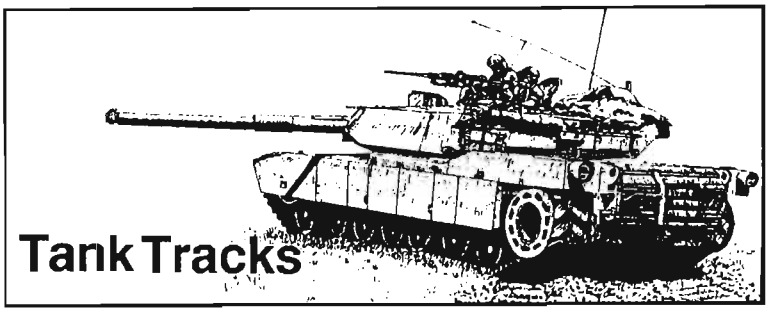
ARMOR

50th Anniversary U.S. Armored Force

PB 17-90-5

September-October 1990



Tank Tracks

Some 40 years ago, June 25, 1950, armies of the North Korean People's Republic stormed across the 38th parallel, quickly grinding up the unprepared ROK Army. Seoul fell on the third day to six divisions led by 100 T34 tanks.

At the end of WWII, less than five years earlier, the United States had the most massive armed force in its history. But unprecedented demobilization, a desire to return to normalcy, and faith in a one-weapon defense had left the Army ground forces in a pitiful state. By mid-1948, the 2nd Armored was the only tank division left on the rolls.


The Washington Post

RED TANKS OVERRUN U.S. OUTPOST

Allied Planes Batter Targets in North

All that was available to meet the North Korean armored threat was four M24 tank companies, one each from four infantry divisions stationed in Japan. Though their crews fought with substantial valor and guts, the Chaffees quickly proved no match for the superior T34/85. Such was the result of the rush to cash in on the "peace dividend" in the wake of World War II.

Speaking in Washington in October 1973, General Abrams said with great emotion, "...we paid dearly for our unpreparedness during those early days in Korea with our most precious assets – the lives of men. The monuments we raise to their heroism and sacrifice are really surrogates for the monuments we owe ourselves for our blindness to reality, for our indifference to the real threats to our security, for our determination to deal in intentions and perceptions, and for our unsubstantiated wishful thinking about how war could not come."

The history-changing events of the last year – the velvet grassroots revolutions against totalitarian regimes, the apparent change of heart in Soviet leadership, and the forceful ejection of a Panamanian strongman – have reinforced that wishful thinking and hopeful belief in intentions and perceptions.

Now, as this issue goes to press, we are immersed in the Mideast at a greater level of commitment that ever before. But Saddam Hussein is no pissant like Maurice Bishop or Manuel Noriega. He has chemical weapons, which he has demonstrated a desire to use, and he has 5,500 tanks, from T34s to T72s. Perhaps this event will serve as a timely reminder of how quickly rhetoric can escalate to aggressive action and how quickly American teeth are needed to help with an ally's plate. U.S. national interests have not been bounded by our shores for 50 years. And I hope we have learned by now that there are a number of countries that do not get weak-kneed at a show of force.

History does repeat itself. But it does not follow that we must make the same mistakes. Despite any amount of wishful thinking, there will always be a North Korea or an Iraq. That is why there must always be a potent, formidable, sizeable Armored Force – to handle the tough jobs. Let's re-examine our restructuring plans, and let's not make the same mistakes of 1950.

– PJC

By Order of the Secretary of the Army:
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ARMOR

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September-October 1990, Vol XCIX No. 5

Features

Departments

ON THE COVER: Commissioned to commemorate the 50th Anniversary of the Armor Force, "Calm Before The Battle" was painted by Radcliff, Ky. artist and gallery owner, Roy M. Minagawa. The painting, which is available as a print, depicts U.S. tanks in action near St. Vith, Belgium, during the Battle of the Bulge. Only a portion of the work is shown.

LETTERS

T-64 No "Supertank, Soviet Tankers Say

Dear Sir:

Captain Warford's in-depth analysis of the Soviet T-64 tank was an enjoyable, well-written, and organized look at the Soviet supertank. Unfortunately, there was no realism involved in the assessment.

At the Armor Officer Basic Course I attended in 1982, the supreme armored vehicle was believed to be the T-72. At that time, we junior officers were told that the entire justification for the (then) new M1 Abrams was the invincibility of the T-72, which hopelessly outpaced the aging M60 series tanks in every aspect. A week after this bit of classified revelation was entrusted to us, the Israeli Army knocked out several T-72s with the M60 at ranges in excess of 3200 meters.

Backpedaling as fast as it could, our cadre explained this by stating that those T-72s knocked out were the "export" models, and that the real thing still justified the inflated expense of the M1. New to the procurement game, we swallowed this reluctantly, because not many or us could understand why a country would accept second-line weapons in the first place.

The mystique surrounding the T-64 was embellished while I was a platoon leader at Fort Hood. The T-64 was not even authorized in the Warsaw Pact; the Soviets were so proud of it. The party line was that it was purely for the defense of Moscow, and never left Russia. We had already learned that Fort Hood was where reality went to die, and the information on the T-64 was filed under "?".

Since my departure from the U.S. Army, I have had the chance to read many as-

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sessments of this supertank, as well as talk with former Soviet tankers who actually served on it. Virtually every opinion, both written and verbal, was the same: the T-64 is a piece of junk. It was not used by [other] Warsaw Pact members, not because of any secret abilities or configuration, but because no one wanted it. It was kept in Russia because it couldn't go very far, anyway, and still provided a certain aura of mystery.

The higher-ups had the military community intimidated enough that the Army had carte blanche with the M1 program. Personal experience with this mechanical nightmare showed the M1 to be a real dog itself, yet it was defended so vigorously by officers who should have known better. To read one of the best comparisons, I would recommend every armor soldier read The Threat, by Andrew Cockburn, and see for himself how ridiculous these assessments can become.

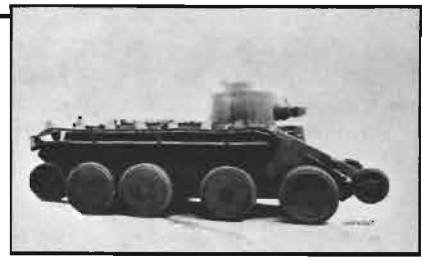
Future assessments like Captain Warford's should be examined by students with this one thought it mind: "How can a country that cannot make tape recorders, computers, or a decent automobile produce a tank that "could have won the next war"?

JEFFREY S. GOLDFARB
Eilat, Israel

More On Christie's Battles with Ordnance

Dear Sir:

The recent article in ARMOR by the editor-in-chief on U.S. armor between the two world wars was most appropriate as we reach the 50th anniversary of the Armored Force. However, the section dealing with the historical role of the Christie tank, and the interservice rivalries associated with its development and procurement costs, as usual, adds to the mystique and debate surrounding the notorious tank designer and his tanks. No doubt, in the early history of U.S. tank development, the Christie tank stands out as the most controversial. Even today, J. Walter Christie's role in history is still unsettled and involved in heated exchanges. When Christie's son, J. Edward, produced his memoirs, Steel Steeds Christie, in 1985, a new round occurred, filled with acrimonious charges regarding the designer's historical contribution to armor. One observation is certain, and that is: father and son had no love for the Ordnance Department and the personnel associated with tank development. In fact, the Christies referred to them as "iron domes" and



CHRISTIE M3 MEDIUM, ON ITS WHEELS

"stiff neck brass." Adding to the Christies' comments, Major Patrick Cooney noted in his article that, "The new Chief of Ordnance...disliked Christies, so they only bought one for $62,000...." This is far too simplistic, and stretches episodes on armor history based upon unproven facts.

Perhaps the most appropriate way to position Christie's tanks, the costs, and interservice conflict into a proper historical context is to begin a year after the U.S. secretary of war directed the Army Chief of Staff to organize a mechanized force. That is when Christie introduced the M1928, built as an experimental convertible tank chassis, which was submitted for tests by the Tank Board per verbal order from the chief of staff in October 1928. After a number of mechanical problems, which necessitated major repairs and modifications due to some negative infantry and cavalry test evaluation reports, the chassis was eventually scrapped. Some parts were used in subsequent vehicles built by Christie. During this period the Ordnance Department was not provided the opportunity to test the chassis. Finally, on 2 January 1930, the secretary of war revoked the order to purchase the M1928 for $15,000 because of Christie's insistence that the government purchase eight chassis at $82,750 each over a period of five years.

The tank version of the M1928 appeared in 1930 and reflected some using arm requirements, such as a turret and armament capabilities. Four were built in 1930. Two were built for the Red Army, which contracted for the tanks through the New York-based Amtorg Trading Corporation in April 1930 at $30,000 each. The chief negotiator for the Red Army was General I.A. Khalepski, who was the director of the Board of Motorization and Mechanization and the creator of the Red Army armor force in the early 1930s.

The tanks were turned over to Amtorg in December 1930 and immediately shipped to the Soviet Union. The Red Army Christie formed the BT fast tank series, beginning in 1931, and ultimately evolved into the famous World War II tank, the T34, which is mentioned by CPT James Warford in the March-April issue of ARMOR. One M1930 was also built for the Polish Army and contracted for at the same time Amtorg and Red Army representatives were involved in negotiations with Christie. By January 1931, Christie had defaulted on the Polish contract and was eventually required to return a $10,000 down payment and $3,000 in penalty fees. Later, this tank would be one of the seven purchased by the U.S. Government under Contract Word 126, dated 18 June 1931. The fourth tank Christie built in 1930 was for U.S. Army acceptance tests, contracted for on 28 June 1930 under Contract Word 89 at a unit cost of $55,000. The contract called for a delivery date no later than 1 September 1930. However, the tank was delivered 4-1/2 months late, on 19 January 1931, much to the displeasure of Ordnance personnel who were aware and exasperated over the preference Christie had given to the Red Army tanks. After a series of tests in January and February, Christie was offered $54,000 for the tank, providing a complete set of drawings was furnished. This was a nominal reduction of $1,000 from the contract price, due to Christie not having met his obligations under Contract Word 89. During all the tests, the tank was driven by Christie's expert driver, Leo Anderson. Not once were Ordnance personnel provided the opportunity to test the tank. On 12 May 1931, the Chief of Ordnance withdrew the offer, and the tank was returned to Christie's plant for repairs and modifications.

In May 1932, Christie offered to sell the tank to the U.S. Government for $34,500, and again in February 1933 for $20,000. The offers were rejected. Later, in 1936, Christie sold this tank to Lord Nuffield's Morris motor group for approximately £8,000, but not before an arrangement was made to pay off a lien on the tank. The British Army Christie was to form the embyro for the cruiser tank series A13.

On 18 June 1931, after political pressures and a sincere desire by U. S. Army Ordnance and the using arms to evaluate the Christie tank, Contract Word 126 was signed, calling for seven tanks. Six were built in the chain-driven wheel-mode, and the other tank accepted was the gear-driven, wheel-mode Polish tank which had been built in 1930. The contract called for a unit price of $34,500 each, with a final delivery date of May 1932. All seven were accepted by the U.S. Army.

In spite of the many reasons for the rejection of Christie and his ideas, the U.S. Army – especially the Ordnance

Continued on Page 44

The Future of Armor: Part II - The Main Battle Tank (MBT)

by MG Thomas C. Foley, Commanding General, U.S. Army Armor Center

In the July/August Commander's Hatch we continued our examination of the future of Armor by looking at the role of Cavalry. In this issue our focus is on the Main Battle Tank. Let's first review what the MBT brings to the warfighting CINC.

The MBT is the primary weapons system of the United States Army that is designed to close with, destroy, and break through enemy defenses and exploit success. The principal role of the MBT is to facilitate and lead offensive operations by ground forces. It performs this role by combining three qualities: the lethality of its onboard *firepower,* its *mobility* over difficult terrain, and its *protection* from enemy fires. The MBT provides a day/night, all-weather, around-the-clock capability, characterized by rapid maneuver and accurate on-the-move firing. The MBT remains the primary anti-tank weapon system in our inventory. This unique set of characteristics results in endurance and agility for our force and *shock effect* that shatters the enemy.

The MBT is the prime weapon system of our tank battalions. It is also a key part of our armored cavalry squadrons. These units operate as part of a combined arms organization, which includes infantry, field artillery, engineers, air defense, attack helicopters, and Air Force tactical aircraft. The presence of the MBT enables our combined arms forces to attack and exploit in the enemy's rear; otherwise, we would be compelled to remain on the defensive when facing an enemy with tanks.

This reiteration of the value of the MBT is necessary because there is a danger that we will weaken our defense capability by prematurely eliminating our Active Army MBT units. For example, to maintain a tank battalion at immediate readiness to execute its mission essential task list (METL) to standard is a 365-day-a-year proposition. Because METL proficiency is not easily achieved in a surge situation, we must maintain MBTs in our Active Component. Resources must be provided so our units can maintain METL proficiency. At the same time, we must seek ways to facilitate and enhance METL proficiency of our Reserve Component armor formations. This is one of the objectives of our Armor 2000 study effort.

Given the challenges that characterize our current world situation, it is imperative that we explain the capabilities and requirements of our armored combined arms teams. The new international realities were produced because we remained strong and vigilant, because we invested large amounts of our national treasure into readiness and modernization. For more than four decades we have stood solidly with our NATO allies against the Warsaw Pact threat. The centerpiece of that stand is the NATO armor force, and at the tip of the NATO spear rests the U.S. Army's armored combined arms formations. For much of the same period, we have stood with our Korean allies in that critical region of the world. General Vuono summed it up best at this year's Armor Conference by saying: "In view of the collapse of the Warsaw Pact, there are those who are anxious to write the obituary for the Armor Force, arguing that we only need light forces for contingencies such as Panama. NONSENSE. Regardless of the fate of the Soviet empire, our Armor Forces will remain the decisive element of our land power and an indispensable component of our future force mix."

The situation is certainly changing; however, significant armor threats remain in many areas of the globe. Thirty countries have an arsenal of at least 1000 tanks, and of those, 15 possess more than 2000 tanks. There are very few places around the globe where a credible armor threat does not exist.

In the face of this potential, we plan to improve the most potent armor force ever fielded. We are seeking ways to lighten the force so that it is more deployable in a strategic sense and more agile from both the tactical and operational perspectives. Improvements likely will not come in the form of in-

creased numbers of battalions or in bigger battalions. They will come in the form of more agile battalions, with greater endurance and independence, better intelligence systems, better communications systems, improved countermeasures, and many other areas. These battalions will be equipped with increasingly more lethal systems and, at the same time, will be more fightable and survivable. They may be smaller than today's tank battalion.

The speed, power, endurance, lethality, and agility of the modern MBT battalion is difficult to explain to those who have not experienced it. Agility becomes more important than ever as we roll toward the year 2000. In armor, we have long practiced the art of the "frag order", the rapid response to ever-changing battlefield conditions. We have also developed and applied crew drills and battle drills as well as SOPs to improve our ability to shift our efforts quickly to a new threat or opportunity. This agility is achieved through a number of factors, to include thorough interoperability of tactics, techniques and procedures, the speed of our combat systems, our communications means, as well as the application of "frag orders," drills, and SOPs. As impressive as this potential agility may be, it can only be achieved if the commanders at all levels possess and develop the mental agility needed to analyze and quickly evaluate the battle situation, then quickly choose and communicate an effective course of action to focus the combat power at their disposal. The MBT is key.

The capabilities being designed into our future MBT will revolutionize the way we fight and enhance our battlefield agility. The MBT commander's independent thermal sight will significantly increase the TC's ability to hand off targets to his gunner. Integrated vehicular information systems, which provide vehicle status reports and diagnostics for the crew, as well as automated command and control systems for commanders, will enable rapid, secure transmission of graphics, targeting information, and logistics data. Position navigation systems will not provide only location data for the MBT, unit locations to commanders, and direction and speed of movement, but will also enable tank commanders to accurately locate distant targets and enhance our use of indirect fire assets. Target designation and hand off will be quicker and more positive, while the threat of fratricide is virtually eliminated. Freed from the compass and map, the armor commander can concentrate on destruction of the enemy.

The fightability of future MBTs will be enhanced due to the advantages of the characteristics of components based on computers and digital information. Digital information can be manipulated by any computer, adding redundancy and flexibility. This redundancy and flexibility equates to improved survivability for the essential systems of the MBT.

The key capability of these future improvements is the capacity to integrate much of the current workload into the system of the MBT. This will mean that TCs can maintain awareness of friendly tanks based on graphics displays. Tank platoon and section leaders will be able to quickly describe and initiate engagements of multiple targets using the capabilities of these displays. We will be able to explore many of these technologies using a battalion of M1A2s. The Army plan calls for production of 62. This will allow hands-on experimentation concerning the combined payoffs of these systems at all levels from platoon to battalion. The resultant insights will allow fine tuning of the systems that will go into the future MBT, known as the Block III.

These advanced features will synergistically improve the agility of the organizations of which they are a part. For example, tank battalion commanders will be able to change the routes, directions, missions, and schemes of maneuver of their units while on the move. They will be able to rapidly and accurately communicate their intent to their company commanders. Building upon these capabilities, the future MBT will provide another revolutionary improvement for the Armor Force. Long-range, rapid-fire engagements against ground and airborne targets, significantly improved target acquisition systems, and dramatically increased survivability against a broad range of threats will make the Block III the premier killer on the future battlefield.

Agility of the tank battalion can be further enhanced as combat systems are made more resilient and reliable. The goal is that the future MBT will be more reliable, more efficient, more accurate, quieter, quicker, better protected, lighter, and smaller. Many of these capabilities are tied to emerging technologies and advances in the fields of directed energy, metallurgy, artificial intelligence, robotics, and communications. These technologies will ensure the Armor Force is fully capable of rapidly advancing to the battle zone, engaging in sharp, highly lethal combat, and surviving to fight the next battle.

In addition to the hardware, we are looking at the size and composition of the battalion to make it more agile, lethal, and deployable. We're also working to be certain that the leaders and troopers of these battalions possess the mental agility and battlefield skills needed to get the most from this great equipment. More about our efforts to improve the Total Armor Force in future articles.

Forge the Thunderbolt!

CSM Jake Fryer
Command Sergeant Major
U.S. Army Armor Center

Train the Basics

I had a meeting engagement with a tank loader recently which caused me to come to grips with a significant training dilemma. This young, very intelligent EIA soldier, with the use of his home computer, determined the number of tank main gun rounds his cavalry regiment could expend on enemy targets unique to his unit's covering force area. He had a similar computation prepared for what the bad guys had at motorized rifle division level. His summary of the thousands of rounds of tank ammunition that would be exchanged was very impressive.

A few minutes later, he and I mounted his tank, along with his tank commander (TC), and each of us occupied our crew positions. I took the gunner's seat so I could gain a better appreciation for the talents of this young tanker. I took this young warrior and his TC through a CSM-induced dipstick I'd like to share with you.

- I asked the loader, who was recently assigned to his unit, to don his M25 protective mask, hook up to the gas particulate unit and his CVC helmet, and announce, "Ready!" to his TC.

His mask was not properly stowed in its case, and was not fitted to his face. So it took him a long time to accomplish the task.

- Diagnosing the possibility of a sickness within a tank crew, I asked the TC to do the same.

The somewhat experienced staff sergeant accomplished this task to perfection, but after he took off his normal eyeglasses, I noticed he didn't have optical inserts in his mask.

- After activating turret and hydraulic power, I asked the loader to open the ammunition ready rack door and extract a SABOT round from his uploaded M1A1 within seconds.

He extracted a HEAT round within three seconds, and admitted to me that he was unfamiliar with the unit's basic load (UBL) plan.

- Yearning to instill confidence in the loader, I provided him the opportunity to try it again. This time I told him to extract a SABOT (M829), knowing he had twice as many KE rounds in the ready rack as he had CE rounds.

He extracted a HEAT round. His TC shouted out some words of advice that I would not have been receptive to if I had been the loader.

- I then told the TC and loader to change positions, and had the TC execute the same task of extracting a SABOT round.

He also extracted a HEAT round, because he couldn't see without optical inserts in his mask. On top of that, he was unfamiliar with the color-coded ammunition index dial and feeler bumps next to each of the 17 cylinders within the ready rack!

The prescription for this diagnosed illness is simple. Train the basics! Most of the training deficiencies I've illustrated above are easily eliminated with training that:

- focuses on leaders and followers.
- is conducted normally during unscheduled times.
- is conducted during times of opportunity.
- is on the best training devices we have (the actual tank, in this case).
- is conducted by sergeants who are innovative, decisive, concerned, proud, and professional.

A New Day for Armor or the Last Glimmer of Sunset?

by Lieutenant Colonel Thomas A. Bruno and Staff Sergeant (P) John T. Broom

A NEW LIGHT TANK IS NECESSARY TO A REVITALIZED ARMOR FORCE.

Is the Armor Force in a malaise?

Are we, the Army's mounted combat force, losing our spirit?

We hear much that disturbs us, as the Armor Force enters its fiftieth year. Some say Armor is dying, AirLand Battle Future with its "nonlinear" concept will be fought with multiple "sensors," "firestrikers," and "brilliant munitions" requiring only mopping up of the smashed enemy by the infantry. The *Army Times* tells us of massive personnel and equipment cuts, with Armor suffering apparently disproportionate losses. As in the summer of 1920, the Armor Force appears to be in danger of extinction.[1] On a distant horizon we see a glimmer of light, but are unsure whether it is the dusk of our dying day or the dawn of a bright new day for the mounted combat force.

But amid the uncertainty and doubt, one fact remains unchanged – we can still affect our destiny. The glimmer of light on the horizon, if we choose, can be the dawn of a new day. If we merely continue, however, to ponder or bemoan our fate, it will surely be our final sunset.

The times, they are a'changin'. But amidst the change, let us also recall the similarities in our own past. In the 1920s, the nation had just won a titanic struggle, and thought that war had become unthinkable; the Tank Corps went away. In 1946, new technologies seemed to promise a new kind of war, without men bleeding and dying in the same old ways. By 1950, the Army as a whole, and Armor in particular, was a mere shadow of its former self.[2]

"Americans in 1950 rediscovered something that since Hiroshima had been forgotten: you may fly over a land forever; you may bomb it, atomize it, pulverize it, and wipe it clean of life – but if you desire to defend it, protect it, and keep it for civilization, you must do this on the ground, the way the Roman legions did, by putting your young men into the mud."[3]

In the aftermath of Vietnam, and in the face of an unprecedented buildup of Soviet armed might, our strategists and politicians concentrated on the Central European Theater. Our heavy force was designed to fight and win deployed forward. Our heavy force, now built around the M1 and the Bradley, are in excellent condition. The mobile force is now truly a combined arms team, possessing firepower, mobility, and shock effect. The crews are well trained and confident. Their leaders are prepared for the challenges they may be called upon to face. But now, recent events in Europe are causing our politicians to call for their withdrawal, and for our Army to "demobilize."

We don't agree with them, to some extent. But, it is time for us to withdraw a limited portion of our heavy force from Europe, and it is probably time to reduce the size of our forces. But, the period ahead is going to be one of great instability. Historically, as power balances change, low levels of conflict become widespread as the emerging powers seek to define the limits of their influence.[4] It is not now time to neglect our heavy forces – they face the most dangerous threat – but rather, to refocus our thoughts and actions on the most common threat.

