooperation with forces attacking the enemy frontally.

Soviet military journals point out that enveloping detachments can also be inserted by airborne, amphibious or airmobile operations. Pack animals are to be used in those areas where terrain limits the use of vehicles.

Use in WWII

The use of enveloping detachments during WWII led to high rates of advance in mountain fighting. In the Northern Caucasus, the Crimea, the Balkans, the Carpathians, in Central Europe and in the Far East, success was often achieved when regular infantry troops were made the foundation of special combined-arms formations which were used to attack the enemy flanks and rear areas after having infiltrated through gaps in his defensive positions.

In some cases, tanks were used in direct support of infantry, with decentralization down to single tanks in support of platoons. With the use of these special detachments, the Soviets were able to achieve rates of advance of 1-2 kilometers per hour, even against the best prepared positions.²

There are a number of combat and combat support elements that make up company and battalion-size enveloping detachments. Examples are common in the present mountain fighting in Afghanistan.

Airborne Troops

During the invasion of Afghanistan, elements of three Soviet airborne divisions were employed. These units have since borne the brunt of the fighting.

These troops can be employed either

in airborne or airmobile operations, but were initially parachuted into action. This proved to be costly — the troops suffered heavy losses to Afghani freedom fighters equipped with obsolete rifles but employing very accurate aimed fire. For this reason, the Soviets now prefer to use airmobile operations whenever possible.

Because airborne units seldom have the artillery assets available to the motorized rifle unit, and airborne company or battalion is supported instead with 120-mm mortars. A battalion-size enveloping detachment will be reinforced with an air defense platoon, a combat engineer platoon, and chemical personnel. Companies receive similar reinforcements, but on a smaller scale.

When in the role of an enveloping detachment, an airborne battalion will normally operate independently. Its most typical missions include "capture of mountain passages and passes, capture of positions favorable for the defense, and holding them until arrival of troops from the front."³

Motorized Rifle Troops

Just as the enveloping detachments of WWII were based on regular infantry units, the modern-day enveloping detachment as used in Afghanistan is based on motorized rifle troops. Because they can operate on any terrain under any conditions, the Soviets see these troops as best suited to operations in the mountains. They recognized that special training is necessary for mountain operations and intensively practice negotiating mountainous terrain on foot and in vehicles, the use of weapons in the mountains, mountain climbing, map reading, and small unit tactics. Great emphasis is placed on the development of a spirit of initiative in junior officers.

A company-size enveloping detach-

Mission: "To capture dominant heights, passes and passages in the depth of the enemy's defenses. . ."

ment in support of a battalion consists of a motorized rifle company reinforced with a mortar battery, a tank platoon, a chemical squad, an engineer squad and an ADA section or squad. A battalion-size enveloping detachment consists of a motorized rifle battalion reinforced with a mortar battery, an artillery battalion, a tank company, engineer and chemical platoons, and ADA platoon, and various service support elements.

Both size enveloping detachments have the same mission: "To capture dominant heights, passes, and passages in the depth of the enemy's defenses in order to destroy his weapons of mass destruction and command posts and to accomplish other tasks."⁴

This is to be achieved by taking advantage of the rugged terrain and mountain weather conditions to infiltrate through gaps in the enemy's defensive positions into his rear and flanks to conduct surprise attacks in order to capture the assigned objective and to destroy or capture the enemy.

The success of the battalion-size enveloping detachment in the Afghanistan fighting has apparently led to creation of a new type of Soviet battalion called the Combined Arms Reinforced Battalion (CARB). According to Jossef Bodansky, who described this formation in a recent article⁵, "These units have become the core unit for the conduct of small unit military operations in mountainous terrain."

Bodansky, one of the first to describe this new formation, noted in a related article, "The reinforced battalion is a highly mobile force capable of carrying out autonomous operations. It is saturated with fire support means, especially artillery and air support. It has its own tank company."⁶ The composition of these CARBs — a motorized rifle battalion, a tank company, an artillery battalion, a mortar battery, an air defense company, an antitank company and various service support elements — is so strikingly similar to the battalion-size enveloping detachment that this author is convinced their creation was heavily influenced by the extensive use and successes of enveloping detachments in Afghanistan. The creation of these CARBs is an indication that motorized rifle troops are regaining their predominance in the field of mountain fighting. It should be stressed that the CARB is presently employed *only* in Afghanistan.

It is also interesting to note that while there are presently 100,000 to 120,000 Soviet troops in Afghanistan, "only 12,000 to 15,000 of them are actively engaged in fighting Afghan resistance forces and of those, only an average of 500 to 700 are involved in offensive sweeps on a daily basis."⁷

Tank Troops

Terrain restricts tank employment in the mountains so the Soviets seldom use tanks on any scale above battalion level. Tanks are normally employed only in support of the infantry with platoons and companies allocated to company and battalion-size enveloping detachments. Additionally, individual tanks may support the action of motorized rifle platoons. During the attack, the tanks move behind the dismounted infantry and their carriers and support their assault with fires. The fires are conducted over the heads of friendly troops and to their flanks, with the tanks moving about 250 meters behind them.

Apparently because of problems when firing on the move near dismounted infantry, the Soviets hedge their doctrine by firing from the short halt or from stationary positions.

Other problems have been encountered as well. The limited gun tube depression and elevation of Soviet tanks, designed for operations in relatively flat terrain, limits their use against high-angle targets. To solve this problem, an officer writing in *Military Herald* suggests that the tank be driven up on to boulders or into depressions in the ground to compensate for the limited gun elevation and depression. He also recommends extensive use of the tank's antiaircraft machinegun to engage ground targets.⁸

Target acquisition is also a problem for tanks working in the mountains. "The uniform color of the terrain and targets and large numbers of boulders, caves, and other natural cover have a negative influence on the effectiveness of tank fire in the mountains and complicate reconnaissance, detection, and identification of small enemy targets."⁹

Artillery

The artillery battalion of the enveloping detachment is tasked to neutralize any enemy systems that prevent the enveloping detachment from accomplishing its mission. Artillery units also



provide smoke cover to mask movement and deceive the enemy as to the detachment's intentions.

According to several articles in *Military Herald*, artillery is also used in the direct-fire role in the mountains. In this type of situation, the battery may be broken up and targets allocated to individual guns. While the Soviets normally resist this type of decentralization, they seem to have accepted it as a necessity of mountain fighting. When employed in the mobile role in support of forces in the attack, the artillery will move 500 to 1,000 meters behind the tanks and personnel carriers and will engage enemy infantry and antitank assets. This compensates for the tanks' limited antipersonnel capability, while supplying immediate suppressive fires for the motorized infantry. It is interesting that while this employment technique is not approved Soviet doctrine, it is widespread in Afghanistan.

The Soviet military press makes little mention either of multiple rocket launchers or *FROGS*, in the mountains. This isn't surprising when one considers the limited elevation of Soviet *MRLs* and the poor cross-country performance of the *FROG* carriers.

Mortars

The Soviets see the mortar as the ideal weapon for mountain fire support because of its light weight, the increased lethality due to fragmentation and the mortar's ability to cover dead spaces in the terrain. They recognize that there may be long periods during which the envelopment detachment commander will have to rely on mortar fire support, which accounts for the presence of both artillery and mortars in the battalion-size enveloping detachment.

Soviet mortars range in size from the 82-mm series (M-37, M-41, M-42) to its 120-mm replacement (M-38, M-43). The latter are commonly found in motorized rifle battalions (18 tubes per battalion) and are used extensively in Afghanistan, both by motorized rifle and airborne troops.

“Reconnaissance is provided by the chemical reconnaissance patrol. . .”

While rarely seen, the Soviets also have 160-mm and 240-mm mortars available for deployment. Mortars of this caliber were found at battalion-level supporting mountain operations in WWII. The Soviets' continuing commitment to large caliber mortars continues with the new 240-mm *M-1975* self-propelled mortar recently reported in the Western defense press.¹⁰

Another new mortar is seeing extensive employment in Afghanistan. With a maximum rate of fire of 120 rounds per minute (the practical rate of fire is probably much lower) and the ability to fire both explosive fragmentation rounds and shaped-charge antitank rounds, the *Vasilek* mortar can be used for both direct and indirect fire.

Jane's Defense Weekly recently reported that the *Vasilek* is also vehicle-mounted. “It is believed that there are three or four self-propelled versions of the *Vasilek*, although comprehensive details are lacking. There are reports from Afghanistan that the system has been seen in a turreted mounting on either the *BTR-60* or *BTR-70* armored personnel carriers. The system is also apparently mounted in the turrets of modified *BMP-1* and *BMD-1* infantry combat vehicles.”¹¹

All these factors serve to make the *Vasilek* a superb fire support weapon in the mountains during both offensive and defensive operations. The *Vasilek* is currently replacing the 120-mm mortar in select motorized rifle battalions and is issued on a scale of six tubes (one battery) per battalion.

Engineers

Engineer support of enveloping detachments in the mountains involves laying and clearing mines, clearing road obstructions, rebuilding road sections and bridges along the route of march, and constructing bypasses where necessary.¹² In order to accomplish this, the engineers themselves operate as detachments. These include the obstacle reconnaissance and clearance detachment, the engineer reconnaissance patrol, the movement support detachment, and the mobile obstacle detachment.

The Soviet concept of engineer support is based on forward deployment of engineer personnel and equipment with reconnaissance and combat elements in order to ensure the continued movement of the main body. In the

mountains, this concept is refined, with engineer assets assigned down to the platoon level in order to provide support during the final assault on the enemy.

The mobility mission appears to be the principal mission of Soviet engineers operating with combat elements and is a full-time job. Denying the enemy use of key sectors of terrain and canalizing him into prepared kill zones through the use of mines is another principal mission.

Chemical Personnel

Chemical troops reconnoiter routes for traces of chemical contamination and provide the enveloping detachment with decontamination assets when needed. Reconnaissance is provided by the chemical reconnaissance patrol, which usually travels with the combat reconnaissance patrol, although it can operate independently.

Soviet doctrine calls for chemical troops to use chemical agents “to protect the flanks of Soviet troops from ambush during an advance through mountain passes exposed to controlling heights.”¹³ They also dispense chemical agents “to create lethal blocks in order to deny the resistance access to narrow creeks and caves that are inaccessible to mechanized troops or helicopter fire.”¹⁴

Chemical personnel are also responsible for the use of smoke pots and grenades in support of the enveloping detachment. The Soviets place great emphasis on the use of smoke both to screen movement and to mark targets.

One of the most important missions of chemical personnel is the destruction of the enemy with incendiary weapons. Flamethrower teams are often used during assaults on fortified positions in the mountains. “They are assigned combat missions of destroying enemy personnel in mountain crevasses, caves, protective works and other cover.”¹⁵ According to Soviet doctrine, “In the attack, flamethrower operators advance and dismount together with the motorized riflemen and function in their skirmish line at intervals up to 100 meters. On encountering permanent and other powerful weapon emplacements hindering the attack, they move forward, taking advantage of folds in the terrain, and fire on embrasures, entrances and trenches. Their actions are usually covered by



smokescreens and the fire of tanks, artillery, machineguns and submachineguns. After flamethrowing is accomplished, the (accompanying units) attack and complete the enemy's destruction.”¹⁶

Air Defense Artillery

When possible, air defense assets are placed on commanding terrain to maximize range and minimize terrain interference. If that is not possible, they operate from roads, despite the limitations.¹⁷ In mountain fighting, the enveloping detachment often has to rely on shoulder-fired missiles when terrain won't accommodate tracked self-propelled systems.

The March

The organization of the march takes on greater significance during operations in the mountains, according to Soviet doctrine, because of the possibility of ambush.¹⁸

On the march, the enveloping detachment is configured much like a company or battalion-size advance guard and consists of a combat reconnaissance patrol, forward security element, and the main body, along with associated flank and rear security elements.

Operating independently, the combat reconnaissance patrol travels 10 to 15 kilometers ahead of the main body. It performs reconnaissance by observation as well as by ambushes and raids.

The combat reconnaissance patrol generally consists of a motorized rifle platoon or section (for battalion or company size enveloping detachments, respectively) as well as scouts. More often than not, it will operate in con-



“During the attack, motorized riflemen remain mounted as long as possible...”

junction with engineer and chemical reconnaissance patrols. In some cases, an artillery reconnaissance patrol will travel with the unit.

The forward security element, traveling 5 to 10 kilometers behind the combat reconnaissance patrol, is to provide “security to the main body against a surprise attack... and advantageous conditions for the deployment of the main body.”¹⁹ The forward security element amounts to a third of the enveloping detachment’s assets and includes motorized infantry, tanks, mortar, artillery, ADA, chemical and engineer troops. This subunit also includes the engineer route reconnaissance and obstacle clearing detachment, movement support detachments, and mobile obstacle detachments.

The forward security element normally operates with flank pickets in mountainous terrain. They occupy key terrain along the march route until the column passes, then leap-frog forward.

The main body of the enveloping detachment follows 2 to 3 kilometers behind the forward security element with mobile flank and security detachments

that can be up to 5 kilometers to the flanks and 2 to 3 kilometers to the rear of the main body. As the main body approaches areas where ambushes are likely, an artillery battery deploys to cover the movement and later rejoins the column.

Along the march, vehicles maintain 50 to 100-meter intervals and move at a speed of 15 to 20 km/hr.

The Attack

An attack in the mountains is to be conducted on a frontage two to three times greater than normal for a company or battalion. The attack begins along mountain roads or trails, valleys, canyons, and along the gentle slopes of ridges after the enveloping detachment has infiltrated through gaps in the enemy positions or has approached a flank undetected. An intense artillery or aviation preparation precedes the attack.

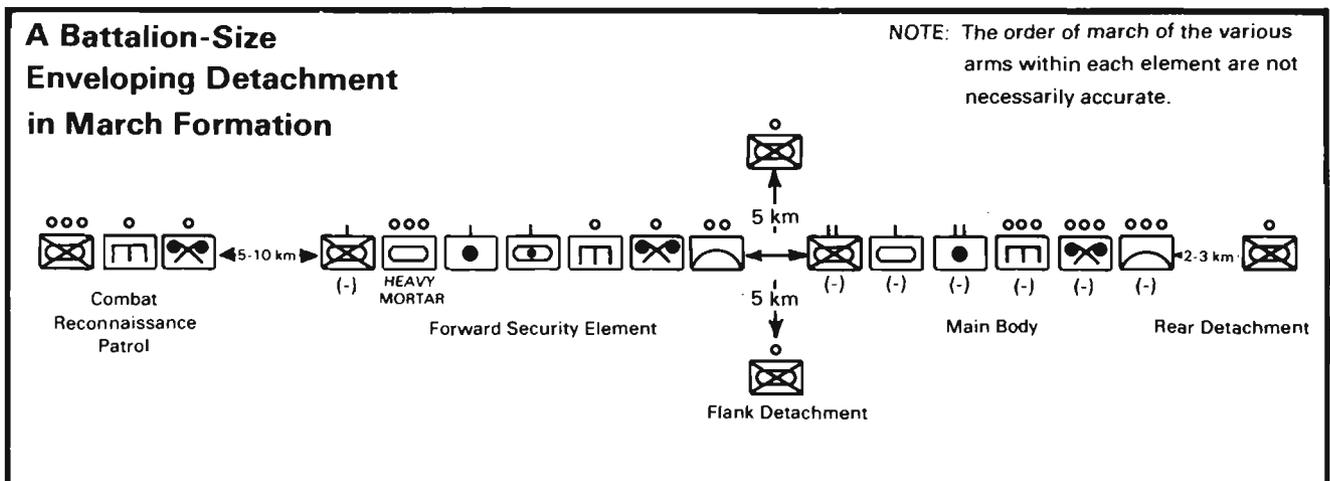
Elements of the enveloping detachment will often operate along separate axes. Whenever possible, they will try to seize terrain overlooking or bordering the objective. While bringing direct fires to bear from these positions, the enveloping detachment will attack the

enemy from above whenever possible and attempt to seize his uppermost defensive positions. Once these positions are captured and cleared, the detachment then works its way down to the enemy’s lower level positions, progressing until the enemy is captured or destroyed. Once the objective is seized, defensive preparations are made for a possible enemy counterattack.

During the attack, motorized riflemen remain mounted as long as possible. When terrain or enemy resistance precludes attacking mounted, the riflemen dismount with supporting chemical and engineer personnel, forming platoon-size assault groups. They advance on the enemy position along covered and concealed routes wherever possible, supported by smoke, direct and indirect fires.

The dismounted infantry are followed by their BMPs or BTRs which support the attack with ATGMs, cannon and machinegun fire. Vehicles carrying the AGS-17 automatic grenade launchers are deployed with the infantry carriers, suppressing the enemy as the dismounted troops advance. Behind this first line of vehicles, follows a second, composed of tanks which engage the enemy using main gun and machinegun fire. This line is about 250 meters behind the infantry. If automatic self-propelled mortars are available, they will be found behind the tanks, firing in both direct and indirect modes.

The Soviets prefer to use their artillery from stationary positions. If terrain permits, the artillery will continue to advance behind the tanks and mortars,



“... They can be utilized in any terrain that presents gaps in the defender's line of resistance...”

firing from short halts against enemy strongpoints, ATGM teams, and troop concentrations, but when terrain begins to restrict the advance, the artillery will take up stationary positions.

Strongpoints and other defensive positions that cannot be eliminated with supporting fire are engaged by assault groups, using flamethrowers, demolition charges, and rocket-propelled grenades fired by motorized riflemen.

The attack of the enveloping detachment, as described, takes place while other forces are conducting a frontal attack, exposing the enemy to pressure from several directions. The Soviets believe that this type of attack can rapidly destroy an enemy, even in well-prepared defensive positions. Events in Afghanistan seem to bear this out.

Problems Encountered

Despite wide use and frequent success in using enveloping detachments, the Soviets have encountered some difficulties, brought about by the nature of the terrain itself. According to Colonel K. Bregman, writing in *Military Herald*, “The meager nature of the road network and the almost complete impossibility of road movement by all types of transport vehicles, tanks and other fighting vehicles off the road be-



cause of the great steepness of the slopes and ascents, dense vegetation, and snow cover in the winter greatly hinder the movement of troops and equipment, delivery of supplies needed for combat and the evacuation of the wounded.”²⁰

Another problem encountered is the unreliability of radio communications in mountain terrain. The mountain ridges screen radio waves and cause frequent losses of communication.²¹

The NATO Prospect

Created during WWII and perfected in Afghanistan, the enveloping detachment has proven itself a hard-hitting, highly mobile and flexible formation that can operate independently in rugged terrain and under the most severe weather conditions, day and night. While this article has concentrated on

the Soviets' employment of these detachments in the mountains, they can be utilized in any terrain that presents gaps in the defender's line of resistance.²² Such terrain is typical of NATO's northern and southern flank areas of poor mobility, sparse road networks, marshes, forests, and forested mountains.

A future war will see enveloping detachments used on a wide scale. Inserted by airborne and airmobile operations (and along NATO's northern flank by amphibious operations), enveloping detachments will be used to seize bridges, key mountain passes, and other critical objectives, holding them until the arrival of the main body. They will be seeking out and destroying command and control centers and other key installations. Enveloping detachments will continue to advance parallel to the main body along rugged terrain, striking the enemy unexpectedly in his flanks and rear. Because of the key role enveloping detachments will play in military operations on NATO's flanks, the next war may see considerably higher rates of advance than those of the last war on such terrain.

Footnotes

¹*Soviet Military Encyclopedia* [in Russian], Moscow: Voenizdat, 1978) Volume 5, p.676.

²See A.I. Radzievsky, *Army Operations* [in Russian], (Moscow: Voenizdat, 1977), pp. 122-135. and *Tactics in Combat Examples-Division* [in Russian], (Moscow: Voenizdat, 1976), pp. 126-132.

³COL M. Muslomov, “A Battalion Seizes an Objective in the Mountains”, *Military Herald* [in Russian], No. 2, 1982, p. 34.

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⁵Yossef Bodansky, “The Bear on the Chessboard: Soviet Military Gains in Afghanistan”, *World Affairs*, Vol. 148, No. 3, Winter 1982-83, p. 283.

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⁷Yossef Bodansky, “The Bear on the Chessboard: Soviet Military Gains in Afghanistan”, *World Affairs*, Vol. 148, No. 3, Winter 1982-83, p. 279.

⁸LTC I. Sobran, “Firing from Tanks in the Mountains”, *Military Herald* [in Russian], No. 5, 1982, p. 83.

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¹⁰Christopher Bellamy, “Conventional Quick Kill”, *Jane's Defense Weekly*, Vol. 1, No. 19, p. 783.

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¹²LTG of Engineer Troops Gorbachev, “Engineer Support of Troop Operations in the Mountains”, *Military Herald* [in Russian], No. 3, 1981, pp. 95-98.

¹³Yossef Bodansky, “The Bear on the Chessboard: Soviet Military Gains in Afghanistan”, *World Affairs*, Vol. 148, No. 3, Winter 1982-83, p. 285.

¹⁴*Ibid*, p. 285.

¹⁵LTC I. Mukhin, “Chemical Support in the Mountains”, *Military Herald* [in Russian], No. 1, 1982, p. 34.

¹⁶*Ibid*, p. 34.

¹⁷COL. V. Rudoy, “An Attack Along a Canyon”, *Military Herald* [in Russian], No. 12, 1981, p. 19.

¹⁸LTC Bartkevich, “An Advance Party in the Mountains”, *Military Herald* [in Russian], No. 2, 1982, p. 26.

¹⁹*Soviet Military Encyclopedia* [in Russian], (Moscow: Voenizdat, 1976), Vol. 2, pp. 594-595.

²⁰COL Bregman, “Mountains Are No Hindrance for the Capable”, *Military Herald* [in Russian], No. 2, 1981, p. 1.

²¹*Ibid*, p. 1.

²²“An Enveloping Detachment in Battle Formation”, *Soviet Military Review*, No. 5, 1983, pp. 20-21.

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German and American troops confer at a crossroads during fall maneuvers in Europe.

Interoperability in NATO

by Captain Ronald M. Schrock, Jr.

Interoperability amongst land forces in NATO suffers from a lack of communications and equipment standardization. Complete standardization may be beyond the realm of reality. However, NATO land force commanders must resolve to seek their own mutually agreed upon operative solutions to interoperability needs.

