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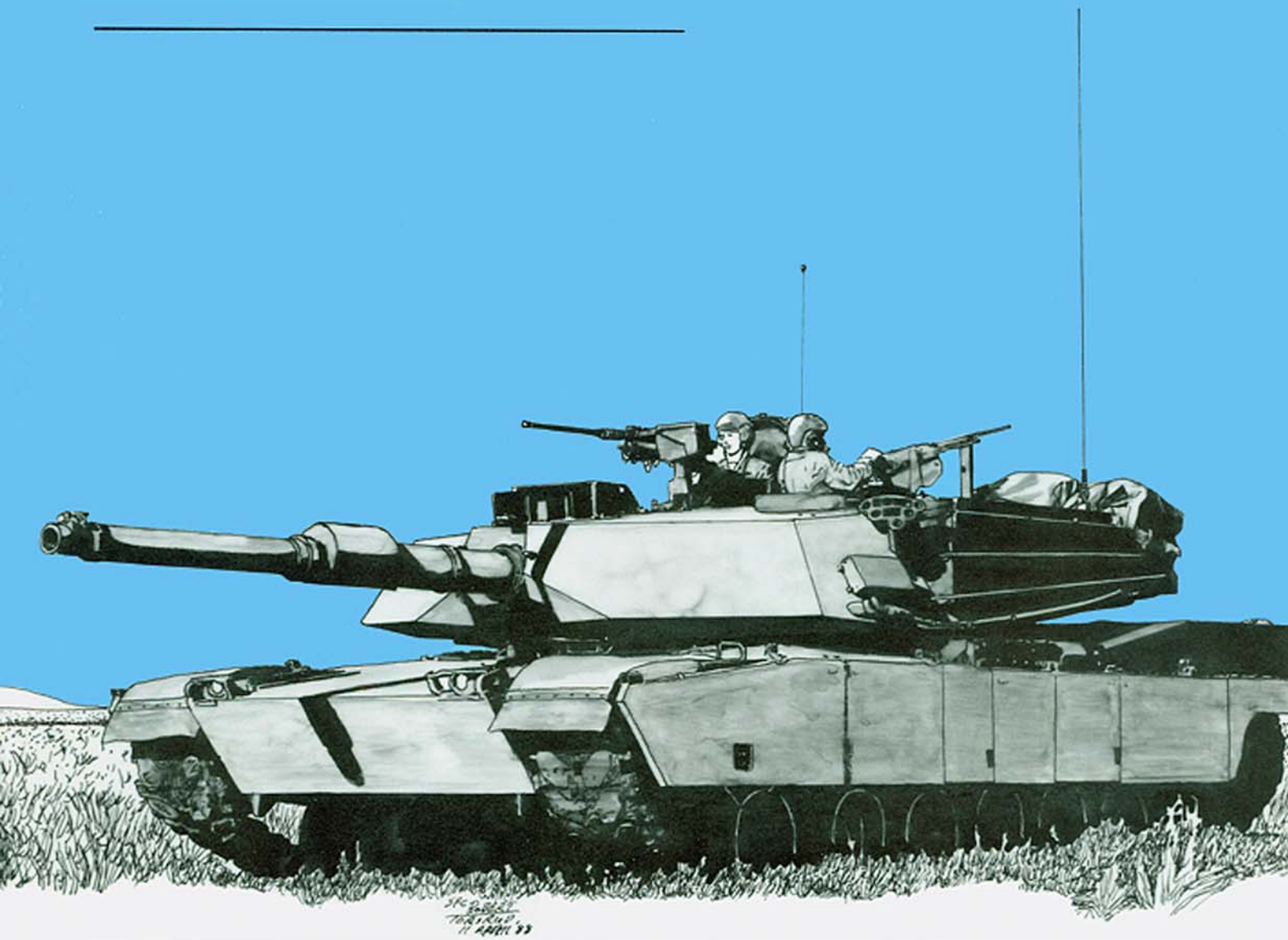

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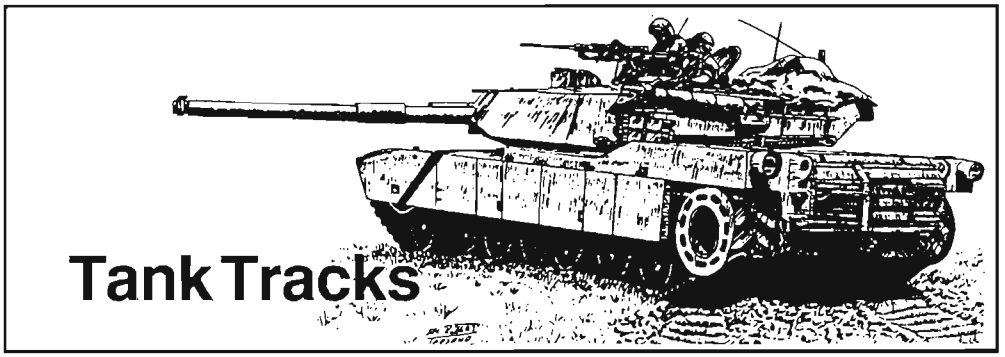

Tank Tracks

Many of you have called or written to inquire about how to go about writing an article for ARMOR. It is really fairly simple – just have a good idea and put pencil to paper. If you are not sure about your idea, check previous issues of ARMOR to see if we have already published something on your subject. If we have, don't write about it. (By way of a tip: We do not need anything right now on recon-counterrecon or NTC): If you want to bounce your idea off us first, before you spend hours writing, just give us a call.

We are interested in articles that fall into these broad categories: leadership, tactics, logistics, equipment design, military history (for lessons learned that can be applied to AirLand Battle), training, gunnery, Threat, and U.S. and Soviet organization. We try to put together each issue with articles from across this spectrum.

If you are apprehensive about the "quality" of your writing, do not be. We will polish your writing, if what you have to say is relevant and important. Remember that we exist to exchange ideas and pass information to the Armor Force, not to compete for literary awards.

Try to say what you want to say in fewer than 3,000 words (that's about 12 double-spaced typed pages). The number is not set in concrete, but it is a good target. Contrary to the way we learned to write in school, it is harder to write shorter than it is to write longer. Also, see the directory section in this issue. There, you can find what word processing programs we can work with. Just send us your disc, along with a hard copy. Include any art or photographs (black & white, or color) you might have.

That's all there is to it. Just like the only bad question is the one that goes unasked, the only bad article we know of is the one that goes unwritten.

– PJC

By Order of the Secretary of the Army:

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

CARL E. VUONO
General, United States Army
Chief of Staff

ARMOR

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FEATURES

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LETTERS

The Final Word on Bannholz

Dear Sir:

Re: The Bannholz and Lessons for Today's Warriors.

There were four battles for the Bannholz Woods (see Harry E. Traynor's letter in the November-December 1987 ARMOR). I wrote about the third (September-October 1987 letters). Traynor was in the second. Today, Traynor can tell the rest of the 704th TD Bn, 4th AD, that in the third Bannholz battle, the 704th got even with the 94th, if indeed 10-to-1 is even. (This writer can only speak for himself. There are a number of 94th Infantry Division men who were in this action and they may have other opinions.)

A rifleman isn't in combat for very long before he gets the feeling of things that are fated to be. Today, it seems that it was fated that the airborne Lieutenant Newsome wrote his letter on tanks (January-February 1987 letters) which led to an exchange of letters, eventually including mine and Harry E. Traynor's response in the following issue. It's almost as if the ghosts of those riflemen lost by the 94th Infantry Division on the Bannholz wanted this story told so that for once they could rest easy in their graves. (They are also in the cemetery at Hamm along with those of the 704th TD Bn.)

The 4th Armored Division was in Luxemburg for an "extended period" of rest and refit after their actions in the relief of Bastogne. With the rest of their outfit still in rear area billets, one wonders if the 704th was not "furious" and "enraged" before they ever left Luxemburg.

One wonders if the sentiments did not pre-exist any action they later undertook with the 94th Infantry Division, a division not even in the corps to which the 4th AD belonged. However, Traynor states, "Our (TD) company commander was furious

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that we (a tank platoon) were being led by an infantry sergeant..." Well, I'm sorry, guy, but we were short on company officers. (In the seven weeks I was on line, I saw one officer, once, for a total of perhaps five minutes.)

Secondly, the sergeant was there as a guide to get you and the 704th to the battlefield. Once in the battle (as eventually you were), your crews were supposed to have had enough experience to know how to fight your TDs, as indeed your crew initially did, as your account shows.

Also, you say "They (the two dead Tigers) seemed dead enough at the time." Well, who better than the 704th, the best battalion in the best combat command in our best armored division, would know what a knocked-out tank looks like? If you also thought those tanks were knocked out, chances are that you were right, and they were in fact dead. Also, you had already done some shooting, so if there was any doubt, why not fire another round or two into those Tigers on your way by them? "All the TDs to my rear also got nailed". (For a total of five TDs knocked out of the six TDs committed that day.)

What is being omitted is that the 11th Panzer, for sustained excellence in many campaigns, may have been the single best armored division of WWII. We infantryreferred to the 11th Panzer unit in front of us with some degree of admiration, as the: Colonel, Count Carl von Claus Counterattack Circus. We tended to envy their tactical capabilities to seemingly run circles around us.

From what Harry Traynor says, it would seem that the 11th Panzer also ran circles around the 704th TD Bn. Later, in the third attack on the Bannholz, when the 704th could have obtained revenge on the 11th Panzer for the loss of your platoon, the 704th did not get its tracks across a wet area near the line of departure. Therefore, it would seem that the 704th was also stating that the 11th Panzer was a better tank outfit than the 704th.

My battalion was from a different regiment and we knew nothing of your problems in the Second Bannholz. Where the lying appears to have occurred was when the 704th accepted the mission of supporting the 94th in the Third Bannholz, and then did not support us. If my battalion could have stayed with the 11th Panzer for about 10 hours (which it did), it would have seemed that the 704th TDs could have joined us, and have knocked out the two panzers that were shooting us up, and any others that may have arrived to reinforce them.

On the Third Bannholz we lost about 200 riflemen, all of our infantry company captains were evacuated, and all rifle company lieutenants but about two. F Company lost so many men that when it reorganized, it had to borrow PFCs from my company in order to have nine squad leaders who had combat experience.

Of our company's two surviving lieutenants, one was then given to G Company so that it could have a combat experienced CO. (Co. F received a rear area officer as its CO. And one of our platoon sergeants received a battlefield commission and we went through the rest of the war with those two officers.)

Your CO started out being "furious" at the 94th unit you were supporting and you ended up being "enraged" at the 94th for not fighting your TDs for you. Emotions of that nature have no place on the battlefield. Whatever problems you may have thought you had on the Second Bannholz, you should have cleared up before agreeing to go into the third battle for the Bannholz.

Now, some 43 years later, we know why we never got TD support in the Third Bannholz.

By the time of the fourth battle for the Bannholz, the 11th Panzer had been withdrawn to another area; it seems that we were supported by a different TD battalion, the cloud cover had cleared, and we had the support of a flight of four P-47s. Even so, one of the successful attacking companies ended up with a foxhole strength of 24 men at the end of the battle.

After reading Harry Traynor's letter for the fourth or fifth time, and realizing exactly what it was that he was saying, I was engulfed by a wave of enormous sadness for the hundreds of riflemen we left on the Bannholz the day that the 704th stayed behind. When Harry stands at the grave of his tank commander he can also see the graves of a number of 94th Infantry Division riflemen put there by the battles for the Bannholz. I would believe that his tank sergeant already knows all the details, and doesn't need to be told anything.

It's time that the 704th made peace with themselves and with the 94th, and realize that there is no one in the 94th that they should be "furious" at, and that they have no grounds to be "enraged" at any member of the 94th Infantry Division. If anything, they are already "even".

Lessons for Today's Warriors: History should be studied, because if it is not studied, history repeats itself. The Bannholz, as the letter from Traynor shows, should not be repeated. The lessons of history are summed up quite well, in the various "Principles Of War". However, historical examples help markedly in implementing in a specific way those principles. The four Bannholz battles illustrate many of those principles.

- The TO&E of the unit, or units, involved have little or no bearing on the organization to be used for combat. The troops available are to be organized to accomplish a specific task. However, such troops must first rehearse their combat roles, for without rehearsals, problems can overwhelm the unit when the unexpected occurs.

- Rehearsal is a must for every combined-arms action, even for units that have previously been in combat together. By comparison, a professional football team operates with a narrowly prescribed set of rules; yet even so, they rehearse every week for both the expected and the unexpected in their next game, and so must combat units.

In order to rehearse, a four-element (square) organization is required, two in contact with the enemy, one in reserve to handle unexpected successes or unexpected reversals, and one to have time to hold a rehearsal. Any unit at any level can be squared by its commander as necessary.

Re-read Harry Traynor's letter to see again why rehearsals are needed. If two units of Americans can end up "enraged" at each other, rehearsals become all that much more necessary whenever troops of allied nations operate together. Allies have enough problems without the troops at the platoon level being enraged at each other.

Also, replacements must have rehearsals in order to become integrated into the tactics typical of the the unit to which they have become assigned.

In WWII, substantial percentages of replacements become casualties simply because they had no idea of what they should do next. For a poignant presentation of the need for a little tactical training of the replacement with the unit, rent a video of the 1938 Errol Flynn movie,

"Dawn Patrol," and see what Errol Flynn's character has to say about rehearsals.

World War II is often referred to today as a "good" war. Well, not everything about it was necessarily all that good. As the battles for the Bannholz show, there are some things that should not (and if history is studied), need not be repeated.

Robert P. Kingsbury
LTC, USAR (Ret.)
Laconia, NH

(This letter concludes the discussion on the Battles of the Bannholz Woods. -Ed.)

Reply to SGT Sundlof

Dear Sir:

The January-February 1988 issue of ARMOR Magazine contained a very thoughtful letter from Sgt. Russ Sundlof of Troop A, 1/26 Cav. of the Connecticut National Guard. In his letter, Sgt. Sundlof proposed his observation on the need to replace the M88A1. I agree completely with Sgt. Sundlof and, in fact, General Dynamics Land Systems Division has built, at its own expense, an Abrams-based replacement.

The same issue of ARMOR published a reply to Sgt. Sundlof from the Combat Developments Director at Fort Knox. Colonel Smart noted in his response that the decision had already been made in favor of an M88 variant. This is not entirely correct; the decision was simply to pursue a product improvement program on the M88 and no final position has yet been taken.

General Dynamics Land Systems Division recognized the need for a recovery vehicle that could stay up with the supported forces and which had the necessary power to execute its assigned mission. To this end, the firm accepted a $1 contract from the Army in June 1987 and rolled out its armored recovery vehicle on 12 February 1988. This vehicle will, after contractor tests in Phoenix, be delivered to the Army at Aberdeen Proving Ground, MD, on 16 May 1988. There, the Army will conduct a competitive test with the M88 vehicle. General Dynamics is convinced that such a test will demonstrate the superiority of the Abrams-based recovery vehicle. May I ask your assistance in advising Sgt. Sundlof of what the manufacturer of the M1A1 tank is doing to provide proper supporting vehicles to our forces, as well as the Army's intent to conduct competitive testing?

LOUIS F. FELDER,
Coordinator, Recovery Vehicle Programs
General Dynamics Land Systems
Division, Warren, MI

A Guard's View on Tank Tables

Dear Sir:

LTC Maggart hit it right on the nose: "Why, then, should soldiers train to accomplish them as separate tasks?" I refer to his "Tactical Tank Gunnery," in the January-February 1988 issue of ARMOR Magazine.

The current tank tables do not incorporate how we will fight in the next war. Granted, we must fine-tune our basic skills using the lower tables, but let's finish that and train to win. We need realistic tables/ranges that will incorporate all aspects of tank gunnery under combat conditions. If redesigning the ranges is being considered, use the rule of thumb: move, shoot, and communicate.

In the National Guard, time is our greatest enemy. What we need to train and what we do not need to train is a continual problem. Here in the 50th Armored Division, the tank battalions work on a biannual gunnery cycle. We train to move and communicate one year, then STOP. The next year, we shoot! Most of the tactical training gained the previous year is lost because now we must conduct gunnery training. My fellow NCOs and myself have argued this point for many years. As with anything else, we are restricted by FM standards or TRADOC requirements. Our opinion is that because of time restrictions and future battle conditions, we should always remain in a tactical mode. After all, when we fight we will remain tactical. Learn to move, shoot, and communicate as one mission, not as two separate missions.

To repeat, our greatest enemy is time, even more so than for the 2-69th Armor. We must accomplish the required standards in terms of hours rather than days. During our last annual training period, this battalion conducted a section gunnery table under as realistic conditions as Ft. Drum can allow. Our crews were better able to understand the pressures associated when operating as a section versus a crew alone.

The current tank tables have their purpose, but only up to a point. We must train our crews, evaluate them, and move to "How-To-Fight" tables. Granted, the higher tables (IX and above), incorporate the section and platoon, but not tactically. We must be able to evaluate our crew's/section's/platoon's tactical gunnery abilities under realistic conditions, not by predetermined tasks, conditions, standards, and situations. Targets are not destroyed by predetermination, rather, by he who is better-trained to handle that situation without predetermination.

WALTER J. HILL
SFC, 2-102 Armor, NJARNG
West Orange, NJ

Veszprem Breakout Viewpoint

Dear Sir:

After reading CPT Friesen's action-packed article, "Breakout from the Veszprem Railhead," I have mixed opinions on the historical significance of this operation. I agree with the author's conclusion that "high-quality crew teams are the key to destroying enemy tanks."

However, a more compelling issue is at stake, when viewing this battle within the overall scope of the four-year Eastern Front campaign. That is, despite the technological and operational advantages in firepower, mobility, supply, command, control, communications, and training, which the Germans, for the most part, enjoyed over the Soviet Red Army, the Germans still lost the war, just as they lost the Veszprem railhead. In the long run, it was irrevelant how many T-34s and infantrymen they destroyed. They still lost the war.

The Eastern Front absorbed 80 percent of the German war machine, and for all intents and purposes this campaign determined the future of the Third Reich. This realization was very apparent to the Germans at the time, and their commitment to victory cannot be questioned. They made great gains in the early years, until the Red Army learned to effectively use its numerical superiority. Then, for the Germans, the war was over.

Our NATO forces today are outnumbered by the same enemy, and our technological advantages are questionable. Certainly, it is essential that we develop

the small unit discipline and skills which were found in Peter Rauch's tank crew. However, our political and military leaders must also work to ensure that a balance of power exists within which our soldiers' abilities and equipment can make a real difference in the end result.

Steven M. Buc
Germantown, MD

Gunnery Beyond TT VIII

Dear Sir:

We wish to praise a recent article in your magazine which dealt with the utilization of the M1 UCOFT in regard to Tank Table VIII ("Tank Gunnery Comments" by CPT Mark T. Littel, ARMOR letters, January-February 1988). We are glad to see that someone has finally stated the major emphasis on tank gunnery training in our line units: Beat Tank Table VIII!

We are ecstatic that someone has finally given us the insight and knowledge to properly utilize the UCOFT. Like CPT Littel, we too have certified within the matrix several times as both tank commanders and gunners. Thanks to CPT Littel's comments, we now see what a waste of time it is to train crews to fight the M1 tank in a degraded mode of operation. We all know that the M1 tank is not susceptible to battlefield damage and the Titanic never really sank. All good tankers also know that Soviet doctrine states that no attack will take place unless the range limit markers are in place on the battlefield, and all parties involved can identify said markers. (We believe the Soviets use them for navigational aids.)

Yes, Fort Knox has developed the ultimate Soviet threat in the form of Tank Table VIII. Little does it matter that the gunnery tables were developed within the constraints of firing a tank cannon in peacetime without killing someone. Yes, we fully agree that the minimum crew level proficiency test (TT VIII) should be trained for and pursued as the ultimate challenge! The developers of the UCOFT and the designers of the M1 tank's degraded modes of operation should be sued for fraud, as we will never use those exercises in the matrix nor fire the main gun from the GAS using battlesight techniques in manual mode. Everyone knows that battle damage that occurs on the M1 tank only lasts one engagement and will fix itself prior to the next engagement. ("At this time, reopen your GPS ballistic doors. DS maintenance has just air-dropped a complete GPS into your tank.")

In closing, we would like to say, "Thank you, CPT Littel. You have given us a very frank assessment of the priorities placed on gunnery training. We feel that we can sum up CPT Littel's article in one word: "DUMP!".

Brian K. Goodknight
SSG(P), Master Gunner
Michael F. Capobianco
SSG(P),
A 2-67 Armor, FRG

Essex Troop Muster Dates

Dear Sir:

Re "Historical Perspectives," a letter to the editor in the September-October 1987 issue of ARMOR Magazine. I disagree with SSG D.C. McQueen. The Essex Troop was mustered into the New Jersey National Guard on 17 May 1893 and designated: Cavalry Company A, National Guard.

It had been organized earlier on 3 June 1890 as an independent organization known as the Essex Troop of Light Cavalry.

To connect it to the 1st Regiment Cavalry, N.J. Volunteers of 1861-1865 is without foundation.

LTC Kenneth H. Powers
Westport, CT

Clarke of St. Vith Dies

General Bruce C. Clarke
U.S. Army, Retired
1901-1988

General Bruce C. Clarke, U.S. Army, retired, died on March 17, 1988, at Walter Reed Army Medical Center. Interment in Arlington National Cemetery followed. Clarke was 86.

With his passing, the Army lost one of its premier trainers and combat commanders. Armor lost an advocate, and many of us lost a prolific correspondent.

Although General Clarke left the active duty list in 1962, he never really retired. He insisted on remaining an active leader, continually helping today's leadership keep things in context, bringing up lessons learned in the past, and speaking out when he thought movement was on the wrong axis. He wrote dozens of articles on leadership and command for nearly every one of our professional journals. More than 35 of his articles appeared in *ARMOR*, alone. The most recent, "A Minor Reorganization of the Tank Company," was in the March-April 1988 issue.