American forces have been consistently engaged more often, for longer periods of time, and in more places, in low-intensity conflicts than in any other form of warfare. We in the Armor Force trace our roots to some of the most successful low-intensity warriors in history – the men in dirty shirt blue, the cavalry of the West. We demonstrated in Korea, 40 years ago, that armor has a significant supporting role to play in the most difficult of terrain and

weather conditions, even in a limited-war scenario. The tankers and cavalrymen who served in Vietnam proved that even in a counterinsurgency campaign, armor and cavalry are valuable, and at times, decisive elements in pursuing and destroying an elusive foe.

We have provided and can continue to provide, the essence of armor in low-intensity campaigns; to do so we need to build deployable, versatile, and lethal vehicles and organizations. These vehicles and organizations will not replace all of our current heavy forces. But we can and should realign a significant portion of our force to address our most common threat, now that the most dangerous threat has been somewhat reduced.

It is long past due that all of us pause and think, what is required for armor's role on the battlefield? Just how do we contribute to our Army's victory, whether it is on the plains of Central Europe, the deserts of the Middle East, the savannahs of Africa, the steaming tropical forests of the equatorial regions, or on some other terrain yet to be fought for?

First, we contribute by being there when we're needed by the light infantry, who, after all, must stake their claim at an airhead or seaport to offload our heavy forces. Next, we win by suppressing or destroying the enemy's weapons that threaten our foot soldiers. We do that the old fashioned way of the mounted soldier, by maneuver, fire, and shock effect. And then, and only then, do we worry about ourselves, our protection.

If we are unable to achieve the first two objectives, getting to the fight and destroying the foe, all the armored protection in the world is useless. If we are unable to achieve those first two objectives, then the concept of the tank is dead, and we deserve to drive our splendid mounts to the foundry and watch while they are cut into scrap metal.

However, now is not the time to return to the days before the Second World War, when it seemed there was a tank design for every purpose.[5] What we need now is a viable light armor force built around a light tank. This, when combined with our young warrior's spirit, will provide the traditional punch of armor to our airborne, rangers, and light infantrymen. A light armored force will not be a single-mission element; it should and will be part of our entire warfighting system. Light armored forces can provide us with options for deployment, reconnaissance, horizontal escalation, and economy of force operations that are otherwise denied us by our current sole concentration on the heavy forces.

Within the short term, we should create organizations with the assets on hand. As we withdraw units from Europe, we can use their equipment to re-equip and restructure. But we must not wait, time is short, and the issue critical. The impending return of forces from Germany should allow us to reorganize some of the heavy armor force into a light armor force. These light armored forces should be built around two distinct elements. Armored cavalry regiments are both by tradition and role ideally suited to be re-equipped as light armored cavalry regiments in support of the I and XVIII (Airborne) Corps. The light ACR should be structured much as it is today, but with more deployable and stealthy vehicles substituted for its current heavy vehicles. Its purpose within the corps would be to provide medium-range reconnaissance and a mobile armor reserve for the corps commander. In a heavy force environment, the light ACR could still perform medium reconnaissance and economy of force missions.

The test-bed organization already exists: 3rd Battalion, 73rd Armor, stationed at Fort Bragg. It could be reorganized into three armored gun system (AGS) troops using the Sheridan as a surrogate until the AGS arrives. The fourth troop could be organized into three platoons of three AGS, three LAV-25s with motorcycles, and three armored HMMWVs. The squadron could then be packaged to support each airborne brigade with an AGS troop of 14 AGS and a cavalry platoon, 3x3x3. This provides each brigade with both a significant armored reserve for both offensive and defensive missions and also a capable ground armored reconnaissance element.

The second element of the light armor force should be built around combined arms task forces of battalion strength. There should be at least one of these per light infantry division, airborne division, and airmobile division. The task force should consist of four company/team-sized units with a balanced mix of tanks and mounted infantry in each team, supported by either self-propelled light howitzers or heavy mortars.

This armored task force provides the division commander with a versatility he currently does not possess. The tactical and operational situation will determine whether the task force should be deployed with the leading echelons of the force or whether it can be a follow-on augmentation, available quickly if needed. The current reduction of the 194th Brigade at Fort Knox seems to present an outstanding opportunity to test and validate the concept of an all-arms task force. It should be re-equipped within two years with appropriate light armored vehicles to provide the 101st Air Assault Division with the armored punch it needs to survive and win in a low-to-mid-intensity conflict.[6]

Every day we delay the purchase and fielding of a good light armor force is one day closer to the needless sacrifice of our light infantry soldiers, our young paratroopers, and our rangers on some desolate airhead or some distant shore, while they await the arrival of two of our vaunted M1A2s. In the summer of 1950, an American task force was airlifted to Korea to demonstrate our nation's resolve. Some thought that the mere presence of American soldiers would send the North Koreans into retreat. We had no tanks to send, only six towed howitzers, with a total of six HEAT rounds and two companies of infantry. Task Force Smith, as it was called, and the bold forceful display of American resolve delayed the North Korean Army's T-34 tanks just seven hours.[7]

Yes, we in Armor run the risk that we may encounter some well armored and heavily armed enemy tanks, but our infantrymen live in the sure knowledge that any and every weapon on the battlefield can be the weapon of their demise. We in armor must remember that we gained our greatest victories with "inferior" equipment, handled with superior tactics and a "can do" spirit.[8]

We in Armor/Cavalry, and our senior leaders in particular, must now demonstrate courage and a "can do" spirit as Chaffee and Patton did to push a reluctant bureaucracy and Congress into the realization that disaster awaits us if we delay the purchase and fielding of light armored systems. The system may not be "perfect," but then what system ever is; the system may not have the "supreme" survivability of the M1A2; and it may not be equipped with every gadget the experts tell us we have to have. As an Armor Force, we have to accept that risk in order to play our part. Good, lightweight, armored vehicles are on the market now. We need to identify quickly the most capable ones and get them into the field, before the "tanks are dead" folks convince everyone else they're right. We don't have time to launch studies and develop the "perfect" light tank, impervious to any threat, lethal to any armor, and capable of being slung under an OH-58. [sic]

We can improve and develop later. Let's get started now with a vehicle that will do the job now. When we have nothing, the "perfect" or the "best" is the enemy of the good, especially when the "perfect" or the "best" is still on the drawing board, while our soldiers are at risk. Not every Third World army is like Panama's, even fewer are like Grenada's. Most have some armored capability and many have a lot.[9] But it is equally true that few have the very best and the skill to use it well.

A good light armored vehicle with an excellent gun and state-of-the-art fire control can kill a T-72 just as dead as an M1A1, probably better because it can get to the fight while we're still loading the M1A1 onto an aircraft or ship. And so what if the light tank can be killed by smaller guns, the infantrymen and artillerymen we're supporting can be killed by the machine gun or the mortar we're immune to.

In the First World War, George Patton specifically enunciated the idea that tanks could not be impervious to all threats.[10] What was true then is even more true today. After seventy years, tanks are still recognized as the most powerful force for victory on the battlefield, and more weapons than ever are arrayed against the tank. It is time to return to that philosophy; even the M1A2 can be killed. If we accept a certain threshold of destruction as the risk of our profession, possess a good vehicle that protects us up to that threshold, and provides us with the firepower, mobility, and shock effect to destroy the enemy, we in the Armor Force will have accomplished our objectives.

What is that threshold, and what are the parameters of that firepower, mobility, and shock effect? Those are the questions the remainder of this article will attempt to answer. But as we do, keep us honest, think the problem through; do the vehicles we propose meet the criteria? Do they provide a reasonable level of protection against most threats? Do they possess the firepower to deal with the vast majority of probable targets? Are they mobile enough to get to the battle, are they mobile enough to move on the field once they're there? Are they inexpensive enough to build and maintain in quantity to be effective? And most important, will they be successful in fulfilling one of the essential roles of armor: effective, timely support of the infantry?

Mobility, firepower, and protection are the three attributes of the mounted arm; together they create shock effect. The amount of shock effect generated by any element is determined as much by the intended victim as by the generating force. Dismounted infantry equipped with small arms suffer great shock effects when attacked by very thinly skinned M113-type vehicles, as witnessed by the effectiveness of the M113 when used as a surrogate light tank in Vietnam.[11] Main battle tanks, however, are much less susceptible to shock effect, even when faced by the most powerful of armored forces. The enemy's command structure is also susceptible to shock, but then the shock is due more to elusiveness and the rapidity of decisive movement, by even very light forces, than to the massive armor or firepower of less agile or more heavily supported main battle tanks.[12] So how do we decide what is the proper balance of mobility, firepower, and

protection. Strategic deployability and tactical mobility is and must be the first parameter. The ideal solution would be a single family of vehicles that could be airlifted and airdropped by medium-lift strategic aircraft. This demands that the vehicle weigh less than 18 tons.[13] An 18-ton tracked or wheeled armored vehicle should be capable of tactical mobility of a high order. It should be possible to purchase this type of vehicle with a ground pressure of 7.5 pounds per square inch and with a horsepower-to-weight ratio on the order of 30 hp per ton.[14] This should be more than adequate for the force's needs.

But what type of armament can be mounted on a vehicle weighing only 18 tons? Surprisingly effective armament. Guns of 90 mm to 105 mm in a soft recoil mount have been placed on vehicles weighing less than 15 tons.[15] And remarkable results have been obtained with innovative types of even smaller guns using high technology solutions.[16]

The only question remaining is what type of protection can be mounted on such a light chassis? Actually not very much, after we consider the weight of the powerplant and weapons systems. Currently, the M551 Sheridan (1958 technology) can provide protection up to 14.5-mm weapons. With new technologies, it should be possible to provide protection against all weapons up to 50 mm, and the effects of fragmentation from all artillery, except of course a direct hit from field guns of 100 mm or heavier. Antitank kinetic energy rounds and high-explosive antitank rounds will definitely outmatch any armor package we could provide.

There are two possible solutions to that problem. The first is to enhance crew survivability by incorporating technology to limit the under-armor effects of penetrating rounds, such as fire-suppression systems, blowout magazines, and self-sealing fuel cells. Crew suits could also be designed to enhance their chances of survival inside the vehicle from spalling, fragments, gas jets, and fire. The crew suits could be NBC protective and climate controlled for further protection.

The second solution lies in the field of add-on applique armor packages, consisting either of reactive armor or some derivative of the Chobham Armour technologies. This applique armor could be separately delivered and mounted in the field, or if the method of deployment allows, mounted before shipment. While this would in no way equal the level of protection of the M1A2, it should force the potential enemy forces to develop and commit dedicated antiarmor forces as a counter.

In the short-term there are several vehicles that are currently available to fulfill these requirements, with minor modifications. It took almost 15 years to produce the M1, and cynics state the acquisition bureaucracy is more interested in its own empire-building than in getting what is needed out to the field to face new threats. We need to band together and accelerate the acquisition of the light tank (AGS). The current "best" solution, envisioned by TACOM, is a possible purchase in SEVEN years. There are also vehicles that could fill the roles of an armored personnel carrier, mortar carrier, and the other supporting vehicle types available today.

In the midterm, we should develop light and medium families of vehicles in addition to the currently projected close combat light family, suitable for airdrop operations. We should also develop the light family into a medium family of significantly greater capability, suitable for airlanding by medium-lift aircraft. When the heavy family is added to these, operations can be planned and conducted using the entire range of contingencies and deployment options.

The families should include as a minimum: a turreted tank; an autocannon armed infantry vehicle; a missile armed tank destroyer; a kinetic energy gun-armed turretless tank destroyer; a heavy mortar carrier, preferably turreted with a breech-loaded auto mortar; a self-propelled howitzer; an assault engineer vehicle; logistics support vehicles; and command vehicles.

All three families should be designed with the greatest possible degree of commonality, especially with regard to fire-control systems, armament, and power trains. The commonality should extend both within each class family and across the entire series. This will greatly reduce costs and ease the burden of cross training crewman.[17]

But how are these distinct families of vehicles to be integrated on the battlefield? The initial intrusion forces committed to seize airfields and airheads can be immediately supported by the light airdropped family. As resistance intensifies, we can support the follow-on light infantry divisions by airlanding the accompanying medium family of vehicles. If the enemy still continues to resist or counter-intervention forces from a third party appear, sea-lifted heavy forces should come ashore to contain and destroy the threat.

This graduated reinforcement of the force by heavier elements does not negate the utility of the light or medium family. The light forces become the reconnaissance and security force, and the medium forces are committed as economy of force elements on the flanks or on less threatened sectors. The medium family should also be a very effective complement to light infantry units engaged in Military

Operations on Urban Terrain (MOUT). By developing light armored cavalry regiments and combined arms task forces equipped with deployable, versatile, and lethal light armored vehicles to support all types of contingencies, the Armor Force will provide essential support to the infantry and the nation, rekindle its spirit, and fulfill its destiny as the Combat Arm of Decision. If we fail to meet this challenge, we shall be reduced to the fate of 20th century Don Quixotes, tilting at increasingly unlikely windmills.

Sunrise or sunset, the choice is ours as a force. If we choose to remain divided and argue amongst ourselves, we face our sunset. If, on the other hand, we speak and act with a strong united voice, the sun is just rising. Generals in far away headquarters may ponder the future of war and pronounce their judgments. Civilian analysts in Washington's ivory towers may forecast our demise. But when the steel flew, and the streets of Panama echoed to the crack of small arms fire, the common soldiers knew what they wanted: a TANK.

It is up to us, the common tankers and scouts, the platoon leaders and sergeants, the company commanders and first sergeants, the battalion commanders and sergeants major, to think, speak, and act boldly. We are in a fight for our very existence, but in the words of some long forgotten tanker of the Fourth Armored Division, "They have us surrounded again, the poor bastards."[18] We are not going to fade away into the sunset! Armor soldiers and leaders have, for 50 years, been skilled and innovative in desperate situations. We thrive on challenges and take delight in proving the unbelieving wrong.

There have been many experimental vehicles; the time for experiments is over. It is time to build! There have been many proposed organizations; the time for proposing is over. It is time to organize! There has been far too much talk of new light vehicles and organizations; the time for talk is over. It is time for all of us to act!

Notes

[1]Dale E. Wilson, Treat 'em Rough: The Birth of American Armor, 1917-1920, (Presidio Press, Novato, Calif., 1989), pp. 226-227. The National Defense Act of June 20, 1920, eliminated the Tank Corps and transferred its units and functions to the Infantry Branch.

[2]T.R. Fehrenbach. This Kind of War: A Study in Preparedness, (New York: Macmillan Company, 1963), pp. 426-439; the chapter titled "Proud Legions," discusses the erosion of Army strength in the late 1940s in great detail.

[3]Ibid., p. 427.

[4]Paul Kennedy, The Rise and Fall of the Great Powers: Economic Change and Military Conflict From 1500-2000, (New York; Random House, 1987). Kennedy discusses the effects of major changes in the balance of power between states and the intervals between stable balance systems.

[5]Bryan Perret, Tank Warfare, (London; Arms and Armour Press, 1990), and Kenneth Macksey, Tank Versus Tank, (Boston, Salem House Publishing, 1989). Both discuss the wide variety of tank types proposed and built especially by the British and French for every conceivable tank mission.

[6]The concept of armored battalions supporting "pure" infantry divisions is as old as the tank itself and was extensively practiced by the Army Ground Forces in World War II, through the use of GHQ Separate Tank Battalions.

[7]T.R. Fehrenbach, pp. 97-107.

[8]In a lecture by Colonels Jimmy Leach and William Marshall to AOAC 3-90 on May 4, 1990, at the Patton Museum.

[9]Armor; A Balanced Force for the Future, 7 May 1990: Coordinating Draft. White Paper, Fort Knox, Ky. P. 9 contains a table listing only Middle Eastern and South Asian Armored Forces. The concentration is lower in Africa and South America but still daunting enough.

[10]Wilson, p. 17

[11]Gen. Donn A. Starry, Armored Combat in Vietnam, (Indianapolis, Ind., Arno Press, 1980), pp. 84-85 and 89.

[12]Richard E. Simpkin, Tank Warfare; An Analysis of Soviet and Nato Tank Philosophy, (London, Brassey's Publishers Limited, 1979), p. 40. Simpkin's discussion of MOMENT describes the effect. See also any description of J.F.C. Fuller's Plan 1919; his disorganizing force is based on this theory as are most of his writings in the 1920s and '30s regarding the effects of armor on warfare.

[13]This limitation is imposed by the load limit capabilities of Air Force aircraft's rear ramps in flight.

[14]Simpkin, Tank Warfare, p. 104.

[15]Christopher Foss, Jane's World Armored Fighting Vehicles, (New York, St. Martin's Press, 1976), pp. 126-127. The French AMX 10RC is now 14-year-old technology.

[16]An outstanding example of this is the 75-mm Ares gun system.

[17]Simpkin in both Tank Warfare and Mechanized Infantry, (London, Brassey's Publishers Limited, 1980), discusses the benefits gained in crew cross training among a family of vehicles including common chassis, driving controls, and fire control systems.

[18]In a conversation with SSG Broom on May 4, 1990, COL Wm. Marshall (Retd.) stated that the comment was made originally by a Sgt. John Klinga of the 8th Tank Battalion.

Lieutenant Colonel Thomas A. Bruno has recently taken command of an armored battalion. He was commissioned through OCS in 1971 and has served as a tank platoon leader, scout platoon leader, and troop commander in CONUS, Korea, and Germany. He has also served in a wide variety of staff positions and is a graduate of the Air Force Staff College at Maxwell Air Force Base.

Staff Sergeant (P) John T. Broom has served in tank battalions in Germany, Fort Hood, and Fort Carson. He earned a Master's Degree in Military History from Norwich University of Vermont, while stationed with LTC Bruno in Mannheim, FRG. He is currently studying for his Ph.D. in American History with Union Graduate School. He is a recent graduate of I9E/K ANCOC and is assigned to Fort Knox Ky.

Making a Case for Brigade Reconnaissance Elements

by Captain Michael Kozlik

In the United States Army, at almost every tactical echelon, the commander has an organic force with which he can gain accurate and timely information on the enemy, then influence the battle through analysis of the information obtained and synchronization of the battlefield operating systems (BOS). From battalion through corps, commanders have some type of reconnaissance force – except at brigade level.

At battalion level, the scout platoon's primary mission is to serve as the battalion's "eyes and ears." At division level, the long-range reconnaissance and surveillance detachment (LRSD) and the divisional cavalry squadron perform this function. The corps commander has the regimental cavalry squadron to find the enemy and provide reaction time and maneuver space for the corps' main body. However, the brigade commander, who is the first commander who must synchronize all of the battlefield operating systems and available combat power at the critical place and time, has no organic reconnaissance force.

Soviet forces, on the other hand, have established reconnaissance forces and reconnaissance doctrine at every echelon. The battalion deploys a motorized rifle company (MRC) as a forward security element (FSE) which acts primarily as a reconnaissance force. In turn, this company dispatches a combat reconnaissance patrol (CRP), usually consisting of a reinforced platoon. At regimental level, the regimental commander has his organic regimental reconnaissance company, and the division commander has an organic divisional reconnaissance battalion.

Throughout the depth of their formation, Soviet commanders have the ability to "see the battlefield" through reports from their own reconnaissance elements. Additionally, their doctrine provides for continuous replacement of reconnaissance forces after they are lost. For example, the battalion commander would deploy another MRC to act as FSE. If the FSE lost its combat reconnaissance patrol, it would deploy another platoon forward to assume the mission. In this way, the reconnaissance effort is constantly regenerated throughout the depth of the formation.

An important lesson learned, time and time again, at Army combat maneuver training centers is that the units that win the reconnaissance/counter-reconnaissance battle most likely will win the battle. From these lessons, it appears that sufficient justification exists to establish a reconnaissance force that is "owned and operated" by the brigade-level commander. This applies equally to light and heavy forces, because both types of forces are currently organized without a reconnaissance capability at this level.

Operating under the constraints imposed by current doctrine and organizational structure, brigade commanders are forced to task their subordinate battalions with information-gathering missions. As the first commander who must synchronize all the battlefield operating systems and combat multipliers, such as Army aviation, Air Force fighter aircraft, field artillery, and ground maneuver units, this is a cumbersome and ineffective way to receive vital information in a timely manner. The best method for this key echelon to prepare for and fight properly on any of today's battlefields is to provide it with an organic reconnaissance force of at least company size.

With a reconnaissance force of this nature, organized, equipped, and trained to operate in the same threat enviroment as its parent headquarters, the brigade commander now can see the battlefield more completely, and exploit the timely information he receives. Additionally, he would not be interfering with battalion commanders' use of their scout platoons. Battalion scouts should be dedicated to gathering information their battalion commander deems important to his portion of the brigade fight.

To prevent the brigade and battalion reconnaissance forces from interfering with each other, doctrinal distances or depths would be established that provide each respective echelon commander his required in-

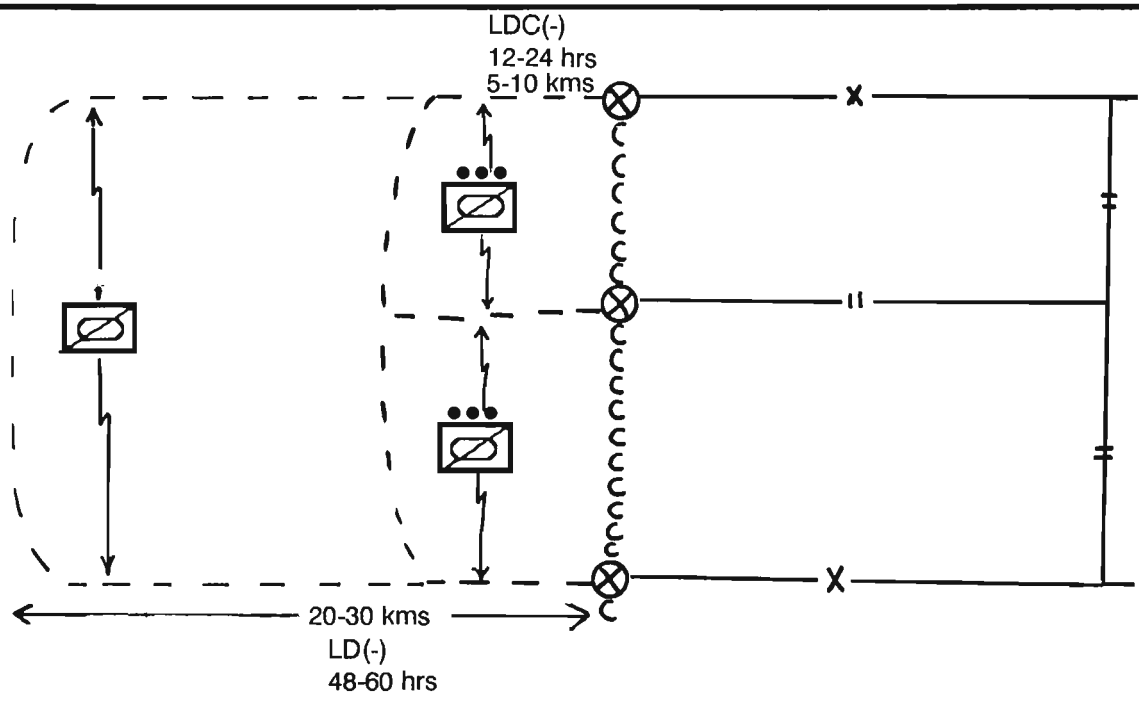


Figure 1 Brigade Reconnaissance Area of Operation

formation in a timely manner (see figure 1).