The U.S. Army Training and Doctrine Command Liaison Office in Cologne, Germany, publishes information dealing with U.S. and German Army interoperability.¹ To satisfy a need for definition, the Department of Defense Steering Group on Rationalization/Standardization^{2 3} within NATO agreed that the following definition for interoperability will apply: "The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together."⁴ It follows, having read the definitions of rationalization, standardization, and interoperability, that interoperability comprises those actions needed to produce effective joint operations. AUSA News recently noted, "The need today for interoperability in NATO is obvious — 16 nations, 15 with military forces, pledged to the proposition that an attack on one is an attack on all, must believe that their forces can operate collectively, effectively. They must believe that their military leaders have developed the policies, engaged in the training, and accomplished the preparations essential to assure such a capability."⁵ Unfortunately, the 16 nations cannot be assured that such a belief is well-founded."⁶

Why? There are many stumbling blocks to effective interoperability amongst 16 nations who are also pursuing their own national interests while professing to be part of a defensive alliance. Major obstacles are equipment standardization and communications. "No nation has an adequate organization to coordinate the activities of its forces with those of its allied neighbors. No nation has designed its communications equipment to net with that of its allies."⁷ Without equipment standardization, joint logistical resupply efforts would be minimal. As a result of lack of standardization of weapon systems and support systems, only 15-20% of associated supplies used by both (U.S. and German) armies are similar wherein some mutual support would seem possible when needed.⁸ Certainly standardization of weapon systems and support systems are complicated by national economic interests and lack of a proven method to "do it together" in a cooperative defense-industrial effort. Until such efforts succeed to promote joint-cooperative results, the ability to net communications equipment amongst the NATO allies, the ability to provide a common logistical support base for common major weapon systems, the capability to effectively interoperate remains within a void. Sixteen nations dedicated to a defensive alliance can only hope to achieve their common goal as a deterrent force if they are able to "interoperate" together.

The present most effective means of coordinating US/GE command and control communications is thru a liaison team. The field solution has been for units to exchange liaison teams, utilizing their own national radios, national fre-

“. . .The LNO must be able to wear two hats in order to be effective. He cannot only represent the interests of his own force. . .”

quencies and CEOI equivalents. While this duplication of effort may be a workable solution in some cases, it quickly becomes wasteful of personnel, equipment and available frequencies. Also, by utilizing a liaison team to coordinate command and control, we are adding another human link to the critical chain of communications between commanders. While adding a human link to the chain may be a disadvantage, the advantage is the capability to cover the gap of current communication difficulties through human understanding. Leaders of liaison teams need not only to have an adequate linguistic ability, but also be well versed in the tactics, normal operational techniques, and the commanders' priorities in order to fully understand both units whose operations he is attempting to coordinate. This is complicated in that there is currently no methodical or progressive training program for liaison teams. In order to develop any degree of proficiency, liaison teams must be assigned in peacetime to live and work, for the majority of their time, with their host unit.

When it comes to coordinating actual tactical operations, both US and GE forces proceed from different tactical concepts. While tactics will not be developed in detail in this article, commanders and G3s/S3s should be aware that differences do exist, and know how to approach these differences before conducting any joint ventures. It must be remembered that both US and GE forces in the defense have the same objective of destroying the enemy's offensive capabilities, however different priorities develop different methods. Tactical doctrine is a living, breathing entity as new weapons, equipment, research, and changing considerations urge new emphasis and continuous development. GE defensive tactical doctrine, as is NATO's, is based on forward defense. GE defensive doctrine calls for a delay followed by a defense on the FEBA and includes counterattacks when the probability of success is high. The main emphasis is to defeat the enemy far forward when possible, and, to be able to defend as close to the FEBA as possible.

Our "new" U.S. Army FM 100-5, *Operations*, leads us away from the active dynamic defense to the AirLand Battle in conjunction with Division 86 transition. Such phrases as "interdiction targeting as part of an integrated effort to create time and space gaps,"⁹ "attacking deep is essential to winning; attacking deep and the close-in fight are inseparable. . . and, extending the battlefield."¹⁰ have become new guidelines for American operations officers. The whole purpose of coordinating tactical operations is to allow for mutual consultation and transfer of vital information. NATO cannot afford to have unit commanders fighting their own individual battles in their assigned sectors without regard for a combined effort. Through a total effort we have the option of creating a synergistic effect which will overwhelm the enemy. "We are taught that flank security, especially in the defense, means immediate contact with the units on our left and right. . . In the event of an initial enemy breakthrough anywhere along an extended front line, this sort of thinking has historically led to overreaction, often a panic to scurry back to a new defensive line and attempt to reestablish an unbroken front."¹¹ Through effective coordination and exchange of vital information, our flanks would be the strongest points on the battlefield.

The ability of 16 nations to have plans that call for a mutual shoulder-to-shoulder defense is undoubtedly the major indicator of resolve within the NATO alliance. At the same time, it demands interoperability and prior coordination at the flanks where the two shoulders meet. Within their own boundaries, different national forces can utilize their own SOPs; however, at the international flanks we must resolve to coordinate our intentions with our neighbor. When we know beforehand what the other guy is planning for on his side of the fence we can best prepare our own plans. These plans should coincide in a synergistic effect as a combat multiplier to destroy the enemy. Flanks are made identifiable by boundaries and coordination/contact points. Boundaries, if properly selected, are on terrain which does not favor any major mounted approach and can be easily defended by friendly forces. Boundaries can be screened or overwatched without actual positioning of forces. At points where physical coordination is established, a checklist in the appropriate languages is needed to enhance understanding, to ensure that all mutual coordination is accomplished. In case of a threat from the enemy in the vicinity of the coordination/contact point, the senior NATO soldier present, regardless of nationality, should be in command. Boundaries at coordination/contact points need not turn into strong points. It is precisely at the flanks where, when needed and if available, we can direct the combat power of not one national force, but two! All available combat support (attack helicopter, close air support, artillery, air defense and engineers) and reserve combat maneuver elements of both forces can quickly converge, preferably under a unified command, to destroy the enemy. The boundary is a responsibility of both commanders who share it, and depending on the terrain and their assigned missions, they will jointly determine how best to handle it. The boundary may be screened at some locations, established by coordination/contact points at others, and in some instances may require the joint occupation of battle positions. Units should have knowledge of each other's intentions, and be aware of the current situation on the "other side."

When a threat along the flanks is foreseen, commanders should have plans prepared and be ready to react if such a reaction is possible. If a flank is broken, the first reaction should not be to back up and reestablish the flank, but to destroy the enemy's capability to carry on his intrusion any further. Any combat force operating on or crossing an international boundary should come under a unified command. Procedures for conducting such operations will have been developed in a combined Field Standard Operating Procedures (FSOP) document, which is coordinated during peacetime. Although different national forces may have diverse guidelines and principles for their individual employment, it is the responsibility of liaison officers (LNOs) in place during peacetime, to coordinate the procedures and incorporate them into the combined FSOP for use in war. The LNO must be able to wear two hats in order to be effective. He cannot only represent the interests of his own force, but must be able to adequately portray the intentions and interests of the neighboring force to which he has been attached. A consistent and truthful information exchange is necessary. A combined FSOP that is exercised and revised as

“ . . . We must have, within NATO, a renewed concerted effort to resolve to make interoperability a reality . . . ”

necessary, coupled with mutual trust for one another achieved through personal contact, is vital. Boundaries, while in effect delineating the command responsibility, have historically been a leadership problem. Hauptmann (Captain) i.G. (General Staff) R. Ostermeyer, while attending the German *Bundeswehr* General Staff School in Hamburg and thru his studies, has been able to determine that — up to the battalion level — those leaders who have traditionally led from the front have been the most effective at avoiding danger on boundaries. It is at brigade level and higher, where leaders are positioned more to the rear, that danger presented itself most often.¹² Ostermeyer offers these points as possible solutions to maintaining a secure boundary:

- Move the boundary to other points when threatened to provide for a unity of command over the threatened area.
- Put units sharing a boundary under a unified command.
- Have quick reacting reserves available and positioned behind main forces along the boundary.
- Place counterattacking forces under a unified command.¹³

Moving the boundary may solve the problem of unified command. One question, however, the practicality and the ability of commanders to move boundaries whenever they are threatened; not to mention that, by moving the boundary, we still have *not* removed the threat! The availability of quick reacting reserves emplaced along the boundary is a waste of forces that may be better employed elsewhere. Emplacing units which share a boundary and unifying the command of counterattacking forces who must cross the boundary are certainly possible and even likely. The key, again, is prior coordination incorporated into a combined FSOP, and interoperability.

SPRINGEX is an annual interoperability exercise conducted between elements of the 4th (GE) *Panzer*-Grenadier Division (Mechanized Infantry), and the 1st (US) Armored Division. The first SPRINGEX was conducted in 1984 under a U.S.-developed plan. Subsequently, exercises have been held each year, alternating responsibility for planning between participating US and GE units. A major byproduct of the exercise is a “Combined FSOP”. SPRINGEX is normally conducted in the Spring at the Hohenfels Maneuver Training Area. The exercise has traditionally involved joint training from individual soldier to brigade unit level, and culminates with a joint field training exercise. This past year’s exercise, SPRINGEX 83, involved participating units from the 2d Brigade, 1st Armored Division, and the 12th *Panzer* (Tank) Brigade, of the 4th (GE) *Panzer* Grenadier Division. The planning responsibility for the exercise rested with the 12th *Panzer* Brigade. Traditionally, the exercise was designed to devote four days to interoperability training and three days for a joint FTX. This year’s FTX was designed to explore methods of conducting joint defensive operations.

There are many impediments within NATO to achieving interoperability. However, we cannot let these blind us from those actions that commanders can take to achieve the interoperability that they need. We are not living under the same conditions as existed when the United Nations reacted to the North Korean invasion of the Republic of Korea (ROK) on 25 June 1950, where, “it may be stated fairly, however, that some rationalization, standardization and interoperability had occurred through integration of US doctrine, equipment, armament and training.”¹⁴ US doctrine, equip-

ment, armament and training is not, cannot, be the guidance for other NATO countries to follow. The ROK/US Combined Forces Command no longer has the U.S.-controlled rationalization, standardization and interoperability that was once possible. These three areas are now a national coordinated responsibility. We must have, within NATO, a renewed concerted effort to resolve to make interoperability a reality. To be successful, it will take a major effort, not only by the military leadership, but by civilians as well.

Interoperability would not always mean utilization of the same systems, but that at least the major systems would be compatible as much as possible. Until the time comes when interoperability actually becomes a real capability within NATO, military commanders must resolve to seek their own operative solutions to interoperability within the needs that their subordinate commanders may jointly require with their partners. Commanders can achieve the coordination they need with their allies through dedication and by understanding the importance of interoperability.

Footnotes

¹For information write TRADOC Liaison Office, ATTN: ATFE-LO-GA, Box 115, APO New York 09080 and ask for a copy of Periodic Index Number 13.

²JCS Pub 1, *DOD Dictionary of Military and Associated Terms*. Rationalization: Any action that increases the effectiveness of Allied forces through more efficient or effective use of defense resources committed to the Alliance.

³Ibid. Standardization: The process by which member nations achieve the closest practicable cooperation among forces.

⁴Ibid.

⁵Defense Report, “Interoperability - The Glue of Coalition Warfare,” *AUSA News*, August 1983, p. 7.

⁶Ibid.

⁷Ibid.

⁸1st (US) Armd Div, 4th (GE) PzGren Div, “G-4 Work Group” study results based upon GE review of U.S. supply catalogs.

⁹TRADOC PAMPHLET 525-5, U.S. Army Operational Concepts, “The AirLand Battle and Corps 86,” 25 March 1981, p. 20 (7).

¹⁰Ibid, pp. 23-24.

¹¹Peters, Ralph H. Jr., 1st Lt., “Battlefield Initiative and the Small Unit,” *Army*, December 1983, p. 50.

¹²MS., “Grenzen als Führungsproblem” (Boundaries as a Leadership Problem). Maj. i.G.W. Korte (FRG), Amberg, FRG, 27 December 1983, p. 4.

¹³Ibid, p. 5.

¹⁴Cooling, B. Franklin, “Allied Interoperability in the Korean War,” *Military Review*, June 1983, p. 27.

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Killer Tank Crews

by Lieutenant Colonel James Crowley

Tank battles at the National Training Center (NTC), like real battles in real wars, have shown that a very special breed of tank crew exists within the U.S. Army. These are the comparatively small number of tank crews that have proven to be superstars. These elite crews often win battles for their company or battalion. They avoid getting killed while they kill great numbers of enemy tanks. Their presence in the battle and their effect on the battle is critical. At times they have literally changed defeat into victory.

These *Killer Tank Crews* have confirmed again and again what combat leaders have been saying for a long time: the key element in winning wars lies at the crew/platoon level — the people who do the shooting. As such, they must be trained to survive.

To examine how these crews operate we must look at the tank-versus-tank battle. The battle is won by the side that wins the individual tank-versus-tank fights. Usually, these fights are of an attacker versus a defender, or a moving attacking tank versus a stationary defending tank.

Proper offensive and defensive positioning are vital to survival. Good positioning allows the defending tank to kill a large number of attacking tanks without itself being killed.

An attacking tank crew's survival is directly related to its acquiring the defending tank, which means *knowing where to look*. For the defender, survi-

val lies in not being acquired or, if acquired, moving fast, for the phrase "what can be seen can be hit," although trite, is very true. Here are some tried and true positioning techniques:

- Have a backdrop and avoid anything that catches the eye. A skylined tank is a dead tank. Also, if a tank positions itself by a large boulder, it can be acquired by association.

- Use a full-hide position and stay in it until the enemy is where you want him for engagement. A prone or dug-in forward observer gives a very small signature compared to a tank even one in a good firing position. Also, the ideal firing position that puts the tank in full defilade against all possible return fire is very rare.

- Use covered routes into and out of your firing position. More tanks are killed at the NTC moving into and out of firing positions than are killed in open battle. Experienced crews put a higher priority on covered routes than on the firing position itself.

- At night, no lights. Night vision devices can detect red dome lights through periscopes. They can see blackout markers and even the reticle light in a gunner's sight. In *M1's* this is a real problem. There are some lights that can't be turned off. Tape them.

- Use window or keyhole positioning. This is probably the most successful positioning technique to come out of NTC training. Simply stated, this is

deliberately limiting a tank's sector of fire in order to limit its exposure. Because the tank's fields of fire are deliberately limited, dependence upon OPs and mutual support with other positions are vital to avoid being blindsided.

- Move into position carefully. Quick movements are easily seen. Hot rodding can throw up diesel fumes and dust. In this respect it is vital to keep the air filters clean or excess diesel plumeing will result when you gun the engine.

- Shoot, then move. Every shot fired increases the probability of attacking tanks acquiring and engaging the defending tank. Four or five rounds is the maximum that can safely be fired from one position. Only if the crew is certain that they have not been acquired can they remain in that position. When you see the attacking tank's turrets starting to turn toward you, you have been acquired — move.

- Avoid shine. Plastic map cases, goggles, binoculars, eyeglasses, all can give you away. Use eyeglass shades and use the other items only when needed. Then stow them inside the tank.

The Defensive Techniques

- Use wingmen. The wingman technique works. Both tanks cover the same sector of fire. When one tank is out of action for any reason, the other continues to cover the sector. Wingmen also sense each other's rounds.

“...Target acquisition and positioning movement are at least as important as steel-on-target gunnery...”

- Tanks must be able to cover all mounted approaches. The company commander must assign all tank sections primary and secondary sectors of fire. He must ensure all mounted approaches can be covered by tank fire. The tank crew's responsibility then is to select exact positions to cover those sectors of fire, along with covered routes to and from those positions. The company commander should go to the front and observe his tanks' positions from the enemy side. Exact distances to target reference points (TRPs) are ranged. Dead space can be identified.

- Practice movements. This practice must be done as it will be done in battle: buttoned up, in MOPP, and with gun tubes to the rear. Marking and walking the routes is the driver's responsibility since he will have to do it during battle while the tank commander (TC) is watching the enemy.

- Dispersion. The NTC guideline of 75 meters or more between primary and secondary positions is a proven item. Wingmen must also be dispersed to prevent both being blinded by smoke or both being killed together.

- Don't use berms. A berm must be at least 20 feet thick to protect you tank against an APFSDS round. Instead, dig the tank down. With enough time and equipment, both a hide and firing position can be constructed. There have been instances when such well-constructed positions allowed tanks to successfully fight from unfavorable open terrain. In fact, there often is a surprise effect gained by occupying terrain where you're not expected to be.

Now let's take a look at techniques that have proven effective for attacking tanks.

The biggest need has already been covered — the attacker must acquire the defender. Ideally, defending tanks are acquired before they begin shooting, but certainly they should be acquired after the first round. Each tank in an attacking formation must have an assigned sector of observation. Flanks and rear must be covered because that's where antitank (AT) weapons will be positioned. The natural tendency to observe only in the direction of travel must be overcome. Binoculars should always be used and the gunner must use his sight for searching. The use of optics is difficult when



moving crosscountry. The stabilized sight on the M60A3/M1 solves the problem for the gunner, but not for the TC. Many tanks use the short-halt technique during which the tank halts for 5-10 seconds, a quick scan of the sector of observation is made, and the tank moves on.

- Things to look for. The same things you would avoid in the defense: shine, skylining, diesel plumes or dust, straight lines, anything different from the natural terrain. Also, knowing how you would position yourself if you were the defender helps.

- Stay together. Tanks achieve their maximum effect from mass shock. Breaking up the mutual support of the attacking formation by moving too fast or too slow is a fatal error.

- Never skyline yourself. Keep low and try to keep some cover between yourself and the enemy. Perfect routes just don't exist, but every little bit of cover helps.

- React quickly. When you come under fire, you have two alternatives: stop and kill the enemy tank, or move to cover. You cannot ignore the fire because modern AT weapons are too accurate and too deadly and have too high a rate of fire for you to ignore them. Your best answer is to kill the defender. If you simply try to avoid his fire, he will still be alive when you pass him and he will put one through your grill doors. It is the ability to deliver killing tank fire while on the move that separates the winners and the losers at the NTC.

- Avoid killing zones. If you see a tank that has been killed by AT fire, give it a wide berth because if you move closer than 75-100 meters to it, you are in the same sight picture that killed that tank. If you see a group of destroyed vehicles — move elsewhere,

fast; you are looking at a killing ground. Also be careful when bypassing AT ditches, mines or wire. Often the bypass route is into a kill zone.

Crew Duties

While the basic crew duties do not change, the experience of *Killer Tank Crews* at the NTC indicate that a shift in emphasis is necessary. The tasks of fighting the tank, picking firing positions, looking for the enemy, maintaining contact with friendly elements and all the tactical aspects of operating the tank are very much a fulltime job and require the TC's full attention. The rest of the crew must be able to perform their functions with the minimum involvement of the TC to allow this focus.

- Gunner. He handles all functions of hitting the target once he announces "identified." The gunner senses his own and his wingman's rounds. The gunner, with his higher resolution optics, must assist the TC in acquiring targets. The gunner will often take command of the tank when moving off the firing position if he sees the enemy's turrets turning toward his tank.

- Loader. Helps the TC acquire targets and serves as air guard. Directs the driver when reversing so that the TC can keep watch over the battlefield. The loader is often assigned close-in areas of watch while the TC concentrates on areas farther afield. Because his job of loading the gun is hard work in a 'target rich' environment, he should be the best conditioned man in the crew.

- Driver. He is probably the most underrated crew member. Good terrain driving requires a good driver. He selects the exact route based on the TC's general directions. He must know where the enemy is and keep the tank

as much hull-down as possible. He must be alert to ground conditions to prevent track throwing. He must check the route for mines. He must do all this independent of TC supervision. The driver of the *M60A3/MI* is almost as important in hitting a target as the gunner when firing on the move. He must drive smoothly and steadily.

Steel on Target

So far, we have gone over lessons that have come out of engagement simulation, or MILES force-on-force battles at the NTC. A lot of live-fire lessons have been learned as well and they include:

- Know the ranges to TRPs and use precision gunnery. The gunner should memorize TRP ranges. With a laser rangefinder, use the TRP to confirm the target range.

- Reload the turret. During any break in the battle, transfer rounds from the hull to the turret. If you fire only three rounds, replace them.

- Learn to use the 105D. It is a more robust sight than the M32. It is harder to use and requires more effort, but gunners *must* know how to use it.

- Check deflade from the gun, not the sight, because the M32 is well above gun tube level.

- Boresight. Anytime you move, boresighting may be required. Bore-sight three times a day — at first light, at midday, and at last light.

Odds and Ends

While not fitting into any single category used before, there are numerous other tricks used by *Killer Tank Crews* at the NTC:

- Use of onboard smoke is fatal if not used properly. Three keys to successful use of smoke are to use it only when someone is shooting at you, put it between you and the enemy, and don't use it longer than necessary.

- Thermal ID at night is even more difficult than daylight ID.

- Ballistic shields down. The first thing to do when receiving indirect fire is to close your ballistic shields to prevent damage to your optics.

- Tie down antennas. Point them away from the enemy. This reduces both the visual and electronic signature.

- Vehicle recognition. There have been many battles where tanks have killed almost as many friendly as enemy tanks. Gunner/TC knowledge of vehicle recognition is vital. The old technique of keeping the gun tube toward the enemy gives a better chance of recognizing a withdrawing friendly tank from an attacking enemy tank.

How To Get There

So far we've described some of the tactics, techniques and tricks that *Killer Tank Crews* use. None of them is hard to understand; however, their application and execution against a real enemy is going to be difficult.

How do we train our tank crews to execute their jobs properly on the battlefield? The answer is simple: MILES. The techniques presented here were not developed at the Armor School; they were developed by tank crews who learned from their MILES experience what worked and what didn't work. Crews that are trained often with MILES learn the arts of target acquisition, positioning, good movement and all the other techniques that make the difference between the live tank crew and the dead tank crew and it makes the training fun and challenging.

However, sufficient MILES equipment is not always available, nor are adequate training areas or time. Here are some suggestions to help overcome these deficiencies:

- Concentrate on crew/section/platoon-level training first of all. Training at these levels must be learned to standard before advanced training can be undertaken. If individual crews aren't adequately trained it is impossible to train at higher levels. Multi-echelon training is your ultimate goal, but the higher you go, the fewer the number of individual crew actions that can be trained for. At platoon level, perhaps three or four exercises can be run a day. At battalion level, one exercise per day is the norm.

