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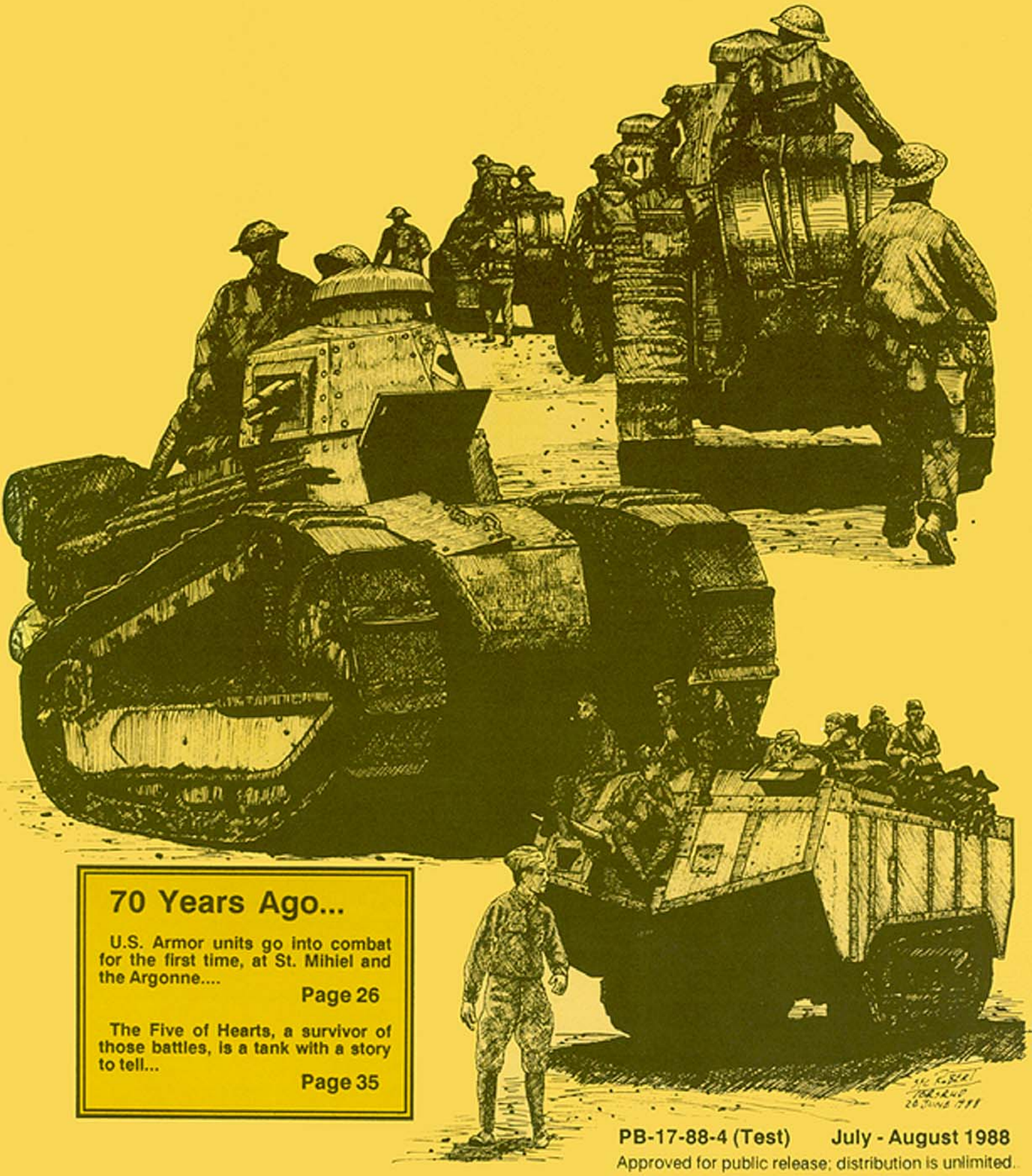

70 Years Ago...

U.S. Armor units go into combat for the first time, at St. Mihiel and the Argonne....

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The Five of Hearts, a survivor of those battles, is a tank with a story to tell...

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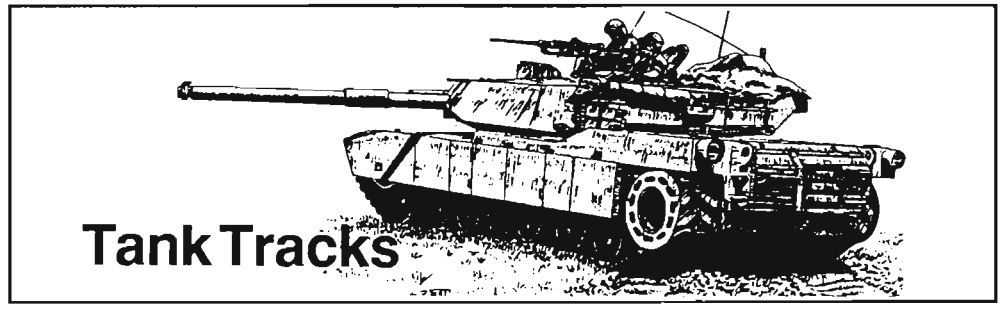

Tank Tracks

Seventy years ago this September, U.S. tankers in French-built tanks fought their first armor battle. **ARMOR's** assistant editor, Bob Rogge, tells the story of Colonel George S. Patton's 304th Tank Brigade and its role in the St. Mihiel offensive of 12 September 1918 and the Meuse-Argonne campaign later the same month. While our tank size has increased tenfold from about 7 to nearly 70 tons in 70 years, some things have not changed that dramatically. Note Patton's logistical problems with transportation and fuel supply, and command, control, and communications.

In an associated story, MG William R. Kraft Jr. traces the saga of "**The Five of Hearts,**" one of the Renault FT 1917s that fought in those first U.S. Armor battles. We follow the tank into the salients through the words of Sergeant Arthur Snyder, who commanded the Five of Hearts after his lieutenant was wounded. General Kraft is the Honorary Colonel of the 66th Armored Regiment, which traces its lineage directly to the 344th Tank Battalion, one of the two battalions comprising the 304th Tank Brigade. The Five of Hearts stands today at Fort Meade, Maryland.