The brigade reconnaissance company's mission in the offense would be to recon the brigade's assigned area of operation out to a limit of advance. Reconnaissance operations could begin between 48-60 hours before H-hour, with elements gathering route/zone intelligence, pinpointing the enemy, and reporting on enemy dispositions, strengths, and locations. Each battalion now could focus its scout platoon reconnaissance on specific routes or avenues throughout its operational area.

Battalion scouts would be sent out 12-24 hours before H-hour to develop, update, or confirm/deny information gathered by the brigade reconnaissance elements, and these scouts could clear the route chosen by the battalion – based on the brigade reconnaissance company's information.

If we wanted to organize a brigade reconnaissance company, the first problem is from where does it come? It is a valid assumption to say the Army is not likely to increase in size in the near future, so we will have to look somewhere else. We will have to take this organization "out of hide" if we want to establish this capability. There are, however, some organizations in our structure that could be reorganized as brigade reconnaissance companies.

In our heavy forces, the Echo companies in infantry battalions could be reorganized as brigade reconnaissance companies. By re-equipping the organization with a vehicle and weapon systems commensurate with the missions it is to perform, and reassigning it under the brigade headquarters (see figure 2), we can possess a light, mobile force capable of gathering and reporting information required by a brigade commander in a timely and efficient manner.

The Echo companies in today's J-series TOEs tend to be redundant and outdated forces, given the TOW capability of every Bradley Fighting Vehicle (BFV) in the J-series mechanized infantry battalion. Additionally, because they cannot keep pace with the BFV, they are often left far behind in column or become a sort of "palace guard." This is not by design; it's simply very difficult to get them into the offensive fight in time to influence the battle, due largely to their limited speed, and their dubious immediate engagement abilities after any prolonged movement.

There is no need, however, to equip the brigade reconnaissance company with Bradley Fighting

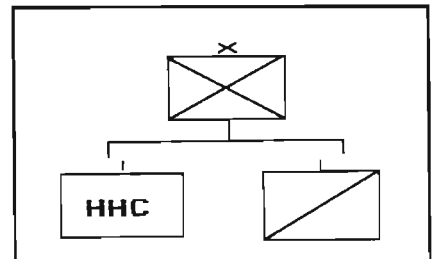


Figure 2

Brigade Scout Organization

Vehicles because its mission will be to move quickly by stealth and infiltration to gather information. What would be most effective is a vehicle that is fast, quiet, and already in the inventory. A good choice would be the M1025 HMMWV with M60 machine gun mounted, and a complementary mix of M1026 HMMWVs with MK19 automatic grenade launchers. This would give the recon company the ability to penetrate rapidly and quietly deep into enemy territory, report on enemy dispositions, and provide sufficient firepower to engage an enemy to break contact. Each platoon-size element could also carry a complement of AT-4 antitank missiles, just in case. It would be contrary to their purpose, however, to carry any type of wire-guided ATGM.

An organization equipped in this manner could be used most effectively in a mid- to high-intensity environment against mechanized and armored forces.

In the light forces, there is no such force readily available for conversion. However, there are a few ways to reorganize forces to establish the recon company in the light infantry brigades. First, the recon company could be organized outright, without attempting to reorganize forces or shift missions within the light brigade. There are more Echo companies in the heavy forces than there are brigades, so the spaces of Echo companies could be redistributed throughout the force to establish the light reconnaissance companies.

The other alternative would be to reorganize within the light brigade structure and shift the missions of certain units. Because every infantry company in a light infantry battalion is trained to proficiency in stealth, infiltration, and exfiltration techniques, it stands to reason that the light infantry battalion commander could easily accomplish his own reconnaissance by tasking one of his organic companies to provide a platoon to act as battalion scouts. Another alternative would be to use the battalion antitank platoon as the battalion scouts. They are just as mobile and, with some equipment augmentation and training as scouts, they can do the same job. This, of course, would have to be METT-T dependent, because you would not want to give up your only heavy tank-killing capability in an armored threat environment.

The brigade reconnaissance company could then be formed by the three scout platoons formally organized under the subordinate battalion headquarters companies. There would be no need to alter their current structure or equip them with anything they don't already have. An exception to this would be to equip the company commander, XO, and platoon leaders with an M1038 HMMWV with at least two VRC-47 radios for command and control purposes. The first sergeant and platoon sergeants should be equipped with M988 HMMWVs with one VRC-46 radio each, and a 3/4-ton trailer for resupply operations. At least one platoon of the company should be equipped with light, cross-country motorcycles to add to the company's ability to cover the entire brigade area of operations. This is essential, especially in large brigade AOs in low-intensity environments.

An organization such as this would provide the light infantry brigade commander the ability to accurately see his battlefield, and give him the flexibility to actively plan to influence this battlefield in a timely manner. It is clear from the lessons that continuously come out of the Army's combat maneuver training centers that reconnaissance/counter-reconnaissance is the main key to winning the battle.

The idea of denying the enemy the ability to ascertain your dispositions, while simultaneously doing everything to enhance your ability to determine his, has taken on even greater significance by our application of the AirLand Battle doctrine. It is equally apparent that the tactical formation that most needs the ability to see the battlefield and influence the battle is the brigade. Presently, this is the only echelon in our Army that does not possess its own reconnaissance capability, and must rely on other echelons for the vital information necessary to win battles. We should begin now to test formations such as these, incorporating some form of organic reconnaissance element at the brigade level, and continue to develop our doctrine in the vitally important area of reconnaissance/counter-reconnaissance.

Captain Mike Kozlik served as brigade assistant operations officer (brigade planner) for the 1st Brigade, 3d Infantry Division for over a year, participating in two WARFIGHTER CPXs and two rotations at the Combat Maneuver Training Center, Hohenfels, as OPFOR. During the rotations at CMTC he wrote the plans for nine regimental attacks. His last duty assignment was in the 7th Infantry Division (Light), where he served as a company XO, AT platoon leader, battalion adjutant, and brigade assistant operations officer.

Armor Support in Low- to Mid-Intensity Conflict

by First Sergeant Harold G. Beverage

Since 1945, wars of low intensity have increased in frequency. Both insurgent successes and failures have significantly altered the strategic balance of power in the last 40 years. Given the socio-economic climate of Third World countries, this trend will likely continue with support from the Soviet Union, which since 1961 has pledged support for insurgencies around the world.

In Third World countries, where a low- to mid-intensity conflict would most likely occur, the availability of modern weapons and equipment is impressive. In many areas of the world, local forces can deploy a wide range of light and heavy armor, modern jets, and artillery. Even South Yemen, with a population of only two million, can deploy almost 1,000 armored vehicles, including T-62 tanks.[1] Deployment of soldiers into a region such as this, without armor support, would not be doctrinally sound.

The United States must be prepared to deal with conflicts in the Third World in the decades ahead. Given that the spectrum of conflict ranges from peacekeeping operations to mid-intensity conventional and unconventional warfare (UW), the possibility of U.S. troop deployment to secure and protect vested American interests likely will occur in the foreseeable future.

The United States has addressed this problem by resurrecting the light infantry divisions. These lightly-equipped forces have the ability to deploy on relatively short notice. The 82d Airborne Division is also maintained in a high state of readiness for no-notice deployment. These forces have little-to-no vehicular support. Once on the ground, the majority of these forces can only move as fast as they can walk, loaded with their substantial combat equipment. Only the XVIII Airborne Corps has an organic armor unit that trains and deploys with the 82d Airborne Division. This armored force is the only one that, in a no-notice, come-as-you-are conflict, could arrive with the assault troops and provide the mobility, firepower, and shock effect needed to destroy enemy armor and infantry forces. Much has been said about the armor-defeating capability of the infantry forces, but these theories have gone largely unproved. Case in point: Of the more than 6,000 guided antitank missiles fired by Syria and Egypt against Israeli armor, those missiles accounted for less than six percent of the armor defeated.

Our medium and heavy personnel-fired antitank weapons are wire-guided, causing employment problems in areas of vegetation or urban environments. They are heavy, contributing significantly to the overall combat weight for the individual soldier, and it is not realistic to deploy these weapons in an offensive mode. This matter must be addressed because our forces deployed into a low- to mid-intensity conflict will almost certainly meet an armored force. To pit our infantry against a force with mechanized capability would be tactically dangerous. In our hemisphere alone, virtually every country against which we may engage in hostilities or in which we conduct stability/police actions, has an armor capability.

These areas of potential conflict range from the country of Haiti, with nine M5A1 tanks and six V-150 Commando armored cars (all with armament of sorts) to the country of Nicaragua, which maintains an army that includes approximately 150 T54/55 tanks, 25 PT-76 light tanks, 50 BRDM-2s, 40 BTR-60s and up to 105 BTR-152s,[2] all with armament of one type or another. We will have to provide our forces with an armor complement if we expect them to accomplish their mission without unnecessary casualties.

At this time, the 3d Battalion, 73d Armor, is the only armor asset that can be immediately deployed into a low- to mid-intensity conflict. Many will argue that the Army's armored cavalry regiment would be feasible to employ. However, studies show that a squadron deploying in its first echelon would require ten C5B Galaxy and 12 C141B StarLifter aircraft sorties to deliver 38 armored vehicles (M3 CFV) and assorted support elements.[3] The tank-killing ability of the M3 CFV is limited to a wire-guided missile. These sorties would have to land in a secure area to unload.

The M551 Sheridans are useful in low-intensity conflict, but there are not many available.

Those same ten C5B aircraft can deliver 40 M551A1 Sheridans and at least 730 airborne personnel in the airhead if needed. This in itself would provide the U.S. commander with one full infantry battalion and ten armor platoons. This has not even taken into consideration the C141B sorties that the cavalry regiment would need in their first echelon. Granted, support equipment will have to be provided to the armor; however, this could well follow the lead echelon, depending on how far the armor element has pushed forward before meeting resistance.

Some will argue that the U.S. Marine Corps would be a viable combined arms force in the low- to mid-intensity conflict.[4] While this may be true, one consideration is that its ships must first be in place to support the operation. Massing forces and waiting for movement such as this may telegraph intentions and compromise the element of surprise.

With only one battalion of light armor vehicles available for immediate deployment with U.S. Army forces, survivability of this force must be maintained. Currently, there are only 57 M551A1 Sheridans on hand with XVIII Airborne Corps. Fifty-four of these belong to the armor battalion, and three belong to the supporting maintenance battalion for use as float vehicles.[5] Taking into account the antiarmor threat posed in many of the Third World countries, consideration should be given to rebuilding and placing in storage another battalion's worth of these vehicles. At a minimum, this will provide immediate replacement of damaged equipment and could lead to the formation of another battalion to be used if more than one conflict occurs. A preferable option would be to field a light armor battalion within each light division, making it possible for each of these divisions to train as a combined arms force before being deployed into a conflict.

The Army currently tracks Sheridan-qualified personnel with a R-8 ASI. As this weapons system currently falls in the 19D cavalry scout career field, it may be prudent to add to the advanced training program at Ft. Knox, Ky., enough time to familiarize the 19D personnel with the vehicle and its fire control equipment. This action would expedite the training of replacement crews coming into the battalion.

The M551A1 Sheridan could be a stopgap measure because much thought is still being given to procurement of an Armored Gun System (AGS). However, until an AGS is procured and fielded, the availability of the Sheridan will meet the needs of the commander on the ground in the low- to mid-intensity conflict.

The combined arms force will be the key to successful missions in the future, as in the past. Our assault troops must have armor support in the initial stage of the conflict. This author feels that in these days of budget constraints, we should consider the preceding option.

Notes

[1]Olsen, William J., The Light Force Initiative, Military Review, June 1985, p. 9.

[2]The Military Balance 1987-1988, International Institute for Strategic Services.

[3]Bacevich, A. J., LTC, and Ivany, Robert R., LTC, "Deployable Armor," Military Review, April 1987, p. 19.

[4]Hammes, Thomas X., MAJ, "Insurgency: The Forgotten Threat," Marine Corps Gazette, March 1988, p. 44.

[5]This does not include current war stocks at various Army depots.

First Sergeant Harold G. Beverage is currently serving as first sergeant, C Company, 3-73 Armor. He has also served as the S2 NCOIC of 3-73 Armor, 82d Airborne Division; and as a Sheridan platoon sergeant. A graduate of the U.S. Army Operations and Intelligence Course, he has served in a number of positions in various cavalry and armor battalions.

A Golden Anniversary of the Armor Force

At Fort Knox's 50th Anniversary celebration of the founding of the Armor Force, on July 10, soldiers, their families, and many World War II vets joined thousands of visitors for a day of commemoration, including a firepower demonstration at St. Vith Range, dedication of the Armor Memorial Park next to the Patton Museum, and a reenactment battle at Keyes Park.

Photos on this page by John Koger

An M1A1 slides into a turn at St. Vith Range as hundreds of shutters click. Below, a German Hetzer tank destroyer moves into "battle". Late in the hot, humid afternoon, the dedication was a quieter affair.

At St. Vith Range: Mobility and Firepower

Photo: John Koger

The Way It Was...

Photos: SSG Kevin L. Robinson

The battle reenactment at Keyes Park reflected the combined arms nature of the original Armor Force and the purpose for which it was forged, the defeat of the Axis in World War II.. Amid the sound and smoke, Shermans and halftracks rolled again, the SS men spoke perfect English, and the only M1s firing were Garand rifles.

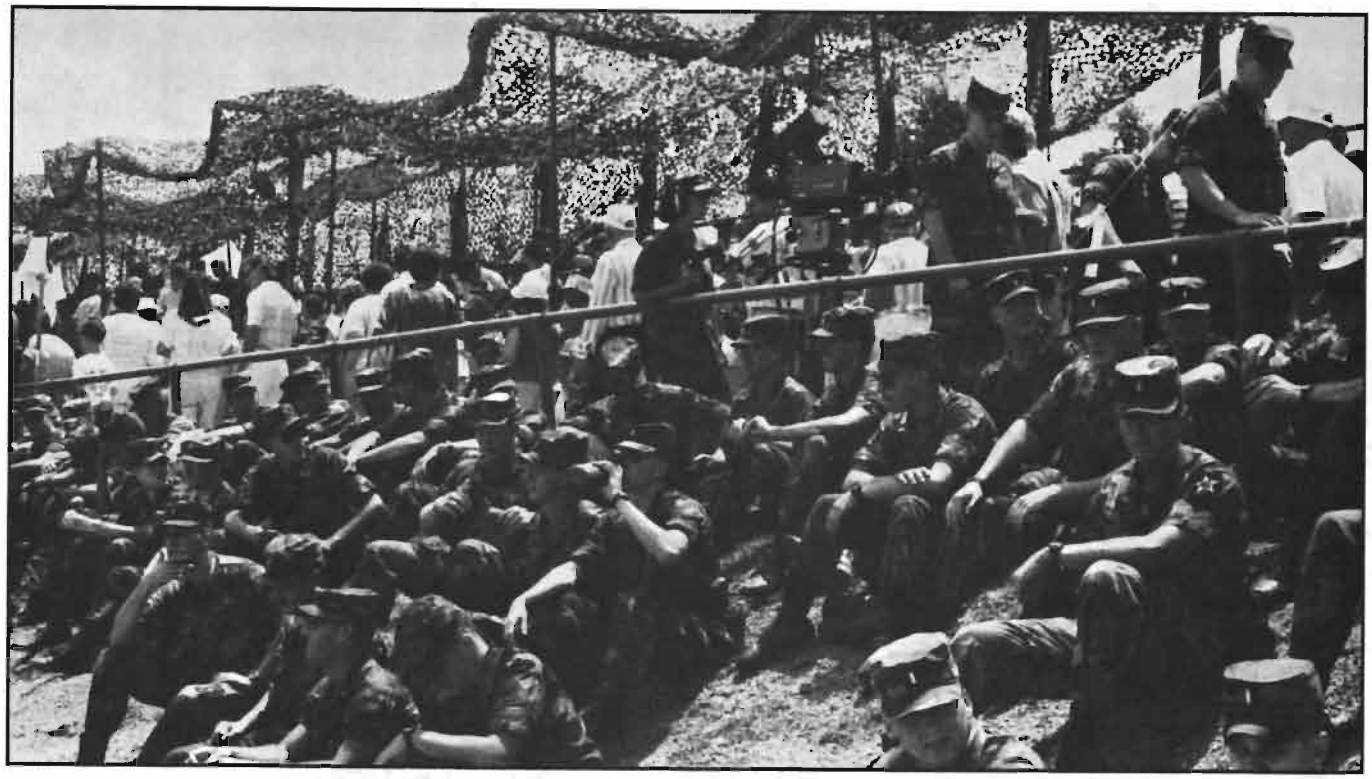


Photo: SP Reginald P. Rogers

A Place of Honor

Photos: John Koger

MG Thomas C. Foley welcomes veterans and visitors to the dedication of the Armor Memorial Park, adjacent to the Patton Museum. Behind him is the new monument honoring Armor soldiers and veterans in Armor, Cavalry, Tank Destroyer, and Marine units. At right, COL H.H.D. Heiberg, guest speaker for the dedication. The ceremony closed with a parade of historic vehicles from the Patton Museum collection.

Two Training Devices Add Realism, Cut Costs Of M1 Transition Training

by Lieutenant Colonel Randall F. Williams

The Wallentine in-bore subcaliber device uses .50-cal ammo.

Through years of experience in training the Active and Reserve Components, we have found that simple, realistic, quality training provides soldiers with a sense of pride and accomplishment. Particularly within the Reserve Component, leaders must focus on four factors to ensure quality training: realism, safety, maintenance, and admin/preparation time.

The Combat Vehicle Transition Training Team (CVT^3) at Gowen Field in Boise, Idaho is currently conducting transition training on M1 Abrams tanks. Training soldiers in accordance with the M1 Abrams TRADOC program of instruction, the team's focus remains on these four factors.

In January 1990, CVT^3 began training the 107th Armored Cavalry Regiment, a National Guard unit from Ohio and West Virginia. The regiment provided four in-bore .50-caliber training devices, commonly called the Wallentine Device, which was developed by the New Jersey National Guard. The CVT^3 team was interested in using this device to provide more realistic subcaliber training, substituting it for the Telfare Device.

One of our instructors, SSG Eric Moore, immediately saw the need to store the .50-caliber rounds for the in-bore device and innovatively developed what we call the Moore Device. Here is how these two simple, inexpensive devices provide realism and contribute to the four factors of quality training:

Training Realism:

- Provides full crew interactive training (includes loader realism).

- The gunner is not required to worry about pulling the trigger too long because only one round is loaded at a time.

- The technique permits a fully buttoned-up NBC environment. There is no need to keep the

loader's hatch open to recharge the Telfare Device.

- Loader's required actions are very similar to main gun loading times.

- As the XM903 Sabot Light Armor Piercing-Tracer (SLAP-T) round is type-classified and becomes available, ammo selection may be trained. The SLAP-T is a close ballistic match to the HEAT round up to 1,200 meters.

- The device is stable, even on the move, so the strike of the round is more accurate.

- Elevation uncouple switch interaction may be trained.

- The Wallentine Device installation uses the main gun boresight device, which causes crews to perform proper boresight procedure.

- Even though the Army's policy is the firing screening test, the Wallentine Device allows for zeroing procedures in accordance with Volume II of the operator's manual.

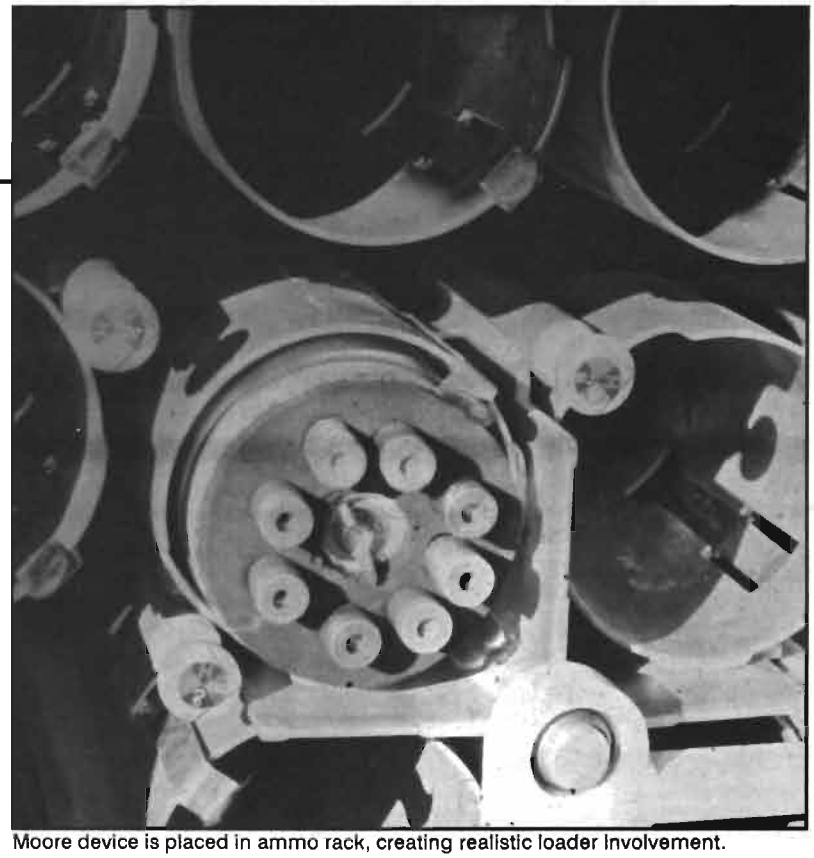
Safety:

- The Moore Device trains use of the knee switch and requires keeping the ammunition door closed during firing.

- The spent case ejection arm must be forward to load and unload the Wallentine device.

- The Moore device provides realistic ammunition storage, thus prevents ammunition from vibrating and falling on the turret floor.

- To work on the Wallentine Device during stoppages does not require the loader's M240 and the TC's M2 machine guns to be cleared and elevated.



Moore device is placed in ammo rack, creating realistic loader involvement.

Maintenance:

- The device is stable, and does not vibrate loose or require readjustment.

- Misfires and stoppages are rare, usually due to bad ammunition.

- No long cable is needed, eliminating fraying and breaking.

- A screwdriver or pocket knife is the only tool required to install the Wallentine and Moore Devices.

Admin/preparation Time:

- Installation time is less than five minutes with one short wire connected to firing circuit.

- The Wallentine Device requires no seating bursts.

- A set of Wallentine and Moore Devices can be exchanged from one tank to another with minimum adjustment.

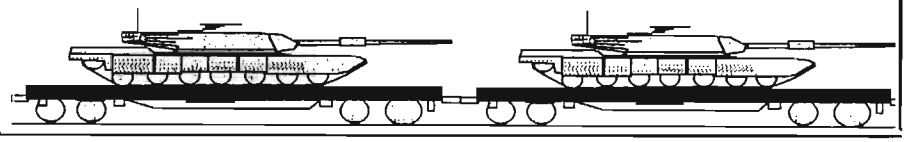
CVT^3 members are firm believers in these two simple, realistic training devices and are dedicated to pursuing future ways and devices to provide soldiers quality training.

Lieutenant Colonel Randall F. Williams has served as the commandant of the CVT^3 for two years at Gowen Field, Idaho, and has more than seven years of transition training experience on the M1 Abrams and M60A3 tanks, both in the Active and Reserve Components.