- Use the after-action review (AAR). A great deal of crew training takes place after the exercise when the opposing crews and evaluators discuss what has happened, why it happened, and how it could be done better. Units often skimp on providing trained evaluators. Don't. AAR *every* training event!

- KISS. Keep it simple, son. There is no real need to develop elaborate scenarios or to get all wrapped up in OPFOR tactics. At the NTC, the OPFOR tank battalion uses simple games like "tank tag," where two tanks are placed at opposite sides of a piece of terrain and told to take it. Or "king of the hill," where a couple of tanks are positioned on a hill and the rest of the company surrounds and attacks.

- Train your crews to use MILES. How to mount, boresight, and shoot MILES must be mastered if crews are to be effectively trained.

- Change tanks and rotate crews rather than taking time to remount the

MILES and re-boresight it. Always boresight the MILES when changing tanks.

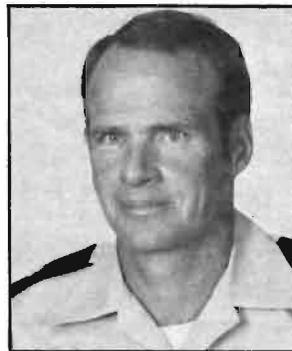
Summary

Engagement simulation with MILES is the proven method of improving tank crew performance. The only problem is the lack of MILES equipment, especially if MILES is to be used as an integral part of tank gunnery programs.

We must expand our definition of tank gunnery skills. Target acquisition and positioning movement are at least as important as steel-on-target gunnery. In fact, as our gunnery systems become more and more rapid and accurate, the tactical aspects of gunnery become even more critical. We should formally include MILES engagement simulations in expanded gunnery programs.

The revisions of FM 17-12-1, *Tank Tactical Tables*, are a step in the right direction but don't go far enough. These tables are live-fire gunnery tables using MILES. We should use free play force-on-force to train tank crews in the basic gunnery skills. This would require less lead and preparation time and less OPFOR training and coordination than the tactical tables in the manual.

Force-on-force training is more battlefield-oriented. It teaches crews to function with the flexibility and initiative they will need to win in real battle. It provides the motivation and feedback required for tank crews to build themselves into *Killer Tank Crews*.



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COBRA: The Normandy Breakout

by Captain Stephen D. Borows

One month after D-Day, Allied planners had envisaged controlling the whole of Normandy, including the major town of Caen. But by July, a million Allied troops were still bottled up in a beachhead only 3½ miles deep that could be pushed back into the sea by the opposing 650,000 Germans. Only 17 Allied airfields were in operation in the beachhead area with just thirty-one fighter squadrons. And the airfields were subject to periodic shelling.

General Eisenhower, Supreme Commander, Allied Forces in Europe, wrote to the Army's Chief of Staff, General George Marshall, of his difficulties in achieving a breakout. He attributed his lack of success to three factors: One, the superior fighting qualities of the SS and parachute troops of the German Seventh Army; two, the Normandy countryside that was ideal for defense and precluded the massive use of armor and, three, the terrible weather in the English Channel which had inflicted horrendous damage on Allied equipment, had broken up the artificial harbors at the beaches and, in general, inflicted five times the damage to Allied equipment than the enemy had done on D-Day.

Among other negative results of the weather, the Allied ammunition supply had been reduced by one-third.

The Normandy countryside was an extensive patchwork of tangled shrubs and trees up to fifteen feet in height and three to four feet thick. These hedgerows, called *bocage*, had been set



by French farmers generations before to mark the boundaries of their fields and to protect their crops from the sea winds. The *bocage* severely restricted mobility and visibility and, combined with the fact that few good roads existed in the area, gave the enemy great advantages in his defense. It seems that the D-Day planners had paid less attention to the Normandy *bocage* than they had to the beaches.

It would fall to American ingenuity and technical know-how to solve the problem of cutting through the hedgerows that imposed a style of war that the Americans were unsuited for, both by temperament and training. This was to be a war that demanded combined arms operations, something the American Army had not practised to

Hit by an 88-mm antitank gun as it approached Avranches, an M4A3 of the U.S. 4th Armored Division burns in a field.

any great degree prior to the invasion.

A solution to the *bocage* problem came from Sergeant Curtis Culin of the 2d Armored Division's 102d Cavalry Reconnaissance Squadron. Sergeant

Two Panther tanks of the Panzer Lehr Division knocked out in early July, 1944, when they attempted to counter-attack.



Shaded area on map of France pinpoints tiny beachhead held by the Allies prior to Operation COBRA breakout. Several earlier attempts made little headway.

Culin welded steel prongs to the front of Allied tanks, which allowed the tanks to dig in and uproot a portion of the hedges. The prongs were hastily welded up from steel girders that had been part of the German beach defenses.

General Omar Bradley, 1st U.S. Army Commander, saw the Culin device on July 14 and ordered it mass-produced. During the breakout operations, three out of five U.S. tanks were equipped with the "rhinoceros hedge-cutter" which proved to work, providing much better mobility for the armor.

Other improvisations, like external telephones on the rear decks of the tanks and infantry-frequency radios inside the tanks, increased the Americans ability to fight as tank-infantry teams. The leading tanks in the offensive were equipped with VHF aircraft-frequency radios, and every armored column had an on-station patrol of 3 to 4 P-47 fighter-bombers orbiting overhead on half-hour shifts, ready for immediate air strikes. Very rarely would the *Luftwaffe* ever contest Allied air superiority over Normandy. This advantage would have a dramatic, though not decisive, effect in the breakout.

The Germans, despite the need for forces to contain the Soviet armies in the East and to block Allied advances in Italy, had amassed 20 divisions to oppose the 34 Allied divisions in Normandy. Field Marshal Erwin Rommel, Commander of Army Group B, would very effectively check the Allied advance and would prevent them from quickly breaking out onto the open plains where they could employ their armored superiority to advantage.

On 28 June, the Germans divided their forces into two groups to accommodate their newly-arriving reinforcements and to meet the likely Allied breakthrough attempts.

The logical place for a breakout was in the east, in the British Second Army sector around Caen. The ground there was flatter and more open, and a breakout there would threaten the communications of all the German forces in Normandy. Therefore, Rommel placed four corps under control of *Panzer Group West* in the Caen sector.

British intelligence, however, underestimated the depth of the Ger-

man front as well as the number of reserves the Germans would be able to commit to their area. Of the 13 divisions of *Panzer Group West*, 10 were concentrated on the 35-mile Caen front. Among these were five SS *Panzer* Divisions, including 250 medium *Panther* and 150 heavy *Tiger* tanks. Allied tanks were hopelessly outclassed by the *Tigers*.

On 18 July the British opened Operation *Goodwood* with three armored divisions commanded by Lieutenant General Sir Richard O'Connor. The attack, made east of Caen, followed a massive, 2,100 plane air strike.

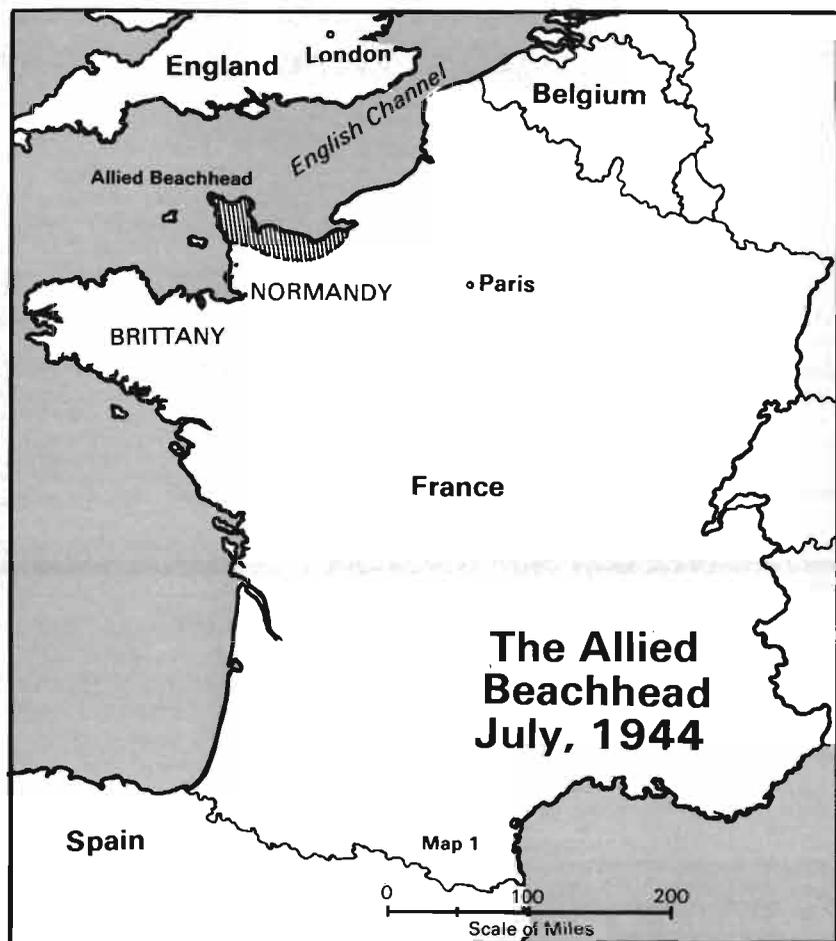
The German defenses in the Caen area were organized in depth, with infantry forward and the *panzers* back, east of Caen. At a crucial moment of the attack, a *Panther* battalion of the 1st SS *Panzer* Division came up on the disengaged side of an armored brigade of the British 11th Armored Division and occupied critical high ground. When the British brigade topped the open rise east of Caen, near Cagny, it came under murderous antitank and tank gun fire. The British pushed forward long after they had lost their initial momentum, and the 11th Armored lost 126 tanks in the first day. They lost

a further 200 tanks before repulsing a counterattack that ended *Goodwood* on 21 July.

Operation *Goodwood* was regarded as a failure by General Eisenhower because it failed to break out and to reach its tactical objectives. *Goodwood* did clean out the area east of Caen but at a cost of 500 tanks. To the British Second Army paradoxically, the bloody British repulse made the eventual American breakout possible by confirming the German hunch that Caen was the crucial area. This contributed to the weakness of the German front in the U.S. First Army sector where the Germans had placed only two corps.

General Bradley was already planning his version of a breakout to be made on 8 July. He planned an attack on a limited front close to the western end of the beachhead area. It was to cut off the German troops and pin them against the coast of the Cherbourg peninsula. The plan was finalized on 13 July and Operation *Cobra* was to begin on 18 July.

The area chosen for this attack was on Major General Lawton Collins' VII U.S. Corps front of about 4.5 miles. General Bradley concentrated three infantry divisions (9th, 4th and 30th)





for the assault with the 1st Infantry and 2d and 3d Armored Divisions poised for exploitation and pursuit. Available artillery tubes amounted to 83 for each 1.6 miles of front.

However, the key to *Cobra* was a massive aerial bombardment to saturate a zone of 7,000 yards by 2,500 yards. This area was to be pounded for three hours by more than 1,500 *B-17* and *B-24* heavy bombers dropping 3,300 tons of HE; more than 380 medium bombers dropping fragmentation bombs, and more than 550 fighter-bombers dropping 200 tons of HE and napalm. The purpose of this air strike was to severely disrupt, if not destroy, communications and create havoc in the German lines.

Once the initial rupture had been made, the U.S. VIII and XIX Corps would launch limited attacks to tie down the surviving Germans and prevent their redeployment to seal off the gap. The 9th and 30th Infantry Divisions and part of the 4th Infantry Division of VII Corps were to make the initial penetrations and secure the flanks of the breach, creating a "defended corridor." The tanks would be sent in through this corridor. The motorized 1st Infantry Division, with part of 3d Armored Division, was to bolt through the hole and attack toward Coutances, while the remainder of 3d Armored Division was to make a wide end sweep toward that town and 2d Armored Division would sweep even wider to the southeast.

The Germans were already in a much weakened state. In the fierce fighting since the invasion, *Panzer Group West* and Seventh Army had suffered nearly 117,000 casualties, but had received less than 12,000 replace-

ments. Similarly, of the total 250 tanks lost during this period, only 17 replacements had arrived at the front. Allied air strikes had destroyed most if not all of the German reinforcements on their way to the front.

Counting upon this sheer numerical advantage in troops and equipment, the Allies set the target date for the attack as 20 July, a two-day postponement from the original date. A further postponement until 1300 hours, 24 July, was caused by bad weather. That morning, however, Air Chief Marshal Sir Trafford Leigh-Mallory, commander of the Allied Expeditionary Air Force, decided that the weather was too overcast and unsuitable and cancelled the air strike. Unfortunately, the order did not reach all the air units and more than 300 bombers went ahead with the mission. The results were tragic.

The bombers were given a clearly-defined coordination point, the road

from St. Lo to Periers, but were allowed to bomb only on a north-south line, rather than parallel to the front which was roughly east-west. General Bradley had withdrawn his troops 800 yards from the marker road, but some bombs were released short of the aiming point and 25 Americans were killed and 131 wounded. The infantry divisions launched probing attacks after this abortive bombing, but achieved no significant results. A fresh start was ordered for 1100 the next day.

Paradoxically, this miscarriage of the *Cobra* plan made the Germans overconfident; they believed they had thwarted a major attack, and subsequently relaxed their vigil. When the full air bombardment began 22 hours later, the Germans were doubly surprised. More than 4,150 tons of bombs were dropped and *Panzer Lehr* Division, which took the brunt of the air assault, ceased to function as an effective force. Lieutenant General Fritz



In photo above, and at left and right, U.S. armored units surge into Coutances, an early objective of the COBRA breakout. The tank above is a howitzer-armed Sherman, favored for its 105-mm firepower and heavier armor. Light tanks like the M5A1 and Shermans with the more common 75-mm gun often faced murderous antitank fire from heavier German guns in well-concealed defensive positions.

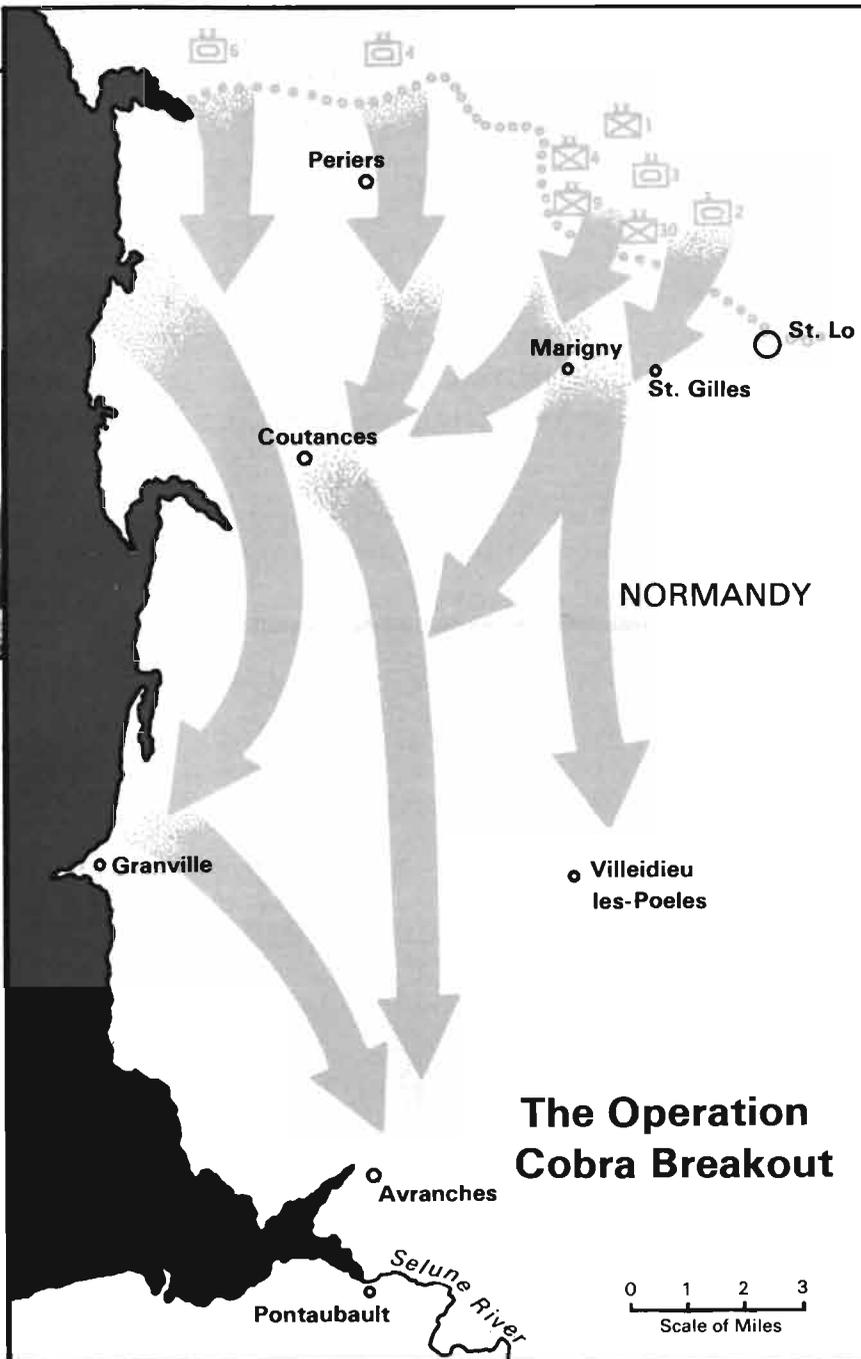


Bayerlin, *Panzer Lehr's* commander, later said:

"... By noon nothing was visible but dust and smoke. My front lines looked like the face of the moon and at least seventy percent of my troops were out of action — dead, wounded, crazed, or numbed. All my forward tanks were knocked out, and the roads were practically impassable."

Once again, however, some bombs fell short, this time killing 111 American soldiers, including the commander of U.S. Army Ground Forces, General Lesley J. McNair, and wounding 490 troops.

Although the bombings had disrupted a number of American assault formations, the attack went in on time. Remnants of the German units put up a stubborn resistance and the Americans found that their hoped-for "walk-over" instead turned out to be a hard fight.



The Operation Cobra Breakout



An American 57-mm antitank gun crew, mounted in a halftrack, rolls past the shell-pocked village church at Villeidieu les-Poeles.

General Collins nevertheless decided to commit his armor and the tanks went in soon after daybreak on 26 July. Major General Edward H. Brookes, commanding 2d Armored Division on the left flank, took St. Gilles by the afternoon. They made good progress and, in fact, achieved the greatest penetration on VII Corps front. At the same time, the 1st Infantry Division, with Combat Command B of 3d Armored Division under Major General Clarence A. Huebner, attacked toward Marigny, aiming to capture that town quickly and push on toward Coutances.

The main attack was held up by stubborn resistance, and was finally blocked when the commander of the German 84 Corps, Lieutenant General von Choltitz, rapidly switched elements of 17 *Panzer* Division south to block the roads to Coutances. On 27 July, the rest of 3d Armored Division was committed, but inadequate and bomb-cratered roads did not permit effective deployment.

The initial *Cobra* forces of VII Corps had achieved only a disappointing and partial success. What they had done, however, was to attract the slim German reserves to their area from the British area. Thus, when VIII Corps under Major General Troy Middleton began its holding attack on the morning of 26 July, it found little German opposition. By the 27th, the enemy had disengaged from the VII Corps front. Despite suspicion about a possible German withdrawal, the Americans were too cautious (after the hedgerow fighting) to prevent it.

On 28 July, Brigadier General Isaac D. White's CCB, 2d Armored Division, was dispatched southeast to cut off the German retreat. The 82d Reconnaissance Battalion of White's CCB pushed through the defenses before the Germans were aware of what was going on and seized blocking positions south of Coutances. Any opposition was eliminated by the combined arms team perfected in the hedgerow fighting — infantry-armor-artillery supported by fighter-bombers.

By 28 July, General Bradley sensed that the door had been kicked open,



and ordered General George S. Patton, whose Third Army was scheduled to become operational at 1200 hours, 1 August, to "supervise" the advance of Middleton's VIII Corps on the coastal flank. This command arrangement would establish a useful continuity between the exploitation of the *Cobra* breakout and future operations in Brittany.

General Patton immediately took over. Even in his limited supervising role, he began to embellish the attack plan with his own brand of audacity. He withdrew his infantry spearheads and replaced them with two armored divisions, the 4th, commanded by Major General John S. Wood, and the 6th, commanded by Major General Robert W. Grow.

Grow's force, attacking south along

the coast, was to exert the main effort. Middleton's armored division advanced more than eight miles a day against weak opposition. The main effort had now shifted from VII Corps to VIII Corps as the flow of the battle overtook the attack plans. By the evening of 28 July, the German 84th Corps had lost effective control of its units. Most of the survivors were trying to escape and evade to the southeast. On the 29th, American fighter-bombers pounced on a traffic jam and destroyed more than 500 German vehicles.

In the original plan, Coutances had been the pinnacle, but the situation had changed drastically. With the entire German Seventh Army on the run, and Coutances already taken by Colonel Bruce C. Clarke's CCA, 4th Armored, on the 28th, Avranches had



These cavalry troopers attached to the 4th Armored Division get a welcome and a cool bottle of Normandy cider as they pass through Le Repas on the push toward Avranches. At left is an Opel Blitz truck registered to a German SS division. The cavalymen are in M-8 armored cars, mounting 37-mm guns.

become the primary objective — it was the gateway to Brittany, and, in view of the resistance being encountered now in all other sectors, it was probably the only way out of Normandy for the Germans.

On 29 July, with their sights set firmly on Avranches, 6th and 4th Armored Divisions again moved south, with the more experienced 4th assigned the task of taking Avranches itself and securing bridge crossings over the Selume River to the east.

CC B of the 4th Armored advanced 18 miles on 30 July to capture Avranches, the vital point in the area for both attack and defense. It contained the only road south within ten miles of the coast; it was bordered on three sides by water; and it stood on a height of 200 feet that gave artillery commanding fields of fire overlooking the bridges over the Selume at Pontaubault. This allowed General Patton, with his newly-activated Third Army, to push seven divisions over that

bridge within the next three days and get behind the German front.