General Marshall once asked General Patton, "Who is Clarke?" Patton explained that he was a fighting Engineer colonel whom he wanted promoted to brigadier. "When you get back to Washington, sir, I wish you'd look up his record. Clarke with an 'e'."

General Clarke began his military career 70 years ago as a private in the New York National Guard in 1918. Following graduation from the U.S. Military Academy in 1925, Clarke embarked on an engineer career.

In 1940, when the Armored Force was born at Fort Knox, Clarke commanded the 16th Armored Engineer Battalion and was acting engineer officer of the Armored Force.

In 1942, he became chief of staff of the 4th Armored Division, the first engineer officer to do so. The following year, he succeeded to command of Combat Command A, 4th Armored Division, a position he held during the Nancy-Arracourt campaign in September 1944.

By December, he was in command of Combat Command B, 7th Armored Division, during the German Ardennes Offensive. For seven days, the 7th Armored Division's actions, particularly those of Clarke at St. Vith, prevented a link-up between the German 5th and 6th Panzer Armies, and upset the German timetable in what became known as the Battle of the Bulge.

Following World War II, General Clarke commanded the 4th and 1st Armored Divisions; I Corps, Korea; 8th U.S. Army, Korea; U.S. Army Pacific, Hawaii; 7th U.S. Army, Europe; and Central Army Group, NATO, during the Berlin crisis.

Among his decorations are the Distinguished Service Cross, three Distinguished Service Medals, three Silver Stars, the British Order of the Bath and French and Belgian Croix de Guerre with Palm.

Clarke held several honorary graduate-level degrees, served in many positions with the Boy Scouts of America, the National Association for the Uniformed Services; and the Freedom's Foundation at Valley Forge; he was a past president of the U.S. Armor Association, a Rotarian, and a 33rd-degree Mason.

General Clarke last visited Fort Knox in February, when he spoke at an officer professional development seminar. At a dinner in his honor, the U.S. Armor Association presented him with the gold medallion, Order of St. George, its highest honor. We shall miss his presence.

"And, when our work is done,
Our course on Earth is run
May it be said, "Well done!
Be thou at Peace."
– USMA Alma Mater

MAJ Patrick J. Cooney
Editor-in-Chief
ARMOR Magazine, Ft. Knox, KY.

THE WHITE HOUSE

WASHINGTON

March 7, 1988

It gives me great pleasure to offer congratulations to the staff and readers of ARMOR as you celebrate your first century of service.

Since its first issue, as the Cavalry Journal, rolled off a small steam press at Fort Leavenworth, Kansas 100 years ago, your publication has provided a much-needed channel for the exchange of ideas and information in the service of military readiness. Today the accelerating pace of change in heavy armor and armored cavalry requires more than ever that officers keep abreast of new developments in equipment, strategy, and tactics. ARMOR continues to serve that vital purpose with distinction.

I send a special salute to all those who have contributed to your journal over the years. My best wishes for continued success are with you as you begin your second century.

God bless you, and God bless America.

Ronald Reagan

COMMANDER'S HATCH

MG Thomas H. Tait
Commanding General
U.S. Army Armor Center

Insights from the Year of Training

Given the Army's emphasis this year on the theme of training, we at Fort Knox felt that there were areas we could improve on, leading to better performance by units in the field.

This doesn't mean that we have stumbled on and found Truth, but we have discovered information that we can pass on to our students that they can take with them, information that will improve their ability to fight and win. Some interesting findings came from a recent review of NTC data by a team from Fort Knox.

Modernized units using the M1 tank do not, for the most part, prepare range cards for individual vehicles. Granted, it is very difficult to do without an azimuth indicator, but it can be done. (When the M1 was being designed, the azimuth indicator was deleted because it was believed that thermal sights negated its use, and saving every little bit of weight and dollars was important. Now we are product-improving the tank and adding a simple azimuth indicator, thus simplifying the range card preparation process.)

We will continue to teach range card preparation and show our students how to do it. We must ensure that they understand sectors of fire and we must emphasize preparation. After all, the preparation of range cards is a form of rehearsal.

This leads me to another obvious fact our NTC data-digging team discovered: units that rehearsed operations did substantially better than those that did not. This should be a blinding flash of the obvious, but unfortunately, it isn't. Units still do not rehearse their plans. Rehearsal can be as simple as sketching the operation in the sand and ensuring everyone knows what he is supposed to do. We can all read how the VC rehearsed their attacks on outposts by walking through the problem. We need to walk the ground problem. Why not do it in training so that we just do it automatically? Rehearsal will be emphasized in the schoolhouse – it must be emphasized in the field as well.

Emerging data also tells us that properly constructed fighting (survivability) positions, in concert with a well-thought-out countervisibility plan, contribute to success on the battlefield. It is not emphasis on one or the other that counts – it is a healthy combination of both that makes a difference.

This data tells us that digging priority should go to tank ditches and road craters. It is important to remember that obstacles can and will be breached. They must be covered by fire. You want to use the obstacle to force the enemy to go to the place where you can best kill him.

The data also tells us that, in a fight, we seem to have difficulty bringing all of our weapons to bear. There are a number of reasons for this: poor positioning by vehicle commanders who cannot see the fight; poor intelligence preparation of the battlefield; the commander's inability to visualize the shape of the battle "in his head" from reports, eavesdropping, or subordinate commanders; and failure to require scouts to use proper reconnaissance techniques. All of these areas are important, and we will continue to emphasize them from BNCOC through PCC.

Along with the Command and General Staff College, we are looking at ways to revamp PCC to enable us to help commanders improve their ability to visualize the battlefield and understand time and space factors. We probably will not be able to provide you with an algorithm and a set of variables to change as the situation changes. We hope to be able to add to your *fingerspitzengefuhl* (ability to feel the battle).

We owe it to our soldiers to provide them with tough, realistic training. There is no substitute for it. They demand it and deserve it. Let's ensure they get it.

Treat 'Em Rough!

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 50

The Criticality of Time in Combat

By General James H. Polk, Ret.

The French theologian Louis Bourdalone said, "There is nothing more precious than time, for it is the price of eternity."

It is curious that so few thoughts or philosophical writings are devoted to the advantages that a step ahead in time gives to the attacker in modern ground warfare. Examples abound, and there are a number of very successful generals in modern history who instinctively understood this value of time, i.e., when your antagonist is reacting to your moves rather than you to his, when you dictate maneuvers in time and tempo and he attempts to counter them too late and to no avail, when you get this advantage then you have him by the throat. The advantages of time and space accrue in geometric rather than arithmetic proportion, so that twice ahead in time is about four times ahead as a force multiplier. Raw numbers of units or firepower aggregates don't count, while time and space advantages — your tempo and not his — dominate and dictate.

A look into recent history shows that Napoleon understood time and accompanying space or maneuver to an extraordinary degree and at a very early age. In his classic Italian Campaign of 1796-97, his first major command at age 27, he fought three major battles in ten days and won them all, totally defeating three different Austrian columns while heavily outnumbered but, importantly, never at the point of attack. While he repeated his favorite tactic over and over again in the ensuing years, by dividing or, more often, separating and conquering while outnumbered or, as Nathan Bedford Forrest said, "Get there fustest with the mostest," he never could fully explain his tactical genius.

"...Rommel had the power to create surprise, to produce the unexpected move, reinforced by an acute time-sense and by the capacity to develop the highest possible degree of mobility...."

Napoleon's so-called "maxims" are often irrelevant, or at least not persuasive, in attempting to discover the secret of his military successes. His well-known principles of the *directive, offensive, simplicity, control,* etc., are so generalized as to be almost meaningless. Perhaps the closest they come to his tactical methods is in *surprise,* which he believes is important for the commander of a force that does not have combat superiority. This is achieved by *speed, secrecy, deception* and moving through seemingly impossible terrain. What he really said is that one must seek an advantage of time and position over superior forces if one is to prevail.

Other generals understood these methods of time and tempo of the all-out assault against superior but uncoordinated forces, and the American classic is, of course, Jackson's Valley Campaign of 1862.

There, he defeated three different Union forces in about ten days and moved over to the Battle of Second Bull Run where his flanking attack turned the tide. As far as known, General Jackson left no serious military writings on his successes. It is unfortunate that he was killed, because he was a professor of both history and mathematics at the Virginia Military Institute and could have left a marvelous heritage of military thought.

WWI produced no great commanders worthy of special note, while in WWII, Rommel and Patton immediately come to mind. Montgomery doesn't qualify because he relied on a careful build up, a cautious attack with considerable superiority of numbers. And with all of that, he was beaten twice, at Caen and at Arnhem. Eisenhower did not exercise generalship but, rather, was the coordinator and dispenser of resources and was best at resolving disagreements among the Allies.

Liddel Hart says in his introduction to *The Rommel Papers* that Rommel had the power to create surprise, to produce the unexpected move, reinforced by an acute time-sense and by the capacity to develop the highest possible degree of mobility. Probably the greatest modern insight of the value of a time advantage can be derived from Rommel's account of his attack, breakthrough, and exploitation from the Ardennes to the sea in mid-May of 1940, as described in the first two chapters of *The Rommel Papers.*

Here one sees the ultimate in audacious attack, in which Guderian's armored corps, most aggressively handled, overpowered and totally disorganized a much superior enemy force, even without total surprise. As its leading element, Rommel moved with such speed and daring that he surprised French units not once but often, primarily because he arrived ahead of time. He set the tempo of attack and hit before the time the French expected him.

Unquestionably, Patton, Rommel, Guderian, and von Manstein understood the values accruing from advantages in time and space, but none really explained it adequately, and all seem to have been guided more by instinct than by a carefully reasoned process. Patton on many occasions drove his command to exhaustion when he sensed a time advantage and never permitted his enemy to have the hours or days to mount a coordinated counterattack or prepare a solid defensive position. His most graphic expression of his philosophy was "hold him by his nose and kick him in the butt," but he also said that an ounce of sweat was worth a gallon of blood, meaning "drive your combat units hard when you sense an advantage and save casualties."

But to return to Guderian, Rommel, and Liddel Hart, Hart had this to say about time and tempo in the German 1940 drive to the Channel in *Strategy:* "The issue turned on the time-factor at stage after stage. French counter-movements were repeatedly thrown out of gear because their timing was too slow to catch up with the changing situations, and that was due to the fact that the German van kept on moving faster than the French (or for that matter, the German higher command) had contemplated. The

"...To be specific, FM 100-5 does not tell the commander how to recognize situations where speed and boldness really pay off. In effect, what are your advantages when you begin to get ahead of the enemy in time and tempo, what are the signs and what do they tell you, and how should you, as the commander, react to them?..."

French, trained in the slow-motion methods of WWI, were mentally unfitted to cope with the new tempo and it caused a spreading paralysis among them. The vital weakness of the French lay, not in quantity or quality of equipment, but in their theory."

Hart also had this to say in speaking of the ratio of troops to space: "The offense potentially carries one unique advantage, that if the attack is made unexpectedly and with sustained speed of follow-through, it may split a slow-responding defense so deeply and disintegratingly as to paralyze resistance, annulling the comparative balance of numerical strength. The basic advantage of defense can only be ensured if it has adequate flexibility and mobility, the primary condition being that the defender has a clear understanding of the attacker's technique and tempo. The time factor is of crucial importance in relation to the ratio of force-to-space."

The U.S. Army Field Manual 100-5, Operations, modestly says of itself, "The fundamental mission of the Army is to deter war." Should conflict occur, FM 100-5 is the Army's keystone "How to Fight" manual. It explains how the Army must conduct campaigns and battles in order to win. It describes U.S. Army operational doctrine involving maneuver, firepower and movement, etc. All other field manuals stem from this key one, down to the ultimate FM 7-8, *The Infantry Platoon,* for guidance and doctrine.

FM 100-5 uses such phrases as "Move fast, strike hard, and finish rapidly;" "Carry the battle deep in the enemy's rear;" "Speed is absolutely essential for success;" "A bold exploitation should always follow a successful attack;" "Move aggressively and boldly." All these concepts are good when applied to appropriate situations, but they are more in the form of exhortations or admonitions than theory or policy. To be specific, FM 100-5 does not tell the commander how to recognize situations where speed and boldness really pay off. In effect, what are your advantages when you begin to get ahead of the enemy in time and tempo, what are the signs and what do they tell you, and how should you, as the commander, react to them?

A battalion or brigade CO must be well forward and should have taught his subordinates what to search for, what signs to look for, how to instinctively smell the beginnings of disorganization or panic in the enemy ranks. Some battle leaders have an eye for this, as noted earlier, and some must be taught, but there is often positive evidence if one knows what to look for.

More often than not, the first evidence of bad morale on the other side is the defection of lower-ranking solders, or an evident desire to surrender after an almost token

resistance to modest combat pressure.

The list of evidence is long; abandoned equipment, gaps in minefields not fused and armed, road barriers not in place, campfires still burning, rations still being cooked, vehicles or couriers blundering into your lines, abandoned wounded or operational aid stations left behind, stacks of ammunition or other stores, excess artillery ammunition remaining at empty gun positions, and more. One of the earliest indications that you are getting ahead of your enemy is the shelling of your last position after you have left it and are attacking your next objective. When the enemy is dropping his shells behind you, it is a sure sign that his coordination is breaking down and that he doesn't quite know where you are. These signs, if recognized, let you, the commander, know that your opponent is not reacting to your current moves but, rather, to your last moves and that you have a distinct time advantage over him.

Enemy Disintegration: Some Indicators

- Surrender after token resistance
- Abandoned equipment
- Gaps in minefields not fused and armed
- Road barriers not in place
- Campfires still burning
- Rations still being cooked
- Vehicles or couriers blundering into your lines
- Abandoned wounded or operational aid stations left behind
- Stacks of ammunition or other stores
- Excess artillery ammunition at empty gun positions
- Shelling of your last position after you have left it

The importance of advantage in the tempo of the attack is that the harder you press him, the greater becomes your advantage and, as noted earlier, it increases in geometric proportions rather than arithmetic. Numbers and firepower don't count. A tank company behind your enemy's brigade is equal to a battalion on his flank or two brigades attacking frontally. No modern army is trained to handle a relatively small but effective force in and among its rear area support, communication, and supply echelon. Nor are these logistic troops capable of any decent resistance. Quite the opposite, they most certainly will be thrown into a complete panic and either surrender or flee. "Devil take the hindmost" is generally the watchword of these troops when thrust suddenly into a confrontation with aggressive and unexpected combat formations.

In reviewing FM 100-5 *Operations*, one can find almost no mention of the importance of time, except in the discussion of surprise (page 96). "To reap the benefits of surprise, therefore, the attacking commander must exploit its initial shock ruthlessly, allowing the enemy no TIME to regain his equilibrium." It continues: " . . .even when achieved, it rarely lasts," which is dead wrong and shows a serious lack of understanding.

Surprise, when achieved, should be built on, and the cumulative effect of a time advantage increases as the tempo accelerates. Interestingly enough, there is no mention of time in the very comprehensive index to the field manual.

Again, in discussing surprise as a principle of war, FM 100-5 states, (page 177), "It is not essential that the enemy be taken unaware, but only that he become aware too late to react effectively." In other words, the attacker has an advantage in time, that time is working for him. There is a rather good discussion (page 121) titled "Time Available," which quotes Clausewitz and Patton on the importance of time in the attack and concludes with the statement, "Time is, therefore, vital to the attacker; he must prolong the enemy's surprise, confusion and disorganization for as long as possible." Unfortunately, this section is all too brief and is buried under some twelve pages devoted to The Tactical Offense, much of which is obvious and trite.

We have been led astray by computerized war games and map exercises because the primary determinant of victory in these exercises is a preponderance of firepower with slight input on maneuver and on terrain and weather as it relates to firepower. It is almost impossible to determine the values of artillery fires or close air support and totally hopeless to gauge the intangibles such as generalship, training, fatigue and the like. Some very sophisticated games attempt to feed in some of the above, but this is of very questionable value. The value of a time advantage, to my knowledge at least, is not attempted or even understood. The net result is that the side with the most firepower wins by attrition and this in turn relates directly to numbers.

The media gives much prominence to the numbers game. And so does

our civilian and military hierarchy. As an example, a recent issue of *Newsweek* displayed a table of comparative numbers of tanks, artillery, fighter aircraft, and others, which showed that the Warsaw Pact outnumbered NATO by a factor of about 2-to-1, and the gloomy conclusion was, by implication at least, that NATO will be quickly defeated in a conventional war. *This is pure nonsense.*

In fact, an attack by the Warsaw Pact is very scenario-dependent. If the Pact was able to mount a full-scale attack on a Sunday morning without prior detection, NATO would have a dreadful time with or without atomic weapons. But such an attack represents a dreadful risk by the Soviet leadership because of the chance of detection and of the battle becoming a one-on-one attack. On the other hand, if we had five days warning and mobilized so that NATO divisions were in position and ready, we would surely achieve a standoff or stalemate and possibly a victory. Again, time is not critical; it is priceless.

Furthermore, with a time advantage, numbers don't count. It is the most exciting, exhilarating experience a soldier may enjoy. It begets boldness and daring and, as stated earlier, increases the relative superiority as the events accelerate and only ends when support is outdistanced. My own 3rd Armored Cavalry reached the Moselle River with one troop out ahead and actually captured intact the bridge at Thionville. The troop had to be recalled as no reinforcements could join it, and the 7th Armored Division was running out of gas, tank by tank, behind us. And significantly enough, the planning for *Overlord* and beyond envisioned a progressive widening of the Normandy bridgehead in successive "all-hold-hands" advances. Unfortunately, the planners did not foresee the painfully slow progress in the hedgerows. But worse than that, they had no concept of the wild breakouts and confusion that followed. Third Army advances depended almost totally on availability of gasoline, whereas the German Army could do almost nothing to delay our speed of advance. Had we had the gasoline, Third Army could have breached the Seigfried Line easily, because it was almost unmanned. We had the time advantage, but lost it because we had outrun our support. In a war of maneuver, fuel is critical, while in a battle of attrition, ammunition is the decisive factor. We had the firepower but lacked the POL and thereby lost our "time" advantage. It certainly cost the Allies six months of active warfare and unconscionable casualties. We fell into a war of attrition in October of 1944 and never achieved any real success until the breakout in the spring of 1945, when we once again got moving and had "time" on our side.

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>
> *This is pure nonsense."*

We must avoid battles of attrition – Caen, Anzio, Tet, Porkchop Hill, Verdun, Passchendaele – the names are endless, and the results are meaningless and horrendous. We must seek the war of maneuver, we must break through, seek the priceless time advantage so that we are ahead of our adversary, he is reacting to our last move, our time advantage overcomes his numbers, we get one step ahead, then two steps ahead, then we have him by the throat, when boldness counts, and numbers don't matter, and we know and he knows that it is almost over. We the leaders, once this precious time advantage is gained, must drive our attacking units to the limit of endurance and beyond, because our adversaries are not only exhausted, but badly frightened and they are ours to harvest. The American soldier is not stupid, and when he collectively smells victory, he is incredibly brave and ruthless, and numbers don't count.

This is victory!

General James H. Polk was born in 1911 in the Philippines, where his father was an Army officer. He was commissioned in cavalry from West Point in 1933. During WWII, he commanded Third Army cavalry units and was decorated three times for gallantry. From 1955 to 1957 he was chief of staff, then assistant commander, of the 3rd Armored Division and served two years with NATO's land forces in Central Europe. He was commander-in- chief USAREUR and Seventh Army when he retired in 1971.

Soviet T-72s on parade.

Soviet Tanks: An Israeli View

by Lieutenant Colonel David Eshel, IDF (Retired)

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Soon after the Six Day War, with hundreds of Soviet tanks captured by the Israeli Defense Forces (IDF) in Sinai and the Golan Heights, Israel began to evaluate these vehicles. It was soon established that the Soviet tanks had substantial combat potential and compared favorably with Western counterparts.

The IDF Ordnance Corps decided to bring these tanks into service. Although the captured T-54/55 tanks at first retained their original D-10T 100-mm gun, modifications included the replacement of the Russian radio set with the standard VRC type in service with the IDF, and the fitting of Browning machine guns.

During the War of Attrition (1968-1970), the IDF used the Soviet tanks in several operations along the Suez Canal, the most audacious being the large armored raid on the coastal road of the Gulf of Suez in September 1969. The raiding force, which included several T-55 and BTR carriers painted in Egyptian army colors, was landed at night by LST. It roamed the coastal road southward destroying Egyptian military traffic and radar installations. The operation lasted for almost half a day, after which the force was recovered by amphibious craft and returned to base.

This was the first time that Israeli crews operated Soviet tanks under combat conditions. Their experience served to modify the vehicles within an extensive upgrading program which was implemented in the mid-1970's.

During the Yom Kippur War, a complete brigade of partially-upgraded T-55 tanks served in Sinai, fighting alongside the IDF Patton and Centurion tanks. The T-55s were by then upgunned with the 105-mm gun, but still retained most of the original features of the Russian model. During the fighting in Sinai, the IDF T-55s were badly mauled in combat during the October 14 battles, when the brigade stemmed an all-out Egyptian assault almost unassisted. After the war, the upgrading program was continued and included important

Soviet T-55, as modified by the Israelis, with 105-mm. gun

modifications based on the battlefield experience gained in Sinai.

Austere Modifications

The guidelines dictated by the Ministry of Defense were strict: the modifications were to be made with utmost economy. However, the ordnance experts agreed unanimously that the basic T-55 was a good tank with excellent automotive capabilities riding on one of the world's best suspension and track systems, its heavy armor but low weight adding survivability. The tank had an extremely low silhouette, and was fast even over rough terrain and sand. Its powerpack was fairly reliable and simple to maintain.

After evaluating the gun/turret structure, it was decided to leave the original Soviet D-10T gun systems and assembly intact and replace only the barrel and sleeve. However, due to the higher barrel pressure, muzzle velocity, and recoil forces of the L7A1, the gun assembly had to be adjusted. Because the original systems were kept, no modifications to the turret ring, trunnions, or turret layout became necessary and the tank was ready for firing tests just a few months after project launch.