A British officer in World War I is credited with saying, "Most attacks seem to take place at night, during a rainstorm, uphill, where four mapsheets join." MG Terry Allen's 1st Infantry Division employed night attacks in North Africa in 1943 to take positions near El Guettar, which would have been difficult to carry in daylight because the enemy would spot any movement. The British neutralized the Argentinian advantages of open terrain and long field of fire by attacking in darkness in the Falklands in 1982. There are dozens of historic examples in every war, of large and small units achieving surprise through night operations. But night attacks require detailed planning, close coordination, violent execution, and well-trained, disciplined troops. Few would argue that we train as much after sundown as we do during the day. Captain Jim Greer offers a solution in "**By Night As By Day**" for how to set up night training while minimizing disruption of the unit and aggravation for the soldiers.

Since 1945, Low Intensity Conflict (LIC), rather than conventional frontline combat has been the predominant armed conflict around the world. In "**Armor in LIC,**" Major Mike Matheny examines the U.S. experience with LIC in Vietnam, and how armor doctrine evolved mostly through trial and error. Despite what we learned, he says there is still little written doctrine on how to employ Armor in LIC, which is a company and battalion commander's fight. In a following article, Matheny examines the Soviet experience in Afghanistan.

First Lieutenant Dennis Verpoorten is a tank and scout platoon observer-controller at the National Training Center. In this role, he has seen dozens of platoons in the defense. He says in "**Platoon Defensive Operations**" that they lose to the OPFOR in many instances because the platoons did not fight as a team, and the defensive battle turned into a free-for-all. Verpoorten shows how to organize a platoon defensive position through the use of rangecards, platoon fire plans, and control measures.

We think we have a full plate for you. Devour. Enjoy. – PJC

By Order of the Secretary of the Army:

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

Official:

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

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Features

Departments

LETTERS

On Cohesion... As in Combined Arms

Dear Sir,

In 1968, after serving 19 months in the 11th ACR (team leader and squad leader in the Aero Rifle Platoon and in flight operations), I was assigned as a platoon sergeant in a cavalry troop of the 6th ACR.

While with the Aero Rifle Platoon, I had ridden on cavalry troop vehicles, but I had never been in a cavalry troop. When discovering what I had in a cavalry platoon, I was amazed.

Wow! I said when told that I, a 22-year-old infantry sergeant, was then responsible for a full-fledged cavalry platoon – a tank section, an infantry squad, a scout squad and a mortar squad. The platoon was like having a mini-company – tanks, scouts, infantry and mortars. In short, combined arms.

Times change. Infantry companies no longer have mortars; cavalry troops no longer have tanks. But one thing hasn't changed – we still have problems with combined arms.

After only a couple of days of my first Annual Training period with a National Guard mechanized infantry company, it was evident even to a bone-headed infantryman like me that problems will occur as long as theory, practice and doctrine state that a war can be won by cross-attaching infantry to armor and armor to infantry. We all have faced the problems inherent in cross-attachment, logistics and mindset usually the prevalent problems. But what about unit cohesion? Where does cohesion go when a company or a platoon is pulled from among friends, thrust among strangers the soldiers know nothing about?

Easy answer. Cohesion goes down range, blown out the main gun tube, with no regard for deflection or elevation. In other words, the target (combined arms) is missed. By several miles. Add an engineer squad from some unknown bat-

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talion, and the mixture of branches in the pot does not simply boil over; it burns.

We talk combined arms; we bow to the theory; we raise our arms in praise. Yea, though I walk through the valley of the shadow of death, combined arms will lead me to the light at the end of the tunnel.

As presently constituted and practiced - balderdash and poppycock!

The answer - the only real answer - to the combined arms problem lies in organizing, manning, equipping and training combined arms battalions and companies.

Forget about cross-attachment. Forget about exchanging a tank company for an infantry company. Make the swap permanent! Make one company in each tank battalion an infantry company. Make one company in each infantry battalion a tank company.

And, yes, get real radical: Make one platoon in each infantry company a tank platoon; and one platoon in each tank company an infantry platoon.

Forget about collar brass. When I exchanged crossed rifles for sabers, it wasn't the most pleasant thing I had ever done, but a lot of things were more unpleasant. (Sucking jungle water comes to mind.) But there was a job to be done, and if replacing my crossed rifles and removing my blue rope made that job easier to accomplish, then who was I to complain?

Infantry and Armor have been fighting each other (literally and figuratively) since the first track mashed the ground. Isn't it time to end the arguments?

We always hear that infantrymen/tankers don't understand the limitations and capabilities of tanks/infantry. Making real combined arms teams is the most logical way of ending the problem.

Let's call a halt to this wasteful throwing together of heterogeneous masses of steel and soldiers and get to work solving the problems.

ROBERT C. MERRIMAN
PSG, TXARNG
Sulphur Springs, TX

Where's the Div Cav Squadron?

Dear Sir,

As usual, Major General Tom Tait was right on target when he readdressed cavalry in the March-April 1988 issue of ARMOR Magazine

I fully support his views as to the inability of the division cavalry squadron of today to provide the division commander the type of information he requires to effectively win the AirLand battle. He succinctly threads his reasoning throughout his hard-hitting article in such manner that the force structure and doctrinal folks, especially at the senior level, should take heed of his thoughts!

Several years ago I expressed to ARMOR Magazine my deep concern in placing the division cavalry squadron directly under the purview of the aviation brigade. I still have this concern now that it is set in concrete — not because I have any type of adversarial view toward aviation — but simply to me it just "doesn't mesh." When the aviation brigades truly come to full measure within the division they will have more than enough to do as they impact their clearly-defined mission. Should there be strong coordination between the cavalry squadron and the aviation brigade? Absolutely! But leave the cavalry squadron totally under the control of the division commander and his headquarters.

I recognize we are striving to fully integrate the two organizations but, with only two ground troops in the squadron, I believe it will be primarily in an aviation environment even with the advent of a third ground troop in the squadron, as urged by General Tait. In my limited view, I would hope this issue will be reexamined going forward.

Finally, what a classic idea when General Tait proposed a "pure" cavalry division. In the fast-moving action of modern warfare, it seems to me such an organization (if I understand it properly) would fill a needed void between heavy and light divisons. Fast moving and, in effect, making each of the cavalry regiments a combat-sustaining force with its own small components of mechanized infantry, artillery, and combat engineers, a division of this type would bring a new and added dimension to the AirLand battle.

We of the Armor/Cavalry community are indeed fortunate to have a warrior leader and thinker of General Tait's caliber as Chief of Armor.