The *Cobra* breakout was complete. First and Third Armies of General Bradley's newly-designated 12th Army Group could now pour through the gap and begin to end the war in western Europe.

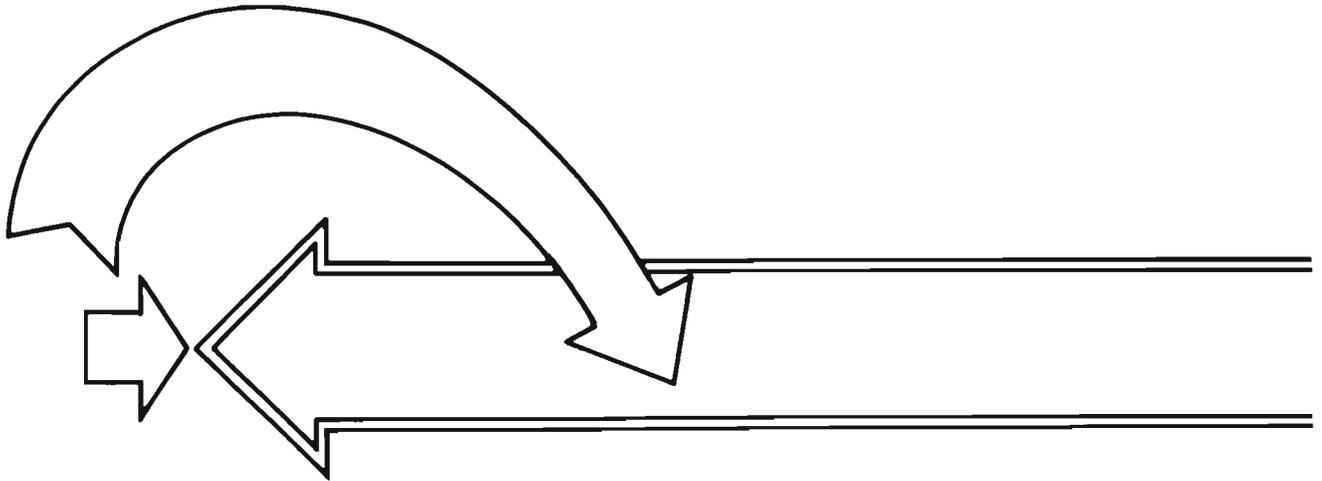
Overall, German losses in the Normandy campaign were 210,000 prisoners and 230,000 other casualties. However, neither the aerial bombardment nor the unplanned advance of VIII Corps had succeeded in destroying the Germans in western Normandy. The success of Operation *Cobra* resulted from the Allied preponderance of force rather than a novel application of strategic airpower.

It is interesting to note that the U.S. Army in Europe avoided the use of carpet bombing in its operational planning throughout the rest of WW II. Strategically, however, *Cobra* broke the Normandy stalemate and prepared the way for the rapid liberation of Paris on 25 August.

Just as at Sedan in 1940, when France succumbed to the radical German *blitzkrieg* tactics, it would be the speed of an armored advance and adept use of combined arms that would disorganize and confuse an enemy who was too large to destroy with a head-on frontal assault.



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Thoughts on Counterattacks

by Captain William D. Hewitt

Successful counterattacks at the brigade level and below reduce the attacker's initiative and present opportunities for division and higher commanders to begin in-depth operations against the enemy's follow-on echelons.

Current U.S. doctrine, as stated in FM 100-5, *Operations*, states that counterattacks "are based on reasonable assumptions about the enemy and on the battlefield conditions. Once the conditions are met or nearly met, the commander launches the attack. . . ." and "companies and larger forces may launch counterattacks."

This brings us to several meaningful questions that must be answered before proceeding.

- Exactly what are the assumptions and the conditions to be considered and when are they met?
- Should lower-level commanders not consider the planned counterattack as part of their defensive plan? If so, they should then be concerned only with seizing the initiative if and when an opportunity presents itself.
- If counterattacks can be planned as part of the overall defense, are they only effective against weakened forces?
- Can counterattack be used during any phase of the defensive battle?

The lower-level commander has a mission to perform counterattacks because seizing the initiative is his constant goal. The planning for a counterattack, however, requires him to know and understand the overall situation.

Our doctrine and planning assume we will fight the Soviets in Europe. The only history we have of counterattacks against Soviet breakthrough tactics comes from the Germans.



After WWII, the Department of the Army published studies with input from senior German officers that offer an illuminating picture of the Soviet Army and the evolution of its tactics from 1941 to 1945. The Germans knew that the Soviets "will go forward no matter what the consequence",¹ that the weakest element (of the Soviet force) was the intermediate and lower commanders;² and that counterattacks at every level had a profound effect on delaying advances and causing confusion up through the chain of command.³

Armed with this insight, the Germans identified the tactical considerations in planning and executing coun-

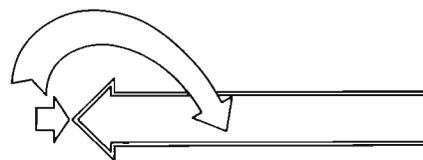
terattacks. Being severely outnumbered, with the order to fight for every meter of ground, the Germans turned from the linear defense to the mobile, elastic defense with reserve forces for counterattacks. They accepted penetrations and planned for them.

Preparation for the counterattack began in training which was "aimed at imparting toughness, independence, and willingness to accept responsibility, and the molding of self-reliant individual fighters as well as leaders who are willing to take chances"⁴ in fighting the Red Army. Counterattacks were planned and the battlefield was organized so that it contributed to the counterattack effort. Deceiving the enemy as to friendly intentions and as to the location of the forward line of defense was critical.⁵

Using infantry in the static (holding) area to shape the battlefield with supporting artillery and antitank weapons, the counterattack forces were composed of units with firepower and mobility.⁶ The Germans believed that counterattack forces must be concealed from enemy detection until the time of commitment, with the size of that force not exceeding one-third that of the enemy force.⁷ The holding force and defensive plan had to be such to withstand a 1:5 enemy superiority for a short period.⁸

Timing was crucial. If the counterattacking force was committed too early, the goal of attacking the flank or rear of the enemy was lessened or lost altogether. If the force was committed too late, it exposed its flanks to follow-on echelons, or the breach of the penetration became too wide for the counterat-

“. . . Remember that the Soviet second echelon follows the main thrust by 4 to 6 kilometers. That translates to 12 to 18 minutes. . .”



tack force to have the desired effect. In planning, the Germans knew that the danger to the counterattacking forces was less serious than anticipated because the Russians usually committed their forces almost exclusively along the axis of advance with little attention to their flanks;⁹ in executing, the Germans realized that it was not a cavalry charge but rather an attack by fire from stationary positions which *might then* be followed by an assault.¹⁰ Assaults were conducted cautiously as there were numerous incidents of Soviet tank crews and individuals who played dead or appeared to surrender only to begin firing at an opportune time.¹¹

The German actions at Kirovograd in 1944, where 56 tanks and 109 assault guns held and finally neutralized a force of 620 Soviet tanks, and the actions of the 15th *Panzer* Regiment near Stalingrad, where 24 tanks destroyed 72 tanks without the loss of a single man, are worthy of our study. The Germans made counterattacks everybody's business from company level through army group.

And Today?

Are these tactics still applicable, and are the Soviets and their allies still susceptible to these tactics? METT considerations determine whether or not a counterattack is possible. Obviously, if your mission is to hold a strongpoint, you'll probably not be counterattacking. Missions to delay or defend, however, open the door.

Looking at the Soviet Army of today, there are striking similarities with the Red Army of the past. With regard to the command environment, low-level commanders still suffer from lack of initiative.¹² Speed is still an obsession and is preferred over maneuver and accurate fire, and flank security is best obtained by aggressive advance.¹³ The commander must maintain the offensive and forward movement — the objective must be taken on time because delays lead to a breakdown in plans.¹⁴ Although the Soviet regimental commander is less inclined to take risks, he would prefer the U.S. defend-well-forward concept, since it thins the defense in depth and hinders lateral movement and counterattacks.¹⁵ Although the Soviet commander may be a bit more sophisticated than his father, he is still limited by his doctrine.

According to our intelligence, Soviet doctrine has not significantly changed with regards to frontages and depth since WWII. At present, the divisional breakthrough attack has a 4-7 kilometer front, while in 1941 it had a 4-6 kilometer front and in 1945 it had a 2-5 kilometer front.¹⁶ The depth of a division mission (intermediate objective) is 20-30 kilometers today; in the later stages of WWII the mission was 10-15 kilometers from the point of contact. The flanks of this breakthrough attack were not heavily defended and could be attacked with available resources.¹⁷

The effectiveness of Soviet weapon systems and personnel strength levels have certainly increased over the past 40 years. In WWII, a 500-meter shot for a tank required some Kentucky windage.

Today, a 1,500-meter shot is common and the range of ATGMs exceed even that of tanks. Thousands more men and many more tanks have significantly affected the factor of mass in Soviet units.

Knowing to some degree of certainty what effects this mass can have against him, the U.S. commander should determine whether he can afford to risk a counterattack, whether or not he can afford to lose the counterattack force, and how big the counterattack force has to be to ensure success. Situational templating, event templating and terrain analysis will give the commander some idea as to how many targets will face him at any one time.

Open, flat terrain with little vegetation and wide avenues of approach lessen the possibility for planned counterattacks, because the attacker has more available maneuver options. Europe's undulating, canalizing terrain with thick vegetation along the flanks of avenues of approach offers numerous opportunities. Desert wadis and gullies present similar opportunities.

Finally, let's look at troops available. With the current discussion concerning penetrating power, special armor characteristics, and actual probability of hit factors versus the published factors, the weapons of the holding force must be able to penetrate the front slope of Soviet tanks in order to keep sufficient pressure on the enemy. The weapons of the counterattacking force must be able to penetrate the sides of Soviet tanks. Tank-heavy forces should usual-

ly be used in the counterattack. Before my infantry friends lose interest, let's look at the numbers. TOWs — whether mounted in M113s, improved TOW vehicles, or Bradleys — require more time for reloading than tanks and the round requires a longer time of flight than the tank round. Graphically, the effectiveness of the TOW round catches and surpasses the APDS round at extended ranges. Using the probability of hit (Ph) factor in FM 71-2, the TOW becomes more effective at ranges over 2,000 meters. A word of caution about published Ph factors: These are based on the weapons systems characteristics, *not* on battlefield experience. My computations from observing a unit at the National Training Center (NTC) for a two-week period indicate the Ph factors drop dramatically in that environment. Every unit will have differing Ph factors, determined by training and experience, and type of weapons and vehicle systems.

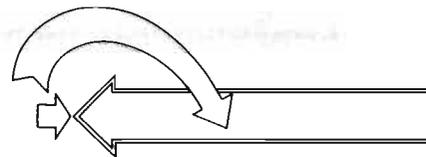
Air assets for the counterattack are a powerful factor. They are, however, a constant for the ground commander, applicable with the same statistics whether in support of tanks or TOWs. Engineer assets in the defense should be used for counter mobility. Their efforts slow the enemy, protect the holding force from penetration and the counterattack force from being outflanked, and force the enemy into the area where you want him.

Planning and Execution

After considering METT and determining that a counterattack is feasible, the commander begins his preparation and planning. Templating and terrain analysis will provide the required information. Remember that the Soviet second echelon follows the main thrust by 4 to 6 kilometers. That translates to 12 to 18 minutes. This window tells the commander how many weapons systems to commit to the counterattack force.

In planning, remember that as the size of the counterattack force increases, the risk to the parent unit increases because it lessens the size of the holding force. If the size of the counterattack force is too small for the mission, it increases the risk to the counterattack force; i.e., if situational templating indicates that you will be facing one regiment in the pocket, a company size

“. . . A dismounted unit should be detailed to ensure all enemy forces are dead within the pocket. . .”



force is enough. If you can anticipate a battalion-size enemy force in the pocket, perhaps due to narrow avenues of approach or other constraints, then a platoon is sufficient.

Because of the enemy's doctrinal fixation to the front, his target acquisition problem, the element of surprise, the advantage of being in well-prepared positions (if the engineers have time after their countermobility mission), and the need for high rates of fire for a brief period of time, firing from one position should be considered. Once the enemy begins to bring effective fire against the force, then movement to alternate positions must be executed. If a large force is required, the commander may decide to have an element on each side of the penetration. This adds to the confusion, but it also adds to the security problem. Protecting the flanks and rear of the counterattack force is the mission for security forces using hasty minefields along trails and at chokepoints.

The placement of the force during the counterattack should allow observation and fields of fire extending over the engagement area, and should obviously not surpass the effective range of the weapons. The location should allow the entire lead echelon into the pocket, and provide rear (preferably) and flank shots for the counterattacking force. This force may be in hide positions along the enemy axis of advance so that it is either bypassed or moves forward from the forward line of troops. The first alternative lessens the timing problem. The commander can more accurately anticipate the time re-

quired for movement into firing positions. Specific orders and signals must be prearranged.

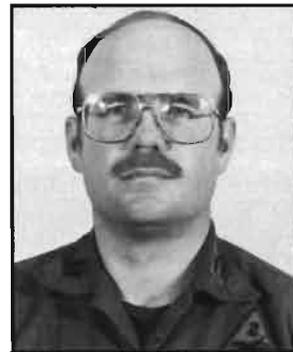
Finally, the fire support officer (FSO) needs to initially plan support for the holding force, to include airbursts to keep the enemy buttoned up. The FSO must also specifically target enemy overwatch positions outside the mouth of the engagement area for the purpose of isolating the first echelon with smoke or WP.

In executing the counterattack, the time of commitment is during the window between enemy echelons. As the enemy approaches the obstacle protecting the holding force, the counterattack force should be in firing positions, and begin firing either on order or upon signal. The FSO shifts some of the fires using smoke, to the key terrain outside the pocket, while maintaining airburst fires above the engagement area. Security forces protect the flanks with ambushes and emplaced mines. Again, I would recommend that the force engage targets continuously from one position rather than changing to alternate positions until the enemy brings effective fire against them.

After the counterattack, the commander must decide whether to move the counterattacking force back to the holding force line or use it as an anchor to move the rest of his forces back into original positions to begin a general offensive against the follow-on echelon before it deploys. A dismounted unit should be detailed to ensure all enemy forces are dead within the pocket, if an advance into original positions is desired.

This is an attempt to identify techniques and considerations. My observations from the NTC indicate that small units should be prepared to be bypassed, and should be conditioned to continue offensive actions into the flanks and rear of bypassing forces. These small unit actions can have significant impact in taking the initiative away from the attacker.

All sizes of units should be prepared to conduct counterattacks if the situation arises; units should also plan counterattacks as part of their general defensive plan. Because of their lethality and effect on our morale, small unit leaders need to understand how to apply the techniques and considerations because counterattacks are not for the light-hearted. Senior commanders must have confidence in their subordinates and need *fingerspitzengefuehl* (a feel for the battlefield and the enemy in his fingertips) to conduct or supervise the counterattack.



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Footnotes

¹Department of the Army Pam 20-230, *Russian Combat Methods in World War II*, Department of the Army, Washington, D.C., November 1950, p. 4.

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³Ibid, p. 35.

⁴Ibid, p. 116.

⁵General (Retired) William Depuy, "Generals Balck and Von Mellenthin on Tactics: Implications for NATO Military Doctrine", BDM Corporation, 19 December 1980, pp. 7-21.

⁶Department of the Army Pam 20-233, *German Defense Tactics Against Russian Breakthroughs*, Department of the Army, Washington, D.C., October 1951, p. 3.

⁷Ibid, p. 9.

⁸Ibid, p. 57.

⁹Ibid, p. 9.

¹⁰Depuy, *op. cit.* p. 22.

¹¹Department of the Army Pam 20-269, *Small Unit Actions During the German Campaign in Russia*, Department of the Army, Washington, D.C., July 1953, p. 4.

¹²Major Robert M. Frasche, *The Soviet Motorized Rifle Battalion*, DDB-1100-197-78, Defense Intelligence Agency, November 1978, p. 46.

¹³Field Manual 30-102, pp. 2-8.

¹⁴A.A. Sidorenko, *The Offensive — A Soviet View*, US Government Printing Office, Washington, D.C., 1970, p. 72.

¹⁵Major (P) Donald L. Merce, *The Soviet Regimental Commander*, Military Review, Volume LXII, No. 8, August 1982, p. 37.

¹⁶A.A. Sidorenko, *op. cit.* p. 81.

¹⁷LTC John Baker, Jr., "Where the Soviets Are Vulnerable", *Army Magazine*, August 1978, p. 25.



Two motorcycles scouts in training practice off-road driving in remote Western Oregon.

New Roles for Combat Motorcycles

by First Lieutenant Patrick Marr and CW3 Daniel Kingsley

Two Wheelers Master Cavalry Missions In 9th ID Test

Battlefield employment of the motorcycle is not a new concept. Motorcycles have seen action in every major theater of war from WW I to Grenada. While not new, the development of motorcycle operational concepts has been one of continuous evolution and change. Their capability has now reached a new high, and the application of their inherent mobility, speed and maneuverability offers exciting potential to the enterprising combat commander.

History

WW I saw the motorcycle commonly used as a courier vehicle. It proved itself in providing rapid battlefield messenger service. It was durable, cheap, and easy to maintain, but its adaptability

and speed were its major strong points.

During WW II, the motorcycle was commonly used in the German Army, which employed motorcycle battalion spearheads in the attack on Poland. These motorcycle units raced across the German-Polish frontier to capture key river crossings, bridges, intersections and even small towns.¹ Meanwhile, the U.S. Army decided to discontinue the use of motorcycles because they were considered unreliable and unsuited to off-road operations. In spite of that, 5,000 of them were used by the Army during WW II, mostly in courier and traffic control operations.² Although some were fitted with machineguns, the Allies never caught the same offensive spirit in motorcycle employment that the Germans did.

After the war, military interest in the utility of the motorcycle waned, although many soldiers returned to the civilian world smitten by the motorcycle bug. Interest in motorcycle racing continued to grow in Europe and spread to the U.S. In the late 1950s, cross-country motorcycles grew in sophistication and became more distinct

from the heavy road versions used during the previous years. Moto-cross and recreational cross-country motorcycle riding continued to grow in popularity, and the need for better trail bikes grew in demand as well. In fact, the research and development effort by the private sector has now reached a state of the art that can meet the military need for a tactically-employable motorcycle and for nearly any associated equipment. The U.S. Army has adapted civilian motorcycle technology for military application at the Army Development Employment Agency (ADEA) of the 9th Infantry Division (Motorized) with remarkable success.

Current Doctrine

Many commanders still view the motorcycle solely in the liaison/courier mission role. But the modern motorcycle can provide some amazing answers in other uses too.

The Army has had difficulty in the past marrying reconnaissance units with a suitable, uncontroversial vehicle. The *M113* armored personnel carrier, the *M151* ¼-ton, the *Sheridan ARAAV* (Armored Reconnaissance/

A motorcycle reconnaissance trooper negotiates a rugged Oregon logging road wearing night vision goggles in second stage of NVG training. Effective training can qualify a man within a week.

Airborne Assault Vehicle) and the *M3* Cavalry Fighting Vehicle have been employed by scout and cavalry reconnaissance units, and have proven to be adaptable to conventional cavalry reconnaissance operations. But each vehicle has its own set of limitations and none of them meet all reconnaissance requirements.

Another problem is even more acute: motorizing long-range reconnaissance patrols. Many available methods of insertion, extraction and mission execution rule out the present reconnaissance vehicles.

Reconnaissance units required to operate forward of the FLOT or deep in the enemy's rear area require a form of transportation that is easily transported and supported by helicopter; one capable of being inserted by parachute; easy to repair in a tactical environment without support personnel; fuel efficient, quick, and mobile in broken terrain. It must also be highly reliable, cost effective, and easy to destroy if left behind. It must be suited to all-weather, limited visibility operations, be quiet in its operation, and have a low profile, making it difficult to locate and destroy. These requirements can best be met by a number of commercially-manufactured cross-country motorcycles.

Motorcycle reconnaissance units have appeared in a number of divisions throughout the Army. The Cavalry Brigade (Air Attack) organization of Division 86 has a 14-man motorcycle reconnaissance platoon in the headquarters troop of the air cavalry squadron.

The air cavalry squadron of the 9th Cavalry Brigade (Air Attack) at Fort Lewis, Washington, tested the employment of motorcycles for reconnaissance from November 1981 through May 1982. The motorcycle platoon proved that it can perform conventional cavalry missions such as: zone recon, area recon, route recon, screening operations, maintaining contact between adjacent units, and courier service.

Additionally, the motorcycle platoon proved that it can be very effective in such (non-ARTEP) missions as: path-



finder operations, raids into enemy rear areas, stay-behind reconnaissance/harassment, NBC recon, conduct of NBC warfare and, hasty vehicle/armor ambushes.

Training

The 3d Squadron, 5th Cavalry motorcycle reconnaissance platoon has focused its training and resources in four areas; the operation of the motorcycle over various types of terrain during limited visibility with *AN/PVS-5* night vision goggles (NVG), driver/mechanic training, the development of protective clothing and, mission assessment and evaluation.

The reconnaissance platoon started aggressive night vision goggle training in July, 1982. The platoon went to Camp Rilea, Oregon, located on the Pacific Ocean, to conduct its initial NVG training. Riders familiarized themselves with NVGs by riding along the beaches at Camp Rilea. As the rider's confidence grew, he was required to negotiate increasingly difficult obstacle courses on the beach. After all rid-

ers were familiarized with operating the motorcycle while wearing NVGs, the platoon moved to the rugged mountain trails and logging roads of western Oregon. Within a week, the entire platoon was capable of negotiating any type of terrain wearing NVGs.

The platoon continued to maintain its NVG proficiency at Fort Lewis before going to the Yakima Firing Center in central Washington five weeks later. The Yakima Firing Center is similar to a Middle East/National Training Center environment and provides an excellent testing ground for all types of tactical training. Results of the tactical testing at Yakima proved the validity of the NVG training.