The post-Yom Kippur War retrofit program included installation of metal stowage boxes on the sides and rear of the turret, which added protection against HEAT and shaped-charge hits. This also changed the silhouette, facilitating recognition in battle. An additional upgrading scheme fitted Blazer reactive add-on armor plates, enhancing protection.

Currently, the IDF Ordnance Corps main depot is upgrading the Soviet T-55 and T-62 tanks to Israeli standards. Designated Model S, the T-55S is re-engined with the American General Motors 8V-71T diesel powerpack developing 609 hp, a considerable improvement over the Russian 500-hp engine. The Soviet manual transmission was also replaced by a semiautomatic hydromechanical transmission fitted with a torque converter, which ensures optimal output power in all gears. This facilitates gear shifting, a very tiring and physically exhausting job on the original tank. The new combination made driving a lot easier, permitting acceleration to 27 mph in only 30 seconds, a marked improvement.

Further modifications in the powerpack involved the final drive. The original design was a two-part planetary device, one permanently installed in the hull, the other hinged to the engine. The new final drive is a custom-made single unit which can be removed with the engine and is, therefore, easily replaceable. Engine change is now down to a 30-minute job in the field. All engine accessories have been replaced. Among these are the air cleaners. The original device used a particle filter and oil bath for air cleaning. This proved totally unreliable under desert dust conditions, requiring major cleaning every 25 hours. The new system, located inside an armored box, is more effective in cleaning and air volume supply ($800m^3$/sec), and needs only compressed air for cleaning every 50 hours.

Reducing Vulnerability

The old fuel system, combining external and internal fuel and oil tanks, was scrapped as both ineffective and vulnerable in combat. It was replaced by four fuel tanks located in various places inside the hull, some of which are dual-purpose, combining diesel fuel and ammunition storage. Armament improvements include a new Cadillac Gage stabilizer replacing the electro-hydraulic system used by the Soviets. The old system gave fine vertical stabilization (hydraulic) but the electrical horizontal stabilization was poor. The new unit provides superior performance in both axes.

The hazards of combustible hydraulic fluid, demonstrated by exploding tanks during the latest wars, have been reduced. The stabilization system's more vulnerable parts, the accumulator and powerpack have been located in the hull in a relatively safe place, feeding the stabilizers through a special hydraulic line over the hydro-electric collector.

To enhance survivability, several systems are added. These include a standard IDF low-profile commander's cupola,replacing the original Soviet bolted, forward-opening hatchcover, which dangerously blocked the commander's forward view. The original smoke screen generator, operated on a system under which diesel fuel was injected into

Syrian T-62, knocked out in the Golan in 1973 war.

the exhaust, produced only local smoke screens vulnerable to wind direction. The new system is fired away, masking the tank immediately.

One of the main drawbacks of the original Soviet design was the total disregard of human engineering for crew members. The Soviets pick the smallest of their recruits to serve in tank units, but even these midgets did not feel too happy in the confines of their tank turret and driver's compartment. Bad ventilation in the cramped interior caused fatigue and exhaustion, reducing combat efficiency and endurance. In fact, Arab tank crews, overcome by deadly fumes and heat stress under severe climatic conditions, often abandoned their tanks, which were picked up perfectly intact.

Although the Israeli designers could not alter the overall configurations of the original model, human engineering considerations were given high priority in the retrofitting process wherever possible. Consequently, the S model is a few centimeters higher than the original T-55. Cross-country ride comfort is improved by raising the wheels and torsion bars, improving road wheel travel. The rear of the turret was enlarged with a rectangular box which houses the communication sets, clearing the fighting compartment of space-consuming items.

In spite of these improvements, the T-55 is still far less comfortable than Western tanks, especially the Merkava, which was designed with human engineering priorities in mind.

However, if the Israeli modification of the T-55 is a marked advance over Soviet tank design concepts, the T-62, which is an advance over the T-55, presents even more problems in human engineering. While the T-62 is a much later model, it is in several respects, a step backwards.

Several hundred T-62s served with Arab armies in the Yom Kippur war and gave the IDF a considerable shock with the first appearance of its highly effective smoothbore 115-mm gun. Captured tanks enabled the Israelis to take a closer look. Human engineering of the T-62 proved even worse than in the T-55. The fighting compartment was even more cramped due to the lower deck, and the egg-shaped turret, flatter by some centimeters than the T-55's, leaving less headroom for the crew. The T-64 or T-72 crew members are even worse off, as the even later turret is reduced and much space inside the fighting compartment taken up by the automatic loader, which makes movement inside almost impossible.

Driving Problems

Driving the T-62 is not much fun, either. The driver's position is on the left side of the hull. His seat can be lifted to permit driving with his head out of the hatch, or lowered, if driving buttoned up. If the hatch is open, the turret is blocked and cannot be traversed.

A compressed-air starter device is available, in addition to the normal electric starter. The T-62 has retained the manual transmission system with five forward gears and one reverse gear.

The first gear is used for emergency driving only. To start up, the driver selects second gear and sets the throttle to about 600 rpm. On the move, gear-shifting becomes a very tedious affair, as double-clutching is necessary and if not caught just when the idler is synchronized, it presents difficulties. Changing to the higher fourth gear, the driver has to shift the lever across the width of the gate, pushing it backwards very forcibly. Gear shifting sometimes even requires a sharp blow from a heavy hammer. No wonder that clutch and transmission breakdowns occur often, leaving an otherwise perfectly serviceable tank abandoned on the battlefield!

The two-stage planetary steering system uses two three-position tillers (laterals). Although this is a very simple method, it requires substantial force to operate under combat driving conditions; this, plus frequent gear shifting, soon leaves the driver's arms numb with exhaustion, especially with the lack of oxygen in the cramped and ill-ventilated compartment. With the steering tillers, maneuverability is limited. To turn the tank requires added acceleration, maintaining speed, which in turn produces telltale exhaust smoke, clearly visible at long range.

The fighting compartment is very cramped and restricts movement of the crew if a position change becomes necessary. The commander and gunner are seated in tandem on

the left side of the 115-mm gun. This arrangement actually seats three of the crew in line, and if the tank is penetrated by a kinetic-energy shot on the left side, all three are usually killed by one round. The loader is seated on the right side of the gun. Although he has most of the space in the turret, he has to load the gun to the left, which, unless he is left-handed, makes it a very trying occupation, soon reducing the firing sequence.

Although the U-STS(2A20) 115-mm smoothbore gun, at first, seems a very efficient tank gun, its combat effectiveness leaves much to be desired. The firing sequence presents most of the drawbacks. The gun's exhaust fumes are overwhelming and the fighting compartment soon fills with carbon monoxide, despite the bore evacuator designed to remove fumes. Poor ventilation causes combat fatigue, and crews have been known to abandon their mounts totally exhausted, choking from the poisonous fumes.

An automatic ejection device is provided, under which the spent shell is propelled outside the turret through a porthole in the rear. But this arrangement frequently gets knocked out of line by jouncing over rough country or by non-penetrating hits. The result is deadly. The empty brass containers (poorly aimed by the damaged system) rebound off the turret wall and ricochet at high speed around the cramped fighting compartment, where the loader is the most vulnerable.

Another defect is the loading sequence. This requires vigorous force to shove the heavy 25-kilogram round into the rapidly closing horizontal breech. As the gun is elevated during the loading process, all power is cut off to prevent accidental firing of the gun until the loader has chambered the round and depressed the safety button to fire.

"...Although the T-72 is an advanced design incorporating many technical improvements, especially in the later models, it still retains some of the old Soviet tank maladies. Driving the T-72 seems as tiring as driving earlier Soviet tanks..."

This arrangement reduces the rate of fire considerably below Western standards. In spite of these drawbacks, the 115-mm gun is very effective in killing tanks at ranges below 1,500 meters, where most tank engagements occur.

The Soviet T-55 and T-62 still make up major parts of Middle Eastern arsenals. In spite of their deficiencies, their excellent silhouette design and turret shape make them difficult to pinpoint and hit, and they frequently deflect rounds coming in at wide angles.

The Soviets keep many thousands of these tanks in storage and could use them in combat as second-echelon reserves, a threat which should not be discounted.

Other Tanks

There are three other main battle tank models in the Soviet arsenal, of which one, the T-72, is in wide service with several Arab armies. The other two, the T-64 variants and the new T-80, are at present in service only with the Soviet armored corps.

The T-72 has been in production since the early 1970s, a parallel development of the T-64A which was already introduced into active service with the Soviet Army in 1967. The T-72 has a combat weight of 41 tons and is crewed by three men, in contrast to four crew members in most Eastern and Western tanks. Its silhouette is even lower than the T-62 and with the automatic loader, which takes up about half of the fighting compartment, makes life in the T-72 turret even more cramped than in previous designs.

Although the T-72 is an advanced design incorporating many technical improvements, especially in the later models, it still retains some of the old Soviet tank maladies. Driving the T-72 seems as tiring as driving the earlier Soviet tanks, and although the steering mechanism is hydraulically assisted, it still retains the old clutch and braking system, with the two steering levers as before. This seems somewhat odd, as Western tanks have long since adopted the automatic transmission system, which permits driving a tank almost like driving a sports car.

The automatic loader is extremely controversial. The T-72, like the ear-

lier T-64, has two different loading systems, both of which are cranky. The Soviets were the first to adopt this type of gun loading in turreted tanks. The West has, so far, shunned this technique, although several attempts have been made to replace the human loader with an automatic feeder, based on the Soviet experience.

Both the T-64 and T-72 mount a 125-mm smoothbore gun, firing semi-fixed ammunition. In the T-64, the projectile and shell casing are fed together onto the loading tray and are rammed into the breech. In the T-72, the projectile is rammed home, followed by the shell casing. In both tanks, the ammunition carousel is placed below the crew on the floor of the hull.

However, in the T-64, the separate projectile and shell casings are stored vertically, whereas in the T-72 they are horizontal, facing the center.

This kind of storage, of course, affords more protection to the ammunition bunker, but also makes the reloading of the magazine in the field an almost impossible task. The same would be true of any manual override of the automatic loader by either gunner or commander.

The gunner sits to the left of the gun and is separated from the breech by the rammer. This would require the commander to load manually in an emergency, but he is already busy commanding the tank, operating the antiaircraft machine gun and, in one case of three, he is also a unit leader. If that were not all, loading would have to be made left-handed, as the breech opens to the right. Soviet sources mention a rate of fire of eight rounds per minute. Even if the loader functions perfectly, which it often does not, this rate of fire seems highly optimistic. Unconfirmed reports from the Iran-Iraq war indicated that thanks to malfunctions, Iraqi T-72 crews have dismantled the automatic loader completely and reintroduced a manual loader. In the engagements in the Lebanese Bekaa Valley in 1982, the T-72 did not perform impressively and its rate of fire was inferior to that of the IDF Merkava tanks.

As for optics, the Russian tanks, excepting the T-80 (information on which is still extremely scarce), still use the infrared image intensifier, instead of the more effective passive thermal image system, which has much longer ranges.

Armor

As for armor protection, it was believed that the Soviets used special armor plating on the T-72/64, but recent photos released in the West show that add-on reactive armor plates have been mounted, both on the hull front and on the turret. It seems the Russians have taken a leaf out of Israeli book in Lebanon, where this type of armor protection proved extremely effective against RPG and HEAT rounds. So far, as can be deduced from the shape of the Soviet tanks, there is no sign of the Chobham-type armor used in the latest Western designs, such as the German Leopard 2 or the U.S. M1 Abrams. The T-72s knocked out in the Bekaa Valley were killed by TOW missiles which penetrated the frontal armor without visible difficulty, which indicates they could not have had specialized armor plating. Reports from the Gulf front also indicate that Iraqui T-72s have been destroyed, probably with shaped-charge hits, from antitank weapons launched from ground or helicopter platforms, as the Iranians rarely send their remaining tanks into combat.

The latest Soviet tank, the T-80, is still little known in the West, but from what has been seen, improvements are in superior optics, armor protection, and probably in mobility, rather than a radical change in design. It seems that the Soviets will wait for a full-generation change to enter service in the late 1990s or early in the next century, with a fundamentally new model, which may or may not be revolutionary in design.

In short, Israeli experience in tank combat reveals shortcomings in Soviet tank designs. However, Soviet tanks are, in principle, excellent fighting machines, combat-proven and viable under field conditions. If manned by determined and highly-trained crews, they can be a most dangerous and deadly opponent.

Lieutenant Colonel David Eshel, IDF (Retired), is senior defense advisor to Eshel Dramit Ltd. publications. He served many years as a career officer with the Israeli Defense Forces with which he saw much combat duty including action with signal and tank units.

The "Brave Rifles" at the NTC

For the first time, a full-up ACR hits the desert training center, discovering strengths and weaknesses in cavalry organization, doctrine, and training.

by Major Steve Speakes

Introduction

The recently completed NTC rotation of the 3d ACR provides an interesting update on the viability of regimental cavalry in a simulated mid- to high-intensity battle environment. This experience provides a valuable perspective on cavalry organization, doctrine, and training.

The Regiment deployed to the NTC organized as follows:

SABER SQUADRON
2/3 ACR
2/D/5-62 ADA (Vulcan)
43d Engr Co
1st GSR Section
FAC Team 2
FST/Maint Trp

THUNDER SQUADRON
3/3 ACR
1/D/5-62 ADA (Vulcan)
C Co/1st Engr/1 ID
3d GSR Section
FAC Team 3

JEDI SQUADRON
4/3 ACR
E Trp/278 ACR
F Trp/278 ACR
AVIM Det/4 ID

MULESKINNER SQN
SPT SQDN/3 ACR
S&T Troop
Maint Troop (-)
Med Troop
AG Troop
181st Ord Det (-)
89th Chem Co

REGT. CONTROL
2-34 FA (DS)
2-18 FA (R to 2-34 FA)
D/5-62 ADA (C/V)(-)
Stinger Plt (-)/3 ACR
Fire Unit/2-1 ADA
66 MI Co (-)
Det 7/602d TACARIW
Signal Plt/4 ID

(The aggregate strength of the unit as deployed was just over 4,000 troopers.)

In terms of equipment, the regiment is organized in an interim J-series configuration with *M1A1* tanks and *M113* scout vehicles. The aviation squadron was organized on a provisional basis from the currently authorized air cavalry troop and the regimental headquarters aviation section. This provisional structure was significantly enhanced with two attack helicopter troops from the 278 ACR of the Tennessee National Guard. (This augmentation resulted in the configuration authorized by J series).

In accordance with its mission-essential task list (METL), the regiment requested training in the following missions while at the NTC:

- Night Road March
- Relief in Place
- Defend in Sector
- Forward Passage of Lines
- Counterattack
- Defend a Battle Position
- Movement to Contact/Hasty Attack
- Zone Reconnaissance

During a 14-day rotation, the regiment trained to all of these missions.

Observations:

The first comment addresses the viability of the cavalry organization. This first fully-instrumented evaluation of regimental cavalry on a simulated modern battlefield represented an important opportunity. Could the 3d ACR master the challenges posed by its METL? In overall terms the answer was a firm "yes." The fixed task organization and structure of a cavalry regiment, with its organic slice of combat, combat support, and service support assets, proved to be flexible and sustainable. The comments that follow address both observed strengths and weaknesses. They point out both the capability of regimental cavalry and some potentially necessary modifications to its organization, doctrine, and training.

The first major comment should address the impact of the provisional fourth (aviation) squadron and the relatively new support squadron. Despite the incomplete status of its force modernization, the fourth squadron proved invaluable. First and foremost, it

"...The fluidity with which the OPFOR changed its operational concepts is a testament to their legendary training level."

functioned as the regimental commander's eyes and ears, screening forward and to the flanks of the regiment. It provided invaluable information which enabled key adjustments prior to actual contact with the enemy. Critical decisions regarding FASCAM employment, prioritization of fires, and employment of the regimental reserve could all be made, for the most part, after the enemy had shown his hand, but before the OPFOR could seize control of the battle. Accordingly, the commander retained the initiative, working within the enemy's decision cycle to employ limited combat multipliers at the critical place and time to shape the battlefield.

The additional attack helicopter troops provided in the new squadron organization also proved their worth. Using the two troops from the 278 ACR as the regimental reserve, the 3ACR was able to reinforce the key area on the battlefield with mobile, effective firepower. Although the limited ability of NTC instrumentation makes a complete assessment of the effectiveness of the two troops impossible, their presence at the critical time subjectively changed the flow of the battle in the 3ACR's favor several times.

The support squadron also proved its worth. Through its efforts, the regiment's 4,000 men and its equipment were fed, fueled and supplied. The still growing material management center (MMC) proved capable of managing the regiment's requirements. The regimental staff felt the impact of this organization. The work of the support squadron enabled the regimental S1 and S4 to locate in the TOC and serve as logistic planners rather than managers. They had not felt the full impact of this shift in job responsibilities until this field exercise. Consequently, the flow of events and information from the line squadrons, and from the support squadron to the regimental staff required redefinition to manage the service support system.

From an organizational standpoint, I must address one piece of equipment. This exercise marked the debut of the *M1A1* at the NTC. It proved to be a devastating weapon system ideally suited for cavalry operations. Its speed and flexibility enabled commanders on several occasions to operate within the OPFOR's decision cycle. Even when a mistake was made in their initial employment, leaders could frequently recover and reposition the tanks before it was too late.

The other factor that had a significant impact on all tactical outcomes was the lethality and range of the 120-mm gun. Its simulated effect through the MILES system proved to be a dominant factor on the battlefield. The effectiveness of the 120-mm gun was also obvious during the live-fire portion of the exercise. Rounds-per-kill were lower and percentage of hits was appreciably higher than expected. On several occasions the enemy simply could not close within the stand-off envelope of the *M1A1* to destroy 3ACR formations. Consequently, he quickly shifted his tactics to try and deny the *M1A1* that stand-off capability. The fluidity with which the OPFOR changed its operational concepts is a testament to their legendary training level.

We cannot lightly dismiss the impact of this discovery concerning the *M1A1's* reach. The three-km killing umbrella of the *M1A1* proved essential to scout survivability. All too often, when the regiment mistakenly decoupled tanks and scouts, the scouts died swiftly. As the armor/cavalry community continues to debate the role of tanks in divisional cavalry, it should not forget this discovery. 3ACR scouts performing recon and security functions had limited survivability unless they operated with their associated tanks. The difficulty of maintaining this formation on the battlefield argues against the flippant response that tanks can be task organized into a cavalry structure when needed. Despite great effort, it was a continuous challenge to maintain effective tank/scout coordination.

Doctrine

The first important question was how the regiment dealt with the "recon/counter-recon" challenge. As the regimental task organization listing shows, the regiment deployed

without any infantry augmentation. All the regiment had to cope with the dismounted threat were 5-man scout squads and 4-man tank crews. The regiment decided to cope with the counter-recon battle with this philosophy. At change of mission, the regiment posted an aerial screen across the 3ACR sector to deny the enemy early access to the 3ACR battle area. Simultaneously, the line squadrons focused on establishing their defense in the main battle area (MBA) along the FEBA. Major elements from the front line and the reserve were not siphoned off to fight the counter-recon fight. Instead, the focus remained on the principal assigned mission. At night, a ground screen composed of one or more scout platoons relieved the aerial screen. When enemy recon elements penetrated the 3ACR sector (and they did), they faced additional challenges. First, the regiment positioned in depth to deny the enemy quick access to MBA units. Confronted with distances of up to five kilometers between defensive belts, the enemy's ability to focus his recon was stressed.

Next, the regiment planned artillery on suspected or known recon OP positions and avenues of approach. Artillery proved moderately successful in blinding the enemy's eyes and blunting major dismounted penetrations. Thus, while not an overwhelming success, the regiment's limited counter-recon battle parried the enemy's main recon efforts and preserved key resources for the principal mission – defense of an assigned sector.

As we shift our focus to other doctrinal issues, an interesting problem developed when the regiment undertook successive missions of movement to contact and zone recon. FM 17-95 provides slim guidance regarding combat organization for each of these missions. An early regimental defeat was at least partially attributed to failure to tailor combat formation to unique requirements of respective missions. A squadron initiated a movement to contact with three troops abreast and the tank company following in the center of the sector. A small spoiling attack by the enemy on a flank focused the squadron's limited reserve (the tank company) on that flank, while a major breakthrough occurred on the opposite flank.

After that lesson, the regiment adopted different formations for movement to contact: a troop forward, followed by two troops abreast, and then the tank company. This discussion serves to indicate that FM 17-95 must imitate the rather detailed guidance provided for cavalry troops in FM 17-97 regarding possible movement formations. The guidance currently in FM 17-95 for movement to contact is scant; i.e. "the formation used will depend on METT-T but the major considerations are the chance of enemy contact and enemy strength and disposition."

Another major doctrinal issue we continually confronted was artillery organization for combat. The intricacies of the non-TACFIRE regiment interface with a TACFIRE direct-support battalion were addressed in the final weeks before deployment. We assessed and reassessed the relationship between the troop mortars, the organic howitzer battery, and the DS artillery battalion. Based upon the regiment's NTC experience, the following lessons emerged: The organic howitzer battery should be OPCON to the DS battalion whenever regimental centralization is desired (i.e., for defensive operations). However, the batteries should revert to their respective squadrons during decentralized missions, such as offensive operations or recon. The overriding factor, as always, must be METT-T.

"Thunder up, lightning down" was unworkable as a way of directing artillery and mortar fires. Apportioning fire missions in accordance with random calls for fire from scattered scouts and FISTs proved singularly ineffective. Instead, the troop FIST proved most effective when he was employed as a fire planner and to control the ground troop's mortars. In that role, the FIST's location proved absolutely critical. He must have immediate access to the commander and he also must be fully able to see the battlefield. Squadron

"...Clearly, the NTC is the Army's most precious training asset."

fire support assets – the howitzer batteries – were only effective when massed in accordance with the squadron commander's intent.