PHILLIP J. ZELLER, JR.,
Brigadier General, AUS, (Ret)

Task Force Baum And Arracourt Compared

Dear Sir,

Major Michael K. Robel's comments in March-April issue of ARMOR regarding "Destruction of Task Force Baum" provide excellent thoughts on how to conduct a successful deep, but dangerous, ground attack. However, one should keep in mind the logistical and fire support required to sustain these operations.

Such was accomplished by the late General Bruce C. Clarke during his assault by CCA, 4th Armored Division, across the Moselle River on 13 September 1944, and the subsequent deep penetration, exploitation, and mobile defense operations in the Arracourt (France) area during the following two weeks.

Then Colonel Clarke tucked in his logistical tail, keeping his trains with him in this and numerous other operations. It's true that maps were in critically short supply, requiring our frequent use of Michelin or any other road maps. (On one occasion, B-37th Tank Battalion received the village map of Francaltroff two days following its seizure on 20 November 1944.

My friend Major Robel must have blinked during our conversation, however, for he apparently missed my point that there are no "always" or "nevers" in Armor doctrine. Yes, we used roads when we could to our advantage. Why go cross-country at the expense of time, command and control of the formation, and wear and tear on equipment and troops, when roads are available, and the tactical situation favors their use?

One must remember the enemy does not always get off the first shot.

JIMMIE LEACH
Past Hon. Colonel, 37th Armored Regt.
and Honorary Professor of Armor,
USA Armor School

Harmon in Retirement

Dear Sir,

A small quibble with Colonel John W. Mountcastle's article on Major General Ernest N. Harmon in the 100th anniversary issue of ARMOR. Rather than retire because he had found "no worthwhile assignment" (with the implication General Harmon did nothing really worthwhile for the rest of his life), he became president of Norwich University, the nation's oldest private military college, which has been sending the Army cavalry/armor officers

for some time. Among them were General I.D. White, former President of the Armor Association, and the officer to whom General Harmon handed over "Hell on Wheels."

General Don Starry, another president of the Armor Association, received an honorary doctorate degree from Norwich several years ago, from the hands of yet another distinguished tanker, Major General Russell W. Todd, the current President of Norwich University.

If Colonel Mountcastle believes that running Norwich isn't a worthwhile continuation of an armor officer's career, and not worth mentioning in a piece about General Harmon, I suggest that he talk that odd perception over with yet another ex-"Hell on Wheels" commander, Major General George S. Patton, who is a Norwich trustee.

W. E. BUTTERWORTH
Fairhope, AL

"Lone Star Range" Complex Dedicated at Ft. Hood

The formal dedication of the "Lone Star Range" Complex at North Fort Hood was held March 12 and was heralded as a prime example of what the Active and Reserve components can do when working together to solve a training problem.

Lieutenant General Crosby E. Saint, commander of III Corps and Ft. Hood, and Major General James T. Dennis, the adjutant general of Texas, together solved a significant training shortfall for the 49th Armored Division, a major command in the Texas Army National Guard with a mobilization mission under III Corps.

Three years ago, the 49th began to increase its training to a level where the use of major tank ranges only during its annual two-week training was no longer considered to be a viable training program. Major General James B. McGoodwin, division commander, realized that in order for his soldiers to train for the mobilization missions assigned, a significant increase in weekend use of major tank ranges would be required.

None of the Texas National Guard weekend training sites could be used for .50 caliber or larger gunnery training. This restricted the 49th to use of major tank ranges between times scheduled for active units. During this same period, the 1st Cavalry Division and the 2d Armored Division range requirements were increased because of NTC rotations and the new gunnery requirements placed on the infantry with Bradleys. In addition, Ft. Hood was undergoing a major range modernization program with several new ranges under construction.

MG Goodwin directed his staff to complete a study to identify methods of resolving the division's range availability problem. Because of range use by active components, it was decided to request the adjutant general of Texas and LTG Saint to approve the 49th Division concept to build a Ft. Hood range complex, one specifically designed for weekend use and to have two tank ranges. General Saint requested permission to build the ranges as a "troop" project with resource assistance from Ft. Hood and the adjutant general's department. An agreement was reached allowing the 49th to build a two-range, multi-use complex at North Fort Hood near the old and seldom used Ruth Range.

The new ranges are primarily for the M60A3, tank with Tank Tables IV, V and VI fired on the North Range, and Tables IV and V on the South. The multi-use range complex is also suited for .50 caliber use by all units, Active and Reserve.

PAO, 49th Armored Division
TXARNG

What's The Score?

Dear Sir,

I would like to add my voice in support of the comments by SFC Bunce in the March-April issue of ARMOR Magazine with regard to tank battalions being designated cavalry. It is certainly an improvement over designating infantry regiments as cavalry, but is a practice that should be discontinued. It is getting so you cannot tell the players even with a scorecard.

I also praise MG Tait for his comments in the same issue on essentially the same topic but from a different perspective. The 1st Cavalry Division hasn't been cavalry since 1943. Given its illustrious history, I am pleased to see it retained on the active rolls, but why not make it a cavalry division? One immediate benefit from adopting General Tait's recommendation would be a significant reduction in the failures in effective employment of combined arms task forces so common at the NTC. To paraphrase the general, all regimental cavalrymen are used to fixed organizations, and, I add, where combined arms operations is the norm. Augmentation of the cohesive regimental/squadron structure with tanks or infantry to meet mission requirements should certainly be simpler to implement than current procedures in task force construction. The 1st Cavalry Division organized along the lines suggested by General Tait would be a truly formidable and uncommonly flexible force. Make it happen!

C.P. FRINKS,
Major, AR (AUS, Ret)
Burke, VA

TCCT II Changes

Dear Sir,

This letter is in response to the recent changes in the Tank and Scout Commander Certification – Test Level II, (TCCT II). As a master gunner in a separate USAREUR cavalry troop, it saddens me to see the armor community lower its standards again.

I am one of seven TCCT or SCCT II graduates in this troop, seven of only 17 in the U.S. Army (in Europe). It is the unanimous opinion of these people (and myself) that the Armor School has done itself an incredible disservice by lowering the standards on these difficult tests.

We were under the impression that these tests were designed to give the highly-skilled, deserving, and motivated E-5 a chance to earn 50 additional promotion points, serve as a prerequisite to master gunner's school and, be recognized as an armor soldier who would be expected to accomplish great things.

In this day and age of higher technology, isn't it apparent that we need to raise

Correction

ARMOR apologizes to BG James M. Lyle and Major Winn Noyes for using their outdated bios with their article, "Subaltern Stakes," (May-June ARMOR).