The motorcycle platoon has developed an NVG qualification checklist that has been invaluable in the training program. The instruction begins in the classroom with the maintenance and adjustment of the *AN/PVS-5* NVG and progresses through a series of operations on smooth surfaces with daylight filters to riding at night over rough ter-

rain using NVG's. The NVG qualification culminates with the logging of 24-hours of NVG operation in a tactical environment. Training is carefully monitored, and the reconnaissance platoon has not sustained a reportable injury to date in NVG operations. NVG proficiency is maintained by a squadron requirement to conduct an FTX monthly.

Drive and Mechanic Training

The Fort Lewis School Command has introduced two programs of instruction (POI) for the motorcycle operator since May 1983. The first is an 18-hour course on motorcycle maintenance. It includes brake repair, clutch and valve adjustment, tire repair and replacement, engine and chassis lubrication and overall vehicle troubleshooting.

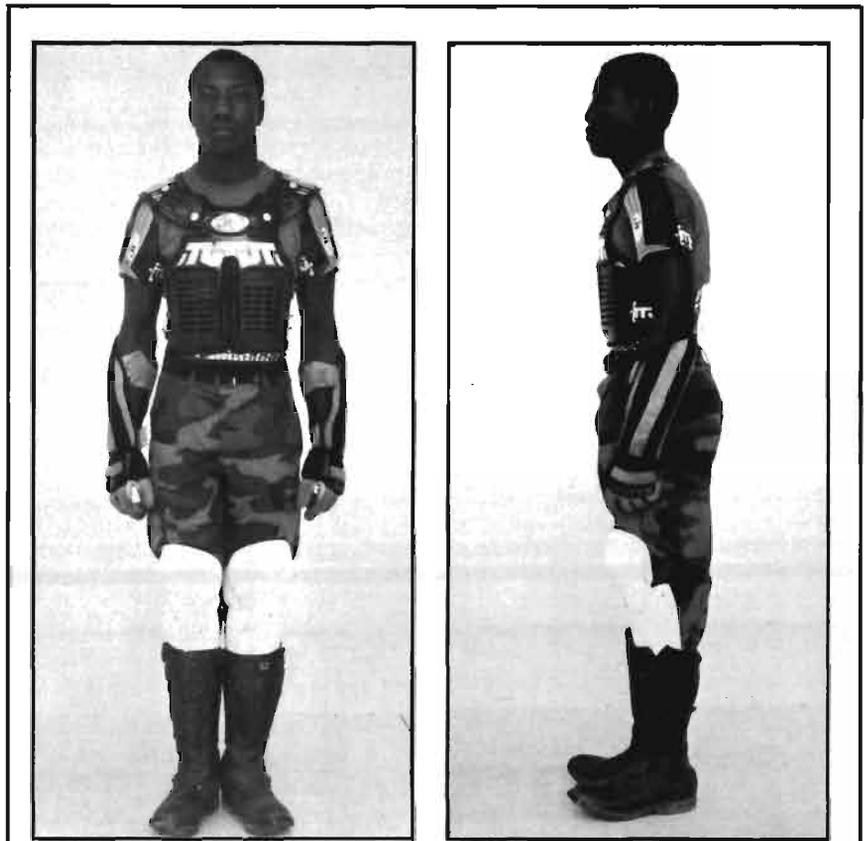
The second POI is a five-day motorcycle driving and safety program. The course is administered in both an on- and off-road environment, and is designed to train an unskilled operator and make him a safe, competent and confident motorcycle operator.

The 3-5 Cavalry motorcycle platoon goal is to become 100-percent trained in both of these courses. Mission readiness has significantly increased since the inception of these programs. Units desiring additional information about the POI can obtain it by getting in touch with MSG Sabourin at Headquarters, School Command, Fort Lewis.³

Protective Clothing

The reconnaissance motorcycle platoon has been working extensively with the U.S. Army Materiel Development and Readiness Command (DARCOM) to obtain and develop protective equipment. The area of most concern is helmet and communications development. Conventional civilian motorcycle helmets have not been adapted for use with military radios. On the other hand, the Army's Kevlar helmet with H-CCAPS (Helmet-Capability/Communication/Aural Protective System) does not afford protection from the head injuries that could be sustained in a motorcycle crash. The motorcycle rider needs a helmet that meets Department of Transportation (DOT) head protection requirements, affords ballistic protection, can be correctly worn while wearing the M17A2 NBC protective mask or NVGs and, has built-in earphones to monitor radios.

The communication requirement is for a two-radio-net capability with a voice-activated boom microphone pro-



Commercial motorcycle protective gear was adopted for use in 9th ID test. In two photos above, a soldier wears the commercial protective items used in the test. The two photos below show how this equipment is integrated with traditional uniform.



ected by the face shield when worn. A transmitting switch on the handlebars would be needed so the rider does not have to remove his hand to communicate.

Sound attenuation and amplification devices in the helmet could provide the scout with a method to adjust and isolate external noises: for example, to reduce external noise when monitoring his radio while riding, or to increase his ability to hear outside the helmet when dismounted.

A suitable helmet has been developed by the Gentex Corporation and fielded by DARCOM at Fort Lewis. It meets DOT protection standards and offers limited ballistic protection. It is electronically compatible with the PRC-77 and can be worn with the M17A2 or the AN/PVS-5. *Communications are now limited to the range of the PRC-77.* More effort is needed on a longer-range communication capability.

The motorcycle platoon is currently using commercial protective clothing, including shin guards, arm and shoulder pads, kidney belts, insulated gloves and protective boots. The research and development of protective clothing has been completed by the commercial sector. The Army needs to adapt and configure the protective clothing to meet Army uniformity requirements, but otherwise, the needed equipment can be fielded now.

Mission Assessment

The fourth priority of the motorcycle platoon is mission assessment and evaluation. In addition to the conventional cavalry missions stated, the motorcycle platoon is assigned to pathfinder missions, downed pilot recovery, search and rescue missions and extensive air assault operations.

Through numerous field exercises, the 9th Cavalry Brigade (Air Attack) and the 3d Squadron, 5th Cavalry have evaluated and assessed the employment of motorcycles in conjunction with aviation.

Motorcycle employment in the air cavalry mission has shown itself to be a natural extension of Army aviation assets. A combat-loaded 14-man motorcycle platoon can be inserted by one CH-47 Chinook or three UH-60 Blackhawks, or by any other conventional method of insertion, including airborne drops. Two-man teams can be inserted by upgraded OH-58s fitted with cargo hooks, as has been demonstrated at Fort Lewis.

Four motorcycles have been organically assigned to the experimental Light Air Cavalry Troop (LACT) that is con-

cerned with developing aerial tactics using an armed scout aircraft. The motorcycles assist the aeroscouts by classifying and clearing routes, lateral approaches and trails and obstructions, while the aerial elements conduct the route or zone reconnaissance. The motorcycles have been indispensable as an extension of the air troop commander's battlefield eyes and ears. The capabilities of the motorcycle are ideally suited for incorporation into the air cavalry mission.

Limitations

Motorcycles are not without their limitations. The most serious inherent limitations are inability to cross water obstacles of any appreciable depth, poor performance in excessive snow or mud, operator vulnerability to extreme weather conditions and lack of armor protection from small arms fire and artillery fragments.

There are also significant organizational limitations. Command and control of the motorcycle is difficult because suitable radios and monitoring equipment do not exist. Equipment readiness status is subject to fluctuation because of lack of operator maintenance knowledge or instruction. And there are insufficient spare parts available at DISCOM.

The majority of these limitations are simply resolved, especially in the areas of communications, helmets and protective clothing. The Fort Lewis School Command is taking active and effective measures to reduce operator-induced problems and limitations in the areas of maintenance, services and vehicle operation.

Despite these current limitations, the motorcycle is ready to assume a significant reconnaissance role in the Army. The motorcycle, as it was recently employed in the Grenada operation, was relegated to the role of messenger and command and control vehicle. These missions are minimal in the light of the overall capability of the machine. Field commanders have not yet recognized the many possible employment options available for motorcycle assets.

Scouts mounted on motorcycles are among the most valuable sources of intelligence the combat commander has at his disposal.

Footnotes

¹ *Panzer Leader* by General Heinz Guderian. Ballantine Books, New York, 1980.

² *ARMOR*, Sept-Oct 1982, "The Military Motorcycle" by Captain Robert R. Sigl, pp. 26-28.

³ MSG Sabourin
HQ, School Command,
Ft Lewis, WA 98433.
(AV 357-2310/2304/4607)



FIRST LIEUTENANT PATRICK M. MARR was commissioned in armor from the USMA in 1981. He has attended the Armor Officer Cavalry Basic Course, the Infantry Mortar Platoon Course, the Junior Officer Maintenance Course, Airborne, Ranger, and Air Assault School courses. He has served as motorcycle reconnaissance platoon leader, cavalry platoon leader, cavalry troop executive officer and is currently assistant S3 for 3d Squadron, 5th Cavalry, Fort Lewis, WA.



CW3 DANIEL KINGSLEY holds a bachelor degree in sociology from New York State University. He served in the U.S. Marine Corps from 1968 to 1974 and entered the Army to attend flight school, graduating in 1975. He graduated from the U.S. Army Aviation Safety Course in 1982 and is currently serving as the aviation safety officer for 3/5 Cavalry, Fort Lewis. He is also the winner of the Aviation Digest Annual Writing Award for 1983.

The Role of the Fourth Company

by First Lieutenant Ralph Peters

Despite the fanfare, much of the U.S. Army's response to its new tactical and organizational doctrine can be summed up as, "It really doesn't change anything."

But the addition of the fourth line company *does* change things if properly employed on the battlefield.

First, it offers a commander *flexibility*, if it offers nothing else. But it does more than that, too, bringing into focus new possibilities in depth, concentration, sustainability and speed.

There are many ways to operationalize flexibility. One of the most basic is the designation of a local reserve. Unfortunately, our present idea of a reserve is both overblown and unnecessarily passive, partly because in Europe, forward commanders have been conditioned to get every weapons system into a good firing position early on.

While the rear echelon of battle positions are, *de facto*, a reserve, we think of them as committed, if only to defending a position.

Reserves are casually viewed as a distant force tucked away in a rear assembly area, more understudy than actor on the corps- and division-level stage. This should not be the case.

At very least, the fourth company is a *local* reserve, ready to be factored into the commander's battle plan. While awaiting its turn in the battle, this reserve may be gainfully employed in preparation of alternate and subsequent battle positions, but what the reserve does before its commitment is less important than how the commander thinks of it. It is the commander's mental attitude about his reserve that matters. Rather than seeing this force as a unit married to a specific piece of terrain, he should perceive it as his free player to kill the enemy, a force capable of maneuver and movement, a responsive tool to alter or accentuate the course of the battle.

Even when designated as a local reserve, the fourth company provides new depth to the defense (figure 1).

Whether the task force commander initially organizes with two up and two back, two up and two back in echelon, three up and one back to cover an especially broad front, or in any other terrain- or Threat-driven combination, there is a depth to the battalion task force defense that did not previously exist.

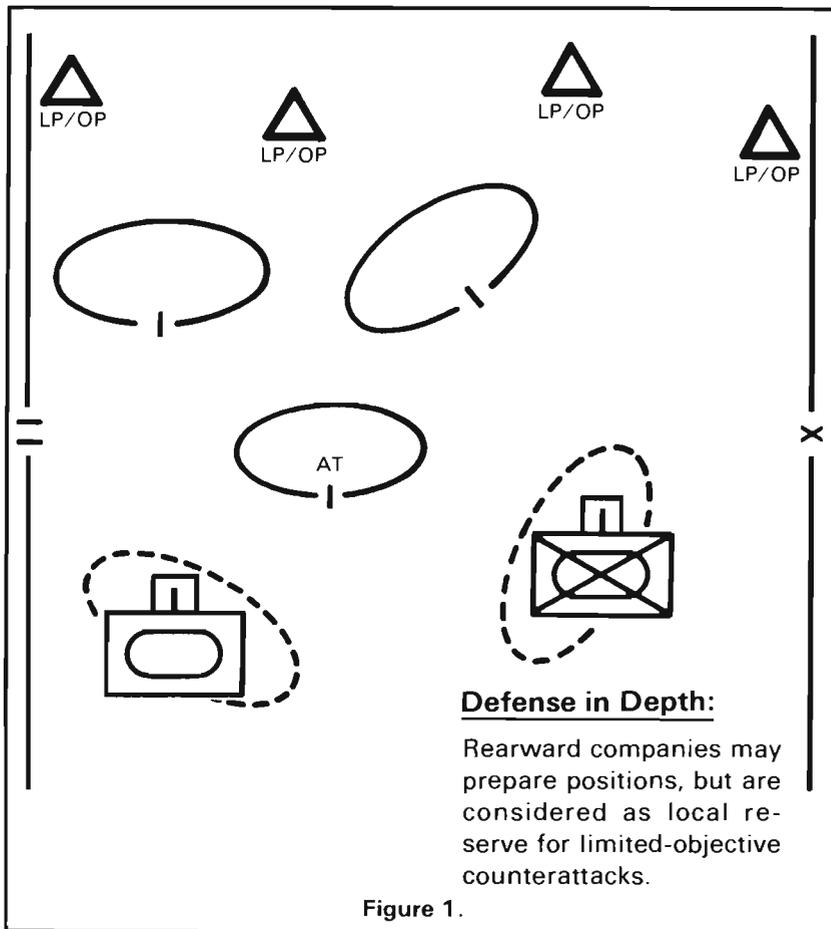


Figure 1.

Along with that depth, flexibility is improved: the decision to shift a company team is simply not the momentous decision it was before.

Improvements in flexibility and depth apply to the offense as well. A reserve is often every bit as critical in carrying through a successful attack as it is to a defense. In the offensive, depth is achieved with echelonment, offering the potential of greater concentration and sustainability (figure 2).

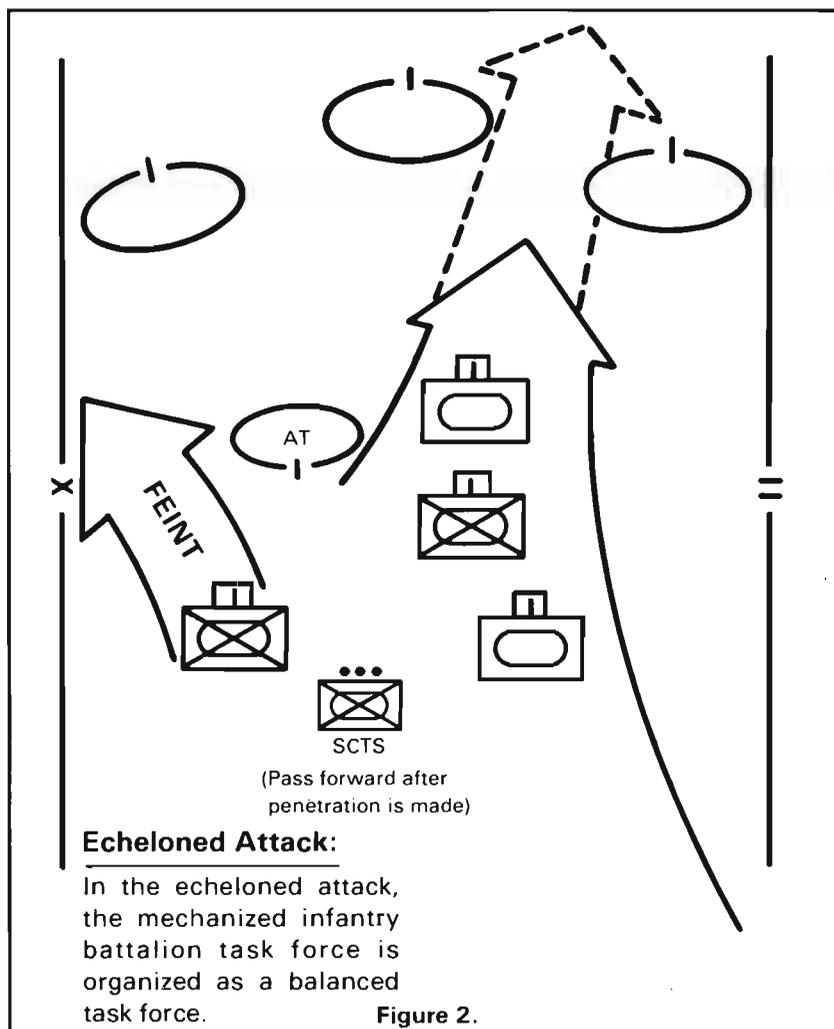
Echelonment allows the concentration of sufficient force — of local mass — to overcome the defender's advantage. Furthermore, echelonment allows the sustainment of that concentration. Of the countless variables in the attack, perhaps only surprise has proven to be of such constant value as having concentration of fires and physical mass on the decisive point.

Mass is another concept we don't fully appreciate. It summons up images of the Red Hordes, shouting "Ura!" as

“ . . . Perhaps only surprise has proven to be of such constant value as having concentration of fires and physical mass on the decisive point. . . ”

they crowd toward the slaughter. But properly understood and applied, mass is more valuable to the outnumbered force: the smaller element's most foolish course of action would be to try to be everywhere at once. Mass and economy of force complement each other.

Elevated to the level of a principle of



war, mass means the disciplined application of more physical force at the decisive point, coupled with the commitment of that force so swiftly that the enemy cannot respond *in time*. A phrase in current vogue is "operating within the enemy's decision cycle," but in the simplest terms, it means getting the other guy on the ropes and keeping him there.

There is a resultant multiplication of force in the echeloned attack that cannot be explained in terms of high school physics. Perhaps it is the sustainability of the echeloned attack, the momentum of the fresh, follow-on force, that keeps the enemy on the ropes.

The echeloned attack gives the commander another advantage; it allows him to take that most dangerous of steps, changing the plan in mid-course when it becomes clear the original plan isn't working. With the additional time and forces available, he can consider this kind of option when, otherwise, it would expose his force to great danger.

The fourth company also contributes the potential of greater *speed*. The reor-

ganization into four lean direct-fire companies is intended to simplify the commander's troop-leading procedures to give him a more manageable organization. These four lean elements can load up and go when the situation requires.

The overall speed of a battalion task force movement should also increase, despite the additional maneuver element. More responsive sub-elements will mean a quicker total organization, as long as commanders and operations officers thoroughly grasp the changed coordination requirements at the battalion level. This will require attention, planning, and practice. Just as mechanized infantry company commanders too often forgot their 81-mm mortars as the pace of operations accelerated, the fourth company might also be more easily forgotten than a glancing consideration suggests.

The task force commander will need to issue this new maneuver element clear orders and give it meaningful missions. Facing a high-tempo, confused battlefield, subordinate commanders will have to have a sure grasp of their

commander's overall intent.

This presupposes that the commander himself knows what he wants to accomplish, which is not always the case. But without well-defined goals and effective synchronization, much of what the commander has potentially gained in flexibility, concentration, and speed will remain undeveloped or generate into confusion. In this one respect, the commander's job will be harder than before. It will be especially hard on commanders who have not yet learned to integrate their own combat multipliers, their engineers, air defense troops, or even their organic antitank forces.

Having considered the role of the fourth company in the offense and the defense, let us turn to two more specialized situations, the movement to contact and the covering force fight. How will the added element change things?

An advantage in the movement to contact is that the commander has an improved capability to balance his advance over multiple axes. He can shape his movement to fit the mission as never before. He can tailor his attack to provide the greatest possible shock effect or the fullest flank protection. He can narrow his frontage to penetrate the expected enemy force or he can open up his frontage to locate a more elusive enemy. Or he can seek any degree of balance between these extremes.

In the movement-to-contact mission, several recent elements come to the commander's aid. He has a greater number of more agile formations and the increased speed, firepower and protection of the new generation of combat vehicles. As a result, the advance guard task force of a brigade-sized attack could, for example, move up on three parallel axes and still retain an integral reserve of company size. Upon contact, there are more maneuver elements available to turn the enemy's flank or envelop him. If the enemy is encountered in superior force, the U.S. commander should have better internal security and the ability to fight a more coherent delay until the brigade main body arrives at the scene.

These new opportunities certainly do not come without attendant dangers, however. There is no question: the fourth element makes the commander's role more complicated in certain respects, but he must resist the temptation to make his plans and orders more complicated as well. While simplicity is not always preferable, it generally is best. If the overall plan cannot avoid some complications, then the missions to subordinate elements must be kept

as simple as possible. Attempting to mesh a number of complicated sub-actions invites disaster and increases the possibilities of confusion. It is likely that more battles have been won by clear orders than by genius. While we should never underestimate the value of cunning and brilliance, our talents are better applied to outwitting our enemies than in bewildering our subordinates.

Perhaps a good rule of thumb to strive toward is that plans should be simple enough that the accompanying graphics can stand alone, without a briefing, in communicating maneuver tasks. Conversely, it should be possible to understand the written orders without graphic aids.