The internal structure of the regiment is the final doctrinal issue I will address here. The first concern is air-defense. In conjunction with the 11th ADA Brigade, the regiment enjoyed a significantly enhanced air-defense protection concept. A battery composed of two *Vulcan* platoons and a *Chaparral* platoon augmented the organic *Stingers*. Wherever possible, *Stingers* were under armor in either FIST or *Vulcan* tracks. The *Chaparral* platoon operated far forward in mobile mode – frequently right behind the tank company. A *Hawk* fire unit with 2 FAARS augmented this. In combination, all of these assets made a formidable packet. Each system synergistically enhanced the regiment's ADA umbrella. Armoring the *Stingers* is essential to their survivability. However, the interim fix of placing them with the *Vulcans* proved unsatisfactory – the Army needs a better answer. The *Chaparral* platoon proved devastating when employed forward to counter the Hind threat. The *Hawk* system reinforced everything with its long-range identification and delivery capability. This evolving ADA system employment holds great promise to enhance the survivability of an ACR in a mid- to high-threat environment.

From the perspective of mobility/countermobility, the regiment relearned some old lessons. First, mobility operations are combined arms in nature and not simply engineer operations. The regiment's ability to synchronize all assets to support mobility operations is both a training and doctrinal issue. The critical doctrinal issue is the inadequacy of engineer assets currently allocated to the regiment. Given the extreme frontages associated with cavalry missions, the one organic engineer company is grossly inadequate. For this rotation, an additional combat engineer companysupported the regiment. Its contribution to the 3ACR proved two points. First, that an engineer company per squadron is essential. Second, that a habitual association with supporting engineer assets must be maintained. The critical integration of engineer operations with maneuver is not a last-minute coordination to be effected just prior to employment.

Training

This NTC rotation revealed that the 3ACR had a major deficiency in scouting. Far and away our most effective scouts were the aviators. Obviously, they enjoy significant advantages when compared to their ground counterparts. However, the entire dissimilarity in their effectiveness cannot be solely attributed to this difference. Our scouts seemed to be deficient in critical skills such as land navigation, terrain association, and enemy identification. Next, our scouts got killed because their movement techniques got them in trouble. Too many died in kill zones, which indicated a lack of appreciation for the enemy's probable location and capability. Finally, they showed limited capability in effectively employing their principal killing systems – the *TOW* and *Dragon*. The *TOW* system was seldom used, and *Dragons* were not volley-fired to optimize their effectiveness.

The second major training lesson was the inefficiency of our fire-support systems. Obviously, major systems train-ups were required to familiarize the regiment with its DS artillery battalion, a unit never previously associated with the regiment. We soon overcame these obstacles. What remained a problem was an inability to integrate artillery with maneuver, a problem that seemed to stem from failure to integrate the fire-support system with maneuver element training. A training program based only upon battery ARTEPs is totally unsatisfactory. Battery ARTEPs are "standalone" exercises, which stress a technical capability not necessarily integrated with a tactical unit and scheme of maneuver. They have great value as a first step because they develop and measure the ability to put steel on target.

The next step must be combined artillery-maneuver operations. The final goal is obvious – accurate target effect, in accordance with a commander's intent, in spite of the complications inherent in combined arms operations. As the regiment works to overcome the deficiency, a major focus will be on the troop FISTs and squadron fire-support of-

ficers. If they remain unable to integrate artillery and mortar concepts of operations to support the maneuver commander, the problem will remain unsolved.

Proper use of another combat multiplier, the MI company, had a major impact on the outcome of several battles. Intelligence preparation of the battlefield (IPB) was critical to the 3ACR. This involved more than the habitual concerns of NTC training units. Obviously, decision-support matrices worked for the ACR, just as they would for any mechanized force. What was singularly important to the regiment was the integration of its organic MI company into all phases of operations. The regimental TOC support platoon continually provided the regiment and squadrons with timely, high-caliber work. The OPSEC platoon provided some well-timed deception efforts. The EW intercept platoons were critical to early identification of enemy moves.

What made these skills particularly valuable was a concentrated training program stressing the early inclusion of the regimental S2 and MI company commander in operational planning, and the regimental CO's insistence that the MI company commander and/or the S2 interrupt command radio nets to provide timely summaries and analyses. Perishable intelligence was seldom lost or disregarded because of a bureaucratic process. This training effort measurably enhanced the regiment's combat power at critical moments.

Conclusion

Both the regiment and the Army have much to learn from this NTC experience. The value of fixed task organization certainly is applicable to mechanized and armor units. The lethality and flexibility of the *M1A1* also bodes well for the entire mechanized community as we seek to subvert the Threat's swift pace of attack. The lesson learned by 3d ACR scouts who "de-coupled" from their tanks suggests that the J-series divisional cavalry organization is fatally flawed. The 3d ACR experience with the dismounted and recon threat suggests that counter-recon can be at least partially handled with some artillery and attention to the basics of local defense.

The extraordinary value of an aviation squadron firmly linked to the regimental commander as his eyes and ears was readily apparent. The potential for an exponential improvement in this capability, with modernized aircraft such as the OH-58D, is obvious. As a related point, the swift deployment and integration of the two attack helicopter troops of the 278th ACR is a strong positive statement concerning the combat readiness of a key National Guard ACR.

Conversely, the regiment's inability to kill with the *TOW* and *Dragon* is a disturbing point to consider when planning missions such as NATO defense. This is obviously but one aspect of the previously expressed concern regarding scout training. The extraordinary value of the NTC training experience as a foundry for leadership, doctrine, and organization mandates its continued budgetary support despite the fiscally constrained future.

It is simply inconceivable that the Army may be unable to fully resource its most rigorous peacetime training challenge. A newcomer departs the NTC with an overriding respect for the entire NTC establishment – from the tireless and omni-present operational controllers to the tenacious and deadly OPFOR. Those who do come into contact with the operations group are similarly impressed with those dedicated few who plan and administer such a comprehensive operation. Clearly, the NTC is the Army's most precious training asset.

Major Steve Speakes was commissioned in Armor from USMA in 1974 and his initial assignment was in the 3d ACR. Following AOAC, he was assigned to the 3d ID, where he served as a tank battalion S3 and as a mech brigade S3. After a tour at the Pentagon on the Joiunt and Army staffs, he completed C&GSC. He is currently assigned as the 3d ACR's regimental S3.

This decoy M1 is one of the prototypes issued to U.S. units in Germany.

Battlefield Deception

by Captain Randall M. Scheffler

An armor brigade is undergoing an ARTEP evaluation. The exercise consists of two battalions conducting an attack against the other battalions. A part of one battalion's defensive configuration is a two-tank section in a stream bed about 1,200 meters from the point at which opposing forces can first take it under observation and direct fire. This position covers the expected key route of the opposing force.

When the opposing force discovers the tank section, it realizes that the section owns the key piece of terrain along this axis. The OPFOR stops and deploys a platoon to destroy the tank section. While the opposing force is stopped, the defending battalion deploys against it and destroys it.

The OPFOR is conducting an attack. As part of its recon, it discovers the defensive positions of the visiting battalion. At dawn, the OPFOR attacks the hull-down tanks. As the OPFOR attacks, flank fires from well-camouflaged M1 tanks and antiarmor missiles destroy it.

Both of these stories are good examples of what we all want to do in training exercises at home and at the NTC. Both are examples of leaders conducting good terrain analysis, and exploiting the correct advantages. However, the real similarity of both of these true stories is that the opposing force deployed its forces against decoy targets!

Although history has many examples of the military use of deception, the U.S. Army lacks both the doctrine and equipment to practice it.

This article will briefly discuss the historical aspects of military deception, highlight the Army's experience with deception, and suggest some ways in which maneuver battalions and companies can use deception and deceptive devices to enhance tactical success.

History

Deception has played an important part in military tactics since man first fought. In the days of the Roman Empire, when armies were essentially equal in size and weaponry, the operational art of an army's commander usually made the difference in success or failure. The successful use of deception was often decisive, and was considered a sign of a competent leader.

With the advent of knighthood, war took on a different flavor. Most military leaders considered deception to be an unfair tactic, a form of "cheating." During the American Revolution, the American Army used deception skillfully to deal with a superior foe. General

Washington took elaborate pains to mislead the British before his brilliant surprise thrusts at Trenton and Princeton in 1777. But not until 167 years later did the U.S. Army organize a unit specifically trained and equipped for deception.

In WW II, large-scale deception came into its own. This was a war of lightning drives, elaborate intelligence agencies, and highly mobile reserves. It became more important and more difficult to strike the enemy where he was weakest. A natural result was an increasing interest in the more esoteric military arts of camouflage, counter-C3, and deception. The British engaged in large-scale deception with great enthusiasm, as did the Russians. The Battle of El Alamein, in October 1942, owed much of its success to a deceptive cover plan.

American military observers in the North African Theater heard of this deception and carried out some experiments along the same lines. In the first of these, conducted by the U.S. II Corps in Tunisia, a deception operation enabled the 1st Armored Division to hit the Germans 50 miles south of Medjiz el Bab when the enemy G2 thought he had the division spotted 15 miles to the west.

Although this operation, as well as many others, was relatively successful, an ad-hoc group of officers with pick-up detachments handled all American deceptive efforts. Some military leaders felt that deception could be strengthened and its employment widened by the formation of a dedicated, self-contained battlefield deception unit.

The War Department activated the 23d Headquarters Special Troops in January 1944, and by June, its first detachments were in action. In its one year of existence, the unit served with four U.S. armies in England, France, Luxembourg, Belgium, Holland, and Germany. A brigade-sized unit, the 23d had the organic assets to plan and execute 21 deception operations, each lasting an average of five and a half days, with the longest lasting 11 days. Each operation required an average of 577 personnel, with the largest using the entire unit of 1,106 personnel.

"...In WW II, large-scale deception came into its own. This was a war of lightning drives, elaborate intelligence agencies, and highly mobile reserves. It became more important and more difficult to strike the enemy where he was weakest...."

Not all of the deception operations planned and executed by the American Army during WW II were planned by this one deception unit. One of the most famous was "Operation Fortitude," a strategic-level operation involving entire armies. This deception, in the months prior to the Normandy invasion, reinforced German suspicions that the landing would occur at Calais, rather than on the Cotentin Peninsula. The Germans believed the ruse, allowing the Allies to land the largest invasion force in history at Normandy.

Technological advances, particularly in intelligence-gathering capabilities, became highly developed during WW II. Although these advances continued in the postwar era, many military leaders considered the use of deception to be of only historical interest. Most military minds thought that surprise would be impossible during future battles. This seemed to be the general consensus during the Korean War, the Vietnam War, and until quite recently in the modern Army. Although the Army conducted deception operations, they were primarily at the small unit level.

Army leadership has recently revitalized interest in deception as a means of influencing combat operations at both the operational and tactical levels.

Goals of Deception

On the modern battlefield, deception must clearly support the commander's mission by adding a degree of combat effectiveness and survivability, thus ultimately gaining the tactical advantage. Deception, while supporting all of the principles of war, adds a degree of combat effectiveness to our operations and survivability to our forces and facilities. In the context of effectiveness, deception can be employed to:

- Gain surprise by creating the fog of battle, and by capitalizing on it, strike the enemy at a time, place, or in a manner for which he is unprepared.

- Assist in achieving the objective, by giving the commander additional alternatives, flexibility, and freedom of action to carry out his mission.

- Allow the commander to economize his forces, or to mass unnoticed or unrecognized at the decisive times and locations on the battlefield.

• Add a degree of security to our combat operations by causing the enemy to orient his intelligence, fire and maneuver, and support activities away from our true operations. Deception and operational security are mutually supporting battlefield activities.

In revitalizing the Army's battlefield deception, the planners had to ensure that leaders using this new capability would be able to not only plan and execute deception during wartime, but also during peace and war transition periods. This implied that Army planners at all levels would consider using deception without constraint. Deception must be targeted against the appropriate enemy decision-maker and be usable within any technological, political, military, psychological, climatic, or geographical environment. Furthermore, deception must be applicable to high-intensity conflicts as well as country-unique, politically-sensitive, low-intensity conflicts.

Levels of Deception

Battlefield deception objectives clearly change, depending on the echelon of command. At the division, the commander is concerned with the close battle. At the least, deception supports the division commander's mission by increasing survivability of his forces and by gaining localized tactical advantage. At best, deception supports the attainment and maintenance of operational initiative, favorable loss exchange ratios, and achievement of surprise.

At the maneuver battalion and company level, deception can take one of two forms; a unit mission in support of the division's deception operation, or independent operations, which add to the survivability of the unit. These independent operations include actions to achieve local tactical advantage.

In the first case, the maneuver battalion receives a tactical mission. In most cases, the maneuver unit that receives the mission in support of the deception operation will do so on an unwitting basis. In WW II, the 23d Headquarters was able to conduct deceptions on an autonomous basis. This is no longer the case with the 19-man deception elements fielded at division level. The commander will have to decide if the risk of allocating some assets to support a deception operation is worth the potential payoff. Later, I will discuss the use of emerging technology to minimize the required assets.

In the latter case, when maneuver units conduct independent deception operations, the primary target is still the enemy decision-maker, but additional emphasis needs to placed on influencing the enemy executor, the soldier who is actually in contact. This individual can be an enemy tank TC, a tank or BMP gunner, or the recon element scout.

In considering whether or not to conduct a deception operation, it must be remembered that deception planning must support the accomplishment of the commander's mission, and must be closely integrated with the operations of all the force's elements.

Deception is central to the offense. Supporting attacks are made in part to mislead the enemy about the attacking force's plans, thus giving the main attack a better chance of success. In the offense, deception increases the enemy's uncertainty about target acquisition and how the situation is developing.

Decoys can be very important during daylight, when the enemy has the opportunity for visual observation. At night, there is some protection from visual observation, but night observation devices can be used to detect activities. The multispectral close-combat decoy (MCCD), which is now in limited quantities in U.S. Army units in Germany, not only offers a technically correct visual image in daylight, but also has a realistic thermal signature. MCCDs will eventually be carried on every combat vehicle, as part of the vehicle's BII.

The deception story (the information provided to the enemy to accomplish the deception) should reach the deception target in a manner that convinces him that it is true. If the enemy puts pieces of information together himself, like pieces of a puzzle, he is far more likely to believe that the deception story is true. If we cannot hide all our preparations for offensive operations, we can use deception to cause the enemy to misinterpret them.

If decoys and other deceptive displays are to be successful, the security of the deception area is of the utmost importance. To accomplish this, it may be necessary to establish a security force to prevent friendly and hostile personnel from penetrating the display. The distance of the security perimeter from the display will determine the fidelity required on the outer edges. It is a good idea to site real equipment on the perimeter of the display.

Deception is central to defensive operations. In land warfare, all forces on the defensive seek to deceive the enemy about the location of the forward line of own troops (FLOT), as well as its actual location. Deceptions are also conducted to conceal the location of those forces not on the FLOT, and to hide intentions.

Setting Out Decoys...

Decoy tanks, such as the M1 above, include provision for thermal signatures and may later simulate main gun firing. The entire tank decoy is contained in the pack below, seen with its portable generator.

Current decoy development includes plans for most Army equipment, including realistic helicopters, generator trailers, and trucks, like the one at left.

Deceptions can cause the enemy to waste artillery ammunition and to misuse reconnaissance assets. One of the covering force's objectives is usually to deceive the enemy on the location of the main defensive sector. The covering force seeks to misdirect the enemy's attack, to cause him to deploy his forces prematurely and to delay the execution of his plans. Small elements may use dummy positions, decoys, and notional activities to cause the enemy to waste time by deploying and attacking a position, prepare him for unnecessary offensive action, and render his force vulnerable to counterattack. As in offensive operations, it is essential that the operation avoid the use of patterns. Defensive patterns that we traditionally execute are: troops arrive in an area, dig in, clear fields of fire, and then camouflage their positions. Patterns such as these must be concealed in the true defensive position, and exposed in the false position.

Vehicle tracks are of particular concern. From reconnaissance activities to the arrival of troops, consideration should be given to the tracks created by personnel and vehicles. Where tracks are unavoidable, they should continue past the true destination to a logical but unused termination area.

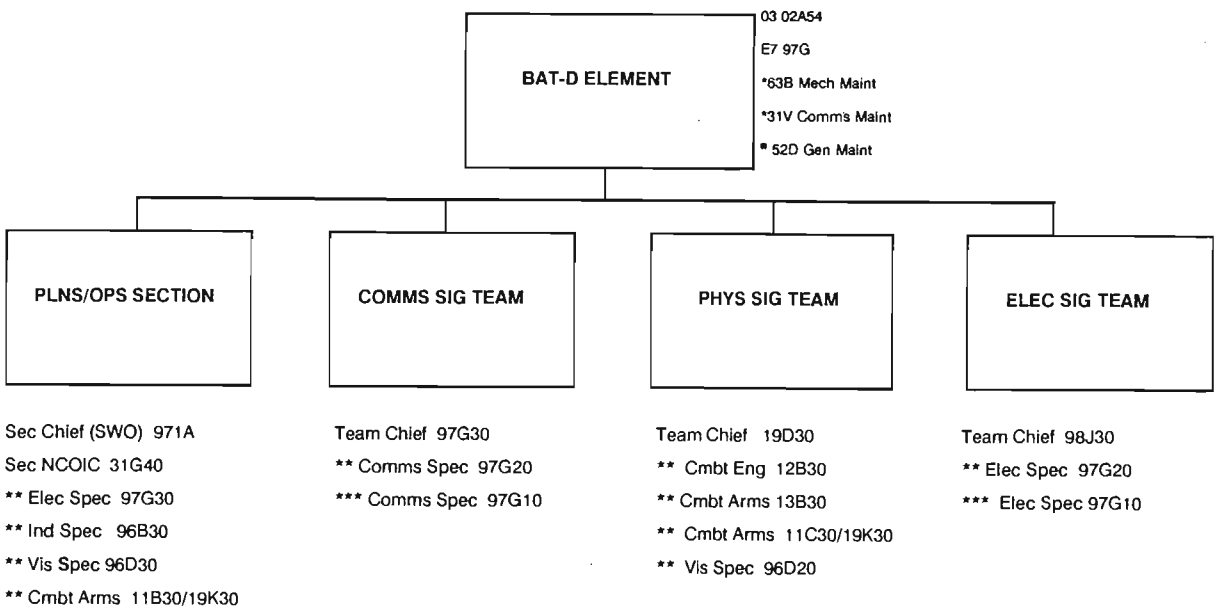

Figure 1

Division Battlefield Deception Element

* Assigned Maintenance Personnel
** Official Job Title is BAT-DE NCO
*** Official Job Title is BAT-DE Spec

Transitional operations pose a significant challenge for the maneuver unit. These operations should not be without the use of deception.

During retrograde operations, deception is necessary to reduce the inherent vulnerability of the unit moving to the rear. When a unit withdraws, deception can help maintain secrecy of movement and aid in achieving surprise in unit disposition.

Some deception measures include:

- Requiring radio silence for displacing units and maintaining a normal radio pattern along the old FLOT.

- Conducting limited objective attacks in areas away from the retrograde unit to divert the enemy's attention.

When one unit replaces another, security and deception play key roles in the success of the maneuver. The most common relief operations are the relief in place and passage of lines. During a relief in place, the deception story could portray the outgoing unit as remaining in place.

To do this, the incoming unit will have to assume the normal patterns and signatures of the outgoing unit to provide continuity. Employ decoys and dummies for any equipment that is moved to the rear and not replaced in kind.

Deception events in a passage of lines are very similar to the relief in place. As a minimum, they stress secrecy and surprise.

In developing a deception plan, active and passive measures can present a significant element of the deception story.

Examples of some active measures are:

- Relocation of troop units, real or simulated, to indicate strength, weakness, or – with specific types of units such as CSS – a specific type of operation.

- Increased or decreased movement.

- Increased air activity.

- A supply buildup, real or simulated, including combat trains,

"...Certain measures which are essentially passive, such as restrictions on road movement and radio traffic, may actually be active deceptions because they are executed with the intention that the enemy will detect the decrease in activity...."

bridge parks, fortification materials, POL supplies, and transport.

- Increased road and bridge maintenance.
- Simulation of damage to roads and bridges.
- Simulation of the light patterns of bivouacs, convoys and assembly areas.

- Simulation of vehicle movement, artillery fire, and other battlefield noises.

- Planned, deliberate security violations to afford the enemy sufficient opportunity to identify the display.

- Marking vehicles, equipment, and personnel to be identical to those of the simulated unit.

- Displaying evidence of the peculiarities of the unit simulated.

Certain measures that are essentially passive, such as restrictions on road movement and radio traffic, may actually be active deceptions because they are executed with the intention that the enemy will detect the decrease in activity.

An intensification of security may characterize passive measures. The tactical force supported by the deception plan primarily implements them. Typical passive measures are blackout; movement at night; movement by small units or segments using indirect routes; restriction of personnel to specific areas; removal of identifying markings on vehicles, equipment, and personnel; control of supply and personnel replacement in a manner to preclude evidence of an impending attack; control of reconnaissance and such other activities that normally provide evidence of an impending attack; and camouflage of equipment and installations.

To assist divisional units in planning and executing deception, the division has a 19-man battlefield deception element under a combat arms captain. A mix of military intelligence and combat arms MOSs comprises the unit. (Figure 1).

This element works under the staff supervision of the G3 and not only plans deception operations for the division, but also assists brigade and battalion staffs in their own deception operations. Assistance can range from training the staff in the techniques of deception planning to assisting companies and platoons to learn the best ways to employ their decoys and other deceptive devices.

Additionally, the three signature sections of the deception element will have unique equipment to support deception operations, although the materiel is still under development. The equipment will be able to replicate the communications, electronic, and physical signatures of TOCs, logistical sites, and other critical nodes with an authentic and plausible signatures. As in any operation, the commander will have to weigh the cost of the operation with the potential payoff. Deception operations often have disproportionately high payoffs.