At the time they wrote the article, Lyle commanded the 3d ACR, and Noyes was the regimental S3, as stated.

BG Lyle is presently assistant division commander, 2d AD, at Fort Hood and COL Jarrett Robertson presently commands the "Brave Rifles."

the standards, not lower them, so that only those soldiers who have that burning desire to excel be afforded the opportunity to do so?

RAYMOND F. CHANDLER, III
SSG, USA
FRG

(The Chief of Armor responds.)

After carefully monitoring the test results, and after a close look at the test, we found that there were several ambiguous questions, and the test was too lengthy. We revised the entire test and test notices to a 50-question test.

The standards on this test are higher then on the previous test fielded, and the pass rate is 70 percent. TCCT/SCCT-II is designed to identify Armor/Cavalry crewmen who have demonstrated excellent proficiency at lower skill levels and exhibit the potential to continue to excel into the senior grade levels.

A sergeant (E5) must be enrolled in the EIA Program, must be a BNCOC graduate, qualify 80 percent on his SQT, and be recommended by the commanding officer. Passing TCCT/SCCT-II qualifies a sergeant (E5) for early promotion to staff sergeant (E6) and early recognition for attendance at the Master Gunner's course.

Under the EIA Program, the minimum time-in-service requirement for promotion to staff sergeant (E6) is four years. After passing the TCCT/SCCT-II, he will receive 50 additional points for inclusion into the promotion points worksheet.

The TCCT/SCCT-II test will be available from our servicing Training Standards Officer (TSO), who will administer it twice a year. However, candidates will only be allowed to take the test one time on a pass/fail basis (only a sergeant E5 can test).

It is absolutely necessary that an intense study program exist prior to the exam, that the soldier obtain the advance notice from the TSO, and that he use the master gunner to assist in studying for the exam.

Without BNCOC and a programmed study requirement, success is minimal. We believe this program can accomplish its stated purpose only if leaders in the field understand and enthusiastically endorse it..

Some Problems... Some Solutions

Dear Sir,

As is my wont, I'm writing this in order to send up a few more trial balloons for possible discussion here on the armor sounding board.

First, in working with the M1/M1A1 series of vehicles, I have noticed that under certain conditions of light, the flat, planar surfaces of this vehicle can reflect a significant glare that can be detected at ranges that could provide an adversary with a priceless bit of information. This glare-producing quality is more pronounced as the paint covering the vehicle wears and becomes smoother. It also seems to become more apparent sooner with the current generation CARC paints.

A possible solution to this would be to coat those surfaces that are visible from the frontal 60-degree arc with the rough-textured non-skid coating that is currently being applied to the vehicles' upper surfaces as a safety measure. The areas that I envision being covered would include the armor skirts, hull sides, turret sides (to include the stowage boxes), the turret "cheeks," and the upper half of the gun mantlet, thermal shroud and bore evacuator. I recall a number of years ago in this magazine a method of camouflage painting referred to as Dual-Tex in which the different colors used were to have different textures, though if memory serves, just how this was to happen wasn't really explained.

Second, I am still rather puzzled as to why we seem to have given up on the idea that the M2 HB machine gun mounted on the M1/M1A1 can be used at night. Currently, armor battalion/cav squadron TO&Es do not allow for issue of the passive crew-served weapon sight. While in a regimental cav platoon in Germany, I had the opportunity to "cross level" one of these sights from one of my ITVs that had this sight issued but did not carry an M2 HB. Using this sight on a number of occasions pointed up some problem areas that would need to be corrected if this sight were to be issued to tanks.

When using the provided mounting bracket for the M2 HB on the commander's weapon, the night sight sat so far back on the receiver that it was not possible to elevate the machine gun to full elevation. Approximately 35 degrees was its maximum capability before the eyepiece of the night sight makes contact with the forward unity periscope. This could be remedied by adding a projection to the adapter bracket that would act as a mechanical stop. Elevation capability would still be limited to 30-35 degrees, but damage to the sight would be prevented. The other problem that I observed was that, while moving at speeds of ten miles per hour or greater on hard-surfaced roads, a readily visible, rapid vibration is induced into the mounting cradle that, over time, would probably lead to failure of a relatively delicate device such as the crew-served weapon sight.

My gut feeling is that this vibration could be damped out rather simply, or at least reduced to the point that the sight could survive it. However, it might be done, my point is that, in not providing a night firing capability for the M2 HB on the M1/M1A1, we limit the tank commander's choice of available weapons systems with which to engage targets, and we potentially increase our vulnerability during night defensive engagements because of the necessity of moving to an exposed firing position to allow the gunner to engage targets that could be handled by a suitably equipped M2 HB.

Finally, while I agree wholeheartedly with Staff Sergeants Goodknight and Capobianco in their comments on a previous letter in this magazine ("Tank Gunnery Comments" by CPT Mark T. Littel, ARMOR Letters, Jan-Feb 1988), the tenor of their writing seems more appropriate to after hours at the NCO club rather than in a publication that provides an opportunity to expose oneself to a wide variety of views in a professional forum. As a master gunner myself, I have learned that a master gunner's effectiveness in large part is a result of the rapport that is established between the master gunner and his commander. "Tank Table VIII is the very peak!" is a sentiment that is common in commanders to whom gunnery is bet-your-bars time, and an effective master gunner can help his unit to progress beyond this, and at the same time satisfy his commander's requirement for TT VIII excellence in the only way that counts - with results. This has to be done with tact and understanding, though – qualities that the good sergeants mentioned above would probably find helpful to develop.

JOHN S. ALLISON
SFC, USA
E Trp, 6/12 Cav
Ft. Knox, KY

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

On Winning

The great sportswriter, Grantland Rice, once wrote, "It's not whether you win or lose; it's how you play the game." That philosophy governed our attitudes for years and formed the bedrock of many of our older soldiers' ideas about winning. Secretary of State Harry Hopkins showed this attitude in the early 1930s. When our intelligence community suggested ways to spy on our potential enemies, he commented, "Gentlemen don't read others' mail."

Perhaps the most quoted contemporary authority on winning was Vince Lombardi, the great coach of the Green Bay Packers and the Washington Redskins, who proclaimed that "Winning is the only thing." This should be our credo, because we *must* win – anything else is absolutely unthinkable; there is no second place in war. The consequences of a lost war are just too great.