In ordering the covering force battle, the addition of a fourth company changes things significantly. On the one hand, the maneuver commander's task force can now cover a traditional frontage and wage a more energetic maneuver fight. The earlier organization of the company team was probably too ponderous for the swift, fluid actions expected within the covering force area. The classic delay mission has always had the potential for turning

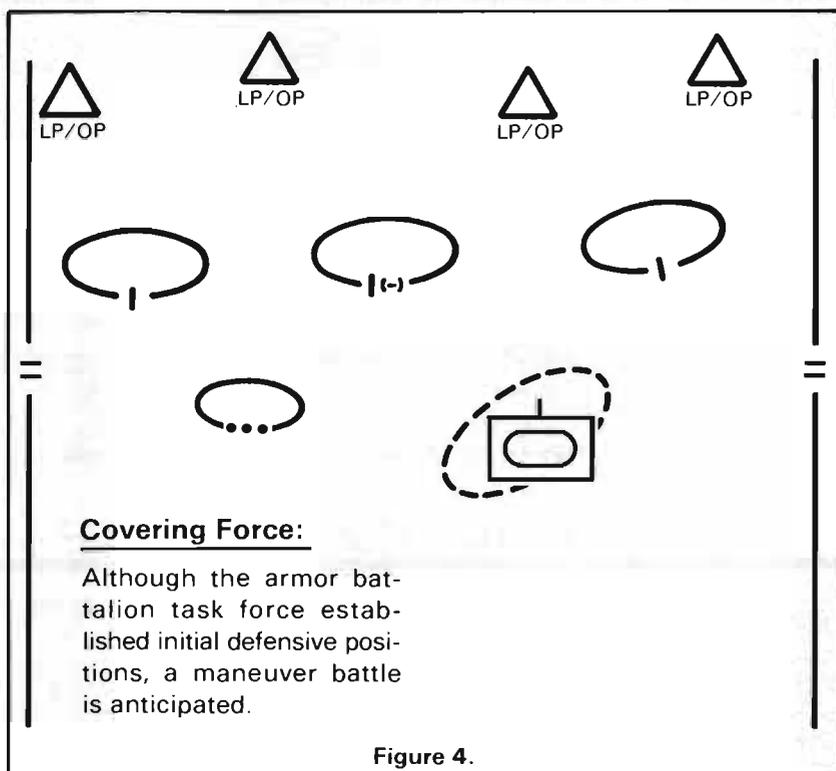
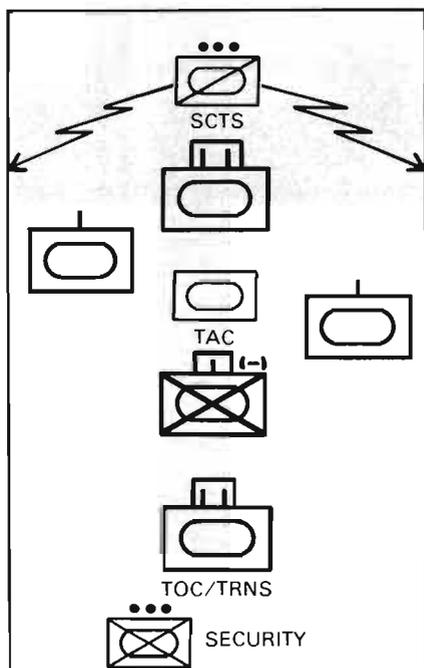


Figure 4.



Movement to Contact:

In this case, the emphasis of the armor battalion task force is to maneuver around unit that makes contact.

Figure 3.

into a stumble backward. The sleeker organization of the new company is in itself better adapted to quick draws and crisp countering actions and now, even the covering force commander may possess a highly mobile reserve to exploit enemy weaknesses, confusion, or indecision.

Along with additional strength in depth, the covering force is also more sustainable. No longer limited to the delaying actions our enemies expect, the covering force will be able to land its own counterblows without necessarily baring a flank or stripping a sector and so jeopardizing the overall mission. Now, the covering force can not only *fire* back; it can *fight* back in a much fuller sense of the phrase, so long as the additional force element is not merely used to reinforce and complicate a delay on successive positions.

Certainly, there are more possibilities than these in developing the role of the fourth company. The details sketched in here are really only crude outlines that need to be colored in by more expert hands. And no amount of theorizing can fully substitute for experimentation in the field. Our attitude must change from "It really doesn't change anything" to "New game, gentlemen."

Otherwise, we may get little value in return for the trouble and expense of the present maneuver battalion organization.



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Dauntless Trains for War

by Lieutenant Colonel A.J. Bergeron and Captain J.S. Purser

The National Training Center (NTC) at Fort Irwin, CA affords the finest training experience available to any army in the world. A dedicated opposing force (OPFOR), highly skilled observer-controller-evaluators (OCEs), virtually unlimited maneuver room and state-of-the-art computer technology combine to offer an unparalleled opportunity for training and evaluation. The charged realism of battle in the unforgiving environment of the desert against a skilled and resourceful foe reinforces success and attaches tangible costs to mistakes. The NTC can appreciably minimize the potential for future Kasserine Passes and do a tremendous job in preparing us for war.

The NTC exposes a unit's strengths and weaknesses as only actual combat has done before. If the deploying battalion's training program has not been well-planned and boldly executed, that organization begins much lower on the NTC learning curve, and that unit's opportunity to derive maximum benefit from the experience is limited by the progress which must be made to achieve a basic level of combat readiness.

A productive training program can be based upon what is known in the 3-37th Armor (the "Dauntless Battalion"), as the *train-to-fight* philosophy. This approach involves focusing the limited materiel, time and personnel resources of the unit towards a specific, well-articulated set of individual and collective tasks inherent in the unit's wartime mission. The plethora of tasks spelled out in FM 21-2 and ARTEP 71-2 can thus be boiled down to the essential tasks the unit must execute to be

successful. These critical tasks are called the *No-Slack Ten* within 3-37 Armor and include what the unit must do to win in combat.

The tasks are: to conduct emergency deployment readiness exercises (EDLREs); to draw prepositioned overseas materiel configured in unit sets (POMCUS); to conduct tactical road marches; to organize a deliberate attack; to conduct a passage of lines; to organize a defense; to maintain C³; to conduct sustaining operations; to conduct NBC operations and to maintain equipment in a combat ready status.

Each can be fleshed out as needed through use of the appropriate documents and training literature to formulate plans for effective battalion training management. The *train-to-fight* mental process followed by every soldier in the battalion includes feedback as an inherent part of the process of polishing the training, testing relevance, and ensuring the best possible results consistent with the stated training philosophy.

A review of the *No-Slack Ten* reveals that in training for war, the battalion is also obviously training for the NTC. The battalion has taken a combined arms, multi-echelon approach, integrating infantry, engineers, fire support, ground surveillance radars (GSR) and, when available, tactical air support. In working with the slice of support assets that the battalion can expect to receive in wartime, each learns to work effectively with the other. Each segment becomes adept at anticipating requirements and working jointly as a productive member of the task force team.

The tank force will not operate with-



out attachments in combat; therefore, it should not do so in training.

Immediately following *REFORGER '82*, 3-37 Armor designed a *train-to-fight* program that would incrementally drill, refine and test every aspect of the *No-Slack Ten*. Crews, sections, platoon, companies and the battalion would be challenged, each exercise building on the one before, to mold a formidable fighting force, sure of itself and its capabilities. This training program was slated to occur over an eight-month period, with the battalion prepared to fully accomplish its wartime mission in the crucible of the NTC.

Platoon ARTEPs, dubbed *Cajun's Challenge*, were held in January, 1983. They were designed to sustain collective and individual skills built during *REFORGER*, and featured maneuver, live-fire and NBC training. Each platoon, to include mortars, scouts, *Redeye* and support was evaluated in the following areas:

Pre-combat inspection; defense; attack and NBC collective protective measures.

Additionally, each maneuver platoon conducted a live-fire defense of a battle position. The mythical medieval Kingdom of *Dauntless* provided the setting for this training challenge and those that followed. Platoon leaders, for example, became Knights of the Realm, while company commanders were given status as dukes under the benign rule of King Cajun I. The scenario, involving an invasion by barbaric Kansonian Flatlanders, was thoroughly briefed to the entire battalion, ensuring that the warriors of *Dauntless* (3-37 Armor) had fun as well as receiving fine training. *Cajun's Challenge* and the desire to be the King's Champion (the top platoon leader), captured the imagination of the battalion and immeasurably enlivened the exercise, setting the stage early for continued platoon and company live-fire exercises in the months ahead.

The skills developed in *Cajun's Challenge* were amplified a month later in an innovative tank gunnery program, *Dragon Fire I*, which focused on tank crew qualification and the total integration of the wing-man concept. *Dragon Fire I* improved crew fighting proficiency under daylight and limited visibility and greatly enhanced section fire and maneuver techniques through a completely battle-linked tank gunner qualification.

Having built a firm foundation, company ARTEPs were held from 18-25 April, 1983. This was a 5-phase operation which evaluated the ability of all the companies to prepare for combat, deploy, conduct OPFOR combat with multiple integrated laser engagement system (MILES), and fight and sustain missions in an NBC environment. The last phase of the exercise featured a battalion level field training exercise (FTX) against an OPFOR unit.

In May, the battalion built on this experience by again turning to smaller unit operations, seeking to sustain early training while at the same time further developing skill and expertise. *Dragon Fire II* was held to qualify all crews on a rigorous battle-linked Tank Table VIII. It also qualified all scout and mortar crews in the same type scenario.

This gunnery was immediately followed by *Knight's Challenge*. This Table IX (+) exercise called for each platoon to come to alert status, deploy, and road march to occupy designated battle positions. Again, MILES was featured as the platoons attacked and defended in a free maneuver fashion against an OPFOR. Additionally, platoons conducted movement-to-contact as part of a company team; defended along a

phase line; delayed; and then counter-attacked. All of this was done in a day and night employing a live-fire target array consisting of 63 main gun targets at ranges varying from 1,100 meters to 2,400 meters. This placed a premium on target acquisition, wing-man sensing and precision gunnery techniques.

Knight's Challenge featured the use and integration of attack helicopters, engineers, artillery, GSR teams and all those parts of the slice that the battalion/task force/company team could expect as it went to war at the NTC.

The capstone of the *train-to-fight* program was a battalion/task force ARTEP, *Dagger's Challenge*. This served as an integrative event where the elements of the task force were brought together to function as a deployed task force. *Dagger's Challenge* put together the collective and individual lessons learned during the previous six months. This exercise was undoubtedly the most beneficial training experience that the task force underwent in preparation for the NTC. It featured a dedicated OCE contingent drawn from the division staff, and OPFOR motorized rifle regiment drawn from a battalion (+) divisional unit, and every portion of the battalion/task force slice of assets.

The battalion task force underwent a thorough pre-combat inspection that featured automatic weapon test firing and extensive testing of individual soldier skills. This was followed by deployment and an intensive 8-day MILES-driven ARTEP which stretched and challenged the battalion task force in all of those areas which comprise the *No-*

Slack Ten.

The maneuver part of the exercise taxed the task force's leadership. The constant demands of continuous operations forced each command, control, and logistics element to identify a second team that could continue to func-

“. . . As things turned out, Dagger's Challenge proved much more intense than the actual NTC exercise. . .”

tion as the performance of the first team deteriorated due to fatigue. This was perhaps the most important product of the ARTEP. Also helpful were the in-depth after-action reviews (AARs) following each mission that gave the leadership a taste of the probing, no-punches-pulled approach taken at the NTC. Additionally, the long AARs forced the second team to assume control and initiate preparations for the next mission while the first team was held for several hours at the review. The experience generated a *Dauntless* planning cycle which was event-activated, a process that proved itself effective at the NTC, smoothing operations and establishing a realistic time sequence. As things turned out, *Dagger's Challenge* proved much more intense than the actual NTC exercise, although it lasted only half as long.

In order to develop necessary tactical



skills within the battalion/task force staff, the battalion held an extensive series of command post exercises (CPXs) specifically designed to test the

“ . . . In maneuver, the battalion proved adept at seeing the battle and in fighting as a combined arms team. . . ”

ability of the S2-S3-engineer-air liaison officer (FSO-ALO) group to function as an entity. In most cases, the S4, battalion maintenance officer (BMO) and support platoon group were forced to accomplish the tactical tasks which were required to support the operation, limiting their participation in the staff process.

As part of the division field CPX program, the battalion tactical operation center (TOC) and trains complement established themselves in a field environment and operated around the clock for a 3-day period.

This tasked each element to maintain constant communications with a higher headquarters through reports and battlefield information and caused the various staff heads to coordinate with each other in the planning and execution of missions.

Additionally, the battalion took advantage of the army training and battle simulation system (ARTBASS) traveling computer road show offered by Fort Leavenworth's Combined Arms Center (CAC). This computer-driven simulation exercise allowed the company commanders to interface with the battle staff via FM radio. Again, the entire support and service support slice was included.

Lastly, the battalion, as part of the brigade, conducted a simulation exercise on the available NTC terrain board. The staff and slice component was again deployed in a tactical mode and communication between company and brigade was via FM radio. The exercise tested the ability of the staff and support apparatus to anticipate, plan for and conduct the required coordination and continue the reporting to higher and lower elements that proved so crucial at the NTC.

To aid in the preparation of the individual soldiers to face the rigors of the NTC, the battalion published several informative pamphlets. The S2 produced a document in handy pocket form that explained in graphic detail what a soldier was likely to see as he faced a Soviet motorized rifle regiment

in the attack or a motorized rifle company in defense. The article included photographs of the actual NTC OPFOR visual modification (VIS-MOD) mock-up Soviet vehicles and OPFOR uniforms. In a similar vein, the S3 published a pamphlet entitled “Winning in the Desert” to provide immediate information to the soldier on living, operating, and maneuvering in a desert environment. It included hints on vehicle maintenance, dealing with dangerous animals of the desert, and survival techniques. These two publications, allied with the battalion's tactical standard operating procedures (TACSOP), provided all the relevant information that soldiers and leaders would need for successful operations.

At the NTC, the battalion discovered that it did many things well. Staff planning was generally excellent, resulting in the expeditious issue of orders. In maneuver, the battalion proved adept at seeing the battle and in fighting as a combined arms team.

A major problem was encountered in the employment of artillery. Fire planning, unit use of fire support teams (FISTS), integration of 107-mm mortars, and effective fires all arose as areas of concern and the necessary objects of further training. The NTC drilled actions on contact better than any home station exercise. Tasked with the need to simultaneously return fire, deploy, report and develop the situation, one element or the other sometimes suffered. Most damaging to the task force were inadequate or improper actions on contact when faced with the need to conduct breaching operations of obstacles.

All of the exceptionally valuable feedback highlighted in an extensive take-home packet supplied by the NTC will find its way into the battalion's training plan. That training program will sustain those items deemed adequate as well as fix those things that the NTC showed to be deficient.

Overall, the battalion enjoyed an extremely successful NTC rotation and benefitted immeasurably. Comments by the NTC leadership indicated that they were singularly impressed by the unit's training program and its ability to execute its mission and respond to corrections and suggestions. This can be attributed primarily to the *train-to-fight* philosophy which shaped the battalion's approach to training, emphasizing the collective and individual skills needed to be combat ready. Training must provide the crucial bridge between our normal peacetime activities and the execution of the battalion's wartime mission.



LIEUTENANT COLONEL A.J. BERGERON is a 1966 graduate of Louisiana State University. He commanded several cavalry troops in Vietnam and the U.S., served as squadron S3 and XO and as the regimental S3 of the 2d ACR for nearly three years. He has been the Armor majors assignment officer at MILPERCEN and served as an assistant PMS at the University of Mississippi. He is a graduate of the Command & General Staff College and holds a masters degree in international relations and political science from the University of Mississippi. He currently commands the 3d battalion, 37th Armor and has been selected for attendance at the National War College in Washington, D.C.



CAPTAIN JOSEPH S. PURSER is a graduate of Colorado State University with a bachelor's degree in political science. He has served as a cavalry platoon leader and troop XO in USAREUR and as a SMO and cavalry troop commander in the U.S. He is currently assigned as the S3, 3d battalion, 37th Armor at Fort Riley, Kansas. He is a graduate of the AOBC and the AOAC at Fort Knox, Ky.

The Forms of Maneuver

FM 100-5, *Operations*, discusses under "The Dynamics of Battle," the elements of maneuver, firepower, protection and intelligent leadership. This manual emphasizes maneuver as the dynamic element of combat power and defines it as:

"The concentration or dispersion of troops to achieve a position of advantage in relation to the enemy to produce results that would otherwise be more costly in men and materials. . . Maneuver is the *dynamic* element of combat, the means of concentrating forces in critical areas to gain the advantages of surprise, position, and momentum which enable small forces to defeat larger ones."

The new manual also emphasizes the importance of the initiative. By adding the concept of freedom of action, we can place maneuver in its proper perspective on the battlefield. The foundation of maneuver is flexibility — that is, freedom of action. In war, force is used progressively to reduce the enemy's options. The concept of freedom of action, or maximum maneuverability, is found in almost all works on the military art.

Freedom of action is made possible through the ability to maintain the initiative — to make the enemy react to our maneuver. This can be done, for example, by a series of threats to exposed enemy points, thus forcing defense of two or more positions simultaneously. The results cause dispersion and rigidity in the enemy's disposition, thus increasing his vulnerability and reducing his freedom of action.

Another example is to delay the implementation of a decision for as long as possible. An action that has been taken is no longer a threat. Once an action is taken, the enemy's knowledge of the situation expands because, prior to the action, he only knew that various courses of action were possible. Now he knows which one has been taken and he no longer must guard against the other courses of action.

The concepts of initiative, freedom of action and maneuver are interrelated. They are also interactive; i.e., by taking the initiative we enhance our freedom of action and are then able to maneuver. Through maneuver we enhance our freedom of action and thus maintain the initiative.

U.S. Army doctrine recognizes three forms of maneuver: the frontal attack, the penetration, and the envelopment. It was difficult in the past to obtain a clear-cut definition of maneuver in U.S. Army texts. The 1976 edition of FM 100-5 states, "Maneuver must coincide with suppressive strikes against enemy weapons which can interfere," and "Coordination of suppression with maneuver of forces is the essence of success." FM 71-100 *Armored and Mechanized Division Operations* (1978) states: "If no open flank or gap in the enemy defense system exists, gaps can be created by fires, fire and maneuver, or a deception operation." In the section entitled *Scheme of Maneuver*, FM 71-100 states, "Enemy positions can be approached in two ways — from the front, or from the flank or rear. There are, therefore, two ways to maneuver — penetrate or envelop." This was about

all that was said of maneuver. There was no detailed discussion such as appears for the employment of weapons. Although an explanation of the concept of the main and supporting attacks was given, there seemed to be no distinction between mobility and maneuver. The dynamic relationship of the forms of maneuver to one another was not covered.

The Soviet Army places great emphasis on battlefield maneuver, although the dynamic relationship between the forms of maneuver is not mentioned in the literature available to the West. Soviet doctrine defines two forms of offensive maneuver: the flanking attack and the envelopment. In both cases, the maneuvers are described as occurring in conjunction with troops acting or advancing from the front. This could mean that either form of maneuver would be accompanied by a frontal attack. The Soviets teach that these two basic forms of maneuver may be used in combination, with each form adhering to its own definition. Must a flanking attack and/or an envelopment always be conducted in conjunction with a frontal attack? Not necessarily, because on a fluid battlefield, especially under nuclear conditions, forces may encounter one another and initiate maneuver without a frontal attack being required.

For purposes of discussion we can consider the frontal attack as a form of offensive maneuver because Soviet literature so frequently refers to the need to create, by the frontal attack, gaps and breaches as a prelude to flank attacks and envelopments.

Both U.S. and Soviet doctrine recognize several forms of maneuver and indicate that they may be employed in conjunction with one another. What is more difficult to find is a discussion that goes much beyond giving definitions for the forms of maneuver. Without an understanding of this relationship all we have is a laundry list on maneuver based on the requirements of firepower.

To maneuver effectively, we must maintain our freedom of action. An excellent example of the dynamic relationship between the forms of maneuver and its effect on freedom of action is Napoleon's classic formula for offensive operations on the battlefield. As the French concentrated on the battlefield, the part of the force making initial contact conducted a series of frontal attacks in order to tie down the enemy. These attacks were conducted with vigor, forcing the enemy to commit his reserves. An envelopment, or flank attack, was then conducted in order to draw enemy forces from the positions next to the threatened flank. Napoleon thus, through maneuver, created a weakness in a critical part of the enemy line.

This weakness was then exploited by a penetrating attack to completely defeat the enemy. The enemy's freedom of action was almost eliminated because of the dynamic use of maneuver. The defeat was complete because of the disruption of the enemy's battlefield cohesion. Victory is essentially accomplished by force disruption, rather than force des-

truction.

Let us now analyze the various forms of maneuver to see how each, used alone, effects the enemy's freedom of action.

- In the face of a *frontal attack*, the enemy commander has the freedom of action to use his reserve to stem any success developed by the attacker.

- In the face of a *penetration*, the enemy maintains freedom of action to use his reserve and flanking units against the attack.

- Faced by an *envelopment* or *flank attack*, the enemy can maintain freedom of action with his reserve and unengaged flank.

- And faced with a *frontal attack and a penetration*, the enemy retains his reserve to use against the penetration.

The Napoleonic concept, by using the various forms of maneuver in combination to complement each other — first the frontal attack, then the attempt at envelopment, and finally the penetrating thrust into the gap created by the threat of the envelopment — takes away the enemy commander's freedom of action at the penetration stage. Thus, the final maneuver, the penetration, cannot be stemmed before the enemy force's lines of communication are cut. This brings about a breakdown in the enemy equilibrium, and victory.

Note that it was *three* forms of maneuver, used in *dynamic combination*, that brought success. The concentration of fire and the opening of the breach are only the means to the true end — the psychological destruction of the enemy's will to

continue resistance. Maneuver is used to produce psychological effect, like uncertainty, fear for lines of communication, security requirements for command and communication centers, and the physical presence of enemy troops in rear areas.

Our objective is to influence the mind of the enemy commander. Mental impressions are more important than physical damage. A favorable decision is achieved when a psychological effect has been produced on the enemy and he becomes convinced that to continue his present course of action is useless.

Since it is impossible to destroy all the enemy force, our efforts should be concentrated in those areas where physical destruction will produce the greatest psychological damage. This concept, with some modifications, can be used at the tactical, operational, and strategic levels of war.

Maneuver, the dynamic element of combat when employed in its three forms, creates a weak area ripe for exploitation. This weakness in the enemy line can be created as a calculated effect of our own dispositions and is not left to chance to be discovered as the attack progresses. Initiative allows us to attack. These maneuvers then help us maintain our freedom of action. Through this freedom of action we keep the initiative.

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The Close Combat Armored Vehicle

As we seek solutions to the problems we will face on future battlefields, we begin to see signs of the merging of design requirements for armored vehicles. This merge is caused by the absolute necessity of totally integrated operations in which all combat command elements will be used together. On an extremely lethal, high-intensity battlefield, we will not have the luxury of fielding a wide variety of vehicles of vastly different armor and firepower modes and of differing production levels.

Looking back, it is interesting to see how long it has taken to reach a point where the concept of true inter-operational capability became a matter of success and survival, rather than just a tactical goal. In WWI, the tank broke the trench stalemate and brought mobility back to the battlefield. In the between-wars period, the tank was produced in infantry and cruiser versions. Infantry tanks were heavily armored and gunned and were slow moving so that they could support the slow-moving infantry. Cruiser tanks were lightly armed and armored and used primarily as reconnaissance and flank security elements.