Any article, book, or manual that purports to be a complete "how-to" of deception misses the point of deception. The most believeable deception is one in which the target sees things that he knows are consistent with our doctrine and capabilities. For this reason, much of the doctrine that outlines how to establish deceptive positions and intents already exists in our manuals.

CAPTAIN RANDALL M. SCHEFFLER was commissioned in the Military Police Corps from Marquette University in 1979 with a BA in Law Enforcement. Following assignments as a military police officer in Colorado and Korea, he requested a branch transfer to Armor in 1981. He has since served in CONUS in numerous positions, culminating in command of both Company A, 4-64 Armor, and HHC, 5-32 Armor, 24th Infantry Division, Fort Stewart, Georgia. While at Fort Stewart, he participated in six NTC rotations, including two as a tank company commander, and one as an HHC commander. He is a graduate of MPOBC, JOMC, the Ordnance Officer Advanced Course, and AOAC, and is currently assigned to the Army's Battlefield Deception Office at Fort Huachuca, AZ. He is designated to become the first OIC of the 3d Armored Division's Battlefield Deception Element, and departs for Germany in June 1988.

Use Of The Pressure Setting In the M1/M1A1 Fire Control Computer

by Mr. David H. Tofsted and SFC Wakeland Kuamoo

Introduction

Several atmospheric conditions influence the flight of tank rounds, among them air pressure.

Pressure can present a large problem in tank gunnery because pressure slowly decreases with altitude above sea level. Decreasing pressure also means decreasing air density; and for the high-explosive antitank (HEAT) round, this influence can be large at ranges of 1,500 meters and beyond. Crucial to the problem is the use of inaccurate barometric pressure settings (BPS).

Recently, the U.S. Army Atmospheric Sciences Laboratory reviewed the method for adding pressure corrections into the *M1/M1A1* ballistic solution. The review showed that though the fire control computer (FCC) correctly treats pressure effects, an accurate pressure value is often difficult to obtain. In this instance, the *M1/M1A1* operator's manual instructs the gunner to index 29.92 as standard pressure. This practice can lead to large vertical errors when firing the main gun.

Use of a "standard" barometric pressure setting in the M1 fire-control computer can lead to considerable gunnery error when the tank is not firing at sea level. The chart at right provides accurate corrections.

Analysis of Current Method

In a training environment, the value of local pressure may be obtained from range control, a weather station, or by other accessible means. However, in a tactical environment, to get accurate weather information to the units may be extremely difficult. Therefore, they will have to use the standard pressure correction value. Since air pressure decreases steadily with height, large errors can result if the area of operations is significantly higher than sea level.

An example of this type of error can occur at 1,200 meters above sea level. At this height, normal pressure is roughly 26 inches of mercury. Use of the standard pressure correction (29.92) at 1,200 meters would result in a .64 mil error in elevation when firing an M456 HEAT round at a target at 2,000 meters. The round flies higher because the air is 13 percent thinner. In addition, the effects of pressure errors are non-linear so that at 3,000 meters, the error could increase to over 2 mils with an increase in range of only 1,000 meters.

Additionally, even if a valid pressure is entered at one time, atmospheric pressure changes by about one percent over every 100 meters of altitude change. These changes mean that in irregular terrain, pressure at one location could be incorrect for another location.

"...A second source of error is associated with the need to update the BPS when moving to a new elevation. Due to today's rapidly moving battlefield, continuous updating of the BPS may not be feasible...."

Table 1

M1/M1A1 Pressure Setting Corrections for Various Altitudes

Meters Above Sea Level	Setting
0	29.92
100	29.57
200	29.22
300	28.87
400	28.53
500	28.19
600	27.85
700	27.52
800	27.19
900	26.86
1000	26.54
1100	26.22
1200	25.90
1300	25.59
1400	25.28
1500	24.97
1600	24.66
1700	24.36
1800	24.06
1900	23.77
2000	23.47
2100	23.19
2200	22.90
2300	22.61
2400	22.33
2500	22.05
2600	21.78
2700	21.51
2800	21.24
2900	20.97
3000	20.71

- Determine elevation using a map.
- Read across to determine the correct pressure setting.

Proposed Solution

To provide a more accurate barometric pressure setting (BPS) for the FCC, we have composed a simple table (Table 1). This table is based on height information from a standard topographic map. Table 1 will provide a BPS for the FCC, based on elevation (to the nearest 100 meters), that would be readily available to the tanker in the field.

Errors in Proposed Solution

A source of error in the elevation-based proposed solution appears in terms of pressure changes due to the weather. Since only a standard pressure at each elevation would be used, any variations due to weather would be unaccounted for. However, the degree of this error appears to be minimal. A second source of error is associated with the need to update the BPS when moving to a new elevation. Due to today's rapidly moving battlefield, continuous updating of the BPS may not be feasible. Tank crews should identify the most likely terrain (elevation) in which they expect contact and index the appropriate BPS into the FCC before entering this area.

Summary

Errors due to the current method (standard pressure value) are larger than those in the proposed solution. The proposed solution avoids the possibilities of severe degradation which could occur when using the current method. It also allows the tank crew to determine the pressure immediately and to update the FCC as needed. This update can be accomplished easily during normal unit training and more important, when it may really count, in combat. Since this proposed solution would not entail the modification of any hardware, it could be implemented immediately.

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Sergeant First Class Wakeland K. Kuamoo entered the Army in December, 1973. He is a graduate of the Armor NCO Basic and Advanced Courses, the Air Assault Course, and the Master Gunner's Course. He has served in key positions with the 1st AD, 9th ID, 25th ID, and 2d ID. He has been a senior instructor at the USAARMS Master Gunner's Branch and is currently assigned as a master gunner in the Gunnery Training and Doctrine Branch of the Weapons Department

Leadership Doctrine for the AirLand Battle

by Major Thomas G. Clark

There is a void between leadership doctrine and battle doctrine. AirLand Battle doctrine calls for tenets of leadership that many Army leaders cast aside during the Vietnam era. During the decades of the 1960s and 1970s, we witnessed a trend to exercise control at the highest level possible. Leaders at all levels suffered from this tendency. Virtually every activity from combat operations in Vietnam to subjects for unit training schedules were victims of centralized control.

Then, during the late 1970s, senior Army leaders began to reconsider discarded leadership styles. General Donn Starry, in his videotape, "Sergeant's Business," recalled the role of noncommissioned officers in leadership and in training. Leaders everywhere joined the move to get troop unit leaders more involved in training decisions. There developed a consensus among leaders that many decisions being made at division level or higher should be delegated to battalion and company. Concurrent with these initiatives, senior Army leaders adopted AirLand Battle doctrine. This doctrine ushered in new roles for leaders at all levels. Under this new doctrine, we envision small units sometimes operating in isolation with only mission-type orders, and senior leaders fighting battles with enemy units two or three days before those units reach the close battle area. Furthermore, we now expect leaders to perform in conflicts of varying degrees of intensity, from small-scale guerrilla actions to operations on a nuclear battlefield.

While we have adopted AirLand Battle doctrine into Army training and organizations, we have not retooled leadership doctrine. The principles of leadership in FM 22-100, *Military Leadership*, are still valid; but, they do not apply equally to all levels of operations and they are not clearly defined for application to battlefield doctrine. The purpose of this article is to discuss the tenets of our new operations doctrine as tenets of leadership doctrine.

Agility

Agility applies equally to leaders at every level, from squad leaders to army commanders. A leader must have the agility to meet changing situations, to make his leadership style fit his environment.

The audience and type of operation determine the leadership style. For example, a battalion commander's audience is relatively inexperienced. To be effective with these young officers and noncommissioned officers, the battalion commander dedicates his effort to direct supervision of people to meet immediate requirements. In contrast, a corps commander's audience consists of senior officers with a large degree of motivation and broad experience. Thus, ideally, the corps commander devotes little time to supervision of people; his primary effort is devoted to focusing the efforts of subordinates on long-term objectives.

As leaders move to more senior positions, they must make a conscious effort to adapt their leadership style to their audience and to their operation. Also, they must cultivate their ability to apply the leadership tenets of depth, synchronization, and initiative to different audiences and operations. They must have the agility to make their leadership style fit the situation.

Depth

In leadership doctrine, depth is a variable that has greater application at senior levels. Depth is the vision a leader has; it is the leader's "mark on the wall" to which he seeks to raise his unit; it is his picture of what the unit will resemble in the future. Depth transcends goals and objectives commonly used by junior leaders to guide training and operations. Depth is a grand vision that looks both to history and the future for definition.

Senior leaders use depth as a means to give organizations direc-

"...Each leader must consciously make the synchronization process support what he wants his unit to accomplish...."

tion. The first direction is toward a philosophy for leadership. For example, as the Vietnam era ended, senior leaders faced the perplexing task of overcoming the penchant of leaders at every level to centralize activities and decisions for training. Many general officers recalled the time when sergeants conducted training, while officers focused their efforts on evaluating and managing training. One result of this historical perspective was the Battalion Training Management System (BTMS), an effort to decentralize training and to get sergeants back to "sergeants' business." These senior officers aligned a leadership philosophy for decentralized operations with the management, evaluation, and conduct of unit training.

The second direction is to tactical doctrine. In the late 1970s, senior leaders began to carefully analyze the conflict spectrum. They saw battlefields of varying intensity where young leaders would fight, usually outnumbered, without access to their higher command structure.

These senior leaders' vision of doctrine to meet these contingencies included refinements of doctrine for light operations in low-intensity or unconventional battles, and AirLand Battle doctrine for fighting in depth to defeat forces with greater numbers on conventional or nuclear battlefields. These leaders aligned battle doctrine with their vision of what they wanted units to look like before, during, and after future battles.

The final direction is toward long-term performance standards. Several years ago, the TRADOC commander initiated performance standards for tactical operations in the Army Training and Evaluation Program (ARTEP). He developed observable standards for tasks Army leaders previously considered to be immeasurable. As the various proponents refined performance standards for each tactical operation, training management improved, the quality of training improved, and Army readiness improved. He had a vision of where he wanted the Army to be in readiness; he developed and executed a plan to bring Army units to his level of excellence. Thus, in each of these three areas, senior leaders showed depth in making their vision, as well as in executing the plan to make their vision reality.

Synchronization

Synchronization is the process whereby leaders bring incongruent elements together to establish a unified effort. Synchronization is the most difficult tenet to accomplish because it encompasses decision-making. The difficult decisions include establishing priorities when every task simultaneously requires immediate attention, how to resolve the paradoxes of command, and how to make contending activities support command objectives. As with agility, synchronization applies equally to junior and senior leaders. In the synchronization process, the leader accomplishes three things. First, he refines the "vision" of his higher headquarters to fit his own unit. Second, he makes all required tasks provide an opportunity to improve his unit's mission capability. Finally, he molds the needs of his unit and needs of individuals into pursuit of a common goal.

Each leader approaches synchronization differently; the synchronization process is personality-dependent. When senior leaders adopted a new training philosophy in the late 1970s, many division commanders saw a need to synchronize unit training and installation support requirements. To do this, they tasked their staffs and subordinate commanders to identify mission-related training activities and support requirements that detracted from mission training. Their synchronization process called for canceling most of the support activities units performed that did not support their mission training needs. These division commanders thus synchronized a leadership philosophy with incongruent activities.

Each leader must consciously make the synchronization process support what he wants his unit to accomplish. Synchronization in Army units makes the unit and its soldiers more efficient. The synchronization process will be an outgrowth of leadership philosophy; each leader must make his process support the synchronization efforts of other units within his environmental superstructure.

"...In matters of initiative, senior leaders allow, without prejudice, honest mistakes falling within their bounds of intent and acceptable risk...."

Initiative

Initiative transcends battle doctrine and leadership doctrine. Initiative is the trait leaders employ to "fill out" orders; they use it to create unexpected turning points for the enemy, to make the enemy reactive to our operations. Initiative is the ability to quickly generate action to meet the intent of orders.

Senior and junior leaders have critical roles in the realm of initiative. The junior partners exercise initiative to fulfill their missions. The senior leaders of the Army, corps commanders and above, must build an environment in which all junior partners can exercise initiative.

Senior leaders have a threefold role in building an environment supportive of initiative. First, whether in garrison or in the field, senior commanders communicate their intent or vision, their risk parameters, and their concept for any operation. Second, in matters of initiative, senior leaders allow, without prejudice, honest mistakes falling within their bounds of intent and acceptable risk. Finally, senior leaders exercise "life and death" control over initiative.

If they do not make a concerted effort to build an atmosphere supporting initiative, junior leaders will become automatons constantly looking for guidance from above. Likewise, junior leaders have responsibilities in exercising initiative. First and foremost, they must be perfectly clear on how their commander sees the completed operation. Second, junior leaders must know where they are in relation to acceptable risk parameters. Those limits are inherent to the senior commander's intent, crossing those limits may negate the desired result. Third, junior leaders must never allow the freedom of initiative to erode unit or personal discipline. In fact, units and individuals will require a higher degree of discipline to execute doctrine that calls for initiative. Finally, junior leaders also exercise, to a considerable degree, control over an atmosphere supporting initiative. They must exercise initiative to build successful units. The formula for AirLand Battle is knowledge plus good judgement plus initiative equals success. There is no substitute for success; victory is inherent in success.

Conclusion

AirLand Battle doctrine places many demands on leadership. In mid- to high-intensity conflict, leaders must fight rear, close, and deep battles simultaneously. They must also be ready to conduct low-intensity conflict. These divergent requirements call for new leadership doctrine.

FM 22-100 gives us an outline of morality; that is good, but it is insufficient for today's leaders. Just as weapons systems must be complementary, so must battle doctrine and leadership doctrine. AirLand Battle-era leadership doctrine must capture our Army's senior leaders' "vision" of battle. This "vision" shows us units operating in actions across the conflict spectrum, and we see senior leaders giving missions and intent, with limits of risk, to subordinates. We see junior leaders fulfilling this intent, many times on the basis of their own decisions.

To execute this doctrine, leaders must possess the ability to adapt their styles to meet the situation; they must have depth to see beyond the present; they must synchronize divergent demands into an irresistible force; and, finally, they must have the initiative to use their own ingenuity to meet situations not covered in their orders. The building imperatives of AirLand Battle leadership doctrine are agility, depth, synchronization, and initiative.

Major Thomas G. Clark is a Texas Tech University graduate. He received his master's degree from Campbell University and is an alumnus of the C&GSC. He served with the 197th Infantry Brigade; the U.S. Army Field Station, Okinawa; the 5th ID; and the Combined Field Army (ROK/US). He is presently the S3 in the 4th Training Brigade at Fort Knox, KY.

"The Bugle Call Has Faded...."

(Dedicated to MG Andrew H. Anderson, Ret., in particular, and, in general, "to all those who wear tankers' boots,...")

The bugle call has faded,
The troops have all passed by,
And still we stand and search
The Green in wonder, asking why...

Has it passed us by so quickly?
That, hardly can it be,
Just yesterday we started
In the glorious cavalry.

As the man has said:
"'Twas 'Countermarch! and
'Drill until ye drop"
We trained into the darkness
And never thought we'd stop.

But we reaped rewards with victories,
In battles far away,
And paid the price of excellence
To fight another day.

Arm in arm we passed through harm
And blood and sweat and tears,
But, looking back, we smile inside
At joys that filled the years.

For the parties were hellacious!
And the songs we sang those nights
Praised never-ending valor
In hard and bloody fights.

Occasionally there was a doubt
When joined the Cav to fight.
But a thousand - nay, ten thousand - men
Have said that we were right

Rememb'ring one high, lofty goal
That many fail to see;
We cared for them, and brought them through
And helped to keep them free.

No, we never once imagined,
As we heard the buglers play,
That the cannons would be silent...
That we'd ever see this day.

Still we feel the earth a-tremble
From the giant engines' roar
And the memories came back crashing
Down upon our life's broad shore.

'Though they be of marches and
The order that our colors "Post!"
There stand the soldiers and their families
As the memory we cherish most.

Some have gone to rest, at peace with God,
And some are standing here.
And some have sent a written word
To say "We hold you dear."

Yes, they are what it's all about
When drums have ceased their roll.
The smiles of friends, such cherished souls,
For them our heart's bell tolls.

If they ask us for an answer
We'll pause, and look away,
And murmur softly, "You'll find out
When you confront this day."

But look not back: old soldier!
Nor dwell upon the past.
Let's order "Sheath your sabers!"
And join all to make this last.

John T. Browne Jr
LTC, Infantry
Montevideo, Uruguay

Subaltern Stakes:

Growing Lieutenants in the 3d ACR

by Colonel James M. Lyle and Major N. Winn Noyes

One of the most important responsibilities of any military leader is that of training his lieutenants. We take that responsibility very seriously in the 3d Armored Cavalry Regiment. If you receive an officer in your unit who earned his spurs here, you can rest assured that he has completed a rigorous growing process and knows the business of fighting.

Our junior officer training program is called "Subaltern Stakes," after the old British system in which a young subaltern had to prove himself before being recognized as a lieutenant. The Stakes are three-phased, and Phase I begins when a young lieutenant is first notified of his assignment to the Regiment of Mounted Riflemen. He receives an already-certified officer as a sponsor and receives his initial welcome packet. This packet is specially tailored to let him know he is joining an elite unit with proud traditions and that more will be expected of him than most other second lieutenants in the Army. He will have greater challenges, but also more opportunities to excel; he will have his chance to earn the spurs of a cavalryman.

Phase II begins with his arrival at Fort Bliss. The squadron adjutant and the sponsor pick up the new "subaltern" and guide him through the formal reporting procedure, which is based on 140 years of American mounted warrior tradition. First, he reports to the colors, then to the squadron commander, where he must repeat the regimental motto spoken by General Winfield Scott at the battle of Chapultepec, Mexico, in 1847: "Brave Rifles! Veterans! You have been baptized in fire and blood and have come out steel!" The new officer must visit the regimental museum and have an initial briefing with the regimental commander. His sponsor ensures that he meets and receives a briefing from each staff section so that he is familiar with the organization and functions of each part of his squadron and regiment. During this period, he receives two special items, his battle map case and his Subaltern Stakes Job Book.

Phase III, his certification, takes our budding cavalryman between six months and a year to complete. His troop commander becomes his mentor with the specific responsibility to ensure he is *soldierized, officerized* and *baptized* in the spirit of blood and steel. He soon learns that his branch basic course was only the beginning of his warrior education.

Soldierizing means our lieutenant demonstrates his proficiency in the basic skills required of every trooper in the regiment. He will qualify with his assigned weapon and pass his PT test with a minimum score of 210, using the standards of the 19-year old soldiers he commands. He must demonstrate his ability to perform PMCS, complete a proper 2402 on all organic equipment (vehicles, commo, weapons, etc.), and obtain an operator's license for all assigned vehicles. Using FM 21-2, the lieutenant will certify 61 of 68 Skill Level 1 tasks in the areas of see, communicate, navigate, M72A2 LAW, hand grenades, land mines, survival techniques, protect against NBC attack, first aid, and customs and laws of war. Using FM 21-3, he will demonstrate proficiency in 31 of the 34 Skill Level 2 and 3 tasks in

"...When the young lieutenant has completed the formal portions of Subaltern Stakes, there is a special awards ceremony. He receives his spurs and is now recognized as a proven cavalry officer...."

the areas of communication, navigation, survival techniques, and protection against NBC attack. Finally, he must pass a squadron-conducted CTT.

Officerizing ensures our lieutenant becomes proficient in those basic abilities required of all mounted combined arms officers. During this process, he will demonstrate his ability to inspect soldiers and supervise maintenance of equipment. He will properly conduct guard mount. He will prepare for and successfully pass a comprehensive Pre-Combat Inspection (PCI) prior to departing for any major training exercise. He will validate proficiency in administrative tasks such as, counseling statements, OERs, EERs, maintenance forms and records, and reports of survey. He will demonstrate his ability to inspect facilities for safety, cleanliness, physical security, and orderliness. He will complete the Brave Rifles Reading List, and, above all, will demonstrate his ability to plan, resource, and conduct training.

Baptizing in the Spirit of Blood and Steel is when the lieutenant learns the art of war. He will be tested under such stress and realism as peacetime constraints allow. He must qualify on his organic crew-served weapons system (tank, helicopter, M113, etc.) and demonstrate his ability to control the live fires of his platoon. He must demonstrate a thorough grasp of combat leadership principles and procedures by successfully completing a platoon ARTEP or adequately performing as a part of a troop ARTEP. He must read and demonstrate familiarity with the 3ACR War Plan, 3ACR TACSDOP, 3ACR Maneuver Pamphlet, and his squadron and troop battle books. He must then construct a platoon battle book of his own. He must show that in every way he understands and follows the warrior ethic. He must demonstrate, under pressure, his technical and tactical proficiency.

Throughout his time in the regiment, each officer will attend many officer professional development seminars. Fifty per cent will be on fighting skills, 25 per cent will deal with administrative matters, and 25 per cent will be on the special concerns of each commander.

Of special benefit to him are the guest speakers. Many of our WWII combat leaders, such as General James K. Polk, our honorary colonel and WWII regimental commander, and Lieutenant Colonel Utterback, a WWI squadron commander, are in the local area and very willing to share their experiences. All visiting active duty officers whose expertise would be of benefit are also captured for this program.

When the young lieutenant has completed the formal portions of Subaltern Stakes, there is a special awards ceremony. He receives his spurs and is now recognized as a proven cavalry officer. With the award comes the normal bragging rights, but more important, comes the confidence and inner strength from knowing he has successfully completed what we consider to be the most rigorous mounted combat officer development program in the world.

So, if you are ever at a parade, formal luncheon, or other such gathering where cavalrymen might be, and you see a young officer with a 3d ACR patch on his shoulder, and spurs on his heels, he's not just another cocky cavalryman, he's a warrior from the Regiment of Mounted Riflemen.