Our challenge is how to develop a winning attitude – through hard, well-planned, well-thought-out training. War is not an amateur sport – and training for war, by its very nature, must be tough, and professionals must conduct it: *professionals* who have high standards and insist that everyone else have them as well. And they must cover every facet of military life: training, supply, maintenance, individual and area appearance, and discipline. If one cannot or is unwilling to make corrections and do things right, then there will be no victories, only hollow losses and explanations of why we didn't do better.

The point is that we must be professional in everything if we intend to win the next war. We are outnumbered – thus, we must be significantly better than our prospective opponent. The only way we can do that is to eliminate the amateurism from our ranks. We are and must be pros.

We are about to make an enormous investment in simulators. They are essential to good training, but they do not replace hard, tough field exercises. We must remember that the simulator training environment is basically benign – easy on the body. And we should also remember that training doesn't have to be miserable, even though we are often miserable when training.

One of our greatest attributes, if you believe our rhetoric, is flexibility. Do we really possess that flexibility of mind of which we are so proud? In conversations with our allied friends, I have found they believe we are rigid, we do not use warning orders and so on to get our units moving. Do we have a rigid adherence to doctrine, and frown on innovation? Do we use doctrine as an excuse not to change broken organizations (division cavalry) when our entire experience from actual lessons learned from World War II to the sophisticated JANUS wargaming tells us that our organization is wrong? We are thwarted at every avenue when we try to correct the problem. Where can we find the tactical innovator, the bold, audacious risk taker? Certainly not in the ranks of those who plod behind the plow of the familiar. The MG Bob Wagners, who innovate on a daily basis, are not anywhere in quantity.

How to fight and win cannot be left to bureaucrats – but every time an innovative idea such as the Terrain Index Reference System (TIRS) comes along, it is shot down because it is not secure. However, we are secure at battalion/company level, and platoon situations are usually so dynamic and changing that not to use a quick reference system is counter-productive. I don't think we are nearly as flexible and warrior-like as we think we are; the Ernie Harmons, Doc Bahnsens, Bob Wagners were and are flexible. We need more warriors in their mold.

As I stated earlier, war is not an amateur sport – we need dedicated, tough, smart, bold, audacious risk takers to carry us into the next century. Help me identify and nurture them.

Treat 'Em Rough!

DRIVER'S SEAT

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

Was It Worth the Wait?

The enlisted promotion results for Armor have taken a lot of heat. Comments from senior commanders and senior NCOs were many. Some people degraded the Armor and Cavalry NCO Corps as a result of the articles that appeared in various media. Where do we stand now? And was it worth the wait?

The setback in promotions came from some hard decisions based on improving the quality of the forces. Was the need for quality senior noncommissioned officers paramount? Compelling? We were selecting outstanding senior NCOs at the top of the list, but the bottom part of each list was not a health selection. For example, we were mandatorily retiring 30-year selectees before they were promoted to sergeant major, or shortly thereafter.

After the review of the Armor Force, a few hard, fast rules were put into the system to ensure we promote noncomissioned officers who have served in the key areas successfully. It was a tough decision, but a necessary one to ensure soldier quality throughout the ranks. Requirements such as successful leadership assignments and NCOES attendance and successful completion have significantly enhanced the quality of the force.

Soldiers selected for promotion to sergeant first class are now very successful vehicle commanders, master gunners, drill sergeants, or recruiters. First sergeants have been highly successful platoon sergeants in a TOE unit and in staff work. Command sergeants major and sergeants major have been highly successful first sergeants and staff NCOs, having already attended or been selected to attend the Sergeants Major Academy.

The number of Armor soldiers selected to attend the Sergeants Major Academy has increased, giving us more than the numbers we need to promote. That decision alone greatly increased our promotion quality.

Now, the force is in great shape! However, we can't look back. It is most important that we continue to evaluate our resources and manpower.

It's great that we have and get to attend all kinds of schoolhouses; but if we can't successfully accomplish our mission, we are half-stepping and kidding ourselves.

Yes, the wait for better quality soldiers was worth it! Commanders I have visited have nothing but praise for the senior Armor NCO, but we still need feedback. How does all this accomplish the wartime mission? Is the NCOES strong enough to produce a leader, tank commander, platoon sergeant, or sergeant major who is capable of defeating his adversary, if and when the time arrives? Does the structure of NCOES allow the training that needs to be accomplished? These are very hard questions to answer, but they need to be up front at all times.

We stand on solid ground as a force! Thanks to a lot of commanders, the wait was worth it. Don't let complacency creep back into the system.

RECOGNITION QUIZ

This Recognition Quiz is designed to enable the reader to test his ability to identify armored vehicles, aircraft, and other equipment of armed forces throughout the world. *ARMOR* will only be able to sustain this feature through the help of our readers who can provide us with good photographs of vehicles and aircraft. Pictures furnished by our readers will be returned and appropriate credit lines will be used to identify the source of pictures used. Descriptive data concerning the vehicle or aircraft appearing in a picture should also be provided.

Answers on Page 51

Armor in Low-Intensity Conflict: The U.S. Experience in Vietnam

by Major Michael R. Matheny

Armor came into existence to fulfill a tactical role on the high-intensity battlefield.[1] Since WW II, this role has been well understood and continues to drive the development of armor organization, equipment, and tactical doctrine. Since 1945, however, wars of low-intensity have increased in frequency. Unlike high-intensity warfare, armor's role at the lower end of the spectrum of war has not been so well understood.