Task Force RAMSEY at Hardheim

A guide to rail-offloading an armor unit, from the 3d ACR's experience in Reforger 88

by Major Jon H. Moilanen



"Trains in!" The sergeant jerked upright as he searched through the night fog. The muffled rumble broke into distinct screeches as the engine cleared the bahnhof station building, and jammed to an abrupt halt. Troopers stretched and adjusted their helmets. "0300...Up and at 'em! Let's get it done!"

The 3d Armored Cavalry Regiment rail operations had been in progress for some time, and this train was one of many. Nonetheless, the railhead had been a beehive of activity since the first arrival of M1A1 tanks, armored personnel carriers, trucks, and assorted cargo.

The safe and efficient conduct of rail offload operations in a tactical scenario depends on the leadership of noncommissioned officers, and the use of team drills during the operation. The 3d Armored Cavalry Regiment conducted successful rail load operations as one segment of onward deployment during REFORGER 88. The Return of Forces to Germany exercises evaluate the ability of the United States to rapidly reinforce NATO allies in western Europe.

Once in the theater of operations, rapid reinforcement by the regiment involves movement into a tactical assembly area (TAA) and assignment to a forward deployed corps. In REFORGER 88, onward movement from the regimental marshaling area was by a combination of rail, motor, and aerial marches. The motor march incorporated a river crossing of the Rhine River. A subsequent upload of about 100 APCs from the march units on medium cargo trucks for movement to the TAA would impact on later railhead operations. Meanwhile, heavy tracked vehicles and special equipment uploaded in the marshaling area and moved forward to a railhead in the TAA.

Aviation elements set up refuel and rearm points for reception of their helicopters, while aviation troops assisted in the command and control of the multiple march routes of the regiment.

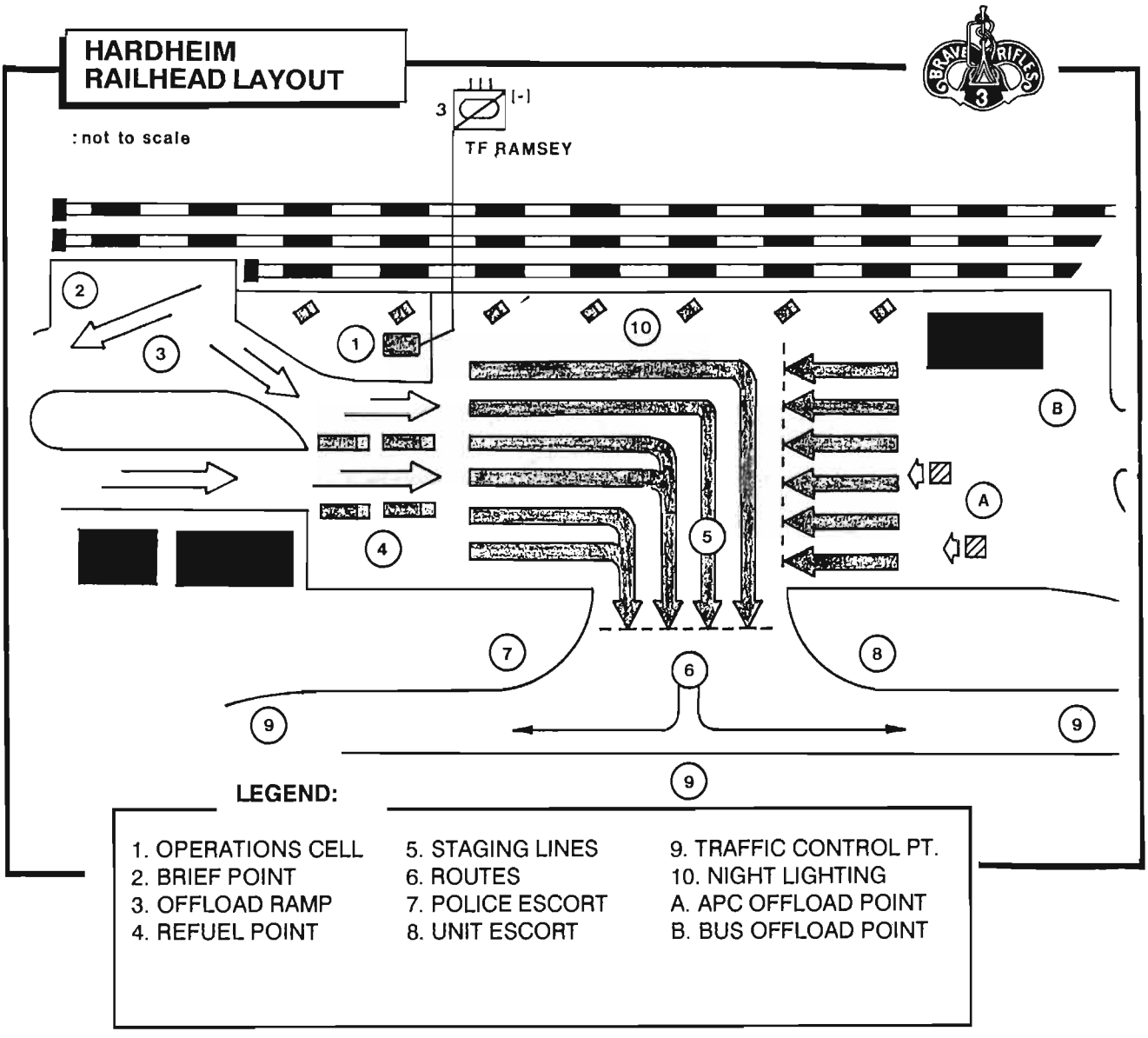
These simultaneous movements stressed the ability of the regimental command and control structure; however, mission task analysis identified who should be responsible for specific tasks. While operations and executive officers concentrated on the marches and river crossing, command sergeants major focused on the quartering and reception of units into the TAA. Integral to this forward staging of combat power was the reception of trains in the TAA.

Task Force RAMSEY organized the senior noncommissioned leadership of the regiment into a command and control structure for railhead operations. Planning was formalized as a "striper operation" prior to overseas deployment. NCO leaders wargamed options and timing in map exercises and manuever critiques at Fort Bliss, Texas. A site reconnaissance team confirmed requirements during pre-REFORGER temporary duty. Subsequently, the regimental operations order incorporated this detailed planning for execution.

Regimental command and control for the TAA railhead centered on the regimental command sergeant major. The regimental S4(-) provided AM, FM, and radio teletype communications, and a small staff element to assist the RCSM. A regimental S3 element operated the net control station for the overall TAA reception, and received regular status updates from the railhead. Command sergeants major and first sergeants controlled the actual rail offloading and forward staging of their units.

Initially, squadron quartering parties infiltrated to the TAA about 24 hours prior to arrival of the first main body element. NCOs established unit assembly areas, conducted route reconnaissance from assembly areas to the railhead site, and met with the RCSM for a mission update.

Prior to this assembly, the RCSM verified the railhead layout, safety requirements, and a sequence for action. Regimental S4 confirmed the rail and truck schedules, and acted as the regimental liaison to the U.S. Movements Control Team (MCT) representative, German Bundeswehr transportation representative, German Territorial Army observers, German railway officials, city officials, local journalists, as well as local police teams and the district police commissioner. Filtering these required or customary visits through the regimental S4 allowed the RCSM to concentrate on



the safe and efficient execution of rail offloading.

Rail operations started early the next morning. Trains were to arrive for the next two days at intervals of several hours. Sergeants were noticeably in charge.

Once the German railway loadmaster positioned railcars at the end ramp, troopers disembarked from the passenger cars with weapons and baggage. The regimental command sergeant major greeted them in the special manner of the senior noncommissioned officer of the regiment. Sleepy eyes snapped alert as the group closed around the RCSM in a horseshoe formation.

His briefing was a rehearsed presentation on procedures, as well as restrictions for offload operations. He emphasized positive control, safety, and professional duty performance. He weaved a magical theme of team competition and unit pride into his description, but never understated the basic requirements for a safe and efficient offload.

While the RCSM conducted his orientation at the end ramp, the regimental S4 collected rail documentation from the unit train commander to confirm passenger density, number of railcars, and types of equipment. Unit officers were escorted from the immediate work area to exchange an update on the forward deployment of the regiment, review the upcoming tactical mission, and observe the rail operations of their unit.

The RCSM highlighted safety. In detail, he presented particular rail issues, such as colored flashlight lens restrictions, or ground guide procedures and movement lanes. Explaining why these measures were necessary improved trooper under-

standing and willing compliance. A tactical situation update cued the teams why their current railhead operation was so important to overall success of the regiment. Specific tasks were assigned to NCO leaders. They used established crew and platoon chains of command to perform designated tasks. As briefed by the RCSM, the key to safe and timely offload is use of concurrent rail team drills. For example, small teams can prepare railcars for offloading while other teams ready their vehicles for offload movement.

Consider the following sequences. Start at the end ramp with the first cars to offload. Success with these cars sets the tempo for the follow-on timing down the entire row of railcars. One team moves immediately from car to car, dropping the end ramps on each car. Another team drops side ramps and rails, as appropriate. A separate team positions the support legs at the railcar wheel frame to stabilize lateral car shifts. Normally, the team needs to emplace only one side of support legs. These three teams are from crews with equipment near the end of the train, for two reasons.

First, when these teams complete their tasks, they are at their assigned equipment while contributing to the timely offload of the entire train. Second, and just as important, other vehicle crews closer to the offload ramp start to remove vehicle tiedown cables and blocking or bracing immediately.

TEAM DRILLS

- Safety
- End/side ramps
- Support legs
- Tie Down
- PMCS/Block-brace
- Battery slave
- Recovery
- Refuel
- Stage/pre-combat checks
- Traffic control/serial escort
- March discipline
- Area police/maneuver damage control
- Reports

For cable tiedown removal, a crewman knocks the shackle pin clear of the shackle with a drift pin. If the railcar has a hook anchor point, the loose cable easily can be slipped off the hook and stowed on the vehicle. However, more time is required if the railcar has a ring anchor point. The team must remove cable clamps so that the cable can be pulled through the ring and then secured to the vehicle. Nevertheless, teamwork at crew level minimizes any wasted time. At the same time that the cables are being removed, the driver conducts pre-operational checks on his vehicle. When the vehicle is no longer anchored to the railcar, he checks with his ground guide, starts the vehicle, and turns on the low beam headlights. This visual signal of operational readiness gives a clear sign of progress as senior leaders supervise the rail line.

With ground guide supervision, the driver moves the vehicle slightly to allow removal of blocking and bracing. If the vehicle must remain stationary on the railcar for an extended time, the engine is turned off to reduce the concentration of exhaust fumes in the area, and to conserve fuel.

Units can minimize the problem of inoperative equipment with on-site maintenance teams. Have a team ready with equipment to slave batteries that will not start, and station recovery assets to remove inoperative or damaged equipment, vehicles, and cargo.

Each 3d ACR unit was responsible for its own maintenance-recovery team. In addition, each train arrived with medium and heavy tow bars, as well as slave cables on designated vehicles. Rail team tool kits also accompanied each train.

Additional heavy pry bars, sledge hammers, and ratchets with sockets supplement the basic issue items from vehicles on the train. Crews need to remove blocking, bracing, and tiedown materiel.

The RCSM knew that download of the first several railcars set the standard for the rest of the train. He positioned himself with these crews and encouraged team competition. A particularly energetic and successful crew would see their vehicle commander awarded a regimental coin by the RCSM. This medal motivated follow-on teams to match the safe and timely offload standard.

Ground guide teamwork is another time saver in daylight or limited visibility offload operations. In the case of TF RAMSEY operations, over half of the offloads occurred during fog or darkness.

Use standard guide positions on separate railcars for the vehicle offloading. Guide teams can use alternate bounds from car to car, maintain positive control of the driver, and improve the timely offload per vehicle. As the vehicle approaches each subsequent railcar, the ground guide directs driver attention to the next guide on the car closer to the offload ramp. The initial guide dismounts and signals to a guide several cars closer to the end ramp. Meanwhile, the new guide directs the driver over the railcar to the vehicle's immediate front. A well coordinated guide team can ensure continuous forward movement of a vehicle from start point to end ramp. Executed concurrently by several teams, an entire train will be offloaded in a very short time.

Limited visibility requires special ground guide procedures. The 3d ACR railhead had functional lighting in only a small portion of the station platform area; therefore, most of the station rail line was not il-

OFFLOAD BRIEFING GUIDE

- **Safety**
- **Tactical situation**
  - -Enemy forces
  - -Friendly forces
  - -Railhead status
- **Mission tasks**
- **Sequence of action**
  - -Team drills
  - -Offload
  - -Stage
  - -Special requirements
  - -Precombat checks
  - -March
- **Support**
  - -Warming beverages
  - -Potable water
  - -Refuel operations
  - -Maintenance/recovery
  - -Movement route escorts
  - -Medical first aid
  - -Medical evacuation
  - -Portable latrines
- **Command and control**
  - -RCSM/CSM
  - -MCT representative
  - -Railway loadmaster
  - -Operations cell location
  - -Signal/light allowances
  - -Operations frequency
- **Miscellaneous**
  - -Questions/clarification
  - -Mission summary
  - -Competition challenge
  - -Safety review
  - -Time check
  - -Execute order

luminated initially for offload operations. Two expedients were used to provide general illumination. Several light tactical vehicles, positioned along the rail line track, directed their high beam headlights toward offloading vehicles. Although the lights shined toward vehicle drivers, there were minimal shadows along the railcars as drivers moved to the offramp. To supplement this light plan, two ground guides illuminated the front portion of each track or wheel with hand-held flashlights. They walked on the ground along the line of railcars while the primary ground guide gave driver instructions from a forward railcar. Once vehicles moved off the end ramp, ground guides brought vehicles to a refuel point enroute to the staging line. Fuel vehicle handlers and crews ensured safety measures, such as manned fire extinguishers and attached ground straps in place, before any refueling. Junior leaders supervised fuel issue. Drip pans caught any accidental spillage. In addition, any small spills on the hardstand were immediately removed with absorbant.

Meanwhile, APCs started to arrive at the vehicle download ramp from the river crossing operation. Sergeants were in charge again. Once BBT was removed, ground guides and drivers safely offloaded vehicles using mobile ramps emplaced by a transportation unit, and positioned equipment in accordance with the staging plan. APC crews arrived on host nation buses and reported to their APCs. Senior sergeants verified unit readiness and coordinated with the RCSM for march departures.

At the appointed time, traffic control points were positioned to ensure a safe exit point from the railhead staging area. Unit escort vehicles with rotating amber warning lights, and local police, led march units along approved routes to assembly area release points.

Finally, the regimental command sergeant major stretched and sighed with satisfaction, "Brave Rifles!" He had almost lost count of march units. Silent and policed, the deserted railhead confirmed that the last march unit had departed. The railhead operation was complete.

The stress on safety and efficiency paid off. The only injury was one pinched finger that required first aid, but the trooper returned to duty on the railhead. Effective rail offloading was certified by a transportation inspector from Supreme Headquarters Allied Forces Europe. He evaluated REFORGER 88 units to seek better methods of rapidly reinforcing the forward deployed forces. His stopwatch verified the value of effective rail operations. The 3d Armored Cavalry Regiment offloaded trains consistently in just over 30 minutes. He commended the refueling operations at the railhead for their safe and efficient manner. Crews performed necessary precombat inspections on their weapon systems in the railhead staging area. Finally, the railhead was cleared and ready to receive every train in time. Each one of these accomplishments was due to the leadership and teamwork of a professional noncommissioned officers corps executing "sergeants' business."

In conclusion, noncommissioned officers are the essence of safe and effective rail offload operations. The number of simultaneous tasks demand the able attention of small unit leaders and the quality experience of senior sergeants. Beforehand, commanders stated their confidence in the NCO chain of command with a mission. Task Force RAMSEY confirmed this trust with a truly remarkable rail offload operation.

Major Jon H. Moilanen received his Regular Army commission as a Distinguished Military Graduate of the University of Wisconsin. A CGSC graduate, he has served in divisional cavalry troop command and squadron staff with the 1st Cavalry Division and 3d Armored Division, and was a plans officer with V Corps G3. He served as S4, 3d ACR and as the XO of 3/3 ACR. A recent graduate of the Army Logistics Executive Development Course, he is currently a tactics instructor at the Army Command and General Staff College, Ft. Leavenworth, Kan.

American Tanks Meet the Test:
The World War II Success Story of the Stuarts, Grants, and Shermans

by Konrad F. Schreier, Jr.

The first American tanks to see combat in World War II were 14-ton, 37-mm gun M3 lights. They were Lend-Lease materiel which reached the British Forces in North Africa in mid-1941.

The British tankers looked at the little M3 lights skeptically. They were of completely American design, unlike anything they had seen before. They were not battle-tested. Their front-drive power train, with a rear-mounted, modified, air-cooled radial aircraft engine, was unique. Their volute spring suspensions and rubber-bushed tracks were unique. Their "tall in the saddle" look was different.

The British refererred to these tanks by name, rather than model type and number, and called them "General Stuarts." The name of legendary Civil War Confederate cavalry leader Jeb Stuart fit them well.

As their American advisers taught them to use the Stuarts, they found them to be unlike any other tank they knew. M3s could be driven at speeds from 3 to 36 miles-per-hour, almost twice as fast as any other tank in North Africa. The suspension was as good or better than any other. The M3's unique power train was superior. The rubber-bushed tracks were truly remarkable. While other tanks needed major mechanical work and new tracks after as little as 500 miles, the Stuarts could run 2,000 miles, and often more, before needing anything but routine maintenance and minor repairs.

In July 1941, the British 4th Armored Brigade took the Stuart into combat for the first time in Operation CRUSADER. They found its speed, manuverability, and hot 37-mm gun were superior features. Their only complaint was that the M3's hull was too "boxy," a complaint later heard from American tankers.

The first U.S. Army combat use of tanks was by Stuarts in the 1941-1942 Philippine Campaign. While they handled everything the Japanese could dish out, their effectiveness was limited by small numbers and shortages of everything from fuel to 37-mm gun ammunition.

The next American tank to go into combat was the 30-ton M3 medium, with a hull-mounted 75-mm gun and a turret-mounted 37-mm gun. It had been developed from the 37-mm gun M2 medium and had a similar power train, suspension, and rubber-bushed tracks to the Stuart. It was built in a British version, called the "General Lee," and a U.S. Army version, the "General Grant," which differed slightly.

The British 8th Army first used Lees in combat at Gazela, in North Africa, in late May 1942. It was the only tank in British service with a 75-mm gun, and it was capable of defeating the German armor of the time. This tank saved the day for the 8th Army.

M3 CREWS TRAIN DURING MANEUVERS IN ENGLAND IN 1942. UNIT MARKINGS ON RIGHT SIDES OF THE HULL WERE CENSORED.

However, the U.S. Army Ordnance Department was unsatisfied with the hull-mounted 75-mm gun. As soon as the M3 was in production, Ordnance began working on a better design with a turret-mounted 75-mm gun, and no 37-mm gun.

This improved medium was the truly remarkable 35-ton M4 "Sherman." It first went into combat with the British 8th Army at El Alamein in late summer 1942. It proved superior to the German tanks it fought. Another American tank had helped save the day for the 8th Army.

When the U.S. Army landed in North Africa in Operation TORCH in the fall of 1942, it took Stuarts, Grants, and Shermans into combat. Although German tanks were rapidly improving, they got the job done.

The Stuart light tank family would prove effective for the rest of World War II. It was given a new, sloped hull front in 1942. Two basic versions were used: the M3, with the modified air-cooled radial engine, and the M5, with twin Cadillac V-8

water-cooled passenger car engines geared to a common output. A self-propelled artillery 75-mm Howitzer Motor Carriage M8, with an open top turret, was the only other vehicle in the Stuart tank family to see service.

Although the Stuart was effective against the Japanese for the rest of the war, it could not fight the Germans' improved armor. The Stuart's speed and mobility kept it in use against the Germans as a reconnaissance vehicle until the end of the war in Europe, but the Allies still needed a fighting tank to defeat the Germans. This led the U.S. Army to work hard on its Sherman tank.

The basic Sherman chassis, which was developed 50 years ago, proved one of the most remarkable ever built. During the war, it was continuously modified and improved, and it was adapted for a number of other combat vehicles. A total of 62,000 Sherman family vehicles were built, so it is not surprising that a few are still in service in some of the world's armies.

From their conception, production requirements for the Grant – and later the Sherman – called for large numbers, and many model variations were built.

Beginning with the Grants, there were a number of hull types. The first M3 Grants had the then-standard riveted hull, but this type of construction had a major drawback. If the tank was hit in a riveted area, the rivet fragments could fly around inside the crew compartment, becoming deadly projectiles. The welded hull overcame this deficiency. This improved method was based on Ordnance Department development work begun just after World War I. In addition, a limited number of Grants were made with cast armor hulls, but this type of construction did not become widespread until it was used for the Sherman. Power plants posed another production problem. Several different types were used in the Grants. The basic engine was a modified, air-cooled, radial aircraft engine, but because of the need to produce large numbers of airplanes, not enough were available. A twin GMC 6-71 water-cooled diesel

Tracing the Stuart Line

BRITISH TANKERS IN NORTH AFRICA RECEIVE ORIENTATION ON THE M3 STUART

AN M3A1 FLAMETHROWER VERSION IN THE PACIFIC, 1943

M8 75-MM SP HOWITZERS BOGGED DOWN IN MUD ON OKINAWA, 1945

power plant was also developed, but the Navy had priority on diesel fuel, which limited Army development of diesels for tanks.

Perhaps the most unique tank power plant was developed by the Chrysler-operated Detroit Tank Arsenal, a 30-cylinder "multibank" made by linking five 6-cylinder, water-cooled truck engines to a common power output. This improbable-sounding power plant actually worked quite well.

Production of the Sherman was began in 1941, and the Grant continued in production until 1942.

M31 RECOVERY VEHICLE, AN M3 CONVERSION, HAULS A TROPHY IN ITALY.

Despite all these changes and variations, many key parts of the Grant-Sherman series of tanks were interchangeable, including power trains, suspensions, and tracks. This interchangeability allowed Grants to remain in service until 1945.

Although the U.S. Army did not employ the Grant against the Germans after 1942, the Russians did. They were used against the Japanese until 1945. One of the last combat uses was with the British 14th Army in Burma in mid-1945. Its tank force consisted of 50 Grants and 50 Shermans, all rebuilt veterans of the North African Desert Campaign.

The first U.S. Army armored tank recovery vehicles, the M31 Series, were Grants with their armament removed and a powerful winch and lifting boom added. Some were also converted into heavy artillery tractors when these were in short supply.

In 1942, as the Sherman was being phased in, two more power plants were added to those inherited from the Grant. One was an air-cooled, radial diesel engine, which saw only limited use because of the need to conserve diesel fuel. Another new Sherman engine was a completely new Ford Motor Company V-8 water-cooled gasoline engine, called the GAA. It had been developed from a V-12 aircraft engine. Eventually, it became the primary power plant for all Sherman-family vehicles.

While all Shermans used cast armor turrets, the hulls varied. Production began with both cast and welded armor hulls, and a few were made with cast front and welded rear armor hulls. In 1942, the armored front cross-drive case was changed from a three-piece design to a one-piece casting.

The original 16-1/2-inch Sherman track always had problems in difficult soil conditions, such as deep mud. To overcome this, special track connectors (grousers) were developed, which added several inches to the track width, but this was an interim solution.