Colonel James M. Lyle commands 3d Armored Cavalry Regiment at Ft. Bliss, TX. He is a graduate of the College of William and Mary and served as a platoon leader and troop commander with the 1st Squadron, 3d ACR in Germany. He served as advisor to the 2/10th Vietnamese Cavalry Squadron and as commander, 2d Squadron, 2d Armored Cavalry Regiment, Germany. More recently, he served as director, Command and Staff Department, U.S. Armor School, Ft. Knox, KY.

Major N. Winn Noyes is the regimental S3, 3ACR. He was commissioned in 1973 and served as a divisional cavalry platoon leader, as XO of the 1/10th Cavalry, and as an air cavalry platoon commander and regimental cavalry troop commander with 2d ACR. He has also served as aviation advisor to the Reserve Component, as a tactics instructor at Ft. Knox, KY, and as squadron S3 for the 2/3 ACR.

Painless Training Schedules

by Captain Robert L. Jones

"Oh, no! I just got back from REFORGER, I have a command and staff meeting in thirty minutes, and the training schedule is due tomorrow morning! I just don't have enough time!"

Time is the commander's most valuable resource. Between the meetings, the inspections, and the myriad of other "ankle biters," the training schedule becomes just another baby alligator in a very large swamp. The shortage of time frequently means that the commander cannot effectively manage his own training program. Instead of performing training management, the commander must often hurriedly draft a stopgap copy of the training schedule in order to meet the S3's submission deadline. This rough draft usually ends up as the final copy with platoons discovering their scheduled training only when the final printed copy reaches them through distribution.

The company commander is responsible for the quality of his company's training. Quality training begins with quality planning. For the commander to effectively manage his training resources, he must develop a quality training plan and reflect the plan on the training schedule. After setting the training goals, the commander should allow the platoons to develop their portion of the training schedule (as outlined in the Battalion Training Management System, (BTMS). The commander should then evaluate the platoon training plan to ensure that it clearly reflects the training priorities that he has set. The trap that awaits the unwary commander springs when he writes everything in the schedule without performing BTMS because of the imminent deadline. When this occurs, the commander is performing the platoon leader's job, and no one is performing the commander's quality control function.

The commander can place himself back in the driver's seat without pain. All that he requires is a blank wall, masking tape, 3x5 index cards, and a little time for a short training meeting.

Step One

Use the blank wall and the masking tape to create a large scale weekly training schedule. Across the top of the schedule place the days of the week. Each day should have sufficient space to place five index cards side by side. Down the side of the training schedule place the hours of the normal working day. This can be either each hour from the beginning of the day to the end of the normal duty day or it can be any discrete blocks of training time that the command normally uses. A recommended height between hour lines is three index cards. The wall should look something like Figure 1.

Step Two

Direct each platoon leader, the XO, and the training NCO to create training request cards. The training request cards should be an index card with the locally-required training information. Normally, the card should contain the name or task number of the task, the location of training, the instructor's name, the estimated time required for the training, and any remarks. The date and time of training should not be included because the date and time are not yet determined. Each platoon should be easily identified on its training card. The card could be marked with subunit designation, but may also be identified by using either colored index cards or specifying a particular color ink for each platoon. (Many TACSOPs as-

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0600					
0700					
0800					
0900					
1000					

(Add sufficient additional lines for the rest of the day.)

Figure 1

sociate platoons with a particular color). The commander should retain a color for himself to represent training requirements and command-directed activities. An example index card is shown in Figure 2, at right.

TASK: Inspect Ammunition and Prepare It for Stowing
171-123-1021

LOCATION: Motor Pool

INSTRUCTOR: SGT Brooks

TIME: 3 hrs

REMARKS: XO and Ammo NCO will check ammunition against TC hand receipts. Ref: STP 17-19K1-SM

Step Three

The training NCO should now place index cards for all routine training. This task simply requires familiarity with the way the company conducts daily business. The training NCO should complete the appropriate index cards to fill in the company's recurring training events. This training includes physical training, meetings, motor stables, NCODP, ODP, personal hygiene time, motor pool cleanup, formation times, etc.

Step Four

Designate an individual to place required training on the schedule. The XO, master gunner, or training NCO should read the battalion's quarterly training plan, plus any other sources of training guidance, such as weekly training updates, and place those events on the schedule. Consult the first sergeant about any training distractors, details, or commitments which need to be considered.

Step Five

The commander should have a training guidance meeting, which lasts less than 30 minutes, with those individuals who need to plan and coordinate training. The commander should cover the items already posted on the schedule and prioritize the training that his subordinates need to plan, and any specific resources that are available. The commander should then allow the subordinates two or three days to conduct their platoon-level training meetings. Prior to the training schedule meeting the platoon leaders should complete all their training request cards. The platoon leaders should have a few more training request cards than they expect to use in the week they are planning.

Step Six

The commander should call a training meeting. The training schedule can be completed by simply having the platoon leaders, master gunner, and trainers fill in the holes. Because all the training is on index cards, the training can be rearranged many times with little effort. Any training cards not used can be saved for the next week's training.

The commander is now in the decision-making business. The subordinate leaders have done the research, and the commander can act as quality control. The commander should scrutinize each card for accuracy, completeness, and compliance with guidance. When the commander is comfortable with the wall-sized training schedule, his part in the drafting of the schedule is complete. The training NCO can request the resources and copy the schedule from the wall to a draft training schedule sheet.

Step Seven

The commander signs the training schedule. The draft training schedule can be completed in the commander's absence. The commander has completed his draft training schedule without ever putting pen to paper, without spending more than an hour or two actually planning, and has a much better product in the bargain. The commander can complete a better training schedule in less time with less effort. This will allow the commander to spend more time where every commander wants to be, with his troops.

Captain Robert L. Jones was commissioned in Armor from USMA in 1983. He has served as an M60A1 and M1 platoon leader, a battalion assistant S3 (LNO), and an M1 (COHORT) company XO with 2-66 Armor, 2d AD (FWD). He is currently assistant S3 (AIR) with 2d Bde, 3d ID.

The Battle of Booneville

Philip Sheridan's Tactics as a Precursor to AirLand Battle Doctrine

by Captain O.C. Burnette

It is 1 July 1862. Your cavalry brigade of some 800 troopers has been battling for most of the day against an enemy cavalry force of eight regiments with a strength of close of 5,000. The enemy has attacked twice and was repulsed the second time only after hand-to-hand combat. The enemy is now flanking your left, threatening your supplies and lines of communications. No reinforcements are in sight. Your forces are wholly committed and defeat is imminent. How do you win this battle?

If you are Colonel Philip Sheridan, commander of the Union Second Cavalry Brigade, you create a reserve out of forces already committed and you attack! The Battle of Booneville, Mississippi, is the story of how a Union cavalry brigade, battling odds of 5.5-to-1, routed a Confederate cavalry force through Sheridan's superior leadership, his good use of intelligence that he personally gathered from a thorough ground reconnaissance before the battle, the excellent firepower of his troops, his sheer determination to win, and his use of the indirect approach to the battle.

In analyzing this battle, I will look at how Sheridan applied what we know today as the AirLand Battle tactical considerations of anticipating the enemy, using indrect approaches, deception, speed and violence, flexibility, reliance on the initiative of junior leaders, rapid decision-making, and having a clearly designated main effort. I will also address the AirLand Battle dynamics of combat power: firepower, protection, leadership, and mancuver.

Historical Background

After the Battle of Shiloh, Tennessee, April 6-7, 1862, the Confederate Army, commanded by General P.G.T. Beauregard, retreated to and fortified Corinth, Mississippi, a strategic rail center.[1] Plagued by epidemics of typhoid and dysentery, and threatened with siege by the advancing Union armies commanded by Major General Halleck, Beauregard evacuated the city on the night of 29 May.[2] Union cavalry drove south to locate the Confederate army. The Confederates sent out cavalry to screen the movement of their army, the "Army of the Mississippi." The battle took place 1 July, 1862, as eight regiments of Confederate cavalry, commanded by Brigadier General James R. Chalmers, attacked Colonel Philip Sheridan's Second Cavalry Brigade of the Union "Army of the Mississippi."

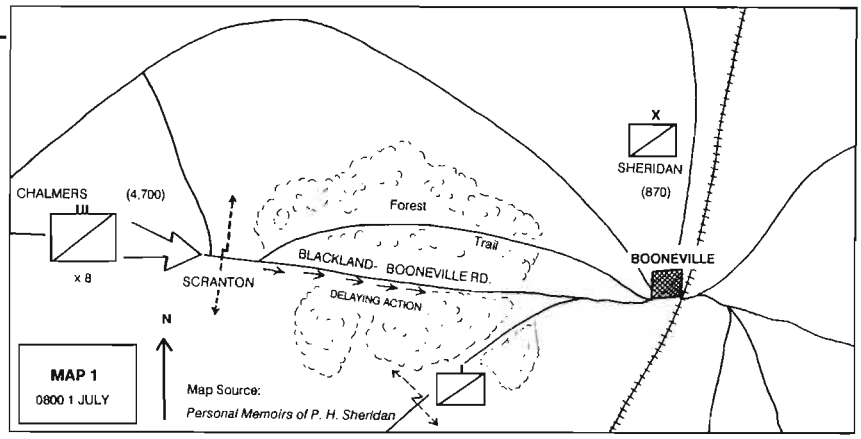
The Battle

On the morning of 1 July, Sheridan's brigade was encamped just north of Booneville. Pickets, under the command of Lieutenant Leonidas S. Scranton, were posted three miles to the west, just out of the woods and along the Blackland-Booneville road. (Map 1). The heads of the Confederate columns hit these pickets and drove them back east through the woods. Scranton's men fell back slowly, fighting dismounted and firing from behind trees, until they hit the point where the two roads converged. Here, Scranton made a strong stand, using timber for cover, and reinforced by pickets that had been posted on the road to the south.[3]

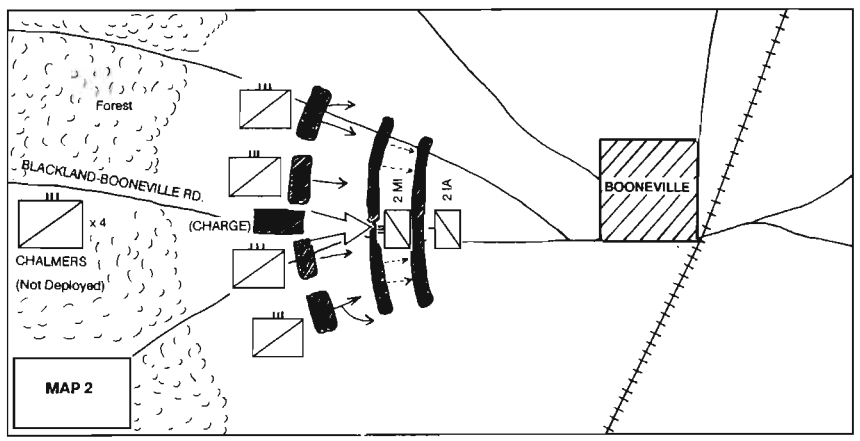
Sheridan sent Scranton four companies of reinforcements with Captain Campbell, who assumed command of the defense. This temporarily stopped the Confederates, and forced them to deploy. As the Confederates deployed four regiments, two on each side of the Blackland-Booneville road, the magnitude of the Confederate attack first became apparent to Sheridan, who ordered Campbell to hold his ground, but authorized him to fall back slowly if he had to. At the same time, Sheridan ordered Colonel Hatch, commander of the Second Iowa Cavalry Regiment, to form up his entire regiment, except three saber companies, in the rear of Campbell's position "to protect his (Campbell's) flanks and to support him by a charge should the enemy break his dismounted line."[4] (Map 2).

As Sheridan was briefing Hatch, the Confederates continued their assault on Campbell's position. They attacked with double lines dismounted, double-mounted columns

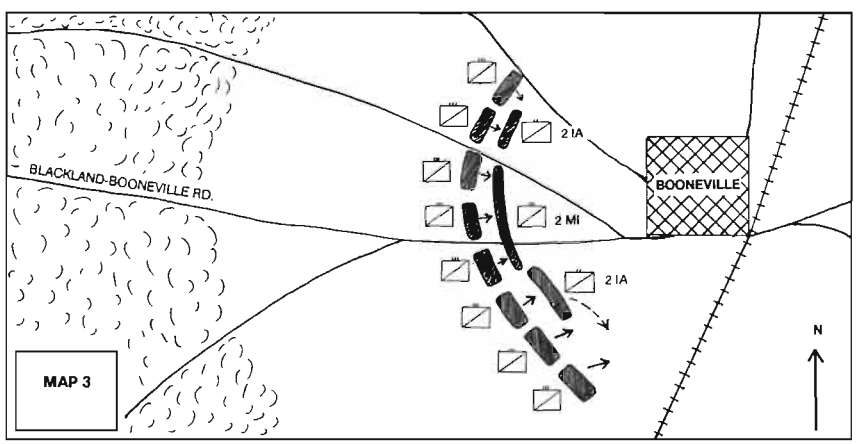
on each flank, and with a solid mounted column charging into Campbell's center.[5] They attacked across an open field and advanced to within 25 or 30 yards of Campbell's line, when the Second Michigan opened fire with its Colt six-shot repeating rifles and revolvers.[6] This devastating fire temporarily halted the Confederate advance, and they switched tactics to take advantage of their numbers.



They attacked again, flanking both sides of the Union line. Campbell was forced to pull back to a prepared line to his rear. However, once the Confederates saw the Union line withdrawing, they sensed victory and surged forward. Campbell's line held only after desperate hand-to-hand combat, aided by the arrival of the Second Iowa. (Second Iowa was now deployed to either side of the Second Michigan, which held the center).[7]



Although the Union forces had twice repulsed his attacks, General Chalmers' numerical superiority allowed him to attack once again, and he forced the Union line back towards Booneville, which gave him more room to deploy. He assaulted again, this time swinging around the left end of the Union line, held by the Second Iowa. This move threatened Sheridan's communications, transport, and supplies.[8](Map 3).



Sheridan realized the acute danger facing his forces. Now he showed his mettle. On an earlier reconnaissance, he had discovered a trail running through the woods parallel to the Blackland-Booneville road and then connecting with it on the west side of the forest. In his memoirs he states, "Remembering a circuitous wood road that I had become familiar with... I concluded that the most effective plan would be to pass a small column around the enemy's left by way of this road, and strike his rear by a mounted charge simultaneously with an advance of our main line on his front. I knew that the attack in (his) rear would be a most hazardous undertaking, but in the face of such odds as the enemy had, the condition of affairs was most critical, and could be relieved only by a bold and radical change in our tactics."[9]

Sheridan then selected four saber companies, two from Second Iowa and two from Second Michigan, to execute his plan. Sheridan briefed Captain Alger, who was to lead this force of 90 mounted men, to follow

SHERIDAN

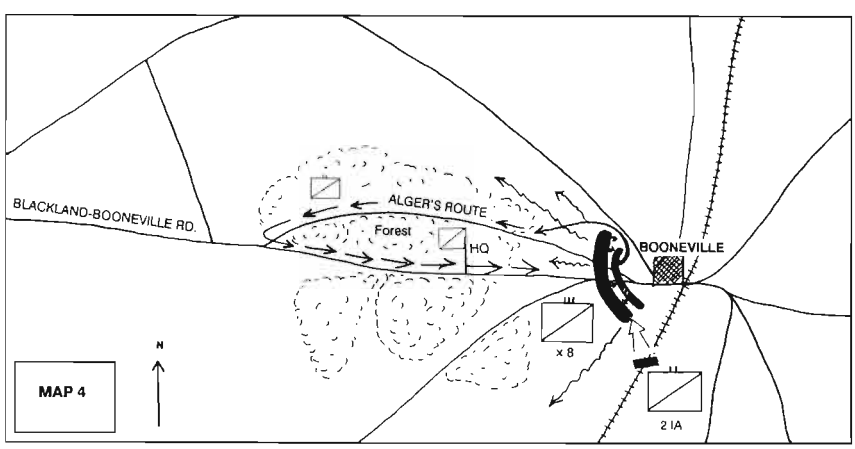
"...Sheridan did well to attack quickly (with speed) and with as much violence as he could muster. He gave Captain Alger "just one hour" in which to begin his attack. Had he given Alger more time, it is likely that the Union forces would have succumbed to the persistent pressure of the Confederate attack and been defeated...."

the wood road three miles to the west, and then to follow the Blackland-Booneville road to "charge the rear of the enemy's line." He told Alger:

"I give you just one hour to reach this place. When you reach it, turn up the lane and charge the enemy at once. Don't deploy them – it will show the enemy the weakness of your force. Charge in column, and, when you make the assault, shout and raise all the noise possible. When I hear you, I will strike the rebels with my whole force. But, whether I hear you or not, in one hour I shall charge them."[10]

Alger then set off with his command, aided by a Mississippian named Beene, supplied by Sheridan, to help him find his way through the pines.

An hour passed, and Sheridan heard no cheer from Alger's column. The Confederates continued their attack and the battle became more desperate. At this opportune moment, a locomotive carrying grain for Sheridan's horses arrived, giving rise to an unexpected cheer in the Union line. The Union soldiers knew about the reinforcements that Sheridan had requested at the beginning of the battle. They now thought it was a troop train, loaded with reinforcements. Sheridan had the engineer blow the whistle repeatedly so the Confederates would hear it and think the same thing.[11] Sheridan ordered the attack, surprising and confusing the Confederates. On the left, the Second Iowa charged the Confederate flank. (Map 4). In the center, Campbell's companies held firm. Unknown to Sheridan, Alger's attack had very nearly been completely successful. It had attacked along the designated route but had not broken through the Confederate line. But it had captured the Confederate headquarters and given rise to the rumor among the Confederates that they were now under attack and encirclement by a superior force.[12]



The sudden advance of the Union forces, combined with the unnerving attack in the Confederate rear, panicked the Southerners, and they broke and ran, abandoning their dead and wounded. Sheridan had won the day. He chased the fleeing Confederate forces for four miles, until darkness and a difficult swamp put an end to the pursuit.[13] The Battle of Booneville was over.

Analysis

Sheridan did not have the strength to defeat his opponent by force of arms alone. Instead, he made good use of *deception* and an *indirect approach* to defeat the enemy and break his morale. He concentrated all of his forces into one daring, coordinated counterattack. In doing so, he took a calculated risk, but ensured victory.

If Sheridan had not used an *indirect approach* in the Battle of Booneville, his forces would have been defeated. (An indirect approach is an attack or defense unexpected in nature, timing, or direction).

Sheridan's indirect approach was to attack the Confederate rear with Captain Alger's four saber com-

panies. Outnumbered almost six to one, Sheridan could not have hoped to have stood his ground and repulsed the Confederates indefinitely. As the battle raged, Sheridan's forces fell back, and their situation became increasingly perilous. Captain Alger's force of 90 troopers, employed elsewhere on the battlefield, would not have had anywhere near the effect it had when attacking the Confederate rear. Only there could it have been decisive. Alger's attack in rear had an unhinging effect upon Confederate morale.

Because the Confederates did not expect this attack, they did not know what to make of it. As a result, fear bested them. Without an adequate force to physically defeat the Confederates in a toe-to-toe battle, Sheridan had to out-think them in order to win. An indirect approach from an unexpected direction was his answer.

Sheridan's use of *deception* was also crucial to his success. In his order to Captain Alger, he told Alger to "charge in column so as not to reveal the weakness of the force." This tactic proposed almost more of a psychological than physical attack. Even in retreat, the Confederates had the strength to capture Alger's force had they chosen to use that force. They did not because they were deceived as to the size of the Union force. The Confederates broke because they believed that a superior force had surrounded them. The deception, gained by charging in column down a narrow forest road, raising dust to obscure their true strength, worked wonders for the Union forces.

Sheridan did well to attack quickly (with *speed)* and with as much violence as he could muster. He gave Captain Alger "just one hour" in which to begin his attack. Had he given Alger more time, it is likely that the Union forces would have succumbed to the persistent pressure of the Confederate attack and been defeated. In having Alger charge in column, *(concentration*), he also created great violence with this force. He maximized the violence created by having Second Iowa charge just as Alger's force was attacking in the rear.

Sheridan relied *on the initiative of subordinate leaders* when he ordered Captain Campbell to hold his initial position, but authorized him to fall back slowly if he had to. This action allowed the Second Iowa to reinforce Campbell and prevented the destruction of Campbell's force.

Sheridan *made key decisions rapidly.* When Chalmers threatened his supplies and communications, Sheridan quickly decided to send Captain Alger on his mission to attack the Confederates' rear. Sheridan showed great *flexibility* in changing from the defense to the offense when he ordered the combined frontal and rear attacks. His forces were also flexible in fighting mounted or dismounted, as the situation dictated.

Sheridan certainly had a *clearly designated main effort* in concentrating all of his forces into a final counterattack. He aimed to create enough surprise and shock to destroy the enemy morale. In this he was successful.

During the initial stages of the battle, when Sheridan ordered the Second Iowa to form up behind the Second Michigan, he was practicing defense in depth. Had the Second Iowa not stood ready to support the Second Michigan, the assault that was repulsed only after hand-to-hand fighting could have easily routed the Union line. The quick arrival of the Second Iowa to support the Second Michigan prevented the potential collapse.

Although he did not *anticipate the enemy,* Sheridan had at least posted pickets far enough out to react to his approach, something not done successfully two months before at the Battle of Shiloh.

In terms of firepower, the Union forces had the advantage. The Confederates were armed with single-shot weapons, while Second Michigan was armed with Colt six-shot revolving rifles and pistols.[14] This gave each man 12 shots before he had to reload. This concentrated firepower may have been the deciding factor in helping the Union line repulse the first two Confederate assaults. It must also have aided Captain Alger's rear attack. This firepower confused the Confederates about the true strength of the Union forces. They had earlier received accurate reports from the local populace about the size of the Union camp, but the strength of the Union fire made them believe that the estimates were too low. This firepower advantage, in conjunction with the attack in rear, led the Confederates to believe that they were outnumbered at the end of the battle when they had an actual 5.5-to-1 numerical superiority.