These concepts did not jell on the early WWII battlefields and tank designs evolved the U.S. *M-4 Sherman*, the Russian *T-34* and the German *Panther*. These medium tanks had good firepower and armor and, compared to the infantry tanks, great mobility. Infantry now rode in trucks or lightly armored halftracks, and direct-fire artillery support was

track-mounted. The tanks still needed infantry support, but now the infantry had to keep pace with the armor and be available when strong points delayed the momentum of the attack.

WWII ended before a full concept of armored infantry took shape. However, the concept of the main battle tank (MBT) took hold, and the light and super-heavy tanks fell aside. The infantry went from trucks and halftracks to fully armored, tracked, amphibious vehicles. These personnel carriers were a great improvement, but they remained essentially battle taxis.

The basic problem was that each branch was preparing to fight the next war from a different approach. The tankers were going to arrive at the point of contact in an armored vehicle and they would engage the enemy in mounted combat. The artillery would move to their point of contact and fight from protected, mobile platforms, but the infantry was to ride into battle, then dismount and fight unprotected and without mobility.

Very little armored combat took place in Korea or Vietnam, and those wars did not present the opportunity to properly evaluate these new theories. However, two facts that were made abundantly clear in Vietnam were the terrible vulnerability of infantry personnel carriers and our total lack of a suitable cavalry vehicle. The Vietnam enemy did not use air support or highly sophisticated antitank weapons,

but they were able to cause tremendous damage to personnel carriers and, to some extent, tanks.

It wasn't until the 1973 Arab-Israeli War that the dangers of the new battlefield became clear to all. By the end of the second day of that war, an entire Israeli armored brigade had been annihilated while attempting a frontal assault against Egyptian troops armed with *Sagger* missiles. The Israelis, equipped with American armor, were fighting against the same weapons we would have faced had we been at war with Russia at the time. The vital requirement of having infantry in protected vehicles who could move with the tanks, and if necessary, move ahead of them to suppress and destroy anti-tank systems, was clearly demonstrated. The idea of combined arms operations was no longer a theory or a luxury, it was the only way to go. And this is where we stand today.

The army is now fielding three new major weapons systems, the *M1* MBT, the *M2* infantry fighting vehicle (IFV) and the *M3* cavalry fighting vehicle (CFV), and they have one thing in common; they are the products of the ideas and concepts of the mid-1960s. It has taken some 18 years to bring these vehicles from the drawing board to the field. In that time, there have been a number of changes in battlefield concepts and intensity levels. The *M1 Abrams* MBT with Chobham armor and, soon, a new 120-mm main gun, is the most advanced design of the three. The IFV and the CFV are different cases altogether. In 1965, the present IFV would have been a welcome addition to our forces, but by 1982 it was not that much of an improvement over the *M113*. We are, therefore, now producing two combat vehicles that offer vastly different levels of firepower and protection as well as having different levels of mobility. Yet, as we have seen, these vehicles must serve side by side with the *M1* on the same battlefield, against the same Threat. Survival of one system to the exclusion or sacrifice of the other is unacceptable. Both systems are desperately needed.

Because we will undoubtedly fight outnumbered, it is reasonable to expect that the IFVs will on many occasions face Threat tanks without having the support of friendly tanks. Although the IFV carries several *TOW* missiles, they cannot be fired on the run, and to stop, fire, and track a *TOW* missile in the midst of a fluid armor engagement would be suicidal. The IFV's 25-mm cannon, which *can* be fired on the run, will not defeat Threat tanks. The IFV is nearly two feet higher than the *M1*, and its armor protects only against 14.5-mm weapons. It is a very vulnerable target. This poses a disadvantage to tanks, for tanks cannot protect IFVs that can't survive on their own. The tank crews will have more than enough to do engaging Threat armor and will need the support of the IFV infantry to destroy strongpoints that the

tanks can't take out immediately. Tanks and infantry will have to operate together.

The combat lessons of the 1973 war led the Israelis to develop the *Merkava* MBT, which can carry six infantrymen in its rear compartment. The infantry cannot fight from the tank, but they are instantly available to the tank, and they have the protection of the tank's armor and firepower. This is a logical step in the convergence-of-design theory.

We need now to examine the advantages of a vehicle that combines the strongest points of the tank and the IFV. This vehicle must have high mobility, first-rate armor, excellent firepower and the capability of transporting six to eight infantrymen and give them the means to fight from inside the vehicle as well as that of fighting dismounted.

The Israelis have shown the way by moving the engine of the *Merkava* to the front and achieving a low silhouette by placing all of the crew within the hull.

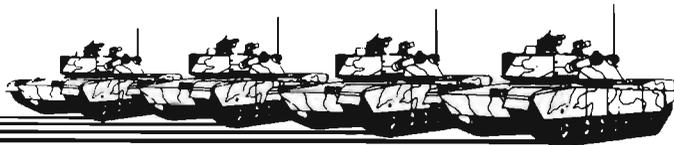
In the field of engine designs, the Germans now have a diesel power plant that is 40 percent smaller than the *Leopard II's* engine, but puts out 300 more horsepower. Adoption of this engine along with an automatic main gun loader and a crew of three, would make possible a vehicle smaller than the *M1*.

Production of a weapons system that would provide a mobile fighting platform for the infantry, an automatic 105-mm gun, and armor and mobility equal to an MBT would at least give us the means to use all our assets at the same time on the battlefield and give them all an equal chance of survival.

These vehicles need not always carry infantry. They could also provide rearm and refuel support, they could rescue crews of disabled vehicles and they could engage Threat armor on their own, or in cooperation with tanks. Also, being smaller and lighter than the *M1*, they would be more easily air transportable. As armored cavalry vehicles, they could replace the cavalry's tanks and still provide the required heavy gun power and armor protection to permit the cavalry to fulfill its mission. Also, with larger basic loads, these vehicles would give the cavalry greater staying power on the battlefield.

Whether we designate this vehicle as a tank, an IFV, or simply a close combat vehicle is not important. What is important is to move as quickly as possible toward designing and fielding such a system. It is an open question as to whether or not it will replace or supplement the conventional tank. But there is no question that we need it now.

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What Is A Tank?

Today's tank is basically the same weapon system that it was in WW II. Tank tactics, functions, and general configurations have changed very little in the past 40 years. However, recent developments in tank design hint at a new and exciting transition period — one that could lead to new tactics, functions and configurations.

Changes in configuration are most easily noticed, but their effect upon tank design and on what a tank is and what it is supposed to do are difficult to judge without knowing the reasons for those changes. The driver-in-the-turret feature and gun-launcher armament of the *MBT 70/XM803*, for instance, might have had a significant impact on tank develop-

ment if they had been more successful (and cheaper) and if the vehicle had been conceived as something different from a "tank".

The present test rigs for external-gun type tanks being proposed by the U.S., Switzerland, and others will undoubtedly have at least an effect on tank design by lowering all crew members into the hull armor structure. Tactical and functional changes may ensue from this change, but the limited change of replacing a turret by an external gun should also limit the change to tactics and functions.

Perhaps the Israeli *Merkava* will have a more profound and lasting impact on tank design and use. The most notable feature of the *Merkava* is that the engine is placed in the front of the vehicle — the normal placement in a personnel carrier or light tank, but rather radical for a main battle tank.

Two opposite trends in the degree of armor protection may herald a change in tactics. One extreme sees lightly armored, mobile vehicles. They are the modern day equivalents of the WW II *M-18 Hellcat* tank destroyers and are represented by the Anti-Armored Vehicle Evaluation (ARVAL) test vehicles at TACOM. The other extreme includes the *M1* tank, the *Chieftain* and some new proposals which emphasize improved armor protection. Since counter-tank capabilities continue to be emphasized for U.S. tanks, these developments could either represent a new generation of tank destroyers, or they could compel new developments in tactics.

Any change in tactics which sees vehicles dedicated to the tank destroyer role will certainly cause a change in the functions a tank performs as well. The same functions will be performed, but the priority of functions will be altered. Tank-versus-tank capability will most likely remain as the prime function of a tank, but it will not be stressed to the same degree that it is now. Indeed, some of the changes that are being made may be the result of the heavy emphasis placed on tank-versus-tank capability.

Tanks normally operate with other vehicles and the total of functions which all of these vehicles perform must be considered as well as the individual functions. Among these functions are reactions to threats against each type of vehicle and to the group as a whole.

The problem is that there is a void between the main battle tank and the armored infantry fighting vehicle that needs to be filled. The Israeli *Merkava* and the German *Geleitzpanzer* are approaches to filling this gap. On the one hand, it is questionable whether the armored infantry fighting vehicle, such as the *M2*, can adequately accompany the main battle tank in close enough proximity to protect it from infantry-directed antitank weapons. The Germans, at least, also seem to have realized that the armored infantry fighting vehicle needs support that is not given by the main battle tank. The *Merkava*, therefore, has the capability of carrying riflemen, and the *Geleitzpanzer* is armed with a 57-mm gun on a *Marder* chassis.

Given all these trends, making judgments about their importance and contemplating their impact on tank design, one can come up with any number of future tank designs.

The antitank role has not been emphasized as strongly as it is with most tank designs, and other functions that tanks have been required to perform have been given greater attention. Chief among these is the ability to deliver indirect artillery fire. At the same time, the ability of the tank to defend itself against helicopters and other aircraft is improved by the capability of engaging air targets with the main gun.

Additional anti-aircraft capability would be provided by a companion support tank which would use essentially the same hull. The support tank would provide the protection

needed against infantry antitank weapons. It would not take the place of the armored infantry fighting vehicle, but would accomplish a task that the AIFV is not capable of doing. The support tank would also provide control and target acquisition functions and would have an antitank missile capability. The functions a tank performs are thus divided between two vehicles, with some functions expanded; and increased capability has been incorporated for dealing with certain threats.

The hull of the battle and support tanks would feature a front-mounted power plant with front-drive sprockets, hydro-pneumatic suspension, rear access doors, and laminated armor, an arrangement similar to that of the *Merkava*. The power plant is placed at the front, primarily for packaging considerations. If it is desired to efficiently use the interior of the tank, and if ammunition or fuel is not to be stowed in the front of the hull, it is almost imperative that the engine be mounted there.

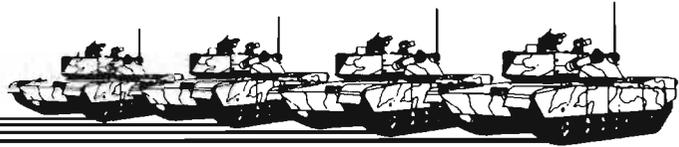
If a high-speed diesel engine is used, the air exhaust grills for engine cooling might present a ballistic problem; but if an armor of ceramic shingles were used, with an air cushion backing, the exhaust air could be sent out through the air cushion. This could provide a lightweight and very efficient type of armor protection.

The battle tank would have a three-man crew. It would use a three-section turret and a semi-externally mounted gun with an automatic loader. In this turret, the center section contains the main gun ammunition magazine, the automatic loader and the gun. It is separated from the two other turret segments by armored vertical partitions. The main gun, rammer, and coaxial machinegun are mounted in a cradle. The trunnions are attached to the cradle at the rear of the gun breech. Elevation cylinders are attached to the cradle at the center of gravity of the gun-cradle system and provide a 45-degree elevation capability. The main gun, preferably a 110-mm caliber, could use a sliding wedge breech, but a breech mechanism based on the 1894 Hall carbine would simplify loading and be more compatible with caseless ammunition. Additional ammunition stowage and fuel tanks would be at the rear of the vehicle, giving the tank extensive compartmentation. Total vehicle weight should be about 45 tons.

The support tanks would serve both to support the main battle tank and as a platoon leader's vehicle. It would have two offset turrets and a 6-8 man crew. The forward turret would be offset on the left of the vehicle and would be armed with a short-barreled 35-mm cannon and a coaxial machinegun to provide suppressive fire against infantry and helicopters. The rear turret would be armed with *TOW* and *Stinger* missiles and would provide antitank and anti-aircraft missile protection. The vehicle commander/platoon leader would be at the right front of each vehicle next to the forward turret, and there would be two riflemen.

It is now left to the reader's judgement to decide if these are tanks or not. The roles they perform are similar to, but not identical to, the traditional roles of tanks. They rely on crew positions, compartmentation, and special armor, rather than weight of armor, for defense. They have assumed some of the functions of artillery, anti-aircraft artillery, and armored infantry vehicles and split them between two complementary vehicles. Still, they perform the functions of a tank. Future developments in armor, armament, powerplants, and suspension systems will surely provide the tank with greater capabilities and provide more of an overlap in the roles of armored vehicles. It will thus become even more difficult to say — What is a tank?

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Guides to Speaking and Writing

In my 40 years service as a general officer, I have never served in the Pentagon, but have been in many positions where I could orally coach, teach, train, direct, and speak to a great many people, military and civilian. Conversely, I have been on the receiving end of a great number of poorly delivered speeches.

Recently, an officer contacted me and said that I had once put out a one-page guide on how to write. He asked me if I have ever prepared such an outline on how to deliver a talk and I had to reply "No, but I'll put one together for you."

I am constantly amazed at the poor physical set-ups that often force guest speakers to operate under adverse conditions of acoustics and seating arrangements for the audience, many of whom can neither see nor hear the speaker. This area, as much as the included outlines, needs to be seriously investigated.

BRUCE C. CLARKE
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EFFECTIVE WRITING

Putting one's thoughts down on paper can be harder than it need be unless you are prepared beforehand. There is a logical order of progression for writing just as there is for speech making. Writing is simply telling a story with a beginning, a middle, and an end. Here are some points on how to prepare yourself:

Subject

- If you have a choice, pick a subject that you know and have an urge to tell someone about. If you are assigned a subject, learn all you can about it before you begin to write.

Audience

- Select a person in your mind to whom you want to tell your story. As you write, keep that person in mind and tell your story so that he or she will understand and follow you.

Lists

- Make a list of all facts and points that you want to emphasize. Select key points from these for emphasis.

Outline

- Arrange your facts and points in chronological or other logical order so as to introduce your story, tell it, and finish with a strong conclusion.

Drafting

- Write a paragraph on each fact or point. Read it — *preferably aloud*. Is it generally what you wanted to say? Does it tell its part of your story? Does it fit in with your other paragraphs?

Rewriting

- This is the heart of writing. Check for spelling, punctuation, grammar, capitalization, etc. (use a good dictionary). You may wish to rearrange some paragraphs into a more logical order at this time.
- Rewrite several times until you are satisfied and believe that your selected reader will like it.

Finale

- If you are enthusiastic about your story, type it clean and present it.
- If you are *not* enthusiastic about it, rewrite it until you are.

SPEECH MAKING

The art of speechmaking is essential to anyone in a leadership role in any profession, and especially in the military. Speeches can be, and often are, presented in many places and under many conditions, from the formal atmosphere of the auditorium to the extemporaneous exigencies of the field. The really good speechmaker can deliver his product under any of these conditions and achieve equal audience interest — and comprehension.

In order to achieve this modicum of success, there are a number of essential preliminary, presentation, and follow-on steps that must be taken as follows:

Pre-Speech Considerations

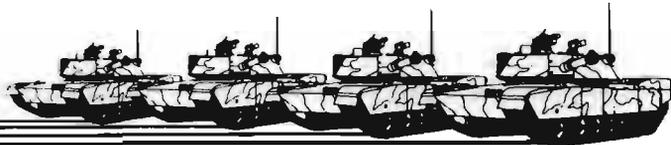
- Know your audience: size, subject expertise; volunteer or forced attendance; civilian or military.
- Know your subject: *This is an absolute.*
- How much time will you have, and what time of day or night?
- Will you speak from notes or a prepared text?
- Have all indoor physical arrangements been taken care of: audiovisual equipment, podium, water, lights, etc.?
- Will your talk be recorded?
- Will the press be present?

The Speech

- Ask for a brief introduction only.
- Tell your audience what you are going to tell them and *why it is important to them*.
- Talk *up*, never *down*, to your audience.
- Be logical in your presentation.
- Summarize your topic, hit the high points, don't go into excessive detail — it bores your audience.
- Keep within your time limits.
- Keep your language and terminology simple unless you are addressing a highly sophisticated audience — and then be certain that you know the subject well enough to use sophisticated terms.
- Add a touch of humor now and then, but keep it relevant.
- Avoid too much use of the pronoun *I*.

Conclusion

- Give a short summary of your speech.
- Have a "Q and A" period.
- If you have a "handout," distribute it now.
- Express your appreciation to your audience.



Spirit: Essence of Leadership

Leadership is the most important element in the Army and in the nation today. Periodically, Congress tries to decide if the military academies are worth the high *per capita* cost of a single graduate. They study the school's academic program, its sports program, its extracurricular program, and its military program and they see little difference with the ROTC programs of the nation's civilian universities.

But they may be failing to study the real reason the academies exist: leadership. Different forms of leadership, from the authoritarian to the ingratiating, are available for the serious young cadet to study and observe. The best advice any leadership instructor can give a young man is to study those leaders you want to be like, see what they do, how they do it, and why they do it, and then incorporate their best traits into your own style.

Military leadership classes repeatedly describe traits of great leaders in the hope that students will incorporate these traits into their style. There are many desirable traits, but the most important are honesty, loyalty, and winning.

Honesty is the strong inner feeling a man has against lying, cheating, stealing, and tolerating a man who does. There is no reason for compromise in this area. Dishonesty cannot be tolerated among professional men and the nation cannot remain strong if it is.

Loyalty is the strength to stand up for what is right. Philosophers argue what is right and wrong. But, I believe that divine force guides us and man needs only to appeal to it to be shown the moral way.

In addition to observing strong leaders and mastering the traits of honesty and loyalty, a leader must be a winner. Winning is the American norm. We love to win; it is in our blood. We detest the loser and cannot stand to be near him. This national spirit must be tapped by today's leader. He must be a winner. To do this, we must be the best and have the best working with us. All men have the capability to be the best. The leader must develop this capability in himself and in his men. Expert coaching, good equipment, enthusi-

asm and charisma can do this. Technical expertise and good equipment can be acquired by most men but it is enthusiasm and charisma that drive a team. They are not gimmicks or special uniforms. They are the twinkle in your eye, the spirit within your body, your soul. You should be proud of your inner strength and allow it to shine. As a result, men will flock to your banner. They will actually start to imitate you as well as brag about you like a little brother does about his older brother.

Finally and most importantly, a leader must cultivate the common spirit between himself and his subordinates. Spirit emanates from the leader and shines upon his men. They bask in its light and reflect it back to the leader. Spirit is based on sincere concern for one's men. This concern is so deep it resembles love. For example, if you loved your son and you were teaching him how to play football, you would not just throw him a football one day and say, go learn how to play football. You would coach him, help him, run with him, watch him, correct him, and ensure he had every opportunity to become the best. You care about him. Such care must be manifested for one's troops.

On the other hand, if a leader exhibits the opposite feeling — one of disconcert and insincerity — he cannot help but to repulse his men. Apathy cannot be hidden; it emanates from the leader like a light from a demon's eyes. He cannot disguise it. No matter how deceitful he is, his men will know. Therefore, if a leader cares about his men, they will care about him.

In conclusion, a winning leader must observe other leaders and emulate those dynamic traits he sees. He must be honest and loyal. Furthermore, he must tap the winning spirit of Americans by being the best himself and allowing his inner soul to shine. Finally, he must love his men with all his heart and care for them like a father for his son.

JOHN PRESTON MITCHAM
1st Lieutenant, Armor
Fort Benning, Ga.

Recognition Quiz Answers

- PANHARD EBR HEAVY ARMORED CAR** (Fr.). Crew, 4; 8 x 8 wheel drive; combat weight, 13,500 kg (29,767 lbs); maximum road speed, 105 km/h; maximum road range, 650 km; maximum fording depth, 1.2 m; 12-cylinder, air-cooled, gasoline, 200-hp engine; main gun, 1 x 90-mm; coaxial and antiaircraft, 2 x 7.5-mm machineguns; smoke capability; hull and turret front armor, 40-mm; hull sides, 16-mm; turret sides, 30-mm; turret rear, 20-mm.
- RHEINSTAHL MARDER MICV** (FRG). Crew, 4 plus 6 infantrymen; combat weight, 28,200 kg (56,978 lbs); maximum road speed (forward and reverse), 75 km/h; maximum road range, 520 km; maximum fording depth, 2.5 m; 6 cylinder, liquid-cooled, diesel, 600-hp engine; main gun, 1 x 20-mm; coaxial and hull 2 x 7.62-mm machineguns; smoke capability.
- AMX-30 MBT** (Fr.). Crew, 4; combat weight, 40,000 kg (88,200 lbs); maximum road speed, 65 km/h; maximum road range, 530 km; 12-cylinder, water-cooled, supercharged, multi-fuel, 700-hp engine; main gun, 1 x 105-mm; coaxial and antiaircraft, 2 x 7.62-mm machineguns; smoke capability; spaced, conventional and composite armor.
- 152-MM SP GUN/HOWITZER M-1973** (USSR). Crew, 6; combat weight, 23,000 kg (26,271 lbs); maximum road speed, 55 km/h; maximum road range, 300 km; maximum water fording depth, 1.1 m; V-12 diesel, 520-hp engine; main gun, 1 x 152.4-mm; antiaircraft, 1 x 7.62-mm machinegun; gun elevation, + 65 degrees, maximum depression, -3 degrees; possible autoloader; *reported* maximum range, 37,000 meters with HE/RAP ammunition.
- LEOPARD II** (Can.). Crew, 4; combat weight 42,400 kg (87,492 lbs); maximum road speed, 65 km/h; maximum road range, 600 km; maximum fording depth (w/preparation) 2.25 m; 10-cylinder, multi-fuel, 830-hp engine; main gun, 1 x 105-mm; coaxial and antiaircraft, 2 x 7.62-mm machineguns; smoke capability; maximum hull armor, 70-mm; no data on turret armor.
- MLRS** (U.S.). Crew, 3; loaded weight, 24,564 kg (54,163 lbs); maximum road speed, 64 km/h; maximum road range, 483 k; maximum fording depth, 1.02 m; 8-cylinder, turbocharged, 500-hp engine; full rocket load, 12; maximum firing rate (full load) less than one minute; cab armored against small arms and shell splinters.

ARMORIAL REVIEW

3d Armored Cavalry Regiment Celebrates

The 3d ACR was to celebrate Organization Day on 9-11 October at Fort Bliss, TX. Former Brave Rifles and fellow cavalymen were invited. Activities included a parade, military and sports competitions and family activities.