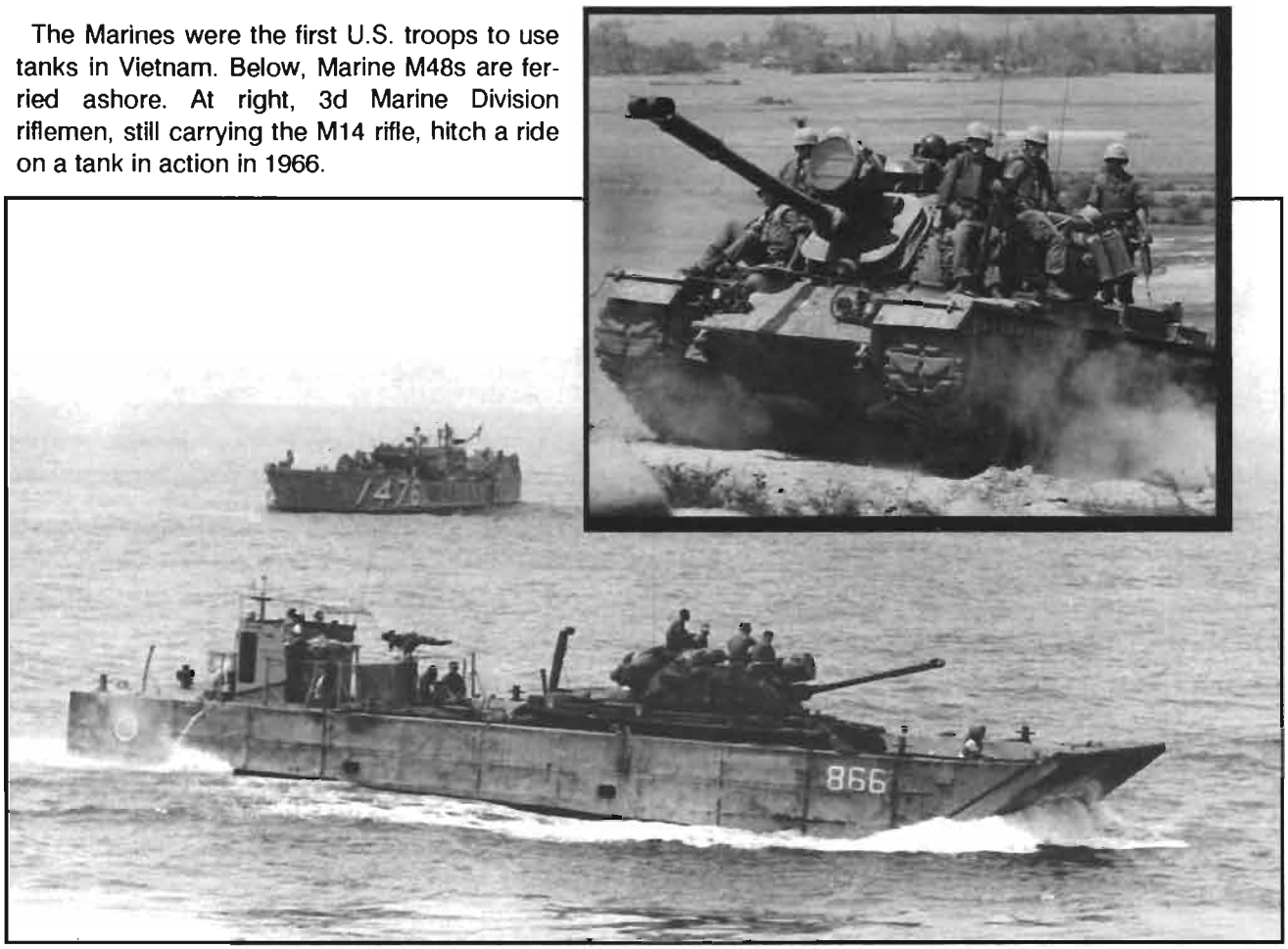
Both the United States and the Soviet Union have gained experience with employing armor in low-intensity conflict (LIC). In each case, the expectation of armor's role on the low-intensity battlefield was different from the tactics finally hammered out in the field. For example, the planners in the U.S. Military Assistance Command in Vietnam originally saw no need for tanks with forces deploying to that country. When tanks first arrived in Vietnam in March 1965, it was by accident. In fact, when informed that American tanks had been deployed, Maxwell Taylor, Ambassador to Vietnam, was upset that such equipment, "not appropriate for counterinsurgency operations," had been sent.[2]

Despite the planner's apprehensions, once armor had proved its value, the number of armor units in Vietnam steadily increased. By the end of the war, 24 percent of the combat maneuver battalions in Vietnam were either mechanized infantry, armor, or armored cavalry.[3]

This article will focus on the doctrinal issues that emerged from the American employment of armor in Vietnam. A later article will consider the Soviet experience with armor in Afghanistan and will draw relevant implications from both the U.S. and Soviet use of armor in LIC.

There is little theory and even less doctrine that addresses armor in LIC. J.F.C. Fuller, the grand old theorist of armored warfare, did not ignore the employment of armor in conflicts short of full-scale war. In fact, he claimed that armor could be most useful in policing the most remote corners of the British Em-

The Marines were the first U.S. troops to use tanks in Vietnam. Below, Marine M48s are ferried ashore. At right, 3d Marine Division riflemen, still carrying the M14 rifle, hitch a ride on a tank in action in 1966.



pire. Perhaps his greatest contribution, however, was in pointing out that we must see and develop the traditional arms in accordance with their tactical functions on the battlefield, which he listed as finding, holding, hitting, protecting, and smashing.[4]

The true value of combined arms at any level is apparent through an assessment of the ability of each arm to fulfill these functions. Terrain and the nature of the enemy will affect this ability at any level. Armor doctrine in LIC must be evaluated within the framework of Fuller's tactical functions. As America became involved in its first major challenge in LIC, this was not well understood. Difficult terrain and an elusive enemy argued for breaking apart the combined arms team. Our experience in Vietnam affirms Fuller's analysis of tactical functions and the value of the combined arms throughout the spectrum of war.

The first U.S. tank unit to move to Vietnam was actually a platoon from the 3d Marine Tank Battalion. This platoon was part of the Marine battalion landing team sent to Da Nang in March 1965. These were the tanks which Ambassador Taylor deemed inappropriate for counterinsurgency operations. Many senior officers, including Chief of Staff General Harold K. Johnson, shared Ambassador Taylor's views. When the 1st Infantry Division was scheduled for Vietnam deployment, General Johnson decided that it would deploy without its two organic tank battalions or mechanized infantry. The chief believed, "The presence of tank formations tends to create a psychological atmosphere of conventional combat..."[5]

Eventually, armor units did deploy to Vietnam and they quickly proved their value. As a test case, General Johnson approved the deployment of the 1st Squadron, 4th Cavalry with its tanks. In November 1965, at Ap Bau Bang, Troop A, 1/4th Cavalry, demonstrated that the firepower of an armor unit was a valuable asset in defeating determined Viet Cong attacks. With this positive example, the Army approved the requests of MG Frederick C. Weyand, commander, 25th Infantry Division, to take his mechanized units to Vietnam.[6]

The decision to deploy cavalry squadrons, tank battalions, and mechanized infantry in support of the infantry divisions was sig-

nificant. Even more significant was the decision to send the 11th Armored Cavalry Regiment.

As early as 1965, General Westmoreland, commander, U.S. Military Assistance Command in Vietnam (MACV), requested the cavalry to provide highway security along Route 1. With the arrival of the 11th ACR in September 1965, it became the largest U.S. armor unit to serve during the war. With substantial armor forces in Vietnam, the question was how to use them.