In 1943, a new interchangable suspension, the Horizontal Volute Spring Suspension (HVSS)E8, was introduced. In addition to a 23-inch track, additional shock absorbers were added. This was one of the most unsuccessful wartime improvements made in the Sherman family. The Sherman's armament also improved as the war continued. The original gun, which fired the same ammunition as the Army's standard 75-mm field gun, required improvement by 1942, particularly if the tank was to fight the new German Panthers and Tigers.

The Ordnance Department recognized this early in the war, and began working on an improved gun in 1942. A new 76-mm gun of much higher velocity replaced the 75 without requiring a new mount or turret changes. Although this gun was available in late 1942, the U.S. Army Armored Force Board asked for turret changes, which delayed its introduction.

However, in early 1943 the improved M4A3E8 Sherman was introduced with this gun, and it was retrofitted to existing Shermans.

Another variant mounted the 105-mm howitzer, firing the same ammunition as the standard field howitzer. It went to the field in 1943 as an infantry support weapon. Both the 105-mm howitzer-armed version and the 76-mm gun Sherman remained in use in the U.S. Armed Forces until after the Korean War. The last major change in the Sherman was the redesign of the hull

SHERMAN M4A3E2 "JUMBO" WAS FIELD-CONVERTED TO HIGH-VELOCITY 76-MM GUN, CARRIED MORE ARMOR, AND WAS EQUIPPED WITH TRACK EXTENDERS.

frontal armor in 1943. There had also been a number of other less important changes during the war, any or all of which could be added to any model. The interchangeability within the Sherman family of vehicles was truly remarkable.

The remarkable adaptability of the Sherman chassis is an important part of its history. It was the closest thing to a basic "common standard chassis" ever developed.

These variations began in 1940, when the U.S. Army wanted a self-propelled antitank gun. The Ordnance Department had been experimenting with self-propelled guns since World War I. The development process began by building a Grant with an open top and mounting a WWI-era 3-inch antiaircraft gun. The use of antiaircraft guns for antitank missions had been considered ever since World War I, but unfortunately, there were not enough of the old guns to allow this successful design to go into production.

Another Grant was rebuilt as an open top armored vehicle mounting a standard U.S. Army 3-inch antiaircraft gun. While this proved that such a powerful gun could be mounted, there was a different self-propelled gun the Army needed much more.

This led to a Grant with an open-top armored hull fitted with a mount for the standard Army 105-mm field howitzer. After a special .50-caliber machine gun mount was added, this unit was standardized as the 105-mm Howitzer Motor Carriage M7 in April 1942. The M7 first saw combat with the British 8th Army in North Africa in late summer 1942, and proved highly successful. The British named it the "Priest" because of its pulpit-like .50-caliber machine gun position. The Priest served effectively in the U.S. Army through World War II and well beyond.

Next, the Army Ordnance Department mounted a World War I-era 155-mm heavy field gun on a modified open-top Grant, and built another special modification of the Grant to support the gun. This was the heaviest gun mounted on a tank chassis at the time, and it worked very well.

These were standardized as the 155-mm Gun Motor Carriage M12, and Cargo Carrier M30. A hundred sets were built in 1942. The U.S. Army Ground Forces, however, had no requirement for such a weapon at the time, and the M12 did not see combat until after D-Day, 6 June 1944. Once in action, the M12s proved superior for many missions, from knocking out German pillboxes to destroying any German Tiger or Panther family vehicle. They remained in service until the end of World War II, and they were replaced by a similar unit mounting a much more modern 155-mm gun.

While the U.S. Army Ground Forces may not have quickly recognized the potential of the self-propelled

THE M-10 TANK DESTROYER HAD AN OPEN TURRET AND THINNER ARMOR.

155-mm gun, there was a requirement for a self-propelled, high-velocity antitank gun in 1941. A Sherman chassis was built with a light armor upper hull, and a new light armor open-top turret mounting a modified U.S. Army 3-inch antiaircraft gun. It was possible to do this very quickly because the earlier work exploring the 3-inch antiaircraft gun mount in open-top Grants had proved it could be done.

The 33-ton 3-inch Gun Motor Carriage M10 was already in production when it was standardized in July 1942, and it soon became known as the "3-inch Tank Destroyer M10." While these were very effective when employed as mobile antitank guns, depending on mobility and stealth, they looked so much like tanks that they were improperly employed as tanks far too often. Despite this, they were very effective when properly employed.

The Army replaced the M10's 3-in antiaircraft gun during World War II with a 90-mm gun fully as powerful as the vaunted German FLAK 88. This gun was modified for tank mounting, in 1942, but there was no tank considered adequate to mount such a powerful gun. Then, a special 90-mm gun open-top turret was mounted on an M10 tank destroyer chassis, and proved satisfactory. This unit went into production in late 1943 as the 33-ton 90-mm Gun Motor Carriage M36. It went into action in Italy in the spring of 1944, and proved capable of handling the German Tiger and Panther family of vehicles when properly employed.

Although it saw little combat use, the last 90-mm Sherman chassis tank destroyer was an interesting vehicle. It was a slightly modified M4A3E8 Sherman mounting a special open-top 90-mm gun turret.

This 90-mm Gun Motor Carriage M36B1 proved the Sherman could

The Versatile Sherman

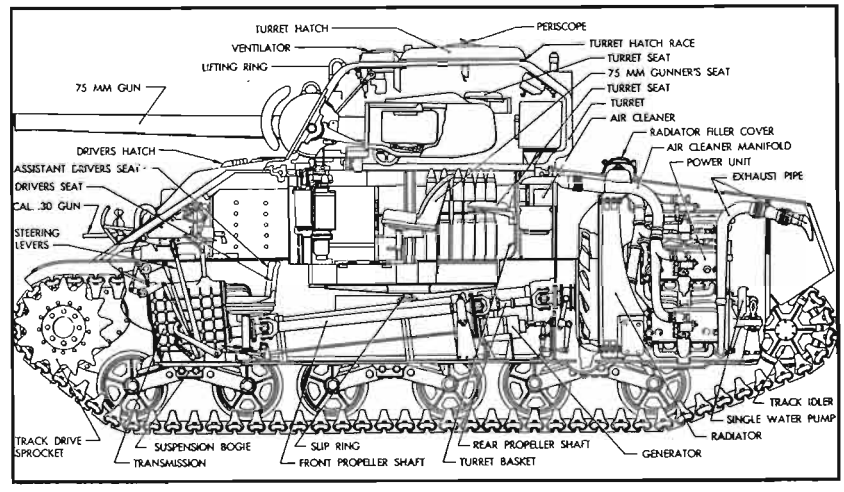
MARINE SHERMAN FLAMETHROWER TANK ON HILL 95, OKINAWA.

SHERMAN WITH T1E3 MINEROLLER

SHERMAN 105-MM HOWITZER VARIANTS

ROCKET-LAUNCHING SHERMANS, 1945

LATE M4A3E8 WITH HVSS SUSPENSION



TECH MANUAL VIEW OF M4A4 SHERMAN WITH 30-CYLINDER 'MULTIBANK' ENGINE

The M12 - A Most Unusual Antitank Gun...

AN M12 CREW ENGAGES GERMAN TANKS AT 1,000 METERS.

The M12 155-mm self-propelled gun was a 1917-era GPF cannon – a design borrowed from the French during WWI – mounted on a Sherman chassis with a spade at the rear to help absorb recoil. Employed as mobile artillery after the Normandy landings, the M12 was occasionally used as an antitank gun in the direct-fire mode.

With poor direct-fire sights, gunners simply aimed the tube by "line of metal", sometimes painting a line on the top of the barrel to aid aiming. A concrete-busting shell, equipped with a delayed fuze, exploded after penetrating the enemy tank, usually with spectacular results, according to veterans who used it against Panthers and Tigers.

have been armed with a 90-mm gun, however, it never was.

Another important Sherman family vehicle was the armored Tank Recovery Unit M32 series. These were modified from early model Shermans by replacing the gun turret and adding a powerful winch and lifting boom. This proved a very useful vehicle and it remained in service long after World War II.

One of the most interesting Sherman variations was the limited production, low-geared, 42-ton Tank Medium Assault M4A3E2. Its extra 10 tons of armor could resist German antitank and tank guns pretty well, but it never accumulated a combat record. It was slow and heavy, and its weight gave it serious mobility problems. It did prove the upper weight limit of the Sherman chassis.

Just in time for use in the last months of World War II were the last Sherman family vehicles built, both self-propelled guns. These were the 155-mm Gun Motor Carriage M40 and the 8-inch Howitzer Motor Carriage M43, developed in 1945. Both mounted modified Army field guns, and the 155-mm Gun M40 saw some service in both Europe and the Pacific. Later, both accumulated outstanding combat records in Korea.

The vehicles in the Sherman tank family are proven some of the best of their kind ever conceived. Their mechanical simplicity and basic ruggedness, along with their remarkable parts and assembly interchangeability, from the first Grants to the last Shermans, are unmatched even 50 years after they were first introduced.

Despite being criticized soon after they were introduced in World War II, modified and upgraded Shermans have successfully fought tanks of practically current design. Although none of them remain in front-line service, they will be remembered, and it is unlikely there will ever be anything like them again.

Note

This analysis was based on official reports, manuals, and other documents pertaining to U.S. Army Ordnance development and history, *Army Ordnance Magazine*, and other military journals. Other sources include the published and unpublished writings of GEN Gladeon M. Barnes, U. S. Army Chief of Development and Engineering for the Ordnance Department, during World War II. The author has also consulted unit histories and several credible unauthorized armored vehicle histories.

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Welcome to Our Task Force, Lieutenant!

by Lieutenant Colonel (P) Marshall L. Helena

Dear Lieutenant Hardcore:

We've received word that you'll be joining our task force shortly. Welcome aboard! Over the past months you've been drinking from the "Armor Fire Hose" at Fort Knox. Some of what you've learned you'll use immediately; some you'll use later. Some...well, you're probably wondering why it was taught. But believe me, you'll use it ALL.

Clear your mind of all that for the moment. I want to take a few minutes to brief you on what I expect of you, what your fellow officers expect, and what your NCOs and those terrific young soldiers expect. More to the point, these are lessons learned from the common failings I've seen in new lieutenants. I expect you to make your share – we all have. But attention to these should make your transition to an effective platoon leader a lot smoother for you and your soldiers.

You are always on parade. Act that way. No matter what you do, there is a soldier who takes notice. And believe me, that fine young man understands the concept of **leadership by example.** If you walk down the sidewalk and fail to pick up a piece of trash, you're telling that soldier that police call isn't important. Leadership is not the place for "DO as I say, not as I do." In ethics, moral courage, personal conduct, appearance, tactical proficiency – there can be no double-standard. Before you do something, ask yourself, "Would I do this in front of my soldiers?"

Be yourself. Don't get side-tracked by stereotypes of infantrymen from the movies. Or "war stories." I couldn't care less what kind of vehicle you own, what you chew or drink, what your T-shirts say, what sports you play, or what your hobbies are. I don't care if you're outgoing, loud and gregarious, or if you are quiet and pensive. None of that impresses me. You'll find the Great Captains of history were an assorted lot, anyway. What I DO want are officers who are mature, steady under stress, who have a deep sense of duty, who have a burning commitment to their soldiers and families, and who learn quickly. Officers with "fire in their belly." Officers with substance. Rock-solid and completely reliable. So, again, be yourself and take pride and confidence from your training at Knox. (You're much better prepared for your first platoon than I was.) Remember, our soldiers can spot a phony in seconds. They don't want someone who is nice to them; they want someone who is fair, who is a role model and who will keep them in one piece on the battlefield. They want a combat leader, not a "buddy."

Share the hardships with your soldiers. Be the last member of your platoon through the chow line. Don't crawl into your sleeping bag while your soldiers shiver in below freezing weather without theirs. (Would you believe I caught a platoon leader doing just that while surrounded by his troopers?) Never, ever get comfortable until your soldiers are.

Related to that is **care of your soldiers and their families.** Yes, I said their families. You're not married? Doesn't make a difference. We are in a profession in which the demands and the sacrifices we may ask of our troops require us to provide for those families. That care is a 24-hour, seven-day duty. No turning it off over the weekend. I could go on forever about this, but at this point in your training you should understand it. If you still don't understand that commitment, or if you are unwilling to support those people to that standard, we don't need you.

Set high, realistic standards. I didn't say comfortable standards. I didn't say unattainable standards, either. Train your soldiers and NCOs to those high, realistic standards. Give them responsibility, the authority to execute it, and hold them strictly accountable to meet the standard. Train to standard, not to time. No standard? Then, set one! Remember: A standard not enforced is worse than none at all.

Be consistent. Soldiers have no problem with high standards as long as everyone has to meet them. Allow double-standards, and you're doomed to failure. Guaranteed.

Seek advice. You are not alone. Combat is a team effort. If you're unsure of how to handle a situation, then ask. Someone in the history of this great Army has faced a similar problem and can help you. Use your fellow officers, the company XO, the 1SG, your platoon NCOs, or the command sergeant major. There's not a thing in this world wrong with asking subordinates for recommendations. You don't have a corner on the "brains market." Frankly, I'm very suspicious of any officer who DOESN'T ask for advice. Don't let your soldiers suffer because of a dumb decision you make through false pride.

I know you're an eager, hard charger. Great! But temper your initiative with the requirement to hold your subordinates accountable for doing THEIR job. Don't ever let your desire to "get it done right" override letting the other guy do it, perhaps not to standard. Sure he might goof. Sure you might have to conduct remedial training for him. But the minute you do his job, you can no longer hold him accountable — and you can't run a platoon by yourself.

NCOER. Give your subordinates responsibilities, give them the training to standard to accomplish them, provide the authority and support they need, and then hold them accountable for their performance. The stakes are too high in this business to worry about hurt feelings. I regard the accuracy of the reports you render not only as a reflection of the rated NCO, but perhaps more so as a measure of your moral courage. Think about that long and hard when you're tempted (as we all are) to inflate your ratings.

Integrity and ethics. Our word is our bond. We deal in soldiers' lives. We must have absolute faith and trust in each other. I accept whatever you tell me at face value, and I may have to base tactical actions by this entire battalion on a single report you submit. That is a sobering responsibility.

There's no such thing as a "**good field soldier.**" "Yes sir, I know his personal appearance is poor and he mouths-off too much, and he had a positive urinalysis, but he's a real good gunner and a good field soldier." Nonsense. Don't believe it. What makes a good soldier is the self-discipline and pride to meet or exceed standards wherever he is, field or garrison.

Stay in top physical condition. Train to EXCEED the standards. There is no substitute for superior physical conditioning to build self-confidence and project a sense of control. You are a platoon LEADER, and you can't lead from the rear.

Prepare to be a company commander right now. Tactical situations often cause the nearest officer to become the company commander. The enemy won't care whether or not you need time to get your act together. Stay aware of what's happening on your left and right. Pay attention to everything on the radio net, not just calls for you. Know your company commander's intent. In that regard, I routinely "kill-off" each company commander at some point in each of our training exercises. That helps train junior leaders, giving them confidence through experience; and it tests our ability to maintain continuity of command. Once you've settled-in, try the same idea in your platoon. If you become a casualty, I expect your platoon to continue the mission without a misstep.

Get to Ranger School. Period. You're a combat arms officer, and our soldiers and their families deserve the best leadership. I'm sure that, when bullets are flying and your life is on the line, and with all that means to your family, that you want the best company commander and the best battalion commander controlling things. Your soldiers ask — and deserve — the same from you as their platoon leader. Ranger is the best leadership training available. You will never be the best you can be until you know how you'll perform under extreme physical and mental stress, as well as fear of injury. And how far you can push your soldiers until they are ineffective. Short of actual combat, Ranger training is it. So you think that unless you are infantry, Ranger doesn't apply? You miss the point. Remember, the dismounted patrol is the teaching vehicle; the real lessons are in the performance-under-stress and leadership arena.

That's enough for now — just some key points. You're one of the most privileged people on earth. You will soon lead the finest American soldiers I've ever seen. They will put their lives on the line, (and don't think training can't be just as deadly as combat) based on your orders. Your challenge is to be deserving of their loyalty.

Lieutenant Colonel Marshall L. Helena is currently Chief, Lessons Analysis Division, Center for Army Lessons Learned, Fort Leavenworth, Kansas. Born in Washington DC, he was commissioned in 1970 as a Distinguished Military Graduate from The Citadel, Charleston, South Carolina. He was initially assigned as rifle platoon leader and company executive officer in the 2d Battalion, 325th Airborne Infantry Regiment, 82d Airborne Division. Other prior assignments include company commander in the 2d Infantry Division in Korea; 5th Special Forces Group S-3 Air and A-Team commander; cavalry troop commander and S-1 in the 3d Squadron, 7th Cavalry in Germany; and a personnel staff officer and executive officer to the Deputy Chief of Staff, personnel at HQ, Forces Command. During his last assignment, with the 82d Airborne Division, he served as battalion S-3, brigade S-3, brigade executive officer, assistant to the Chief of Staff, and lastly as commander, 4th Battalion, 325th Airborne Infantry Regiment. LTC Helena received a Bachelor of Arts degree in History from The Citadel, a Master of Arts degree in Management from Central Michigan University, and is a graduate of the US Army Command and General Staff College. He has been selected for promotion to colonel.

Give Me a Heavy-Light

by Major Russell W. Glenn

Can light infantry fight on Europe's mid-intensity battlefield? This article submits for consideration a means of synchronizing light and heavy operations to extend a heavy division's combat effectiveness in time and space. What follows is a brief description of the 3rd Armored Division's exercise plan for Caravan Guard 89 and its implications for heavy-light doctrine. The plan demonstrates that light forces have a role in the NATO fight; it is a role that both complements heavy operations and aids survival of the light force. The conclusion: light infantry is a combat multiplier in a European mid-intensity conflict. It gets the heavy division deeper faster.

2. Mission. 2d Brigade, 10th Mountain Division (LI) conducts zone recon commencing 171800Z Sep 89 and to be completed NLT 180400Z Sep 89 from PL VIPER to PL UNITAS to determine enemy dispositions and secure passage lanes for 3d AD main attack; assists forward passage of division main attack and supporting units between PL VIPER and PL UNITAS; conducts air assault raid east of Wied River and PL UNITAS to disrupt enemy defenses and interdict enemy forces reinforcing the fight west of PL COBRA; attacks targets at 180600Z Sep 89 between PL VIPER and PL COBRA to disrupt synchronization of enemy response and lateral movement west of PL UNITAS.[1]

The above mission statement was that of the 2nd Brigade, 10th Mountain Division during the 3rd Armored Division's counterattack phase of Caravan Guard 89. 2nd Brigade, 10th Mountain Division (Light) was OPCON to 3rd Armored Division in this phase. Separately, its specified and implied tasks present no new doctrine for a light brigade in support of a heavy division. Together, they represent a fresh look at light infantry and armored operations on the AirLand Battlefield. They represent an extension of the heavy division's offensive culminating point, the point where the strength of the attacker no longer significantly exceeds that of the defender, and beyond which continued offensive operations risk overextension, counterattack, and defeat."[2]

The 3AD attack force included the division's own 1st and Combat Aviation Brigades, the 5th Panzer Grenadier Brigade of the West German Bundeswehr, the 11th Armored Cavalry Regiment, and the 2nd Brigade of Fort Drum's 10th Mountain Division (Light). The 3AD mission was to attack to restore the International Boundary (IB) breached by the enemy earlier in the exercise. Critical to mission accomplishment was successful synchronization of light and heavy force capabilities, a concept often written about but still embryonic in practice.

Command and control of the light forces supporting 3AD came from 2nd Brigade, 10th Mountain Division. Maneuver units were the 5-502nd Infantry Battalion of the Berlin Brigade and the 5-5 Cav (Mech) of the 3rd Armored Division. The men of these battalions had trained hard and well for their missions as dismounts, but their equipment was that of their parent units and, therefore, differed from that of a truly light battalion. While they lacked some of the equipment organic to a light division (notably 81- and 60-mm mortars in the case of 5-5 Cav), they could effectively test the integration of light and heavy forces on the European battlefield. They required the same communications, air defense, engineer, and other augmentation essential when a light brigade is attached to a heavy division.

Exercise rules allowed the attacking force to send a large dismounted contingent across the line of departure/line of contact (PL VIPER, see Figure 1) up to 12 hours before mechanized maneuver was permitted. Either foot movement or air insertion was acceptable. 2nd Brigade, 10th Mountain leaders had seven line companies -- four in the 5-5 Cav and three in the 5-502 Infantry. The 5-502 Infantry was to infiltrate two companies by foot between PL VIPER and PL UNITAS; the 5-5 Cav was to do the same. These units were to reconnoiter routes for the heavy units' attack the following morning, determine which were acceptable from both the standpoint of terrain and enemy disposition, and provide reconnaissance reports to the brigade headquarters. Furthermore, as the 11th ACR began its covering force operation, the light force would attack to disrupt the synchronization of the defense. In addition to these four companies performing zone reconnaissance and attack missions, each of the two dismounted battalions was to insert a company by air for operations in zone east of PL UNITAS, but west of PL COBRA. This force would attack command and control nodes,

field artillery positions and combat service support facilities just to the rear of what was thought to be the enemy FEBA (PL UNITAS). These two companies would also ambush any unit attempting to reinforce the covering force fight, would provide additional information on defensive dispositions west of PL UNITAS, and could assist in seizing Wied River crossings. The seventh and final dismounted company was kept in reserve to commit against deep targets. Using the reports from its forward units, the 2nd Brigade commander was to identify the axis which offered the division the greatest opportunity for success with its mounted attack. CG, 3AD would then commit the 11th ACR the following morning. The regiment was to rapidly penetrate enemy defenses and pass the division's exploitation force of two brigades. Fifth Panzer Grenadier Brigade and 1st Brigade, 3rd Armored Division, would continue the attack to complete the destruction of the enemy and restore the international border.

At the request of the light force commander, 3AD planners prioritized routes between Phase Lines VIPER and UNITAS in order of suitability for mounted maneuver. 3AD G3 Plans section determined routes that supported the concept of operation. These, in turn, were analyzed by the division's terrain team and divided into those capable of passing traffic of various weight classifications. The G3 planners then reviewed the routes a final time to determine final priorities for reconnaissance. Given limited time, higher priority routes would be reconnoitered first.

The soldiers of the 5-5 Cav and 5-502 Infantry were to report the results of their reconnaissance by color. A green route was capable of handling M1 traffic, an amber route up to M2/3 traffic, a red route wheeled vehicles only. A black route was impassable either because of its physical condition or due to enemy defenses and obstacles. Collocation of the 2/10th Mountain and 11th ACR command posts would ease dissemination of this critical information. The mounted cavalry would thus have an excellent picture of the enemy's dispositions during its early movement. By 130400Z Sep 89 (ten hours after the start of dismounted operations), the commanding general, 3AD, was to have an overlay of route conditions and a recommendation by the commander, 2/10th Mountain for an attack axis, based on analysis of the terrain west of PL UNITAS.