Sheridan's other military traits stood him well in this battle. He made it his business to be thoroughly informed about the nature of the terrain on which he was to fight. Without the knowledge of the trail that Alger used to flank the Confederates, Sheridan could not have sent him on his mission to attack in rear. It was not by luck that

"...Alger's raid, in combination with the charge of the Second Iowa, inflicted psychological shock on the Confederates and unhinged their morale...."

Sheridan knew of this trail. In his memoirs he writes:

"As soon as the camp of my brigade was pitched at Booneville, I began to scout in every direction, to obtain a knowledge of the enemy's whereabouts and learn the ground about me... As soon as possible, I compiled for the use of myself and my regimental commanders an information map of the surrounding country. This map exhibited such details as country roads, streams, farmhouses, fields, woods, and swamps, and such other topographical features as would be useful... (I)t was of the first importance that in our exposed condition we should be equipped with a thorough knowledge of the section we were operating in, so as to be prepared to encounter an enemy."[13]

Sheridan did everything in his power to husband the strength of his brigade prior to battle *(protection)*. He personally selected camp sites to ensure that they were healthy. He made it a priority to have his troops well fed and clothed. He enforced discipline to allow his men to concentrate on their duties. He reduced the number of details to allow them to save their strength for when it would be needed most.[15]

Sheridan's use of *maneuver* was an important element of his success. Alger's raid, in combination with the charge of the Second Iowa, inflicted psychological shock on the Confederates and unhinged their morale. Sheridan's *leadership* was critical to the Union victory. He made the key decisions. A lesser commander might not have had the fortitude to hold the line initially, or the insight and audacity to counterattack. Later, at the Battle of Cedar Creek, Sheridan's arrival on the battlefield and his ride in front of the Union line had an electrifying, uplifting effect on Union morale.

Finally, Sheridan fought to win and was determined to win. He was willing to take calculated risks to achieve victory. Even holding his ground at 5.5-to-1 odds was a calculated risk, not to mention attacking at those odds. He stressed winning and the importance of victory to the soldier. He wrote:

"Soldiers are adverse to seeing their comrades killed without compensating results, and none realize more quickly than they the blundering that often takes place on the field of battle. They want some tangible indemnity for the loss of life, and as victory is an offset, the value of which is manifest, it not only makes them content to shed their blood, but also furnishes evidence of capacity in those who command them."[16]

Conclusion

In the Battle of Booneville, Colonel Sheridan did many things correctly to win a battle, which by rights, he should have lost. His understanding of warfare led him to use what later would become the tenets of tactical operations of AirLand Battle. Additionally, he used the dynamics of combat power to his favor. Fighting outnumbered, he defeated his enemy with superior leadership, excellent firepower, good use of intelligence, determination, and an indirect approach.

Notes

[1] U.S. Grant, Personal Memoirs of U.S. Grant, (New York: AMS Press, 1972), p. 226.

[2] Harry Williams, P.G.T. Beauregard,(Baton Rouge: Louisiana State University Press, 1955), p. 152.

[3] P.H. Sheridan, Personal Memoirs of P.H. Sheridan, (New York: Jenkins & McCowan, 1888), I, 156.

[4] Sheridan, I, 157-158.

[5] J.N.O. Robertson, Michigan In The War, (Lansing: W.S. George & Co., 1882), p. 616.

[6] Richard O'Connor, Sheridan the Inevitable, (Indianapolis: The Bobbs-Merrill Co., 1953), p. 65.

[7] Sheridan, I, 159.

[8] Sheridan, I, 159.

[9] Sheridan, I, 160.

[10] Joseph Hergesheimer, Sheridan (Boston: The Riverside Press Cambridge, 1931), p. 58.

[11] Sheridan, I, 162.

[12] O'Connor, p. 67.

[13] Robert N Scott, War of the Rebellion Official Records (Harrisburg: National Historical Society, 1971), Series I, Volume 17, Part I, p. 20.

[14] Sheridan, I. 154-155.

[15] Sheridan, I, 154.

[16] Sheridan, I, 154.

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An Open Letter On Tacair Support

by General Robert D. Russ

Commander,
Tactical Air Command, USAF

In our daily duties, it is not uncommon to focus so hard on the demanding specialties of our business that we lose sight of the reasons for doing them in the first place. ORI (Operational Readiness Inspection) preparation, sortie generation, budgets, weapon system development, and joint issues may add to the confusion and need to be placed in proper perspective. To maintain that perspective, it is often helpful to refocus on the basics – the basic role of tactical air power.

Tactical aviators have two primary jobs – to provide air defense for the North American continent and support the Army in achieving its battlefield objectives. Unquestionably, air defense of our homeland is a vital mission and one to which we devote a great deal of resources. However, supporting the U.S. Army is vitally important as well, and is inherent in each of our other primary missions. Whether our mission involves interdiction, close air support, or counter air, we fly and fight to further the joint force commander's objectives. Outside of strategic air defense, everything that TACAIR does, including electronic combat, tactical reconnaissance and command and control, directly supports the AirLand battlefield.

In 1946, General Carl Spaatz promised General Eisenhower that, upon the formation of the new Air Force, he would continue to support the Army through the creation of a "Tactical Air Command." Since then, tactical air power has established a legacy of Army support on the battlefield. While close air support (CAS) has commonly been thought of as the primary mission in support of the Army, it is, in reality, only a part of the Air Force's commitment to its sister service. In over forty years, the basic tactical air power missions – interdiction, close air support, and counter air – haven't changed, nor have their ultimate purpose, directly assisting U.S. ground forces to defeat the enemy.

Since its inception, the Air Force's interdiction mission has played an important role in supporting the ground forces. By destroying, delaying and disrupting the enemy's combat force before it can be brought to bear, interdiction allows the U.S. Army a greater degree of flexibility in its operations. The timely interdiction of reserve forces prior to the Normandy invasion severely restricted the movement of German reinforcements after D-Day. LTG Schwerin, commanding general of the German 116th Panzer division, described how U.S. interdiction "...paralyzed every movement on the battlefield, especially those of the tanks. This not only decisively delayed any quick shifting and transfer of reserves to the point of attack, but also decisively impeded the command of the conflict on and behind the front."

To provide close support to the ground forces, the Air Force has designated a large part of its tactical force for the close air support mission. The highly-trained aircrews of these "attack" wings are fully committed to the Army's AirLand Battle doctrine. Since 1980, with the initiation of TAC's Air Warrior program in support of the U.S. Army's National Training Center and other joint Army-Air Force CAS exercises, we have increased CAS sorties flown in support of Army forces by 350 percent. We are currently planning an ambitious new concept to blend Red Flag and Air Warrior into the finest training any combined arms force can get outside of actual combat. Further cooperation is evident as the Air Force and Army review mission requirements and employment concepts for modernizing our attack aircraft. This future attack force must be responsive enough to allow the joint force commander and his component commanders the flexibility to move air power rapidly where it's needed – both on the front lines and against targets assembled in the follow-on echelons.

The Air Force has fulfilled it's third primary TACAIR mission, counter air, in every combat theater since WW II, providing the Army the "top cover" it needed to fight effectively on the ground. We should be proud that not since early 1943, during the beginning of the North African Campaign, has a U.S. Army operation been attacked in force by enemy air. The Air Force's control of the skies has given the U.S. Army a benefit few ground forces have had since 1940 – the ability to operate without challenge from enemy air. As a secondary benefit, this control also allows execution of our other TACAIR missions in a permissive environment, making us that much more effective.

Even though the Threat and U.S. Army war-fighting doctrines have evolved over the years, our commitment to the 1946 agreement to support the Army remains carved in granite. Balancing the three prime missions of interdiction, close air support, and counter air, under the umbrella of electronic warfare, reconnaissance and command and control forces will ensure that the Air Force is ready to fly, fight, and win alongside the Army on any battlefield.

Longwinded Gunnery Techniques

by Staff Sergeant Irvin "Red" Thomas
Master Gunner, 2-81 Armor

The purpose of this article is to discuss the way we shoot. Don't get me wrong – I believe in fire commands wholeheartedly. I just don't think we are using the right ones.

First, let's discuss precision and battlesight fire commands one at a time, starting with precision. A precision fire command has six elements: *alert, ammunition, description, direction, range,* and *execution.* Let's start with the alert. Why say, GUNNER!

I don't know. Why not say, TANK? That will get my attention real quickly and it combines the alert and description elements all in one.

The next element is ammunition. Once again, why? Let's scrap it. This is left over from the days when we rode around with empty chambers. During a battlesight engagement, I replace the ammo portion of my fire command with the word "battlesight," proving that to announce ammo type in the initial fire command is pointless. The crew can remember what's in the tube. If the loader, gunner, and tank commander can't remember what kind of ammunition they have loaded, they are going to have bigger problems than fire commands, and real soon.

"Ammo" should become optional. We teach new privates at Ft. Knox to keep loading the same kind of ammunition until told otherwise. Don't waste time telling loaders something they already know. I recommend PREP HEAT, if the next desired round is HEAT. This allows the loader to have a HEAT round in his hands by the time the gun is empty. (I will discuss FIRE, FIRE HEAT later.)

Direction, range, and execution should remain in their current form and requirement. Now, let's talk about the crew's responses to these commands. The loader says, UP. That's about as short as you can get, so leave it alone. Next comes the gunner's reply. Let's replace IDENTIFIED with OK. Your desk top dictionary should define it as "I agree" or "I understand."

ON THE WAY should be replaced with FIRED, because it is quicker and not as difficult for soldiers whose native language is not English.

A standard fire command would now sound like this:

Commander: TANK!

Gunner: OK!

Loader: UP!

Commander: FIRE!

Gunner: FIRING!

Once we have fired our round, the gunner is required to announce his observation (FM 17-12-1, pg. 5-23). Why? He won't observe a sabot round under 2,000 meters, or HEAT under 1,500 meters. So have him remain quiet unless he has something valuable to add. To change ammo in the middle of a fire command is not a big problem. However, the way we do it *is* a big one. In the UCOFT (which is programmed for U.S. doctrine), if you have identified an enemy tank and a PC, you must fire up the tank with SABOT, but you must load HEAT for your second round (if you don't, you get an ammo error when you fire up the PC). This is all well and good, but what if you miss or, as happens in the real world, the first round hits but does not kill? If the crew uses this system in battle (remember, you do in battle what you do in training), it has a HEAT round in the tube and is facing a most dangerous target that requires a SABOT round to kill. Now what? Does the crew try to engage the PC just because HEAT is in the tube, and HEAT is for light armor targets? Should they attempt to kill the PC and then go back for the tank?

Think of the complications involved. FIRE, FIRE HEAT! FIRE, FIRE SABOT! FIRE, FIRE HEAT! Should the crew fire the HEAT round at the tank just to empty the tube? We don't carry that much ammo anymore, and with reactive armor on some Threat tanks, the round is wasted. Let's change our doctrine and the UCOFT software to say you fire SABOT at the tank until you are sure it is dead, then fire SABOT as the first round at the PC and fire HEAT as the second round. Then we would train to the same standard we would use in war. Now, the ammo portion of the fire command would come in. PREPARE (or PREP) FOR HEAT, is used because this alerts an M1 loader of what's next, and an M60 loader can have the round ready. This puts an ammo change at the beginning of a fire command, where it belongs and – being optional – it is used as needed. This is a very simple system and deletes the need for battlesight gunnery. Battlesight gunnery is an idea who's time has come and gone – about seven years ago. To those

who don't remember, the command BATTLESIGHT told the gunner where to aim. Around 1981, we moved the aiming point to center-of-mass to avoid confusion. So, drop battlesight altogether. This business of telling the gunner BATTLESIGHT, so he knows the target is within battlesight range, and that no attempt will be made to range, is good stuff if you have a coincidence or stereoscopic rangefinder. With a laser rangefinder, it is foolish to start out degraded. With a $1,000,000+ tank under him, the gunner should attempt to range every time. If weather conditions are so bad that you cannot lase, you will not see the targets until they are within the battle-carry range anyway. Flashing zeros or 9995 still leaves you with your battle-carry range induced into the system, and the command of execution tells the gunner to fire NOW! Range would not matter in these conditions.

If the lase returns, then you have the deadly accuracy of the fire control system, and if it fails to return, the battle-carry solution will still ensure a high probability of a hit. Either way, you have a workable range solution in the system.

If the crew needs to know that it is a degraded engagement before it starts, the commander merely says, "Yo, gunner. The computer and LRF are all messed up. Use the telescope and a range of (whatever battle-carry is at that time) to start each engagement." If it happens in the middle of an engagement, just announce the range element of the fire command (as per the specific vehicle and appropriate 17-12) and you are now degraded. The "battlesight" engagement should be dropped and call it what it really is – degraded.

Subsequent fire commands are too long and confused. Change them. Also, why require a sensing? You will, 99 percent of the time, probably not see the effect of the round unless it is a hit. So just give the correction, i.e., DROP 1. FIRE, if you saw the effect of the round; or RE-ENGAGE if you did not. Direct fire adjustment should go back to the target form method, or make the mil value of the reticles part of the TCGST. What the TCGST currently requires for a GO rating in the "Engage Targets" station is not sufficient. If you think that I am wrong, take a reticle mock-up to any unit and ask gunners and tank commanders to explain the mil value of a sight reticle without any preparation. You might get a surprise that you don't like.

RE-ENGAGE is wonderful, but I've seen people with a fire control malfunction put five rounds in the same place, over line, (the Canadians in CAT '79) and this was a well-trained crew. The second and subsequent rounds should be DROP 2 until you can observe the effect and adjust.

To sum up, I believe that we need to drastically change the way we shoot. To continue doing it the way we are because we have always done it this way is not a viable reason. Tanks work differently and more quickly now. With the UCOFT, our crews are getting much faster and need a useable system like I have outlined here.

I'm not asking for permission to use abbreviated fire commands more often. I am recommending a new system, a quantum leap in efficiency. All it will take is for the Chief of Armor to read this article and say to the Weapons Department, "You know this sergeant is right. Let's shorten up our fire commands and quit this Stone Age gunnery. I want this to be in effect in one year." Then we will quit this longwinded gunnery and have fire commands that keep up with the most sophisticated fire control system our Army has ever had.

Sample Fire Commands and Crew Duties

(TANK TARGET EXAMPLE)

COMMANDER	GUNNER	LOADER	DRIVER
TANK!	Announces OK! when he sees target.	Puts gun on FIRE and says UP!	Moves on order or continues to move.
Verifies range and says FIRE!	Lays center of mass, says FIRING! and fires the cannon.		
Terminates the engagement or gives subsequent fire command.			

(PC TARGET EXAMPLE)

COMMANDER	GUNNER	LOADER	DRIVER
PC PREPARE HEAT!	Announces OK! when he sees the target	Puts gun on FIRE and says UP! Gets a HEAT round ready or waits for the gun to fire (vehicle dependent).	Moves on order or continues to move.
Verifies range and says FIRE!	Lays center of mass, says FIRING! and fires the cannon. Indexes HEAT.	Loads HEAT round and announces HEAT UP!	
Terminates the engagement or gives subsequent fire command.			

Hey, Captain! Ya Gotta Minute?

by Lieutenant Colonel Bob Saxby

"Excuse me there, captain. Ya gotta minute or two?

"I know you're busy...and it is late... and I know ya been workin' since 0500 this morning. But I just gotta talk to ya. Ya see, I been watchin' ya fur quite some time now. I know bein' a commander is a time-consumin', never-endin' job. But if'n ya lissen real good, I just might be able to hep ya. Ya see, I got a little experience in this here military stuff an' I want ta pass it on whilst I can. After all, even I ain't gettin' any younger.

"Who am I? Well, let's just say I'm an ol' trooper who's been around, an' is gettin' mighty concerned 'bout some of the leadership I been seein'!

"*Now, cool off, son!* I ain't here to attack your ability or your standards. I can see you're workin' your tail to a frazzle. I just kinda thought it might help if'n I talked to someone 'bout what I seed.

"Whatcha mean, *why me?* 'Coz you got potential, that's why! You're smart, physically fit, can talk to soldiers, show common sense, an ya got desire and high standards. Plus, you're at the key level of leadership where all the fightin' takes place. An, if you captains ain't trainin' your units to fight, this here U.S. Army is in *big* trouble, son!

"Let's sit down here under this here tree. Yeah! I know it's the first sergeant's grass, but he's gone home, an' I'm gettin' too old to stand around an' jaw. B'sides, I kinda like the looksa this place. Kinda reminds me of a place called Fiddler's Green.

"Now, I don't wantcha to get all het up over what I'm 'bout to say, *but, son, you're doin' entirely too many things in your troop.*

"Whoa there, son! Just hear me out first. I know all those things need doin', but my point is... *not by you.* When's the last time you spent an hour just *thinkin'* 'bout your troop and its problems? Ya *ain't,* have ya? You're too busy pushin' papers, stompin' out fires, writin' bad check replies, redoin' your lieutenant's work, teachin' privates to be soldiers, arguin' with the motor officer, writin' trainin' schedules, answerin' the staff's questions, countin' sheets, figurin' head count, ensurin' your pothead gets to his counselin', and a hundred other daily little details. Well, on a daily basis, them's other peoples responsibilities. Them's sergeants' and lieutenants' jobs.

"Yeah, you're right, son! Some a them sergeants *won't* do it, and some a them lieutenants *can't* do it. But, that's even more reason why you shouldn't do any a their work. Ya gotta train 'em to high standards. Ya gotta spend time getting inta their minds so they unnerstand how to do whatcha want. 'Course, that takes time to think, plan, check, evaluate, measure, and readjust your plan. Ya need time to sit and think. Ya can't run a troop like them flyboys drive a plane — by the seat a your pants. It takes a lot of figurin' and what-iffen.

And if you do everythin' now, are you gonna be able to do 'em in wartime? I *gar-an-tee* ya can't! Ya gotta push your men to do all of their job, not just part of it. An' when they fail, ya just might consider part of the fault to be your'n. Maybe you didn't explain, train, or prepare 'em as well as ya needed ta.

"Yeah! You're right about that! Ya might just work yourself outta a job. But I ain't never seed that happen. 'Coz, as troopers and units get better, they try to do more and better, which keeps the leaders always thinkin' and plannin'.

"Now, let me ask ya a question: When's the last time ya read a book about leaders and leadership?

"*I thought so!* You're too busy durin' the day and just plum tuckered out when ya get back to the little missus. Well, think about it! Have you got all the answers to your problems? If'n you think your professional development begins with your basic course and is continued by your commander and the other Army courses, you're ridin' with a loose cinch and headin' for a fall. If'n you expect to train, challenge, and earn the respect of your lieutenants and senior sergeants, ya gotta do a lot of readin'! If'n you ain't read some a these here books, son, you're missin' some great stories, some super examples and a lot of priceless info."

The Defence of Duffer's Drift, Swinton; *Small Unit Leadership*, Malone; *Men Against Fire*, Marshall; *This Kind Of War*, Fehrenbach; *Attacks*, Rommel; *Once An Eagle*, Myrer; *Tiger Jack,* Baldwin; *Common Sense Training*, Collins; *The Challenge Of Command*, Nye; *A Distant Trumpet*, Horgan; *Company Commander*, MacDonald; *Platoon Leader*, Mc Donough; *The Forgotten Soldier*, Sajer; *The Killer Angels*, Sahaara; *Infantry In Battle*, U.S. Infantry School, and *Armor In Battle*, U.S. Armor School.

"Now, I ain't no great shakes as a readin' man, myself, but every professional needs to have a readin'

program — even me. I figure this list would be a good startin' point fer any young trooper, and should'a been read by every officer afore he gets his first command. An', like I said, this is just a startin' point. Ya should be readin' all the professional journals, field manuals, and ever book ya can get your meathooks on. Ya see, son, this readin' is the *real* professional development program and is helped out by schools, experience, mentors and senior commanders. Ya can't expect others to pour knowledge inta ya. Ya gotta wanna pull it in — *absorb it* — yourself. Think that's called internalizin', or something like that. It's a continuous, unendin' process that only one person can make successful — an' that's you, son.

"What's that? Accordin' to me, you should be sittin' around starin' at the ceilin' or readin' a book? No! Not quite. There's plenty for ya to do. Lemme give ya some fur-instances.

"Sure, ya need to spend time thinkin' through problems and options, but ya need to do some long-range plannin' of where ya want the unit to be in six months, 12 months, even two years. No matter if'n you're gonna be here or not. There's gotta be a plan, a direction, so the unit can progress. Ya need to spend time talkin' over operations, problems, personnel, and plans with your lieutenants, platoon leaders, section leaders, and senior sergeants. How else ya gonna find out what's really happenin' and get your subordinates involved in the plannin' process?

"Then, there's always areas needin' inspectin' or spot checkin'. This should be followed by some counselin' — either to correct deficiencies or tell someone how well their doin'. An' this here counselin' don't need to be more than just talkin' over a tank sprocket or whilst walkin' the track park. This type stuff don't need to be all formal in your office. Do it informally mosta the time. It makes ya more approachable and human.

"'Course, there's one area that many commanders ain't spendin' enough time on an' that's development of their subordinates. It's near impossible ta spend too much time with your lieutenants. They need to learn from ya!...How ya think, whatcha expect, how ya do business. They need ya to coach 'em and train 'em in what it takes to be a first-rate leader. Take 'em away someplace for a day or two, or even a week at a time. Teach 'em tactics, terrain, organization, and enemy operations. Show 'em how to write and inspect. Get 'em to read books and report back to ya. Advise 'em on how to work with their platoon sergeants and talk to their troops. Work on counselin' and problem solvin'. Teach 'em the difference between officer and NCO business. Practice usin' the five-paragraph field order in everythin' ya do, and demand briefbacks. Make 'em do staff estimates and use troop leadin' procedures. Counsel 'em constantly so they know where they stand. Stretch 'em constantly to do new and different things. Explain to them its alright to make mistakes as long as they're puttin' out a hunnert percent. And most of all, teach 'em to think — not what to think, but how to think. Then, over all this, ya need to be given 'em a steady dose of leadership, both discussion and example. The 4 Cs — courage, candor, commitment, and competence — are the basics ya need to develop in your lieutenants as well as practice yourself. Ya see, you're buildin' good platoon leaders, as well as developin' your own replacement. This here subordinate development has got to be just about the most important task you got. If'n your lieutenants ain't strong, how ya gonna run that there troop — by yourself? Get smart and have everyone do their work. You gotta learn to use your head!