Previously, armior was doctrinally riveted to the potential high-intensity battlefields of Europe. The first manual to mention "operations against irregular insurgent forces," was FM 17-1, *Armor Operations,* published in 1963. The three pages devoted to the subject offered little practical advice. FM 17-95, *The Armored Cavalry in Counterinsurgency,* published in 1960, made no mention of unconventional warfare. In 1962, however, the Combat Development Agency at Ft. Knox produced a study titled, *Role of Armored Cavalry in Counterinsurgency.* This farsighted report suggested that a properly modified ACR might be used to conduct offensive operations to include encirclement, raid, pursuit, ambushes, and counterattacks. The official manuals, however, obviously focused on high-intensity warfare. The early armored units in Vietnam, "literally had to invent tactics and techniques, and then convince the Army that they worked."[7]

By 1966, U.S. advisors in Vietnam began to confirm some of the assertions in the Ft. Knox study. The May-June issue of *Armor Magazine* contained an article by LTC Raymond Battreall, the senior armor advisor in Vietnam, titled, "Armor in Vietnam." LTC Battreall observed that armor is of little use for reconnaissance; it is best employed in offensive operations to strike, encircle, or sweep. In these operations, armor provides the necessary firepower to destroy the enemy. The author further noted that the M113 was used essentially as a main battle tank. Clearly, this observer believed that the function of armor was not that of finding, but of hitting.

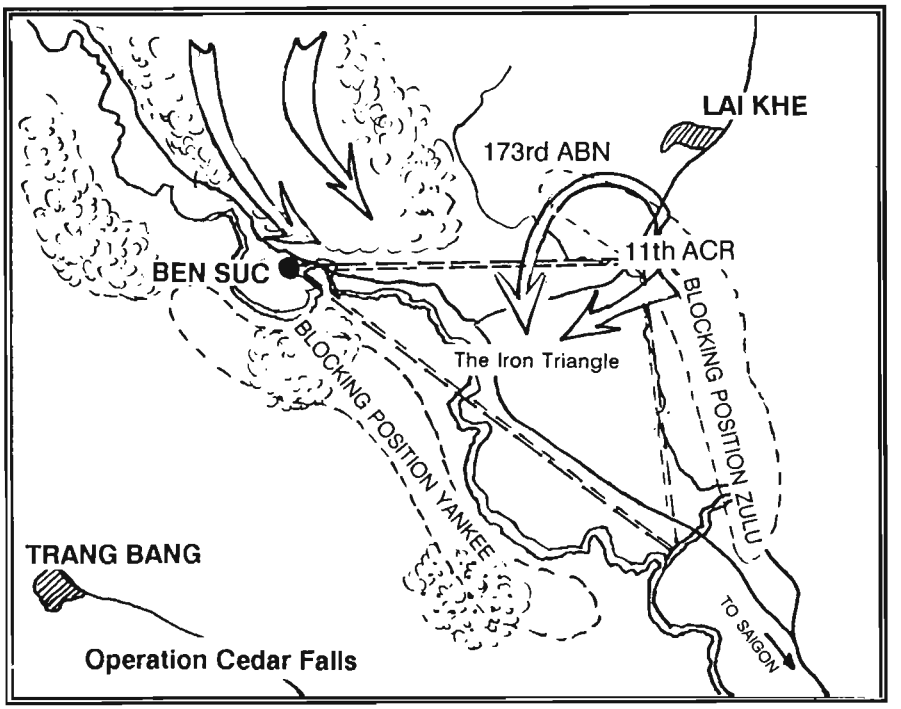
The Army did not begin to doctrinally address these issues until almost a year after U.S. armor units deployed to Vietnam. The first units to arrive suffered from a lack of adequate doctrine. A "no tanks in the jungle" attitude prevailed at MACV headquarters. In 1965, the 1/4 Cavalry held its tanks at the squadron base.[8] Senior decision makers, General Westmoreland among them, believed the Vietnamese terrain was unsuitable for tanks. In fact, a survey later showed that armored vehicles could traverse 46 percent of Vietnam year round.[9] It took six months to convince General Westmoreland that tanks could conduct combat operations.[10]

"The first units to arrive suffered from a lack of adequate doctrine. A "no tanks in the jungle" attitude prevailed at MACV headquarters."

With the deployment of additional armor units in 1966, the pattern of

An M48 of the 11th ACR moves through a rubber plantation near Ben Dong in the fall of 1966. When first deployed, the 11th ACR was used frequently for route security.

Aerial view of tracks left near an 11th ACR command post, above, give some indication of the number of armored vehicles used in Operation Cedar Falls. The operation was intended to eliminate enemy troops and supplies in the so-called "Iron Triangle" northwest of Saigon.



offensive employment began to emerge. Although MACV requested the 11th ACR to provide route security for Highway 1, the 11th ACR was soon involved in frequent search and destroy missions. In executing Operation Atlanta to clear Highway 1, the regiment conducted search and destroy, route security, reconnaissance, and base security missions. Thirty-nine percent of the missions mentioned in the after-action report were search and destroy. Significantly, the report mentions only four reconnaissance missions out of 70 operations. Almost from the moment they arrived, the regiment's squadrons were used as regular combat maneuver battalions rather than in the traditional cavalry role.

The tank battalions that deployed to support the infantry did fulfill their traditional function of providing firepower. The firepower of the tanks was in great demand and, as a result, the tank companies and platoons were farmed out to the infantry. In one notable case, a tank platoon from the 1st Bn, 69th Armor, was under the operational control of the 173d Abn Bde and operated 250 miles from its parent battalion.[11]

In combat operations, tanks often led the way through the jungle because they could protect the infantry. They crushed their way through the antipersonnel mines and booby traps so deadly to the foot soldiers. However, the tanks also protected routes and bases. In fact, the tank battalions were more often used defensively than offensively. In the after-action report of the 1st Bn, 69th Armor, for the quarter ending 31 July, 1966, 60 percent of the missions mentioned consisted of either base or route security.

By 1967, the U.S. buildup provided considerably more armor units. In January, the U.S. Army began large-scale offensives with Operation Cedar Falls. The target of Cedar Falls was an extensive enemy base area in the Iron Triangle, northwest of Saigon. Two mechanized infantry battalions, a tank battalion, and a divisional cavalry squadron helped seal two sides of the triangle. The 11th ACR (-) attacked west from the point of the triangle to cut the area in half. Then, from all sides, the U.S. forces began to close in and conduct search and destroy operations.