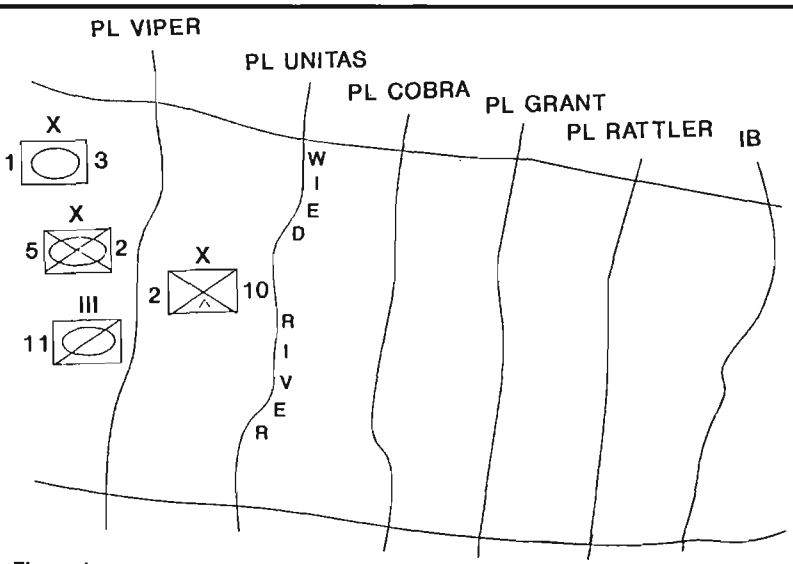

Figure 1

3d Armored Division Ground Maneuver Units in Zone

AirLand Battle doctrine prescribes the use of light infantry in a zone reconnaissance role for a heavy force. Movements to contact and deliberate attack are missions in which such use of a light force is feasible. The nature of AirLand Battle will require divisions to attack during the execution of an operational-level defense. With the limited number of divisions NATO has at the beginning of a European conflict, preservation of combat power will be key to Western victory.

None of the tasks inherent to the 2nd Brigade, 10th Mountain Division's mission were especially innovative in light of current doctrine. FM 71-100, *Division Operations,* specifies "reconnaissance," "infiltration at night," "breach obstacles," and "air assault to seize objectives" as appropriate tasks for the light force in the attack.[3] The mission assigned the 2nd Brigade, 10th Mountain was, therefore, within the doctrinally accepted capabilities of the force. FM 71-100 further states:

"In offensive operations, heavy forces can lose the ability to maneuver when confronted by enemy forces on key terrain dominating friendly routes of advance. Light forces can conduct offensive operations at night to secure a critical pass, destroy enemy forces, control key terrain, and secure the route of advance for the heavy forces."[4]

Such use for light forces has proved its worth in past battles. Soviet partisans performed forward

reconnaissance and guided Red Army heavy forces through German defenses during the successful Bagration operation in June and July 1944. They thereby delayed the Soviet force's achievement of its offensive culminating point and preserved the integrity of its center of gravity as it rapidly moved west to destroy Army Group Center.

It was a similar extension of the 3AD offensive culminating point that was sought with the reconnaissance by dismounted soldiers on the night of 17-18 September 1989. The 11th ACR and following heavy units would preserve their combat power by minimizing unnecessary contact with the enemy; the heavy force would avoid well-organized enemy positions until they reached PL UNITAS, 10 kilometers deeper than had there been no dismounted operations. The extension of the covering force's capability would translate into commitment of the main attack force at a point deeper in the enemy defenses. The enemy would be unable to strip off friendly mounted reconnaissance units. These units would begin their work by seeking weaknesses in the enemy's main battle area defenses rather than after a costly covering force area battle.

The use of light forces in a zone reconnaissance role prior to heavy force commitment has been shown to be doctrinally and historically viable. Unconsidered, however, is the survival of the dismounted force. Too often in training with heavy commands, the light force is overextended and left to a fate similar to that of the British 1st Airborne Division in Operation Market-Garden. Several factors worked in favor of the dismounted force's survival during Caravan Guard. First, the bulk of this force was in the enemy covering force area where the density of enemy units was lower than in the main battle area. Detection of foot soldiers would be difficult and less likely than in the main battle area, with its numerous combat, combat support, and combat service support troops. Secondly, the close proximity of the dismounts to enemy positions reduced the likelihood of the friendly units being targeted by enemy artillery or chemical weapons. Finally, the light force did not originally seek contact; it would attack only in conjunction with the mounted attack the next morning. Link-up with the heavy force would come quickly; the enemy would have few opportunities to engage isolated dismounted forces with heavy units.

The concept was feasible and the dismounted force survivable. The dismounted soldier would prepare the way for the 3AD attack. Unfortunately, a last minute change of exercise plans altered the mission of the 2nd Brigade, 10th Mountain Division and the concept remained untested in Caravan Guard 89. However, the conclusions and potential remain:

- Synchronization of heavy and light planning and operations is essential. Prioritizing the routes for reconnaissance allows efficient use of the limited time available and ensures the reconnaissance focuses on axes that support the division plan.
- The light force delays attainment of the offensive culminating point for both the covering force unit (here, the 11th ACR) and the main body, thus preserving the integrity of the center of gravity for a longer period and to greater depth.
- The light force can survive. The zone reconnaissance mission delays high-risk exposure until shortly before link-up with friendly heavy units.

Caravan Guard provided the forum for thinking, planning, and analyzing the role of the light force in Europe. The light force in the offensive seems to have found a niche.

Notes

[1]2nd Brigade, 10th Mountain Division (LI) Operations Order 16-89 (Caravan Guaıa), dated 15 September 1989.

[2]Department of the Army, Operations, Field Manual 100-5. Washington, D.C.: U.S. Government Printing Office, May, 1986, p. 181. Although the authors of FM 100-5 apply the concept of culminating point to only the operational and strategic levels of war, it has value at the tactical level. Commanders must consider and plan for the culminating points of their units. They either develop means of delaying its arrival or risk passing the point and endangering the unit and mission accomplishment.

[3]Department of the Army, Division Operations, Field Manual 71-100. Washington, D.C.: U.S. Government Printing Office, 15 November 1988, p. A-4.

[4]Ibid., A-19.

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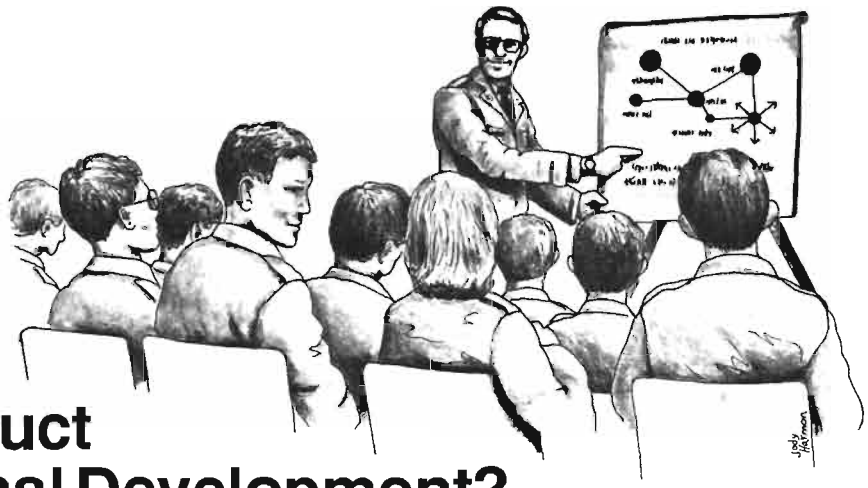


How Do You Conduct Officer Professional Development?

by Lieutenant Colonel Richard P. Geier

Officer Professional Development (OPD) is a commander's responsibility. The scope of an OPD program depends on the type of unit, the program topics deemed critical by the commander, and the time dedicated for officer professional development. The goal of an OPD program is the development of military leaders, and, while many articles stress the importance of leader development, few describe a way to do it. This article will outline an OPD program that I instituted in 1-33 Armor during 1986-88. It will describe the scope of the program, how it was implemented, and the perceived results that the program achieved.

An OPD program must have a base. A comprehensive document outlining a commander's philosophy should be that base. This document should outline not only a command philosophy but also the commander's priorities and standards. I wrote the document used in 1-33 Armor before I assumed command. It included five sections. The first contained general guidance for all officers, both commissioned and noncommissioned. Subsequent sections contained more specific guidance for company commanders, the battalion staff, lieutenants, and NCOs. I wrote this document for three reasons. First, it cut down on the time required to give out new commander's guidance. Second, and most important, it provided for continuity during the command tour. Most battalion commanders seem to start fast and put out a lot of guidance. Then, a year or so later, they slow down, and forget about all the new officers who have arrived in the past year. These new people often don't receive the commander's guidance and philosophy. This can lead to frustrated battalion commanders and equally frustrated subordinates. Last, a written commander's philosophy provides the base for an OPD program.

I distributed the command philosophy document to all the officers right after the change of command. The battalion's officers had a week to digest the document's contents. Then, we met to discuss the command philosophy. At the end of the seminar, all the commissioned officers had 30 days to schedule an appointment with the battalion commander and submit a copy of their ORB and a completed OER support form. I considered this meeting to be an initial counseling session. During this session, I asked the officer to describe his background, experience, and interests. I then asked about his goals and if he had any questions about the command philosophy or the standards expected of him. Last, we discussed the OER support form. After ensuring that the support form's performance goals were in concert with the battalion commander's, the OER support form, ORB, and notes from the session went into a folder in the battalion commander's desk.

This process also occurred each time a new officer was assigned to the battalion. It ensured that all the officers knew what the battalion commander expected, and the commander knew what each of his officers expected of him. Thus, the OPD program began.

The command philosophy document contained the overall guidance for the professional development of all commissioned officers within the battalion.

The document stated, "The OPD program is designed to enhance the tactical and technical competency and promote the professional growth of officers. The OPD is a commander's program from the top down, using chain training (seniors teach subordinates). OPD provides formal and informal opportunities for education and discussion of military subjects. Officer professional development begins with certification upon arrival, and continues with tactical, technical, logisti-

cal, and other profession of arms training that ends upon PCS."

It is important to certify new officers arriving in the battalion. Upon completion of inprocessing, an officer began the certification process. The battalion executive officer was responsible for certifying incoming captains who, in most cases, were initially assigned to the battalion staff. This certification process was rather simple. The XO insured that the new captain understood the battalion's SOPs and war plans. He received a tour of the unit, and was introduced to the company commanders and fellow staff officers at the battalion and brigade.

The new lieutenant underwent a more rigorous certification process. He received a checklist that he, with the help of his company commander, must complete within 90 days. To complete the checklist, the lieutenant must prove to his commander that he knew the unit SOPs, battle drills, war plans, alert procedures, range regulations, etc. He was also required to either qualify on Tank Table VIII or as a UCOFT instructor/operator. In addition, he had to conduct office calls with the battalion staff and the CSM, complete the front portion of the OER support form, and have his initial counseling session with the battalion commander. When the completed checklist was returned to the S3, the lieutenant was required to take and pass a written comprehensive test. After passing the test, the lieutenant underwent one final trial, an appearance before an orals board. The board consisted of the battalion commander, battalion XO, S3, and two company commanders. The lieutenant reported to the president of the board, and responded to a question from each of the board members. When the questioning was completed, the lieutenant left the board room, while the members tallied the results. The lieutenant then returned, and his answers were critiqued by each of the board members. He was then informed if he passed the board. This was a significant emotional event for the lieutenant. Most did well under the pressure, and passed on their first attempt. A few passed on their second try, and one individual underwent the ordeal three times. Upon successful completion of the board, the lieutenant was declared certified and allowed to wear the battalion's unit crest on his class A uniform. A small reward, at best, but more important, this process became a rite of passage, rapidly integrated the new officer into the battalion, and ensured he met a minimal standard of professional knowledge.

The officer training program, after certification, included two distinct phases: mission-oriented leadership (technical, tactical, logistical, administrative, and managerial training), and a more broadening professional development program. The mission-oriented training complemented the unit training calendar. For example, during pre-gunnery periods, officer training consisted of gunnery-related subjects. The officer training periods also served to correct identified unit weakness. For instance, a low operational ready rate may have shown a need to focus on maintenance management.

Officer training was scheduled every Friday that the battalion was at Ft. Lewis. The battalion's NCOs, under the leadership of the CSM, planned and conducted the training for the rest of the battalion on Fridays. The CSM had every Monday afternoon to conduct NCO professional development. The battalion commander conducted the classes every other Friday. OPD on alternate Fridays was the responsibility of the battalion XO and the company commanders. The only officers not required to attend were the physician's assistant and the battalion maintenance technician. A typical schedule looked like this:

0600-0700 Officers' physical training. Responsibility for this training rotated between companies, with emphasis on innovative and interesting PT that could be used at company PT formations.

0700-0830 — Clean up/breakfast

0830-0900 — "Defense of Duffer's Drift" (an oral briefing given by one of the officers.)

0900-1000 — Introduction to battle drills, conducted by the battalion commander.

1000-1015 — Move to the motor pool.

1015-1100 — MILES troubleshooting/zeroing class.

1100-1300 — Mount MILES on tanks and before-operations PMCS. Tanks were crewed entirely by officers.

1300-1400 — Conduct tactical road march to the training area.

1400-1700 Conduct force-on-force battle drills.

1700-1800 — Supper

1800-1930 — Introduction to night operations, conducted by the battalion commander.

2000-Until completion — Night operations/battle drills.

0600-0700 — Breakfast

0700-0800 — Conduct tactical road march to the wash rack.

0800-1200 — Wash tanks; dismount MILES; after-operations PMCS.

This and other battalion level OPD classes served many purposes. It allowed the battalion commander to focus attention on a specific training subject and demonstrate the standards expected of that training. It gave officers the opportunity to make mistakes in front of their peers, rather than their subordinates. These classes improved of-

ficer tactical and technical competence. They also developed tremendous bonding within the battalion's officer corps. When the medical platoon leader, chaplain, signal officer, and S2 get out in the field, driving and maneuvering tanks and sharing a tactical experience with the other officers in the battalion, they become closer to their peers. They also better understand the importance of their support to the line units.

On alternate Fridays, the company commanders and the battalion executive officer were responsible for conducting the OPD training. Company commanders were responsible for training their lieutenants on their warfighting skills. The training subjects were approved by the battalion commander during the weekly battalion training meeting. Subjects included night/day land navigation, Dunn Kempf, computer-assisted war games, company logistical operations, gunnery skills, UCOFT management, call for fire, and many others. The battalion executive officer was responsible for training the staff. The subjects he taught and trained included TOC/trains operations, staff estimate, preparation of orders, IPB, communications troubleshooting, etc.

Two months before the battalion's external evaluation to ARTEP standards, a more intense professional development event occurred. Using all the HMMWVs in the battalion, the officers left Fort Lewis early on a Monday morning and road marched to the Yakima Firing Center. Upon arrival at YFC, a five-day tactical exercise without troops (TEWT) began. The officers conducted reconnaissance, night tactical road marches, a deliberate defense, attack, and movement to contact. The battalion staff wrote and produced orders for all these missions while on the TEWT. Orders briefings were conducted as well as rehearsals, brief backs and intelligence updates. The officers stayed in the field.

The overhead required to support the exercise was quite small. It required only HMMWV drivers and a fuel and part truck with a driver and a driver/mechanic. The officers carried their own food and slept out under the stars. Friday afternoon they returned to Fort Lewis and met with their NCOs. The NCOs received a copy of the orders developed during the week. (While on the TEWT, written orders were required at battalion, company, and platoon level.) The NCOs were briefed on the orders, and the following Monday, the command sergeant major led the battalion's senior NCOs to Yakima for an NCO TEWT using the orders developed by their officers.

The two professional development exercises proved invaluable during the external evaluation. SOPs were confirmed. Tactical and logistical operations were coordinated. Officers and NCOs knew their commander's intent, and not just the intent written in the order. Because of the closeness and comradeship developed through a rigorous OPD/NCOPD program, subordinates knew what their superiors would want them to do in situations that are not mentioned in the commander's intent portion of the operations order. After the external evaluation, the OPD program focused on the lessons learned from the evaluation and the development of a battalion battle book to insure that these lessons were not lost.

The OPD program also attempted to broaden the professional view of each officer. The officers toured NORAD Headquarters and an F-15 fighter squadron at McChord Air Force Base, as well as the Navy's *USS Nimitz* and the Bangor Trident Submarine Base. During the Christmas half-day schedule, OPD consisted of a ski trip to a nearby resort. OPD also included a reading program. Duty officers were required, during their tour of duty, to read one of about 100 articles selected by the battalion commander. Because the officer could pick any one out of a hundred articles, his choice said much about his interests and personality. He was then required to write a review of the article and turn it in to the battalion executive officer at the end of the duty period. The executive officer graded the paper in three areas: comprehension of the article, content of the review, and grammar. The paper then went to the battalion commander, who reviewed it and sent it to the officer's supervisor. If an officer had a reading or writing deficiency, this exercise quickly surfaced the problem. It resulted in more than one officer going to the education center for a reading or writing class. All officers also received a copy of the post OPD reading list that contained titles of the recommended military books at the post library. All officers were strongly encouraged to read books from that list, as well as current military journals. Military history was stressed through historical briefings given by selected officers at the start of the battalion OPD training day. Lastly, officers repeatedly heard that as members of a profession, they must keep current in that profession, much like doctors and lawyers. Good doctors and lawyers must read medical and legal journals, attend professional conventions, and write for publication. Good military leaders should do the same.

Another important part of an OPD program is the officer assignment rotation policy within the bat-

talion. Second lieutenants were assigned as tank platoon leaders as soon after they arrived as possible. The tank platoon leader who had been in that position longest was reassigned to the battalion staff, company executive officer, or separate platoon leader to make room for the new officer. These officers remained in those positions for at least one year, and many as long as 18-20 months. I preferred to let a young officer stay in a job for 18 months. It takes most officers a year - one training cycle - before they can fully anticipate problems, discover innovative solutions to those problems, and develop complete self confidence in their job. They need to receive the chance to be the senior officer in their particular position. They need to be recognized, for example, as the best platoon leader, staff officer, or company commander in the battalion. If the officer assignment rotation policy is working properly, all officers will get that opportunity. In 1-33 Armor, an assignment spreadsheet, maintained by the S1, tracked officer assignments. It listed all the officer positions in the battalion, the names of the individuals, and when they began the assignment. Another column listed the projected officer replacement and anticipated rotation date. This form was updated monthly and distributed to every officer in the battalion. The process ensured that the battalion commander's thinking on future officer assignments was not a secret. It also gave company commanders, staff, and lieutenants a chance to comment on their future assignment. If a lieutenant projected to be the next scout platoon leader on the July spreadsheet fell out of that projected assignment on the August list, he always went to his company and battalion commander to find out why. This led to constructive counseling, which in turn led to better performance. An important part of a professional development program is to provide feedback on the progress of an individual's development. Raters were required to give rated officers a formal counseling 90 days after the officer was assigned to his unit. Subsequent counseling sessions were at the discretion of the rater. The battalion commander senior-rated all the officers in the battalion except for the battalion XO/S3 and company commanders. The senior rater gave his evaluation to the rated officer face-to-face during a formal counseling session. The officer's completed OER support form, performance, potential, and future assignments were discussed at that time. Senior raters owe it to their subordinates to personally counsel them on their evaluation.

The officer professional development program in 1-33 Armor took a great deal of time and energy. So, what was the payoff? One of the payoffs was the unit's overall performance. The unit was well trained, maintained, and disciplined. How much of that is due to the OPD program? To quantify that is difficult, but intuitively we believe that the OPD program was responsible, in a large part, for the overall success of the unit. The battalion was able to do many things well concurrently, which requires centralized planning and decentralized execution. Professional development caused this to happen. The unit was able to execute tactical missions even when the first- and second-level leadership was unavailable or "killed" by MILES. The commander's intent statement is very valuable if all are trained to respond to it - key lessons in OPD. The ultimate payoff is the growth of junior officers. Nothing is more satisfying to a battalion commander than to watch lieutenants, captains, and majors grow in competence and confidence.

An evaluation of the effectiveness of an OPD program in the near term is not easy. The true effectiveness of this process can only be measured over a period of years, as officers are given more challenging assignments. If a lieutenant becomes an excellent company commander due in part to his training in his first battalion, then the OPD program is a success. The same could be said if the captains become effective battalion S3s/executive officers, or the majors become superb battalion commanders.

Our TRADOC schools do an excellent job of training our officers, but they cannot duplicate the training that company commanders should give platoon leaders, nor the professional development provided by battalion commanders. All commanders have a finite amount of energy. The amount of energy a commander directs toward each of his many command requirements ultimately determines the commander's priorities and the things that the unit does well. In 1-33 Armor, a great deal of the commander's energy went toward officer professional development. Any professional development program will work as long as the commander leads and resources it.

LTC Richard P. Geier was commissioned from Pittsburg State University in 1970 and received a masters in military arts from the CGSOC in 1981. He commanded infantry and armor companies in the 9th ID and served with units in the 1st AD. He commanded 1-33 Armor and has served as chief of the Command and Tactics Division of the Command and Staff Department, U.S. Army Armor School. He is currently a student at the Naval War College.

Remembering General I.D. White

A Nervous Captain Facing Combat in Korea Has a Three-star Visitor

"I want to establish a direct link between your company and my forward CP, and I want it now. What are your requirements?"

by Major General George S. Patton, USA (Ret.)

On 18 June, 1990, as I approached the little town of Peterborough, New Hampshire, in order to attend General I.D. White's last formation, I was not surprised to see every flag in the vicinity at half mast.

This was a last and well-deserved tribute to a truly great soldier and American who had passed on a few days before, at the age of 89.

I remember him well:

- As commanding officer of the 82d Reconnaissance Battalion, 2d Armored Division at Ft. Benning, Georgia in 1940-1941 (I was a teenager living there at the time).

- As commanding general, United States Constabulary in Stuttgart, Germany.

- As commanding general, U.S. Army Armor Center, Fort Knox, Kentucky.

- As commanding general, X US Army Corps, during the Korean War.

Both General White and this writer had the singular honor of commanding the 2d Armored Division, "Hell on Wheels." I did not know him during the World War II period, because I was "secure" at West Point at that time.

I.D. White, a great soldier, cavalryman, distinguished warrior, and close friend, now rides on to Fiddler's Green. However, I believe it important to his memory that an incident that made an everlasting impression on me should be recorded in *ARMOR*, the voice of his branch and ours.

In February 1953, I was transferred from assignment with the Command and Staff Department of the Armored School to the Korean Theater as a replacement captain. At that time in my career, I was without combat experience, and, frankly, because there was a war in progress, I was determined to correct that situation. I had been teaching platoon and company tactics to Korean returnees and, without a service ribbon of any type on my uniform, felt that I could not remain longer in that condition without experiencing combat myself.

Following the usual administrative processing at the replacement centers in Japan and Yong Dong Po, near Seoul, I was assigned to the 40th Infantry Division, a major subordinate unit attached to X Corps, LTG I.D. White, commanding. Further processing directed me to the 140th Tank Battalion of the division with orders to take command of "A" Company of that battalion.

The 140th Tank Battalion was organized with three line companies and a headquarters company. Each company had four platoons assigned, with five M46 (90-mm gun) tanks per platoon. Two headquarters tanks provided a total of 22. I was delighted with this assignment, because I retained some knowledge of this type unit, having commanded a similar one for two years in Germany.

"A" Company was under the operational control of the 12th Republic of Korea Division, which occupied very mountainous terrain in the Soyang River Valley, slightly east of the "Punch Bowl." This general area was known as "Luke's Castle."