The 3d ACR Regimental Museum, also located at Fort Bliss, is open under a new curator and visitors are cordially invited.

Three Guard Units to Get M1 Tanks

Three Army National Guard armor units will receive the *M1 Abrams* main battle tank during the next 16 months, according to National Guard sources. Four Guard units will then be equipped with the Army's newest tank. The 2d Battalion, 252d Armor, North Carolina, was the first unit to get the new tanks.

Scheduled to receive the *M1s* are: 1st and 2d Battalions, 198th Armor, Mississippi, and 1st Battalion, 108th Armor, Georgia.

Three Ms Back Up Armor on the Range

Mess, Medics and Maintenance, those are the 3 Ms that keep armor units fighting, well-fed, and cared for if they are hurt. Without them, no unit could function.

When the 2/77th Armor deployed to the Yakima Firing Center near Fort Lewis, Washington, their support personnel were there in strength to see that the tankers were well cared for in every way.

The 2/77 cooks take their job seriously. "In some units, being a cook is considered a sham job," said Sp5 Robert Crah, a shift leader, "but it's not around here. Everybody here," he said, "is away from home and working long, hard hours. Having good food helps morale, it gives people something to look forward to."

The unit's 15-man aid station, augmented by 10 medics from Co. C, 2 FSB, provided health care around the clock for the tankers. "We haven't had a major injury," said SFC Steven Ambler, medical platoon sergeant, "but we keep pretty busy what with sore throats, eye problems (due to dust), allergies, hay fever and the normal run of cuts and bruises." The aid station is equipped with basic life support equipment and a Med-Evac helicopter is available at all times.

Without round-the-clock maintenance, the unit's tanks would be permanently in the garage. CW2 Richard Dolado, battalion maintenance technician, says about his men, "We have some of the best mechanics in the Army right here and I mean that. These guys are willing to work any amount of hours to make sure the battalion's vehicles are ready to shoot, move and communicate. Some of them are young, but what they lack in experience they make up for in motivation."

Besides CW2 Dolado's 21 mechanics working on the 2/77 vehicles, there was a slice element from Co. B, 2d FSB to help out. The support battalion provided technical supply, armament, mechanical, communication, recovery, engineer and inspection sections.



Cadets Awarded Cavalry Sabers

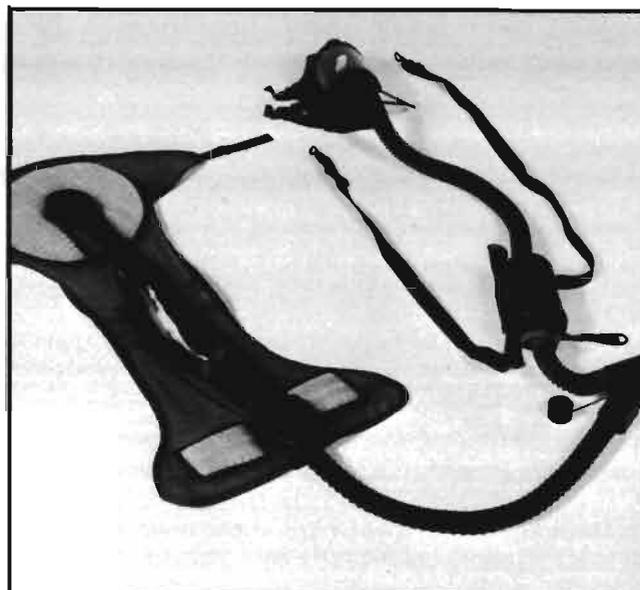
Two cadets of the 140 who graduated in June from the USMA and who were commissioned into armor were recipients of the Cavalry Saber, presented by the Armor Association in recognition of their outstanding scholastic and leadership achievements. Shown above are: Cadet Robert L. Demont, left, and Cadet Christopher Wilson, right, with their sabers. Colonel Jack W. Dice, deputy director, Department of Military Instruction, USMA, made the presentations. This marks the 52d year that selected cadets have been so honored by the Armor Association.

37th Tank Battalion Honored With French Awards

The 37th Tank Battalion, a part of the 4th Armored Division during World War II, was recently awarded two French Croix de Guerres and a Fourragere for its WW II actions by Colonel Andre Rilhac, French Liaison Officer at Fort Knox, KY, in the name of the French Government.

At Investiture Ceremonies held at Fort Riley, Kansas, the 39th Tank Battalion was twice awarded the Croix de Guerre with Palm, each award accompanied by an appropriate battle streamer: Normandy and Moselle River. The 37th also received the Fourragere that every member of the unit during the above campaigns is entitled to wear on his uniform.

James H. Leach (Col. USA, Ret.) Honorary Colonel of the 37th Armored Regiment, accepted the awards on behalf of the unit that served as the spear point of General Patton's Third Army during its drive across France, the relief of Bastogne and the subsequent combats in Germany.



Air Conditioned Uniforms Due for M1E1 Crews

An air-conditioned, micro-climate, cooling clothing system will permit combat vehicle crewmen wearing complete NBC protective clothing to continue their mission for extended periods in more comfort.

Present NBC clothing induces considerable heat stress when worn in hot environments and can cause heat casualties in less than thirty minutes.

The new system, developed by Individual Protection Laboratory, U.S. Army Natick Research and Development Center, Natick, MA, will be connected to a refrigeration source within the vehicle and will distribute conditioned air over the wearer's torso. Tests have shown that crewmen can continue with their operational tasks for up to 12 hours without experiencing any ill effects from heat.

The new development will be incorporated in all M1E1 tanks coming off the production line in 1985.

M60A3 Sample Data Collection (SDC)

The M60A3 Sample Data Collection began in November 1979 at the 1/32 Armor Battalion and the 1/70 Armor Battalion in USAREUR. During the following years the program has collected data on 343 tanks that have accrued in excess of 500,000 miles. The objective of the SDC is to increase the reliability, availability, maintainability and durability (RAM-D) of the M60A3 tank by providing field performance data to assist in the design and logistics decision-making process.

The process demands valid, current information and the M60A3 SDC can assist by supplying a fast flow of accurate, current data to those personnel needing that information.

The single most important point in the information stream is the source. In each participating tank company a representative of PECO Enterprises collects the required M60A3 data, relieving military personnel of this additional duty. Each collector records the details of an M60A3 maintenance incident on a form which is then sent to a centralized location to be added to the computer data base. Once in the data base, the

information can be accessed for review and used by anyone having the proper computer code.

When time is critical, the rapidly accessible data can provide information within 24 hours on the equipment's RAM-D performance.

The M60A3 SDC has proven to be a prime source of information in the RAM-D decision-making process. The data so far collected are the basis for several improvements that will result in PIPs or ECPs to the M60A3 tank, according to a spokesman for the U.S. Army DARCOM Material Readiness Support Activity in Lexington, KY.

SDC data also assists decision-makers in evaluating such things as new versus overhaul performance, operating and support costs, training costs, clean air compliance, useful life, effects of combat vehicle evaluation on operational readiness rates, effects of TMDE on maintenance time and many other programs. All these programs can produce viable cost savings and improved readiness through enhanced equipment performance.

The M60A3 SDC program fulfills a need that so far has not been met elsewhere.

Blackhawks Move, Win Award, Change COs

Delta Troop, 2d Squadron, 1st Cavalry, 2d Armored Division, has gone as a unit to Garlstadt, FRG where they joined 2AD Forward. C Troop (Ground) 2-1 Cavalry is being disbanded under the new Division 86 TO&E. Echo Troop, 2-1 Cavalry, recently received the 2AD's 304th Light Tank Brigade Trophy. As one of the few Night Vision Goggle-qualified air troops in the Army, Echo Troop won out over more than 100 company-sized units in the competition. On 16 August, Lieutenant Colonel Harold W. Schmid, Jr., took over the colors of 2-1 Cavalry, the Blackhawks, as he assumed command from Lieutenant Colonel William S. Huff, III. Colonel Huff supervised the squadron's reorganization from H-series to J-series TOE and it became the first Division 86 armored cavalry squadron in the Army. Colonel Huff will attend the Armed Forces Staff College. Colonel Schmid is the former XO of 2-1 Cavalry. The ceremony was performed entirely by noncommissioned officers with CSM Albert White as commander of troops.

CO B, 5th Bn, 32d Armor is "Best of the Best"

Major General H. Norman Schwarzkopf, commander, 24th Infantry Division, awarded the prestigious Draper Armor Leadership Award to Company B, 5th Battalion, 32d Armor and named the unit the "best of the best."

The ceremony, held at Fort Stewart, GA, honored the unit for its performance during the past year and the judging was based upon such things as tank gunnery scores, unit performance in ARTEPs and individual marksmanship scores.

Captain John N. Duquette, company commander, and First Sergeant David W. Tart, received engraved plaques and a statue of a mounted cavalryman will be displayed in the unit's orderly room for one year.

70th Armor Remembers D-Day in Normandy

On 6 June 1984, the 40th anniversary of the Normandy landings, soldiers of the 2d Battalion, 70th Armor took part in 24th Infantry Division ceremonies at Fort Stewart, GA in remembrance of those landings.

Normandy marked the 70th's third amphibious assault landing in WW II, the unit having taken part in the North African landings and the Sicilian campaign. For the D-Day landings, Companies A and B were equipped with duplex-drive (DD) swimming tanks, Company C was equipped with dozer-bladed *Shermans* and Company D went ashore in *M-5 Stuart* tanks. The unit landed at Utah Beach and for its actions that day was awarded the Presidential Unit Citation.

2d ACR Replaces M60A3s with M1s

G Troop, 2d Squadron, 2d Armored Cavalry Regiment took over the first *M1* tank on June 12 to mark the 2ACR's transition from the *M60A3* model. Colonel William W. Crouch, the 2 ACR's 62d colonel, christened the *Abrams* tank in a ceremony attended, among others, by Lieutenant Colonel Thomas M. Molino, 2d Squadron commander, and Captain David J. Shroer, G Troop commander. The 2d Squadron completed its transition on 15 July.



The Command Post Vehicle Test Bed, now under study at Aberdeen Proving Ground, is based on M109-chassis components.

Command Post Vehicle Test Bed

A "generic" command post vehicle that will be used as a test bed to study command, control, and communications operations in nuclear and chemical battlefield environments has been built by the U.S. Army Human Engineering Laboratory at Aberdeen Proving Ground, MD. This vehicle is equipped with computers, radios, an auxiliary power unit and an environmental control unit to permit its use in either the open or closed hatch mode for continuous periods of up to 72 hours. Crews will wear special protective clothing that can be heated or cooled and will use onboard facilities for eating and personal hygiene when hatches are closed. The test bed vehicle will be used to gather data for use in future large-scale field tests.

2/66th Concludes NETT with M1 Abrams Tanks

The 2d Battalion, 66th Armored Regiment recently concluded its *M1* New Equipment Transition Training (NETT) at Vilseck, Germany. The 2/66 is the forward-based tank battalion of the 66th Regiment and is home stationed in Garlstadt, FRG.

The battalion wound up its training in June and is now fully equipped with the *M1 Abrams*. Further field training for 2/66 on its new tanks was to include crew qualification gunnery in July, an FTX on August, a battalion-level ARTEP with the Dutch 42d Brigade in October and a PBR gunnery in November of this year.

COMMAND, CONTROL & COMMUNICATIONS (C³) by A.M. Willcox, M.G. Slade and P.A. Ramsdale. Brassey's Defence Publishers, Oxford, England. \$12.50 softback, \$27.00 hardback. 150 pages.

The sixth volume in Brassey's battle-field technology series is concerned with the ability to gather intelligence, formulate decisions, and issue commands at a rapid pace in a potentially hostile electromagnetic environment. This volume provides an excellent introduction to key theories and technologies. It is aimed at both military and civilian readers who require knowledge of current or future communications technology as it relates to military applications. No in-depth prior technical knowledge or mathematical skill is required to understand the discussions and presentations.

It begins with a brief overview of the general topic and a review of basic radio concepts. Aspects of combat net radio are discussed followed by a look at trunk communications, including facilities, techniques, relay systems and switching. The various components of electronic warfare (EW) are presented in topics such as direction finding, jamming and encryption. The book closes with a discussion of strategic communications, touching on speech compression, adaptive cancellations and signal processing.

The volume is written in textbook style with self-test questions after each chapter. The appendices include answers to the questions and a glossary of abbreviations. Many figures and illustrations augment the text and the only drawback is its lack of references to other works in the field.

DONALD J. BUTZ
Battelle Laboratories,
Columbus, Ohio

PANZERS IN NORMANDY — THEN AND NOW by Eric Lefevre. Battle of Britain Prints International Ltd., London, England, 1983. 212 pages. \$33.45.

This volume gives a brief history of the 17 *panzer* units that fought in Normandy in June-August 1944. It specifically details each regiment in each *panzer* division, as well as independent battalions.

The book is essentially in two parts. The first contains a chart showing the theoretical composition of a 1944-era *panzer* regiment, descriptions of the armor used by them and the uniforms of army and Waffen-SS armor crewmen. The second part deals with the battles in Normandy.

The book is quite accurate, though a few discrepancies were noted. One interesting bit of information unearthed during the extensive research for the book was the discovery of the grave of Michael Wittman, the legendary tank "ace" who had been missing in action since August 8, 1944. His grave, along with those of two of his crewmen, was discovered and the remains reinterred at the German war cemetery at LaCambe, France.

The book's principal interest is to those who are students of the Normandy battles from the German point of view.

Many of the photographs are of the "then and now" variety showing Norman scenes during or shortly after the battles and also today.

ROBERT HODGE
Bloomington, IL

RED ARMOUR by Richard Simpkin, Pergamon - Brassey's International Defense Publishers, McLean, Va, 224 pages. \$36.

In this new book, Brigadier (Ret.) Richard Simpkin attempts a much needed understanding of the maneuver theory on which Soviet land operations are based. Simpkin, a 30-year veteran of Britain's Royal Tank Regiment, is a leading expert in the field of armored vehicle development and a prolific writer on armor and its employment.

His major point is that Soviet concepts can be accurately expressed in terms familiar to the Western reader and understood by soldier and politician alike. He is convinced that "by using literal translations of Soviet terms, the handful of (Soviet) specialists... have created an arcane and detail-ridden language which blocks, rather than promotes communication of their expertise" and thus fails to answer "the Western's soldier's need to know his potential enemy." His writing style leaves little doubt that he intends the book for a well-educated military or technical audience with a good grasp of Soviet military organizations and equipment.

The author's technical expertise is evident in the language and style of the book, which takes on the format of a technical report, using such terms as "mass center" to describe the enemy's center of mass, "attraction" between attacking and defending forces, and "lever arm" when referring to the separation distance between a "hammer force" and an "anvil force." The diagrams illustrating Soviet technical concepts even suggest the engineer's blueprint.

The first part of the book, with its voluminous technical data on the Soviet

Army, tends to bog the reader down, but for those with an interest in Soviet mobile operations, the payoff comes in a section labeled "Concepts". Here, Simpkin discusses the Soviet concept of the "deep battle," "the tank force concept," Soviet mobile operations and their applicability to the NATO center.

He presents a wealth of new ideas on concepts such as the operational maneuver group and Soviet use of airborne, airmobile, and amphibious forces, while commenting on how these subjects have been treated by other Western authors.

GILBERTO VILLAHERMOSA
Captain, Armor
Fort Bragg, NC

ARMS TRANSFERS UNDER NIXON; A POLICY ANALYSIS by Lewis Sorley. University of Kentucky, Louisville, 1983. 231 pp.

Growing attention is being paid to the increasingly vital role of Security Assistance (SA) in the total spectrum of U.S. national security policy. SA is an umbrella term for a variety of arms transfer measures (Foreign Military Sales-FMS, Military Assistance Program-MAP) and related programs (International Military Education and Training-IMET; Peace-keeping Operations-PKO; Economic Support Fund-ESF).

Major issues in the contemporary SA arena include: the sale of aircraft (AWACS, F-14, F-15, F-16, E-2C, etc.) to Mideast nations; concern over loss of sensitive hardware and technology if a purchaser's government falls, as Iran did; the proper balance between moral-ethical values, such as human rights, and other considerations in the total "sell-no sell" equation. The author also examines whether the U.S. Government should encourage private sector development of "designed for export" equipment; what percentage of an arms transferer's GNP should be dedicated to acquiring, operating and maintaining highly sophisticated military hardware; and the competition accorded the U.S. by other arms suppliers. In addition to the USSR, United Kingdom, and France, these include a number of smaller nations now emerging as arms sellers, particularly of small arms, antiarmor missiles, light armored vehicles (LAVs), patrol boats, and transport aircraft, weapons categories which are of great interest to Third World buyers.

JOHN A. HURLEY
Lieutenant Colonel, USAFR
HQ, USAF

STEEL ON



TARGET

It was odd standing at attention before the colors of the Peoples Republic of China as the last notes of their anthem faded and hundreds of Americans cheered the two Chinese medal winners. The Olympics showed again that Americans love winners who play fairly and squarely.

Our national passion for winning can be seen all about us — on the playing field, in the marketplace, and even in the bookstores, where shelves abound with titles like, "Dressing For Success," "Searching For Excellence," and even "Winning Through Intimidation."

Not long ago, however, a sense of gloom pervaded our country. Success seemed to evade our nation. But, our leaders and people looked inward, saw what needed doing, pulled up their socks, and went to work.

Today our nation looks about the world with a renewed sense of pride, optimism and a spirit of winning. Our Olympians measured their success not so much by the medal count as by a phrase we kept hearing — achieving their "personal best."

As our nation and Army renew the spirit of winning, achieving our personal best should be a motto adopted by every officer, NCO and soldier.

Winning is not simply an outcome. Were it so, many in this world who don't play fair and square, who make their own rules, who bully those weaker than themselves and avoid picking on those their own size, would be called winners. But they delude themselves; so they are born losers.

Winning is a state of mind, an outlook, a way of life. And, it seems to be catching on, for the men and women joining our ranks today see themselves as winners and view the Army as a winning team.

Forty years ago, our soldiers also saw themselves as a winning team. They had cracked the Atlantic Wall, entered Fortress Europe and drove the enemy before them. They were so successful, in fact, that they outran their supplies and had to halt. In the lull that followed, those winners became complacent. Taking advantage of that attitude, Hitler launched a massive counteroffensive that took thousands of lives and became known as the Battle of the Bulge. Complacency turned to desperation as U.S. forces fought overwhelming odds. In the end, leaders like Patton and Clarke turned the tide by sheer determination and hard work. Winning doesn't come easily and is never guaranteed. It is always hard work.

In our optimism today, let us not fall prey to complacency. Whatever our job, wherever we serve, we must strive for our personal best every day. Whatever the odds, however the outcome, winners play hard all four quarters and fight every round.

Lombardi probably said it best. "Winning isn't everything, it's the ONLY thing." The "Pack" came back. So have we! Good shooting.



Symbolism

The regiment was organized in 1916 with personnel from the 1st, 3d, 6th, 8th, and 14th Cavalry. The shield is taken from the coats of arms of those regiments; the orange from the 1st, the green from the 3d, the unicorn from the 6th, the demihorse from the 8th, and the diagonal line from the 14th. The crest is the winged spur, emblematic of the motto of the flying cavalry; the background is the blue ribbon with the motto *Forward*.

Distinctive Insignia

The distinctive insignia is the crest of the coat of arms.

17th Cavalry

Forward

Lineage and Honors

Constituted 1 July 1916 in the Regular Army as 17th Cavalry and organized at Fort Bliss, Texas. Inactivated 26 September 1921 at Presidio of Monterey, California. Redesignated 1 July 1940 as 17th Cavalry (Corps Reconnaissance).

Headquarters and Headquarters Troop, 17th Cavalry, consolidated 9 March 1951 with Headquarters and Headquarters Company, 17th Armored Group (See ANNEX), and redesignated as Headquarters and Headquarters Company, 17th Armored Cavalry Group (remaining troops of the 17th Cavalry concurrently disbanded). Activated 20 March 1951 at Camp Polk, Louisiana. Inactivated 4 May 1959 at Fort Stewart, Georgia.

Disbanded troops of the 17th Cavalry reconstituted in the Regular Army as follows: A, 1 September 1957; B, 25 April 1957; C, 1 March 1957; D through M, 4 May 1959. Reconstituted troops, 17th Cavalry, and Headquarters and Headquarters Company, 17th Armored Cavalry Group, redesignated by elements 4 May 1959 as 17th Cavalry, a parent regiment under the Combat Arms Regimental System (Headquarters and Headquarters Company, 17th Armored Cavalry Group, concurrently redesignated as Headquarters and Headquarters Troop, 17th Cavalry).

ANNEX

Headquarters and Headquarters Company, 1st Armored Group, constituted 26 February 1943 in the Army of the United States. Activated 2 March 1943 at Fort Knox, Kentucky. Redesignated 20 November 1943 as Headquarters and Headquarters Company, 17th Armored Group. Inactivated 30 April 1946 in Europe.

Campaign Participation Credit

World War II

Northern France
Rhineland
Ardennes-Alsace
Central Europe

Vietnam

Defensive
Counteroffensive
Counteroffensive, Phase II
Counteroffensive, Phase III

Tet Counteroffensive
Counteroffensive, Phase IV
Counteroffensive, Phase V
Counteroffensive, Phase VI
Tet 69/Counteroffensive
Summer-Fall 1969
Winter-Spring 1970
Sanctuary Counteroffensive
Counteroffensive, Phase VII
Consolidation I
Consolidation II

Decorations

Valorous Unit Award, Streamer, embroidered BEN CAT (Troop E, 17th Cavalry, cited; GO 3525, U.S. Army, Vietnam, 13 July 1967. AGO 17, 1968.)

Valorous Unit Award, Streamer, embroidered SAIGON-LANG BUNH (Troop D and Troop A, 3d Squadron, cited. DAGO 48, 1968.)

Valorous Unit Award, Streamer, embroidered THUA THIEN-QUANG TRI (2d Squadron Cited, DAGO 48, 1971.)

Valorous Unit Award, Streamer, embroidered CAMBODIA (3d Squadron cited, U.S. Army, Vietnam, GO 3560, 27 December 1971.)

Meritorious Unit Commendation - VIETNAM 1965-67.

Presidential Unit Citation, Troop E cited, AGO 42, 1969.