"What's that? You're concerned that your absence, along with the lieutenants', will cause problems in the unit's daily operations? Let's go back to basics here, son. I thought we already discussed the daily operations. That's primarily NCO business. If ya can't trust 'em to run the show for a short time, then ya got some big problems. Heck! They can handle it. Just give 'em a chance. You'll be surprised what they can do when allowed the freedom to do somethin' on their own. If'n they don't meet your standards the first time, then train 'em some more and try again.

"Yeah, son, I know. There are some squadron and regimental commanders who won't stand for anythin' less than zero mistakes — or so it seems. It's real unfortunate. Guess they forgot what it was like bein' a young trooper. The only way I know to try an' solve that problem is ta talk to your bosses. Explain to 'em what cher tryin' to do. Let 'em know you unnerstan' it's still your responsibility for gettin' the job done, but ya need some latitude in trainin' and bringin' all your troopers up ta speed. Most a them colonels only seem gruff and ruff. Most of 'em can be pretty unnerstandin' when they see ya tryin' to do what's right. Give it a try. It never hurts to try communicatin'. If'n that don't work, ya can't lose sight a the need to still give your NCOs the same chance to succeed or fail without your boss waitin' to crucify 'em. It means a little more risk for you, but the results are sure 'nuff worth it. Ya gotta make your troops feel secure that you'll act as a buffer 'tween them an' that higher

commander that just don't unnerstand how things are at your level. If'n ya act as the guy what takes the heat from up above, but still makes your men meet your tough standards, your unit will support ya. I *gar-an-tee* it! It makes your troops feel that their commander is not only a bear as a commander, but he's a grizzly! 'Coz he stands up for 'em with higher HQs. Now this is bound ta bring ya into disagreement with some sorta regulation, order, or directive. Just remember – these here rules are made to provide guidance – *they ain't no Ten Commandments!* All rules have exceptions, so don't be led around by the nose by rules. Do what's right fur your unit and troops. Don't worry too much about doin' everythin' right – by the rules. Bein' fair and square with your troops is more important than a whole passel a rules and regulations.

"There's also another job ya gotta work at all the time too, an' that's the creation of a vision of excellence. 'Course ya gotta also sell that vision ta the troops. By that I mean, ya gotta get everyone involved in buildin' a good, solid professional unit where everyone does their best – not because they're *forced* ta, but 'cause they *want* ta. Build ya a unit where people do their job to the best of their abilities 'cuz they're proud to be a member of a good unit, an' they don't wanna be the reason it's not functionin' at peak performance. This ain't easy at all. I *gar-an-tee* it!

"Are there any other areas? Sure nuff. Anythin' involvin' the entire unit is your business – like total unit tactics, collective trainin', settin' standards, establishin' policies, allocatin' resources, buildin' teamwork, and preparin' the unit to face the chaos, fear, and stress of battle. Ya see, there's plenty to keep ya busy. All ya gotta do is recognize those things that are your business, exclusively. In fact, son, you'll probably be so busy preparin' yourself to be an expert, you'll have less time than ya do now. I guess ya might say you're the distributor on one a them engines – causin' different spark plugs to fire at selected times so the whole contraption will run smoothly."Ya catch onta what I'm drivin' at, son? Ya gotta be more than just the head, hard-workin wrangler in this here outfit. Ya gotta be the brains, the director, the organizer, teacher, coach, father, mother, aunt, and uncle. Ya gotta be a person everyone looks ta for direction, goals, assistance and guidance. But at the same time, someone they can do without, 'cause ya trained 'em so well. Ya got good material, son, but keep oriented on the important stuff. Get everyone else to do their jobs so you can do yours. If'n ya think about what you'll be doin' in combat, you'll see real clear like, ya gotta start workin' in peacetime to prepare for war.

"Well, guess I used up 'nuff a your time. 'Sides, I gotta skeedaddle on down ta Fiddler's Green tonight. I wouldn't want ta keep that sweet young thing waitin'. Ya take care now son. Think about what I told ya. You'll do just fine, long as ya spend some time thinkin' and readin'. I'll be watchin' ya. Ya probably won't see me, but I'll be around. I'm always around and watchin'. After all, what other job has an old cavalryman like me got to do?"

Recognition Quiz Answers

1. LEOPARD ARV (FRG). Crew, 4; loaded weight, 39,800 kg; max road speed, 62 km/hr; max road range, 850 km; engine, MTU MB 838 Ca. M500 10-cylinder multifuel 830 hp; armament, 2 x 7.62-mm machine guns, 6 smoke dischargers.

2. M728 CEV (US). Crew, 4; combat weight, 53,200 kg; max road speed, 48 km/hr; max road range, 450 km; engine, Continental ATDS 1790-2A or 2D 12-cylinder 750-hp diesel; armament, 1 x 165-mm demolition gun, 1 x 7.62-mm coaxial machine gun, 1 x .50 caliber AA machine gun; armor, 120-mm front.

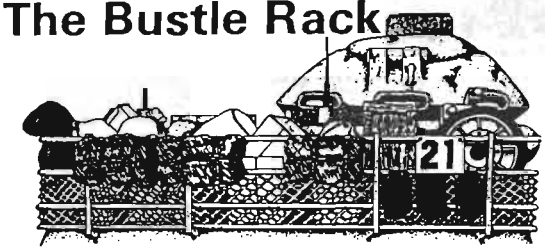
3. BRDM-2 (USSR). Crew, 4; 4 x 4 drive with four center wheels that can be lowered for cross-country travel; combat weight, 7,000 kg; max road speed, 100 km/hr; max road range, 750 km; amphibious, water-jet propelled at 10 km/hr; armament, 1 x 14.5-mm machine gun, 1 x 7.62-mm coaxial machine gun.

4. SPAHPANZER LUCHS (FRG). Crew, 4; combat weight, 19,500 kg; max road speed, 90 km/hr; max water speed, 9 km/hr; max road range, 800 km; engine, Daimler-Benz OM 403A 10-cylinder multifuel supercharged 390-hp V-4; turning radius, all wheels, 5.75 m; front wheels, 9.7 m; armament, 1 x 20-mm cannon, 1 x 7.62-mm AA machine gun, 2 x 4 ea. smoke dischargers.

5. T-72 MBT (USSR). Crew, 3; combat weight, 41,000 kg; max road speed, 60 km/hr; max road range w/auxiliary tanks, 700 km; engine, V-12 780-hp diesel; armament, 1 x 125-mm main gun, 1 x 7.62-mm coaxial machine gun, 1 x 12.7-mm AA machine gun.

6. D-6 BULLDOZER (US). Crew, 1; weight, 7,258 kg; length, 3.78 m; width, 2.44 m, height, 2.18 m; hydraulically operated blade.

The Bustle Rack



Pistol Training at USAARMS Shifts to New 9-mm Weapon

Mechanical training and practice firing of the M1911A1 .45 caliber pistol is no longer a part of officer and enlisted courses at the Armor School, according to the Directorate of Training and Doctrine. The change came in light of the Army's development and issuance of the new M9 9-millimeter automatic. Henceforth, units still using the M1911A1 will be responsible for training in its use.

Author Seeks Abrams Tapes

Dr. Louis Sorley, who is preparing a book about General Creighton Abrams, is seeking information on an audio tape made by Abrams titled "Mounted Combat" and a slide presentation titled "Caring for the Soldier." Dr. Sorley asks readers with any information on these presentations, or other input about GEN Abrams, to contact him at 9429 Garden Court, Potomac, MD 20854.

M1A1 Transition and Rollover Continues in USAREUR

The 1st Armored Division is completing transition training from the M60A3 to the M1A1 while the 3d ID and the 2d AD have completed rollover training from the M1 to M1A1. Twelve battalions of M1A1s are now fielded in USAREUR.

Abrams Tank Weight Limit Set at 70 Tons

The TRADOC commander and the CG, Army Materiel Command, have approved a memorandum setting the upper weight limit of the combat-loaded Abrams tank at 70 tons. All future product and block improvements must stay within this limitation. The weight of jettisonable countermine and counterobstacle equipment is not included.

Army Designs New Three-Color Camouflage Scheme

The Army's Belvoir Research, Development and Engineering Center has completed design of three-color camouflage patterns for all tactical equipment, replacing a less-effective four-color scheme used previously. The German Army, which cooperated with the concept, is now repainting its equipment and other NATO countries are considering the three-color pattern.

Reunions

The 10th Armored Division Veterans Association will meet in Hartford CT September 2-5. Further information is available from C. A. Carlson, 2409 Montana, Apt. G-2, Cincinnati, OH, (513) 662-6480.

The 702nd Tank Battalion (Red Devils) annual reunion will be October 11-16 at Clearwater, FL. Arrangements can be made through Thomas Barry, 2584 Bramblewood Dr., Clearwater (813) 734-2664.

The 6th Armored Division's 41st annual reunion will take place at Richmond, VA, September 6-11. Further information on the reunion and on membership for former Super Sixers is available from Edward F. Reed, P.O. Box 5011, Louisville, KY 40205.

The Society of the First Division (Big Red One) will hold its 70th annual reunion August 17-21 in Washington, D.C. For further information, contact Arthur L. Chaitt, executive director, 5 Montgomery Avenue, Philadelphia, PA 19118.

The 35th annual reunion of the 65th Infantry Division will take place August 18-20 at Louisville, KY. For more information, contact Fred J. Cassata, 123 Dorchester Rd., Buffalo, NY 14213, or Maurice R. Neil, 8409 Brook Drive, Canton, MI 48187.

The U.S. Horse Cavalry Association's annual bivouac will be held 14-16 October in the Washington, D.C. area. Further information is available from the USHCA, P.O. Box 6253, Fort Bliss, TX, or by calling 915-562-8818.

New M1A1 Armor Uses Steel-Encased Uranium

The Army has announced the production of an improved M1A1 Abrams main battle tank armor capable of withstanding a hit from any known Soviet antitank munition. The new armor will allow the Abrams tank to meet the anticipated threat well into the 1990s, the Army says.

The armor incorporates steel-encased depleted uranium and is two and a half times the density of steel. The Army has confirmed that the new armor, as it is incorporated into the new design, will involve no appreciable health threat and is well within the acceptable range established by the Nuclear Regulatory Commission. No special antiradiation precautions are required when near or in the tank.

The majority of the improved tanks will go to Europe late this year where they can most directly contribute to NATO defenses.

BOOKS

The Red Army's Marshal of Mobility, Purged by Stalin in the 1930s, Conceived Current Soviet Deep Battle Doctrine

by Captain Robert E. Kells, Jr.

Deep Battle: The Brainchild of Marshal Tukhachevskii, by Richard Simpkin and John Erickson. Brassey's Defence Publishers, London, 1987. $37.50.

Richard Simpkin's last book on mobile warfare pays tribute to the genius of the Soviet Union's greatest military theoretician of this century – Marshal Mikhail N. Tukhachevskii. As the subtitle suggests, it was Tukhachevskii who was chiefly responsible for the development of Soviet deep battle and deep operations theory in the 1920s and 1930s, theories which, according to Simpkin, we in the West are just now beginning to comprehend and put into practice.

Deep Battle is divided into five parts. The first provides a thumbnail sketch of the man Simpkin calls a "great captain" of the Russian Civil War. The second deals with the development of deep operations theories and how they were updated by the theorists of the '20s. The third and fourth parts are made up of translations of the marshal's writings and extensive quotations from the Red Army's Field Regulations of 1936. These two chapters, interspersed with editorial comments by Simpkin, form the core of the book. They trace the gradual development of the "deepening idea," as Simpkin puts it, as Tukhachevskii's theories evolved from the tactical level (deep battle) during the 1920s to the operational level of war (deep operations) in the 1930s.

Tukhachevskii and the small group of officers that gathered around him in the '20s developed theories which were far ahead of their times. Just how far into the future these visionaries peered is evident in the pages of Deep Battle. The much sought after goal of simultaneously engaging an enemy's entire force was made possible by the emerging technologies of the 1920s and '30s. Previously, the only way to achieve the simultaneous neutralization of an opponent's defenses was to maintain maximum contact along a broad front, conduct a turning movement, or both. Tanks and airplanes made it possible to achieve this effect at the tactical and operational levels through combined arms operations in depth and at speed along more widely dispersed axes of advance. Tukhachevskii's description of the encounter battle in a 1937 article describing the then-new Field Regulations of 1936 would fit perfectly into the most recent edition of FM 100-5. Although Tukhachevskii's theory was discredited, along with its author, when the Marshal ran afoul of Stalin's purges, it proved its worth when the Soviet leadership reinstated it during WWII.

Tukhachevskii also recognized that the increasing strength of the defense would make offensive operations very costly and suggested that the best way to deal with antitank weapons was to employ remote-controlled tanks. This may have seemed like science fiction in the 1930s, but it is receiving very serious attention in our own day. The marshal also envisioned the use of mechanized airborne forces under the term "air mechanization" and made this a component of his deep operations theory. One has only to look at the Soviet airborne forces of today to see how seriously they took this suggestion to heart.

The final chapter summarizes the main themes of Tukhachevskii's thought and how the lessons of deep operations theory are pertinent to the development of today's Western military doctrine. Simpkin shows that Tukhachevskii and company laid the groundwork for maneuver warfare theory 50 years ago, and that its essential components (combined arms interaction, simultaneous neutralization of the opponent through deep operations, the interchangeability of shock and fire power, and sound C^3), are equally important today.

Perhaps the most important lesson Simpkin would have us learn about maneuver warfare is the need for decentralized command and control on the battlefield. It is here, probably more so than anywhere else, that the contradictions emerge between the Soviet theory of mobile warfare and the regimented system that would, in any future war, have to turn theory into successful practice. Simpkin, like Tukhchevskii, was aware

that decentralized command and control were necessary to engage in mobile warfare. Both men recognized the need to permit initiative at the tactical levels of command within the framework of orders from the top (directive control or Auftragstaktik). Unfortunately, neither writer offers any firm suggestions as to how to resolve this conflict.

Deep Battle is well worth reading for the historical perspective it provides about the theoretical foundations of the Soviet Army's maneuver warfare doctrine and the lessons of deep operations theory which the U.S. and British armies (Simpkin's examples) will have to master if they are to make the transition from "addicts of attrition" to practioners of maneuver warfare. This is an important book which deserves a wide reading by today's professional officer corps.

Captain Robert E. Kells, Jr. is assigned to the 513th MI Brigade at Fort Monmouth, NJ.

...Inevitable Decline?

A Yale professor examines the ebb and flow of history's tides, and wonders if the high tide has passed for the Americans and the Soviets

The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000, by Paul Kennedy. Random House, NY, 1987. 677 pages. $24.95

Paul Kennedy, a professor of history at Yale who studied strategy and military history under Liddell-Hart at Oxford, has written a blockbuster of a book on the interaction between economics and military strategy. His work has substantial value as a military history of the rise and demise of the world's great powers since 1500, particularly because it fills in the details which other authors often neglect. The book is in three major sections: the preindustrial world to 1815; the industrial era to 1942; and the strategy and economics of today and tomorrow into the 21st Century. Approximately 1,400 sources listed in the bibliography and 82 pages of end notes indicate just how rich a work of history it is.

Civilian as well as military policymakers will find the final chapter of special interest. Kennedy speculates on the near future, using his findings on what causes nations to rise and fall. As the messenger bearing bad news, Professor Kennedy may want to don a flak jacket. His work contradicts those who wish to believe that the United States will remain forever the most powerful economic and military nation on earth.

Kennedy correctly observes from history that the balance of power between leading nations never stays constant because of uneven rates of economic growth and technological advance. If a nation expands its military commitments beyond the economic base required to support them, or lacks the will to extract the necessary support from its economy and citizens, that nation is in trouble. According to Kennedy's thinking, both the United States and the USSR will be declining powers relative to Japan, the People's Republic of China, and the European Economic Community, provided the Europeans can ever agree on common policies and goals. How fast and to what degree these changes will occur depends upon the relative skill and experience of the policymakers involved.

Kennedy's study is not a dissection of the military tactics and operations of the great powers, but instead a superbly satisfying investigation of their national grand strategies since 1500, and a thought-provoking picture of the future. It should be required reading for the enlightened professional soldier who wishes to understand the dynamics that cause a nation to gain or lose power

MARK F. GILLESPIE
CPT, Armor
Department of History, USMA

American Heavy Tanks:

An Encyclopedic Reference On Wartime Behemoths That Arrived Too Late For WWII

A T-28 heavy tank under test. Only a few were built, too late for WWII.

FIREPOWER: A History of the American Heavy Tank, by R.P. Hunnicutt. Presidio Press, Novato, CA., 1988. 224 pages. $40.00.

The appearance of the German Panther and Tiger tanks in the European and African theaters of WWII restimulated the development of heavy tanks in the United States. Although never fully developed before the war ended, this program led to some interesting and unusual experimental heavy tank models and passed on many innovations that appeared in the M60 series of tanks.

Development of the heavy tank during WWI was primarily a British project, although the U.S. Ordnance Department did work with a few models shipped from Britain. The end of WWI put the heavy tank program in the United States on the back burner for two decades, until the Panther and Tiger showed up.

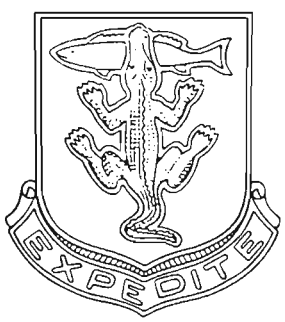
Then the program was unearthed and development rushed ahead. Again, the end of the war halted the program, but this time several innovative concepts were incorporated in American tanks.

Hunnicutt, author of: PATTON: A History of the American Main Battle Tank, and PERSHING: A History of the Medium Tank T20 Series, and Sherman, all acknowledged treatises on their subjects, has pursued the same style of presentation with a multitude of clear photographs and equally clear line drawings. Not much at all is left to the reader's imagination.

The author's truly in-depth research, his data sheets, references and selected bibliography provide the reader with an almost limitless source of further reading.

The price is heavy, but then, so is the subject. This book, along with Hunnicutt's previous works, should really become a must purchase for the truly professional armor officer.

ARMOR Staff



Motto

Expedite (with dispatch), emphasizes the speed of operation, while the idea of power and destruction is shown in the shield.

Symbolism

The armored shell of a voracious man-eater cracking the scales of the fish is an allegorical allusion to the destructive power of the organization and its skill in snaring the wary enemy. The motto emphasizes the speed of operation.

Distinctive Insignia

The distinctive insignia is the shield and motto of the coat of arms.

103d ARMOR

Expedite (with dispatch)

Lineage

Constituted 3 Dec 41 in the Army of the US as the 628th Tank Destroyer Bn. Activated 15 Dec 41 at Indiantown Gap Military Reservation, Pa. Allotted 7 Mar 42 to the PAARNG. Inactivated 14 Nov 45 at Camp Myles Standish, MA. Redesignated 24 May 46 as the 628th Tank Bn. Organized and Federally recognized 2 May 49 as the 628th Heavy Tank Bn at Johnstown and assigned to the 28th Inf. Div. Ordered into active Federal service 5 Sep 50 at Johnstown. Redesignated 20 Sep 50 as 628th Tank Bn at Camp Atterbury, IN. (628th Tank Bn (NGUS) organized and Federally recognized 1 Sep 53 at Johnstown). Released 1 Jun 59 with elements of the 110th Inf and the 108th and 166 Field Artillery Bn to form the 103d Armor, a parent regiment under the Combat Arms Regimental System, to consist of the 1st Recon Sqdn and the 2d Medium Tank Bn, elements of the 28th Inf Div. Reorganized 1 May 62 to consist of the 1st Recon Sqdn and the 2d Medium Tank Bn, elements of the 28th Inf Div, and the 2d Medium Tank Bn, a nondivisional unit. Reorganized 1 Apr 63 to consist of the 1st and 2d Medium Tank Bn, elements of the 28th Inf Div, and the 3d Medium Tank Bn, a nondivisional unit. Reorganized 24 Mar 64 to consist of the 1st and 2d Bns, elements of the 28th Inf Div, and the 3d Bn, a nondivisional unit. Reorganized 17 Feb 68 to consist of the 1st Bn, an element of the 28th Inf Div, and the 3d Bn, a nondivisional unit. Reorganized 1 Jan 76 to consist of the 1st Bn, an element of the 28th Inf Div.

Campaign Participation Credit

World War II-Northern France; Rhineland; Ardennes-Alsace; Central Europe. Co A 1st Bn (Ligonier), additionally entitled to: World War II-EAME, Normandy. Co C 1st Bn (Somerset), additionally entitled to: World War I, Champagne-Marne; Aisne-Marne; Oise-Aisne; Champagne 1918; Lorraine 1918; World War II-EAME, Normandy.

Decorations

French Croix de Guerre with Silver Star, World War II, Streamer embroidered WALLENDORF. Headquarters Co 1st Bn (Johnstown) additionally entitled to: Presidential Unit Citation (Army), Streamer embroidered HURTGEN FOREST.

Co A 1st Bn (Ligonier) additionally entitled to:

Meritorious Unit Commendation, Streamer embroidered EUROPEAN THEATER and Luxemburg Croix de Guerre, Streamer embroidered LUXEMBURG.

Co C 1st Bn (Somerset) additionally entitled to: Luxemburg Croix de Guerre, Streamer embroidered LUXEMBURG.

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