The tactical situation in February and March 1953 was nearly a stalemate, quite characteristic of the trench warfare of World War I. We were in fixed, hull-defilade positions and engaged enemy targets assigned on a daily basis. We used the long-obsolete M39 weapons carriers to transport ammunition and other supplies to the combat elements. We frequently supported the elimination of hostile probes into the 12th ROK main battle positions. In all candor, other than a few incoming rounds of enemy high-angle fire (mainly 120-mm mortar), there was little action. Our principal problem areas related to the liaison functions

between my unit and the several infantry regiments, organic to the 12th ROK, which it was our mission to support. These challenges largely were eliminated by the very helpful actions of the U.S. advisory personnel, under the able leadership of COL George Isham. Because of these fine Americans, my relationship with the division was satisfactory.

"A" Company had been "on line" for several months prior to my assumption of command. The troops were tired. The equipment was in marginal condition. Maintenance requirements were increasing, and morale was below standards. Thus, in early May, we learned that we would be relieved in place by "B" Company, 140th, and withdraw to corps reserve at Dodge Range, a small but adequate training area located slightly south of the X Corps main CP.

As I recall, "B" Company, commanded by Captain Duane Doherty, replaced my elements on position without incident. With this relief in place completed, "A" Company marched south to the Dodge Range training area in late May 1953. Our assigned mission was rehabilitation, training, and a short but necessary refresher period on tank weapons.

On or about 27 May 1953, I learned that heavy enemy attacks were taking place all along the 12th ROK front. In view of the "B" Company losses of several tanks and personnel, I was alerted to be prepared to return to the Luke's Castle area, relieve "B" Company in sector, and assume its mission. A few hours later, I was directed to execute the order and move with all possible speed, to accomplish that specific mission. This was to be a night march to a forward assembly area, at which "A" Company would receive more detailed instructions. The move took place with an excellent corps military police escort, and we arrived at the designated assembly area with all our assigned tanks just before dawn.

Because of the very difficult terrain, narrow roads, and enemy activity, the relief of "B" Company took the greater part of the next day. Ridgely Gaither, commanding general, 40th Infantry Division, provided the order. In simple terms, I was to:

- Support the 12th ROK Division in sector
- Be prepared to execute continuous delay to the south
- Be prepared to protect and screen the southward movement of the corps and 40th Division artillery, should they be ordered to displace.

The enemy attacks were intense, penetrating the 12th ROK position in several areas. However, through the liaison provided by COL Isham's advisory teams, I was able to remain reasonably current, maneuvering my elements in accordance with the deployed division, which appeared hard-pressed and fighting for its life. ROK infantry casualties were heavy all along the line.

Our single, most vexing problem was the maintenance of communications with both the 12th ROK CP and my own battalion headquarters, which was providing logistic support during this three-day engagement.

At some point in this action, the entire radio repair capability of "A" Company was destroyed by shellfire. Lt. Bob Knight, the communications officer, was severely wounded and was evacuated, along with most of his repair team. His spare sets and basic load of repair parts took a direct 120-mm mortar hit and were also destroyed. "A" Company simply was unable to communicate, and to support a ROK unit which did not speak our language was also somewhat vexing. We were simply not informed. Due to other commitments, the repair capability of the 140th was stretched to the limit, and communications help in that area was practically nonexistent. Putting it mildly, this captain was deeply concerned.

Just at the height of this crisis, with no commo, no current orders, heavy fighting, and the confusion of battle (known to some as the "fog of war"), I heard the sound of two helicopters approaching my observation post, slightly south and east of the most intensive battle area. As the aircraft landed, and the passengers dismounted, I quickly noticed three stars approaching.

I reported to the visitor, provided a short "hood top" briefing on the situation as I understood it, and waited for a response from LTG I.D. White, the X Corps commander. He thanked me for my information, however inadequate it was, and then informed me that "A" Company was in a very critical position vis-a-vis our mission to cover the displacing corps and division artillery, if so ordered. He further stated that he was unsure if the ROKs could hold their current line. He then requested my views. Because of our communications problems, I was unable to give the corps commander more than a very general response, explaining to him the loss of my communications capability earlier that morning.

I will never forget that visit. He put his arm around my shoulder and, accompanied by his aide, walked us off a few feet from the group. He said, "I've known you since you were 16. You are doing well, as I expected you would. Your position here is more critical than you realize, because if you fold or are penetrated in force, we could lose all of the artillery to the south. With that thought in mind, I want to

establish a direct link between your company and my forward CP, and I want to do it now! What are your requirements?"

Luckily, I was in possession of my list of communications needs, to include personnel replacements, and I informed the general accordingly. He summoned his aide, CPT Bob Drake, and handing him my list, ordered him to take the helicopter to altitude, call corps, and "Get 'em!" Within two hours, several repair and supply personnel arrived by helicopter with extra sets and spare radio parts of the type I needed. "A" Company's communications problems were quickly solved.

This, then, was I.D. White at his characteristic best. He displayed trust and confidence in his subordinates. He was decisive, and, as all good commanders should do, he came to the forward battle area to see for himself. Above all, he took action quickly and without fanfare or confusing staff work. Shortly thereafter, the situation stabilized, and the enemy units pulled back to their former battle positions, after very heavy losses. In that connection, and with the vital assistance of a section of quad .50-caliber machine gun mounts, we piled up over 800 Chinese in front of our position during this three-day battle.

I have written this story as an example of battle leadership by a distinguished senior officer whose perception, instinct, and faith in his subordinate paid off in high dividends, in lives saved, and enemy eliminated, during those final days of the Korean War.

He was all any soldier would hope to be. It is unfortunate that his like does not appear often in our ranks. I am a better soldier for having known and served for Isaac Davis White, General, United States Army. May he rest in peace.

Major General George S. Patton was commissioned from the United States Military Academy in 1946. He commanded 2d Medium Tank Battalion, 81st Armor, 1st AD at Ft. Hood from July 1963-July 1964, and 11th Armored Cavalry Regiment from July 1968-April 1969. In 1975, he made history by assuming command of the 2d Armored Division, which had been his father's first divisional command. He served as Assistant Commandant of the Armor School from April 1971-July 1973. From November 1977-February 1979, he served as Deputy Commanding General, VII Corps, USAREUR. He retired in 1980 after 34 years active service. In retirement, he divides his time between farming and public speaking. He is the Honorary Colonel of the 11th ACR.

LETTERS *Continued from Pg 3*

Department – made a concerted effort in the 1930s and early 1940s to develop the Christie concept into a fightable vehicle. The combined arms concept was far from a mind-set, in spite of events at Fort Knox.

The branch chiefs still retained their own priorities and provincial attitudes. When the Army Chief of Staff made the decision in 1931 to allow each combat arm to mechanize separately, it caused somber problems for Ordnance officials, who had to meet separate infantry and cavalry requirements for fighting vehicles. This was also a period of grave economic turbulence, when the U.S. military was subjected to budgetary limitations by a Democratic Congress elected by constituents whose mood in the 1930s reflected neutrality and anti-militarism. In the Soviet Union, conditions were more favorable for armor development because of the totalitarian regime of Stalin, where the people were dictated to, rather than persuaded. In addition, the Red Army benefitted from the series of defense-oriented Five Year Plans. This allowed armor supporters, such as General Khalepski and his mentor, Marshal Mikhail Tukhachevski, to expand their ideas on mechanization and mobile warfare without the constraints of budgetary limitations and a pacifistic mood of a people who were engaged in dealing with reform liberalism in order to solve the Great Depression.

GEORGE F. HOFMANN, Ph.D.
University of Cincinnati

Dr. Hofmann's account of Christie's dealings with the Ordnance Department appeared in the February 1975 issue of Military Affairs, published by the Kansas State University Department of History. - Ed.

Convert Bradleys as Heavy Mortar Carriers

Dear Sir:

The recent U.S. Army decision to replace the M3A2 Cavalry Fighting Vehicle (CFV) with the High Mobility Multi-purpose Wheeled Vehicle could provide a once-in-a-lifetime opportunity to enhance the heavy mortar capability in heavy divisions.

I propose that M3A2 CFV assets be used as follows:

- Separate the CFV into two subsystems: the TOW/Bushmaster armored turret (T/BAT) and the chassis.
- Store the T/BAT assets for use as combat spares to repair battle-damaged M2A2 Bradley Fighting Vehicles (BFV).
- In the near-term, convert the CFV chassis into armored mortar carriers, replacing the M106 in heavy mortar platoons.
- In the long- term, consider retrofitting a 120-mm breech-loaded turret mortar (BLTM) on the CFV chassis.

This proposal has the following advantages:

- All M3A2 subsystems, including turret and chassis, would be used in alternative

heavy force roles. Nothing would be wasted.

- Upgraded mobility and survivability would be provided for heavy mortar crews in tank and mechanized infantry battalions remaining in the total Army structure after implementation of the Conventional Forces in Europe (CFE) Treaty.

- The 120-mm BLTM would enhance employment flexibility by adding a direct-fire capability for heavy mortars.

- Alternative designs of 120-mm BLTM are available for "off-the-shelf" adoption.

- Near-term availability of CFV chassis would negate the need to increase funding for the Armored System Modernization Program (ASMP), which does not yet include an armored mortar carrier.

For heavy force mortars, opportunity may knock only once.

RICHARD K. FICKETT
Annandale, Va.

Building Flexibility Into Armor's Future

Dear Sir:

The reduction of heavy forces is not something we can control. We must demonstrate our renowned flexibility and adapt to the situation. Light forces are best for our most probable future military operations, interventions like Grenada and Panama, where mid- and high-intensity combat is not likely. Heavy forces will have to be maintained for deterrence, to reinforce a light force deployment should a situation prove too much for them, and for the heavy-force battles for which they were designed.

The equipment from deactivated units should be issued to National Guard and Army Reserve units. This will provide a heavy reserve force to back up a light active Army force.

We must be prepared to expand the heavy force to meet a future emergency. This is only possible by having tank commanders and tank platoon sergeants available to form new units. The only way to do this is to train tank crewmen to be tank commanders, and tank commanders to be platoon sergeant/platoon leaders. There will not be enough officers to fill platoon leader slots during such a quick expansion. Hans von Seekt trained the Reichswehr like this, which enabled the rapid expansion of the Wehrmacht, from 100,000 men in 1935 to the millions deployed across Europe by 1944, with little loss of effectiveness.

Light infantry can accomplish nearly all missions without tanks, but only at a much greater cost. The light forces are going to need light tank battalions. How to equip these units is another problem.

The quick fix is to use the M551 Sheridan, and several hundred are being refurbished by Anniston Army Depot, Ala. Even with modifications, there are many problems facing Sheridan crews. The 152-mm M81E1 weapon/fire control system is not reliable enough. I would not bet on any M551 being able to fire a basic load without a malfunction. Even if it did, the missile system has to be checked for a GO, and the tracker aligned, when switching from conventional ammunition to missile. The six to nine seconds needed to reload the 152 is just TOO LONG. The M176 grenade launchers are useless. The commander's cupola provides no overhead cover when the hatch is open, and the "chicken plates" raise the height. The bustle rack is too small. The flotation kit is questionable, even when it is not being shot at. How is it to remain functional under fire? Oil-cooling the engine would be much better than the existing water cooling. The seals on the road and idler wheels are too easily damaged. The tank has NO survivability, against even the lightest antitank weapon, and its vulnerability to mines was proved in Vietnam (wonder where all those mine plates went?). The ammo, and the way it is stored, are an explosion looking to happen. Reactive armor and a Halon fire-suppression system are a must.

What are we to use for recovery (any M578s left)? There is the problem of assault bridging (any M113 LABs around)? The Class III needs of an M551 are only those of an M113, but Class V needs match those of an M60 tank. How are light infantry divisions to deal with this? We can sit and cry in our diesel (JP8 for you M1 types) or prove what the Armor community is made of. We led the way in the heavy fight doctrine; now let's get into the light one.

It makes no difference if light or heavy forces are fighting a battle; history proves combat is based upon combined arms teamwork.

CHRIS SCHNEIDER
SSG, Armor
1/238 Cav., IANG
Noblesville, Ind.

NTC "Deficiencies" Are Just the Learning Process

Dear Sir:

Please allow me to take issue with several specific points and the thesis of Colonel Hawley's article, "Our Need to Develop Brilliant Battalions," published in your March-April 1990 issue.

Colonel Hawley first states many of the repetitive mistakes made at the NTC and CMTC by battalions training there. He is "disconcerted" because the "problems" he addressed do not go away. He then concludes the reason is "the failure to manage and move vital information." I disagree.

First, the mistakes Colonel Hawley specifies are made over and over, but not to the same degree by each battalion as it is trained. That is why NTC and CMTC exist. Not all battalions can train to go nine for nine at NTC for numerous reasons, the most obvious including personnel turbulance and training resources.

A task force that is task organized with all its slice elements at home station and all key leaders in place six months or more out has a much better chance of immediate success, especially when such a task force is given all the training resources (MILES, blank ammo, land) of the division. Many battalions go to the NTC or CMTC with commanders who have been in command less than three months.

Units particularily go to CMTC having had no task force FTX for over a year before they are put "in the box." Clearly, the problem is not an inability to manage information or make decisions; the problem is a lack of practice. Units at CMTC and NTC grow enormously. A more pertinent question would be how many task forces display Colonel Hawley's listed weaknesses in their last one or two missions? I also disagree that lack of initiative and the ability to see and then seize an opportunity "center" on information management. Likewise, violation of the one-third/two-thirds rule by task forces or failing to perform a leader's recon are not attributable to information management but to lack of training and/or practice.

Rommel, Guderian and Patton all seized the initiative and were very aggressive with or without "complete information." There are a host of timid generals (McClellan at Antietam comes readily to

mind) who rarely make timely decisions even when provided a copy of the enemy's plan.

In short, leadership, "great captains," are, in fact, born and, although providing better information early is certainly helpful, the self-confidence that is both innate and that stems from frequent success is far more important than information management.

Why does OPFOR win 80 percent of the battles? It trains 200(+) days a year. Leave a Blue Force brigade at NTC for six months and see how many battles OPFOR wins after the first two weeks.

Colonel Hawley's Golan Heights example is equally flawed. Where is the correlation between superior information management by the Israelis and their success. What about superior Israeli leadership, tactics, tactical situation, etc.? If Colonel Hawley is going to make such a bold assertion, he ought to provide some analysis. Unfortunately, Colonel Hawley's panacea for NTC "failures" (they aren't failures when units are far better trained coming out than going in) is mere technology. Here is where I really disagree. Please, as we wisely move into a peaceful period of less money for the armed forces, let us not spend it on enormously expensive, fragile, and unreliable digital information systems, graphics displays on each tank, position locating systems, and so forth. Please let us spend the money to train our units.

PHILIP D. ALLUM
LTC, Armor
FRG

Future Heavy Division Concept Exists Now in the 9th ID

Dear Sir:

As I read through Captain Stephen L. Melton's article, "The Future of Armor," May-June 1990, I found his proposals for the heavy division of the future vaguely familiar. I feel that the answer exists now, in concept, with the 9th Infantry Division (Motorized) at Fort Lewis, Washington. The original mission of the division was to be able to rapidly deploy to a contingency area, establish or expand a lodgement, and defeat enemy forces ranging from light infantry to tank and motorized forces.

The lack of key equipment, (Assault Gun System, ground-mounted Hellfire, and more mobile field and air defense artillery platforms, to name a few, have sounded the death knell for a force tailored to fulfill the needs of the Army into the next century.

It has been interesting to note the recent thoughts put forth in ARMOR about equipping scout platoons with HMMWVs. It may be a new concept to some, but it is a working reality here. Add to that the ability to sling-load vehicle mounted antiarmor systems under the CH-47D.

As a participant in both motorized rotations at the National Training Center, it appeared to me that the major limitations weren't the doctrine, but a lack of equipment designed to accomplish assigned missions. The TOW II afforded a significant antiarmor capability, but its slow rate of fire and reload served to hamper the brigade's offensive capabilities during its first NTC rotation. The addition of an armor battalion during the 9ID's subsequent brigade rotation did much to add to the offensive thrust. The coordinated use of maneuver, field artillery, and close air support, as well as the other battlefield operating systems, allow the motorized unit to create disruption in an enemy force, while using its rapid mobility to exploit that disruption. Numerous field exercises at Yakima Firing Center, Wash., have borne this out, on terrain very much like most Third World countries.

The motorized division was not designed to stand toe-to-toe and slug it out with a heavy armored force; it will lose that battle. However, by using basic tenets of the AirLand Battle doctrine - speed, agility, and synchronization - a force exists that can deploy rapidly for LIC contingencies, in addition to countering an armored threat until friendly armor can be brought to bear.

I spent two years as the Air Defender for TF 2-60 IN (CAB-H), an infantry battalion whose MTOE consisted entirely of HMMWV-mounted weapon and support systems. There was a cavalry flair to almost everything we did (the battalion motto was "Scouts Out"). In fact, our brigade commander and S3 were both cavalry officers.

It is my belief that the motorized division was not designed to be an upgunned light infantry division. However, that seemed to be the perception, and it is what killed us. Had the perception been more along the lines that the 9th ID (MTZ) was a mobile light armored force, or even light cavalry, I think the powers that be may have seen it for what it really is: a cost-effective force that can deploy quickly, hit hard, and be configured to fit contingency missions across the entire spectrum of conflict.

PHILIP J. LOGAN
1LT, AD
Fort Lewis, Wash.

Light Armor: The Torch Passes

Dear Sir:

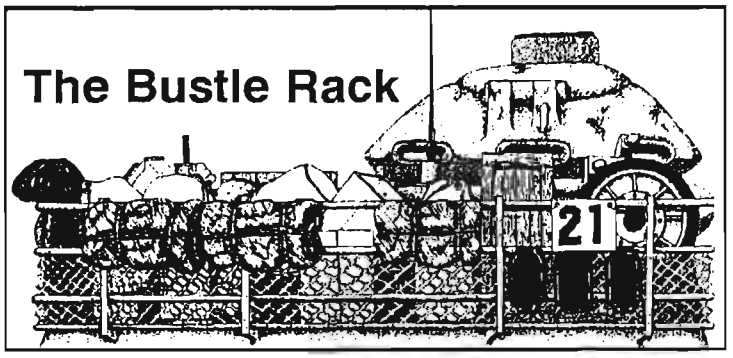
I read Captain David L. Nobles' article, "The Light Armored Force," (May-June 1990 ARMOR) with great interest. It is refreshing to see that some young officers today do understand and appreciate the roles and missions of light armored units. It is an area in which the Army has been deficient for 30 years. I know, because I spent 25 of those 30 years writing numerous articles on this deficiency. I still maintain that the XR311 would have been the best scout vehicle we could have fielded. I got down on my hands and knees to stop the demise of the excellent ARSV concept. It would have matured into a great asset.

An XR311 being tested at Fort Knox.

During the infamous "Armored Combat Vehicle Technology Program" in the early 1980s, we noticed that there seemed to be a genetic code, passed from father to son, contending that tracked vehicles were better in all scenarios than wheeled vehicles. Even mobility experts like Cliff Bradley and Dr. Greg Beckker could not change this mindset.

There is no void today in light armored vehicle technology. We have the designs we need to go forth into the 21st century. I hope that Captain Nobles, and others who share his thinking, can get far enough up the ladder to have an influence on a well-rounded Armor Force. I don't think the Soviets are likely to be coming through the Fulda Gap soon.

BURTON S. BOUDINOT
LTC, Armor, Retired
31st Editor, ARMOR



Excellence in Armor is Taking Off!

Enrollment in Excellence in Armor (EIA) has increased 25 percent since the same time last year! More than 136 CMF 19 sergeants or sergeants (P) took and passed the Level II Competency Test during the spring test window and earned 50 points toward promotion to staff sergeant. More and more reserve component Armor units are initiating active EIA programs. We now have NCOs who have grown up in EIA running their own unit programs. Here are some new things on EIA to look for:

- An EIA Memorandum of Instruction, which should make running a unit-level program easier.
- An EIA video tape, which will also make implementing a program easier.
- A new Tank Commander and Scout Commander Competency Test - Level II (green cover), and test notice, for the fall test window (1 Sep-31 Oct).

As we reduce the force over the next few years, the importance of EIA to Total Armor Force readiness now, and in the future will increase. For information on EIA, contact: Directorate of Total Armor Force Readiness - Personnel Proponency Leader Development Division, AV 464-5155/3188 or Commercial (502) 624-5155/3188.

Baths on Board For South African Tankers

South Africa's Olifant 1B tanks, the most recent version of that nation's Centurion conversions, is to include a new amenity for tankers -- a bath!

The bath will be located in the center of the large turret bustle, which is divided into compartments for stowage. Troops discovered that the center compartment could be used as a bathtub during trials of the tank, according to International Defense Review. The tank developers recognized that this would be a good idea, given the nation's jungles and hot and dusty conditions, and agreed to seal the compartment and include a drain plug.

Armor Trainer Update Conference

The Armor Trainer Update Conference is scheduled for 30 November - 1 December 1990. Registration will be held in Gaffey Auditorium beginning the evening of 29 November.

For more information contact MAJ Wisda or Mr. Schaffner at AV 464-7114/4847 or commercial (502)624-7114/4847.

Marines Add Mesh Armor Appliques

Marine Armored Assault Vehicle, at right, seen emerging from the Pacific surf at Camp Pendleton, is up-armored with two layers of stamped steel mesh to deflect small arms ammunition.

At left, a detail photo of the mesh armor, which protects up to about the .50-cal. range of weapons.

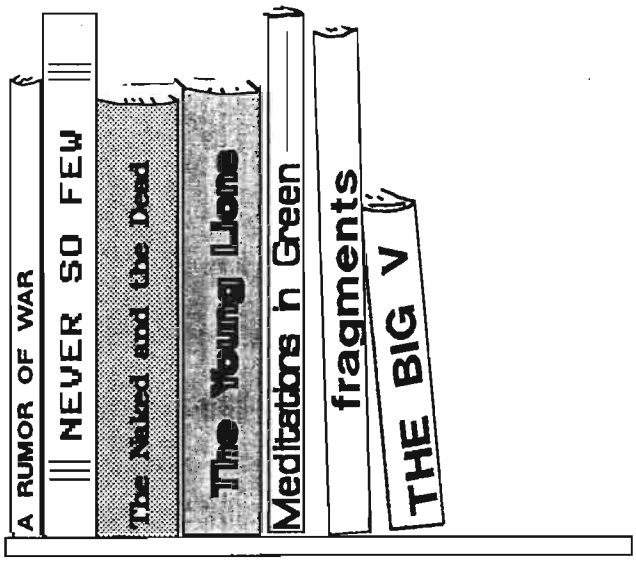
At right, this assault vehicle clearly shows the mounting points for the mesh armor.

Photos by Greg Stewart, Laguna Beach, Calif.

BY THE BOOKS:

Leadership, Cohesion and the Military Novel

by Lieutenant Colonel Bruce T. "Woody" Caine



There is a marvelous leadership development tool lurking out there just waiting for us to pick up and exploit. It's not a new computer-based simulation game, although it does bring a solid dose of realism to the learning experience. I don't think you'll find it in many of our current training circulars, or on the video shelves of our training aids or learning centers, but you will find it on other shelves, in old footlockers, and stuck in the desk drawers of crusty old infantrymen like me. It's a grand companion that has been around in one form or another for hundreds, if not thousands, of years. It's the military novel.

Yes, that's right – good old "read it on the bus" and "before bedtime" fiction. You do remember novels, don't you? They were a primary source of entertainment and, yes, even education and socialization before TV and videotapes usurped much of our leisure time.

You still have leisure time, don't you? Oh, I know, we Army workaholics put in 16-hour days and take piles of official paper home on weekends, but surely, there is still a place in our professional lives for a "good read." And it may just help us overcome the major leadership challenge of the 1990s – learning how to build and sustain cohesive units and prepare them for the stark realities of war on a "paperback budget."

For the past 15 or so years, I have been formally studying and teaching about leadership to groups of young, and sometimes not so young, leaders, both military and civilian. One day years ago at West Point, a spark of inspiration caused me to pull some of my favorite war novels off a back shelf and bring them to the leadership class I was teaching. Most of my cadets had never heard of these "classics," although some remembered "seeing the movie." Readings selected from these novels have stimulated many a fine leadership and human motivation discussion since that first class back in 1976.

The war novel was, and is, a more intimate medium than film or TV. Reading a novel requires imagination, the ability and willingness to visualize a reality from limited descriptions.

In many ways, it parallels the development of an intelligence estimate. Reading a novel places us inside the minds and emotions of the characters, rather than making us simple observers of their actions.

Reading allows us the luxury of stopping to consider an act or thought for its moral/ethical component, and to assess its justification and consequences. A quality novel combines detail with scope, imagery with action, failure with success, emotion with insight – a perfect medium for in-depth discussion of combat motivation, cohesion, and the moral-ethical aspects of war.

War Novels as Training Aids

Preparation for war is much more than tactics and logistics, deployment exercises and range firing. The essence of war is shock and fear, terror and deprivation, and leaders must deal with the reality that, in war, human needs are often in conflict with organizational expectations. While the graphic nature of current war movies may simulate some of the sights and sounds of combat more accurately than those of an earlier era, they can never duplicate the lasting impact of the written word. By its very nature, the novel provides opportunities for insight and introspection, forcing the reader to individually visualize and analyze the actions and circumstances of the characters.

By providing the reader access to inner thoughts and feelings, the novel focuses our attention on motivations. In contrast, the rapid pace of most current, action-based movies allows little opportunity for presentation of anything but the most transparent and immediate of motives.

World War II novels such as *The Young Lions, The Thin Red Line, The Naked and the Dead, Never So Few,* and Vietnam's *Fragments, Another War, Another Peace, The 13th Valley, A Rumor of War, Meditations in Green,* and *The Big V* offer us opportunities to confront the issues of fear and courage, trust and distrust, guilt and rationalizations. They provide a balance to the super-hype of training committee instructors who pontificate about bringing death and destruction through firepower and mobility, as if these were immutable American virtues without human limits.

War is never as clean and clinical as our firepower demonstrations and ARTEP scenarios seem to portray. Certainly, we need to instill confidence in our weapons systems and tactics, but war is a human endeavor, and preparation for it requires we anticipate, with candor, the pain, frustration, confusion, and, yes, exhilaration of combat.

What About Military History?

We soldiers have been strongly encouraged to reawaken our interest in military history, and rightfully so. But most histories are written at, and about, levels of military operations few of us will ever see.

I guess that's why I love those well-written accounts of battles or campaigns that read more like novels, such as John Toland's *1914* and *Battle: The Story of the Bulge,* Cornelius Ryan's *The Last Battle*, and John Keegan's *Face of Battle.*

They are so much more readable than the average history textbook or tactical manual because they focus on the human element, the emotions, weaknesses, strengths, complexities, and uncertainties of war and leadership in war. Like novels, they create an "I can't wait to see how it ends" compulsion that makes the work of reading fun.

And reading to learn is work, real work, although we modern soldiers often forget this. If you don't believe me, try to think of the last time you saw a peer, subordinate, or superior reading military history or, the Pentagon forbid, a military novel during duty hours! Rare, right? Unless, of course, his or her job was writing or teaching military history.

We are an action-oriented profession, and the rewards for careful reading and analysis are often lost in our rush to present another VIP briefing, publish another memorandum of instruction, conduct another practice emergency deployment exercise, or make another coordination telephone call. Even in our professional schools, the incentives for reading outside of the required curriculum often seems to be missing.

If we, as members of the profession of arms, truly believed reading military history and battle narratives (factual or fictional) was real work for a soldier, reading periods and analytical discussions of our studies would be regularly featured on our training schedules.

Battle from a Personal Perspective

Military fiction clearly predates formal military history as a means for training and inspiring soldiers. The recounting of battles through the personal reminiscences of participants, or those gifted with the storyteller's art, were a favored pasttime of many generations of soldiers. In those societies where one's prowess as a warrior determined social status and prestige, the retelling of the exploits of heroes served both as a means of public recognition and an instructional tool.

War and warrior values have been major literary themes throughout human history and pre-history, and rightfully so, if we accept Gwynne Dyer's assertion in his 1985 book *WAR* that "The soldier is one of the first inventions of civilization." Cave paintings, tribal dances, oral histories, legends, epic poems, mythologies, and dramas each served to record and share cultural values and social expectations. Homer's *Iliad* and *Odyssey*, the Old Testament, the plays of classical Greece and Rome, myths such as *Beowulf* — even Shakespeare — reveal the expectations of these societies for the soldier and the soldier's leaders.

Historian Michael Howard, in his insightful study, *War in European History*, points to just such a link:

Much of the "Middle Ages" is still seen through the distorting lenses of fifteenth century legend, which cast upon the world of "chivalry" a golden and fictitious glamour...But the concept of "chivalry" itself, which is in essence simply the behavior of Chevaliers, or knights, was certainly older — as old at least as the

troubadours, whose poetry in the dawn of European literature in the twelfth century hymned the virtues not only of courage but of honor, gentleness, courtesy and, by and large, chastity.

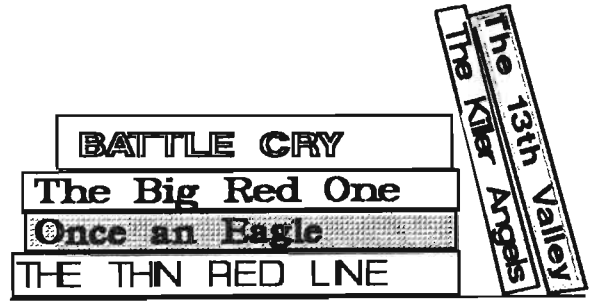
How do we, the sophisticated soldiers of the late 20th century, share such concepts? Who are our heroes? How are our legends portrayed? Does the reading of a dry regimental history and recitation of past honors at a rare ceremony adequately serve to instill pride, passion and commitment?

Stories Can Shape Values

Practical experience is a great teacher, and contemporary adult education theory argues that adults learn best by doing. But this can be costly because, without proper preparation, action learning is fundamentally trial-and-error. Although we try to create realism in our training, the full understanding of the leadership dimension of battle cannot be gained on the playing fields of Grafenwohr or the National Training Center.

Knowing the umpires are around somewhere, and that ENDEX is, at most, only a few days away, creates a special set of reactions in most of us to tactical training. No matter how realistic, training only approximates some of the emotions of battle. We need to read honest, and yes, even some not-so-honest personal accounts of the human experience of war to awaken us to the stark realities that have always been part of the soldier's world.

By its very nature, the novel does what even the best battle histories can only brush. It focuses on the individual's internal conflicts, the fears and joys, the pulls and tugs of duty versus self-interest, honor versus expediency, compassion versus cruelty. Leon Uris' *Battle Cry*, Anton Myrer's *Once an Eagle*, and Irwin Shaw's *The Young Lions* create for the reader real people who experience the frustrations, terrors, exhilarations, and sorrows that are the common currency of the soldier's world.



We come to know their loneliness and friendships, their perceptions of leaders and peers, their needs and values.

Some personal narratives, like the World War II autobiographical *Company Commander* and the Vietnam era's *Platoon Leader, Once a Warrior King, The Killing Zone,* and *Green Knight, Red Mourning,* mirror the insights into the minds of soldiers that novels provide, but their perspective is unilateral. We see the world through a single set of eyes, those of the autobiographer. We can only guess at the actual reactions of others to the behavior of these soldier-authors. With a novel, we often see through many eyes (granted, these are created by the author), and the contrasting perceptions add to our awareness of the complexity of the leadership process under extreme stress. An example may help make the point.

I've read more than a half-dozen accounts of the Battle of Gettysburg and visited the battleground on three occasions, but it wasn't until I read Michael Shaara's *The Killer Angels* that I really understood Gettysburg from an "on the ground" leadership perspective. Although Shaara's musings on the thought processes and emotions of the participants cannot mirror a 125-year-old reality any more accurately than autobiographical records permit (and it is the rare human who records personal thoughts and emotions with 100-percent candor), the plausibility of his portrayal brought formerly larger-than-life historic figures like Lee, Pickett, and Chamberlain alive for me as very human leaders. Colonel Lawrence Chamberlain is a positive role model in our basic leadership manual, FM 22-100, but there is a side of him we don't see until we read Sharra:

"Don't swear," Chamberlain said automatically. He thought of yesterday. I used him to plug a hole. My brother. Did it automatically, as if he was expendable. Reached out and put him there, as you move a chess piece.

"Lawrence?"

Chamberlain turned. Tom was gazing at him, owl-eyed. "You weren't afraid, much, yesterday."

"Too busy," Chamberlain said.

"No." Tom shook his head. "I shoot and run around and all the time I'm scared green. But you weren't scared at all. Not at all. But at Fredericksburg you were scared."

Chamberlain said, "I was too busy. Had things to do. Couldn't think of getting hurt." But he remembered: There was more to it than that. There was an exultation, a huge delight: I was alive. (p.281-2)

There are leadership lessons here that we need to teach as we strive to build truly cohesive units. Such scenes take us beyond the disembodied concepts of duty and selfless service cited in our doctrine, and force us to face the seeming incompatability of policies forbidding superior-subordinate "fraternization" and the goal of building vertical cohesion. Brotherhood and the essential trust between soldiers and leaders are both built on common experience under stress.

Scenes drawn from quality novels are so much more real than the sterile case studies we put in our lesson plans for ethical and professional values training. Development of an honest sense of what it takes to face risks, and order others to do so, demands analysis of Chamberlain's kind of reality.

A stroll down the stacks of the library reveals a wealth of biographies and autobiographies that portray the leadership dilemmas at the highest levels of command, but the military novel is far better suited as a catalyst for discussions of leadership and ethics in the mud.

The first half of Anton Myrer's *Once an Eagle,* Erich Maria Remarque's *All Quiet on the Western Front,* and even Sam Fuller's *The Big Red One* provide numerous portrayals of leadership dilemmas common to the experience of junior leaders. Take for example, the insightful message on human adaptation to military life and to war revealed by one of James Jones' characters in *The Thin Red Line:*

Doll had learned something during the past six months of life. Chiefly what he had learned was that everyone lived by a selection fiction. Nobody was really what he pretended to be. It was as if everybody made up a fiction story about himself, and then he just pretended to everyone that that was what he was and everybody believed him, or at least accepted his fiction story. (p.13)

Dealing successfully with such "fictions," or self-presentations to use the current psychological term, is a part of every leader's reality.

And what of the impact of failure, of defeat, on soldiers? Jones' stark description of an exchange between a senior officer and a soldier whose unit had just been severely bloodied in an unsuccessful assault is a terrific catalyst for discussion of combat motivation. Walking among the soldiers, the general says:

"We're not gonna let these Japs whip us, are we boys? Huh? But they're not as tough as we are, are they?" One boy, young enough to be the general's son, if not his grandson, looked up at him from where he sat with distended eyes. "General, you go out there! You go out there, General, you go out there!" The General smiled at him, pityingly, and walked on. The boy did not even look after him.

Another of Jones' soldiers voices the very foundation of cohesion:

There was, for Band, a mysterious quality of deepest, mostly manly friendship which could exist between men who shared the pain and death, the fear and the sadness of combat — and the happiness too. For there was happiness. Happiness in doing your best, happiness in fighting by the side of your friend.

Building Cohesion

For me, there are few more graphic portrayals of the value of personal example and risk-taking in the building of esprit de corps and cohesion than "Highpockets" Huxley, the battalion commander, in Leon Uris' *Battle Cry*, when he challenged his young marines to push themselves beyond their perceived physical limits on the last day of a long forced march:

We hit the road. Huxley limped like a cripple. His body looked all out of proportion and trembled with each step....No, it was no show. He was in trouble...Highpockets is going to drop...A mile, another. We neared Otaki again...We pulled to a halt. We were finished and we knew it. We'd never make the last day. The saturation point was past.

Sam Huxley felt nothing in his long legs. He looked at his watch...His only order was to get up the galley along the road quickly...Suddenly, he sprang to his feet and shouted, "Get your mess gear and line up along the road for chow, on the double!"

We staggered up to the highway to where the field kitchen was. Eight hundred and fifty men...Huxley kept looking at his watch...Then he smiled as the sound of motors was heard...

Trucks rolled down near us. In them sat the men of Pawnee Blue, the Third Battalion was coming back from Foxton. On their asses!

"Candy-assed Marines!" A roar went up from us on the roadside...The red-faced men of the Third Battalion held their tongues, ashamed of their position...The trucks roared out of sight. I felt wonderful...Huxley was standing on top of a table, his hands on his hips. "Well," he roared "shall I call the

"How many have been led through the events of an actual battle by a participant or have been challenged to feel the emotions as well as to critique the tactics of a battle? Unfortunately, we don't do this in our busy Army."

trucks up for us, or does the Second Battalion walk?"

"The hell with chow!" A cheer went up. And when we hit the camp gate, Huxley shouted over the din, "Let's show them what the best outfit in the Corps looks like!" (p.346-7)

Reading and Leading

One of the real challenges of our time is that many leaders and soldiers don't read, and if they do, they certainly don't read the classics of military fiction.

Part of the responsibility rests with our professional development programs. Recent editions of the Department of the Army's Contemporary Military Reading List contain few novels and, although a number of listings would clearly make excellent material for junior leader professional development, the great novels are remarkable by their absence.

Although the professional ethics curriculum of the Army Reserve Officer Training Corps (ROTC) mandates the reading and written analysis of a military novel, autobiography, or historical narrative, and the Military Qualification System (MQS II) program for lieutenants requires a similar effort, these tasks are viewed by many leaders as detours from the immediate tasks of day-to-day operations.

But such efforts harken back to an earlier time in our Army when an officer's duty was more clearly focused on preparing for command in war than on simply getting today's details done.

And what about our after-action reviews of training exercises? Do we ever consider the impact of fear on the performance of soldiers and leaders? Sure, fear of failure is present in training. We know that doing poorly will reflect on the evaluations of our fitness to lead, but what about the fear of dying or being maimed?

When done well, after-action reviews of training events are a tremendous cohesion builder and useful leadership development tool as well. But as a group, we warriors aren't too good at analyzing our own motivations and feelings in the presence of subordinates, and our fear of making or admitting mistakes often produces greater harm than the mistake itself.

More to the point, how many have been led through the events of an actual battle by a participant or have been challenged to feel the emotions as well as to critique the tactics of a battle? Unfortunately, we don't do this in our busy Army.

Personal war stories are viewed as, well, a bit self-serving, even by the tellers. So what tools are left? Obviously, battle histories, particularly those written about small unit operations, and the military novel.

Because few of us have written a war novel, we can use those that others have written without embarrassment. We can encourage each new generation of leaders who have not faced fire to walk point with Wilson, Gallagher, SSG Craft and LT Hearn across Anopopei Island; rally defenders with Max Shapiro; measure the ethics of Sam Damon and Courtney Massengale.

We can challenge them to understand what makes soldiers go back up "The Dancing Elephant," walk the thirteenth valley, or assault a fortified farmhouse after a walk in the sun. We may even encourage them to read factual history and to compare the historian's view of war with the novelist's sensings of battle.

We don't need to write original case studies for our professional development classes – the professionals of imagery have done it for us. All we have to do is read, encourage others to do likewise, and then take the time to talk about the human side of war.

Lieutenant Colonel Bruce T. "Woody" Caine, Ph.D., is a Regular Army Infantryman, who has spent much of his career in armored divisions. He is a graduate of the Armed Forces Staff College, Command and General Staff College, and the Army War College, and received his Masters and Doctoral degrees in Social Psychology and Organizational Behavior from the University of Florida. A former Inspector General, he is currently commanding the ROTC battalion at Vanderbilt University and has published articles in Parameters, Military Review, Army, and ARMOR.

BOOKS

Viewpoints on Our Strategic Future

The Soviet Challenge in the 1990s, edited by Stephen J. Cimbala and John Starron Jr.. New York: Praeger Publishers, 1989, 303 pp.

The rate of change in our world seems to accelerate with each passing day, and nowhere is change more apparent than in trying to determine our national security strategy, particularly in terms of our relationship with the Soviet Union in the coming years.

The Soviet Challenge in the 1990s is an effort to collect the thoughts of some of the more renowned names associated with the national security field and have them look into the next decade. The book's editors make a valiant effort to look at possible changes in the Soviet strategies, systems and options, and our responses to them. However, one has only to glance at the latest weekly news magazine to see changes and challenges to our basic assumptions about the world.

The contributing authors include such well known strategic writers as Colin S. Gray, Lawrence J. Kolb, and Sam C. Sarkesian. The ten chapters cover a wide range of topics, including low-intensity conflicts, Soviet C^3 advances, Soviet warfighting, and Soviet strategic forces. As we face the uncertainties of strategy development, reduced budgets, and potentially new missions, the final chapter of the book – "The Soviet Challenge in the 1990s: Peaceful Offensive or Operational Entrapment?" – has immediate relevance. This thought-provoking chapter explores the impact of the Soviet adoption of a variety of strategic options and strategies, and shows how the United States might respond in terms of the political use of the armed forces. The difficulty of trying to determine Soviet views and responses to events is clearly illustrated, and allows the reader to appreciate the problems of proactively developing the interaction between the United States and the Soviet Union.

Another chapter of particular interest is Colin S. Gray's "Strategic Priorities and U.S. Options: Escalation and Extended War." This chapter, for its clarity and explanation of U.S. strategic options, is worth reading, even by those who are only concerned with the day-to-day tactical operations of a company. The chapter also contains a concise description of the conflicts between the continental and maritime approaches to national strategy.

This collection of readings has value, despite the rapid changes in the world. The Soviet Challenge is not for those who are focused at the tactical level. For those interested in the strategic issues our nation will probably face in this decade, The Soviet Challenge might be worth the time.

ALBERT F. LEISTER JR.
LTC, Armor
HQ, 5th ID (M)
Fort Polk, La.

Grumpy's Trials, by John M. Sword. Sunflower University Press: Manhattan, Kansas, 1988, 90 pp., $13.95.

Somewhere between Audie Murphy's To Hell and Back and General Dwight D. Eisenhower's Crusade in Europe, there is a lot of military history to be covered, and one area that has received very little attention until recently has been the intelligence effort, especially the combat intelligence efforts of the frontline soldier. John Sword's book begins to fill this gap.

Serving first as a squad leader, and then platoon sergeant, of the intelligence and reconnaissance platoon of the 315th Infantry, 79th Division, from the Normandy invasion of June 1944 until war's end in May 1945, Sword has provided the reader with an insight into the operation of an I&R platoon in combat.

To its detriment, the introduction fails to describe the role and mission assigned to an intelligence and reconnaissance platoon. It does, however, give short character sketches of most of the platoon members and how they got their nicknames. Sword's nickname was Grumpy, hence the title. Appendix A contains a sort of TO&E of the 79th Division, but does not list its equipment. While the SCR 284 and the SCR 300 are mentioned in the text, there were never any photographs or drawings of these sets, so the reader who is unfamiliar with WWII-era radios is a bit lost.

The text is accompanied by maps and sketch maps of some of the actions in which he took part, but in some cases, the towns he mentions are not on the maps, and the reader is sometimes left wondering where the unit is located. Another problem is the book itself: it is a paperback that began to fall apart as I was reading it.

To his credit, Sword has taken a difficult task and done an excellent job. Each of his chapters begins with a general description of the overall tactical situation on the entire front, scaling it down to army, corps, division, and finally, regimental level. Then he gets into a discussion of what his platoon and squad were doing as part of the division's action.

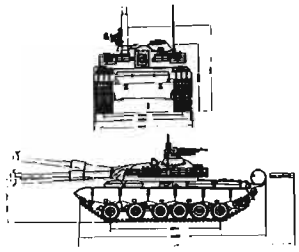
The main mission that the platoon performed was in the area of reconnaisssance, liaison with nearby units, and manning of observation posts. The 79th Division had a role in almost every major campaign in the European theater – the landing at the Normandy beachhead, the breakout, the hedgerow battles, the Mortain counteroffensive, the Battle of the Bulge, and the crossing of the Rhine into Germany. Sword manages to describe combat action as seen by a fast-moving scout section, while including the personal facts of day-to-day life in the field. I was reading the book for its value to the intelligence effort, but unfortunately, little is devoted to the subject of intelligence. Reports were radioed to the regimental S2, but beyond that, there is little in the field of intelligence. There are references to new weapons that should be shown to Ordnance, and prisoners taken, but there is no follow-up.

This book should be read by anyone contemplating duties with a combat intelligence connection, by all infantry officers, and by armor officers assigned to a scout platoon or to a brigade intelligence section.

WILLIAM L. HOWARD
LTC, ARMOR (Ret.)
Largo, Fla.

CHINESE ARMOR

TYPE 80- THE LATEST FIELDED MBT



CHARACTERISTICS

CREW	4
COMBAT WEIGHT	38 mt
LENGTH (HULL)	6.32 m
WIDTH	3.35 m
HEIGHT	2.3 m
MAX SPEED	60 km/h
MAX RANGE	430 km
FORDING	1.4 m
FORDING w/SNORKEL	5 m
OBSTACLE	.8 m
TRENCH	2.7 m

ENGINE	V-12 DIESEL 730 hp
SUSPENSION	TORSION BAR
MAIN GUN	105 mm
COAXIAL	7.62 mm
ANTI-AIRCRAFT	12.7 mm
TYPES OF AMMO	APFSDS-T, HEAT-T, NEST-T AND HE

NIGHT SIGHT	SECOND GENERATION IMAGE INTENSIFIER
STABILIZER	COMPLEX CONTROL BI-DIRECTIONAL STABILIZER
MAX ELEV/DEP	+18°/-6°
BASIC LOAD	
MAIN GUN	44 rds
COAXIAL	2250 rds
ANTI-AIRCRAFT	500 rds

TYPE 59

TYPE 69

TYPE 79

CHARACTERISTICS

	TYPE 59	TYPE 69/79
CREW	4	4
COMBAT WEIGHT	36 mt	37 mt
LENGTH (HULL)	6.04 m	6.24 m
WIDTH	3.27 m	3.27 m
HEIGHT	2.59 m	2.8 m
MAX ROAD SPEED	50 km/h	50 km/h
MAX RANGE	440 km	440 km

	TYPE 59	TYPE 69/79
ENGINE	V-12 DIESEL 520 hp	V-12 DIESEL 500 hp
SUSPENSION	TORSION BAR	TORSION BAR
MAIN GUN	100 mm	100 mm/105 mm
COAXIAL	7.62 mm	7.62 mm
BOW	7.62 mm	
ANTI-AIRCRAFT	12.7 mm	12.7 mm

USER COUNTRIES

TYPE 69 - IRAN, IRAQ, PAKISTAN, THAILAND

TYPE 59 - ALBANIA, BANGLADESH, CONGO, KAMPUCHEA, N. KOREA, PAKISTAN, TANZANIA, VIETNAM, ZIMBABWE, THAILAND, IRAN, IRAQ, SUDAN, ZAMBIA

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