Although Cedar Falls failed to bag many insurgents, it did destroy a large enemy logistics base. Perhaps even more significant was the demonstration of the value of mechanized forces in low-intensity conflict.

Mechanized infantry battalions, often fighting mounted in their M113s, provided to some degree the same advantages of firepower, mobility, and protection as other armored units. BG Richard T. Knowles, commander, 196th Infantry Brigade, sang their praises. "Mechanized infantry has proven to be highly successful in search and destroy operations.

With their capability for rapid reaction and (their) firepower, a mechanized battalion can effectively control twice the terrain as an infantry battalion."[12] Colonel William W. Cobb, commander, 11th ACR, claimed the operation demonstrated the tactical flexibility of his unit.[13]

Operation Junction City, in February 1966, further demonstrated the utility of mechanized forces. This operation called for the 1st and 25th Infantry Divisions to establish blocking positions in the shape of a large horseshoe in War Zone C, northwest of Saigon along the Cambodian border. Once the blocking positions were established, the 11th ACR and a brigade of the 25th ID attacked north into the open end of the horseshoe. The targets were the headquarters of the communist insurgency (Central Office of South Vietnam, (COSVN), the VC 9th Division, the 101st NVA Regiment, and the enemy bases within the area. The operation went as planned and brought on several engagements. When the smoke cleared, the bases were destroyed, the VC 9th Division was battered, but the COSVN escaped. The engagements in which mechanized forces took part pointed to their function on the battlefield.

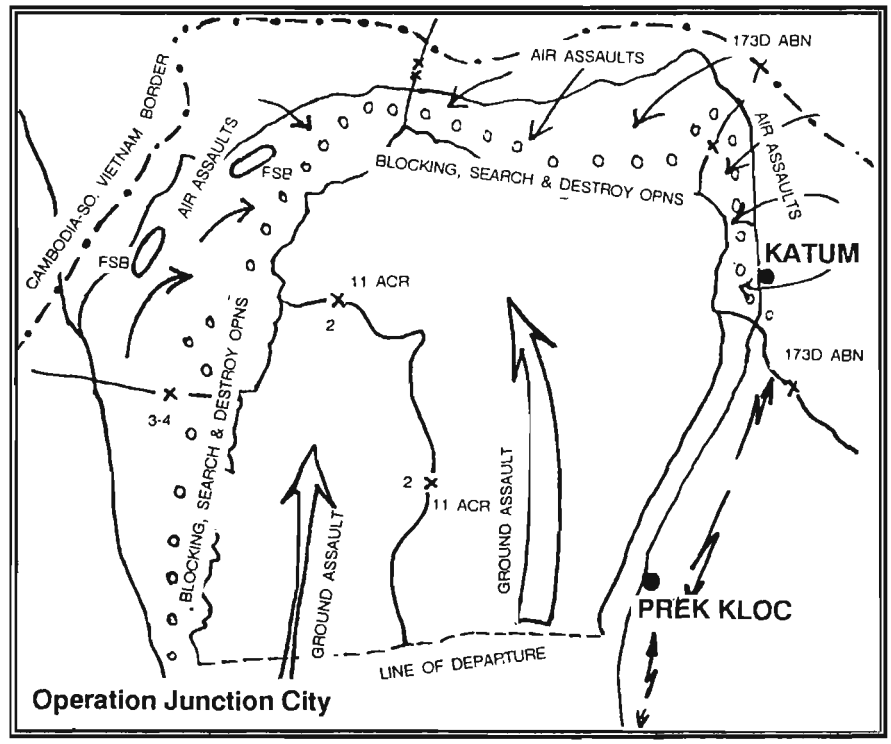
The battles of Prek Klok II and Suoi Tre emphasized the firepower and ability of mechanized forces to react. At Prek Klok II, the VC attacked the 2d Bn, 2d Infantry (Mech), during the night of 10 March. The firepower of the U.S. units, asssisted by air and artillery, made it a rather one-sided affair; the VC lost 197 men, the defenders lost three.[14] At Suoi Tre, the 3d Bn, 22d Infantry and the 2d Bn, 77th FA came under heavy night attack at Firebase Gold. The VC hammered the firebase with mortars and assaulted with infantry waves. The next morning, the situation appeared desperate. A relief column consisting of the 2d Bn, 34th Armor, and the 2d Bn, 22d Infantry (Mech), was dispatched. By 0915 hours, "...the mechanized infantry and armor column broke through the jungle from the southwest. With their 90-mm guns firing canister and all machine guns blazing, they moved into the advancing Viet Cong, cutting them down. Shortly after, the enemy began to withdraw."[15]

As impressive as these actions were, they pointed to some significant problems. Prek Klok II and Suoi Tre were defensive victories. Junction City had attempted to find, fix, and destroy the enemy. Although numerous insurgent bases were destroyed, the enemy simply moved into Cambodian sanctuaries. Essentially, a very large encirclement operation failed to find or fix the enemy. The VC were destroyed only to the extent they were willing to offer themselves up to destruction. Mechanized units again demonstrated they could conduct combat operations in a counterinsurgency environment. They could react quickly and bring substantial firepower to bear whenever they could make the enemy fight, but they could not materially assist in finding or fixing the enemy.

A key problem with the tactical offense in counterinsurgency is to find and fix the enemy. Even if found, unless fixed it will be impossibile to destroy him. It is the inability to fix the insurgent which grants him the initiative.

Referring to the enemy in the Cedar Falls and Junction City operations, General Bernard Rogers noted, "It was a sheer physical impossibility to keep him from slipping away whenever he wished, if he were in terrain with which he was familiar... generally the case."[16] Encirclement still appeared the best means of fixing the insurgent, but large-scale operations were not the solution.

Large-scale offensive operations were rarely attempted again. At the same time in which Cedar Falls and Junction City took place, a team of officers and civilians conducted a comprehensive study of armor operations in Vietnam. The *Mechanized and Armor Combat Operations in Vietnam* (MACOV) study was a multi-volume report which covered doctrine, tactics, organization, mobility, and related



Operation Junction City

matters. The study confirmed the pattern of offensive employment that had begun to emerge in 1966: that cavalry squadrons were most often used as combat maneuver battalions. The study emphasized that the advantages of mobility and firepower were so great that foot infantry was often cross-attached to mechanized infantry. Cross-attachment was frequent among all the combat arms. In this way all the arms could complement the functions of the others. The very fact that the armored cavalry was a balanced combined arms team encouraged its employment as a regular maneuver battalion.

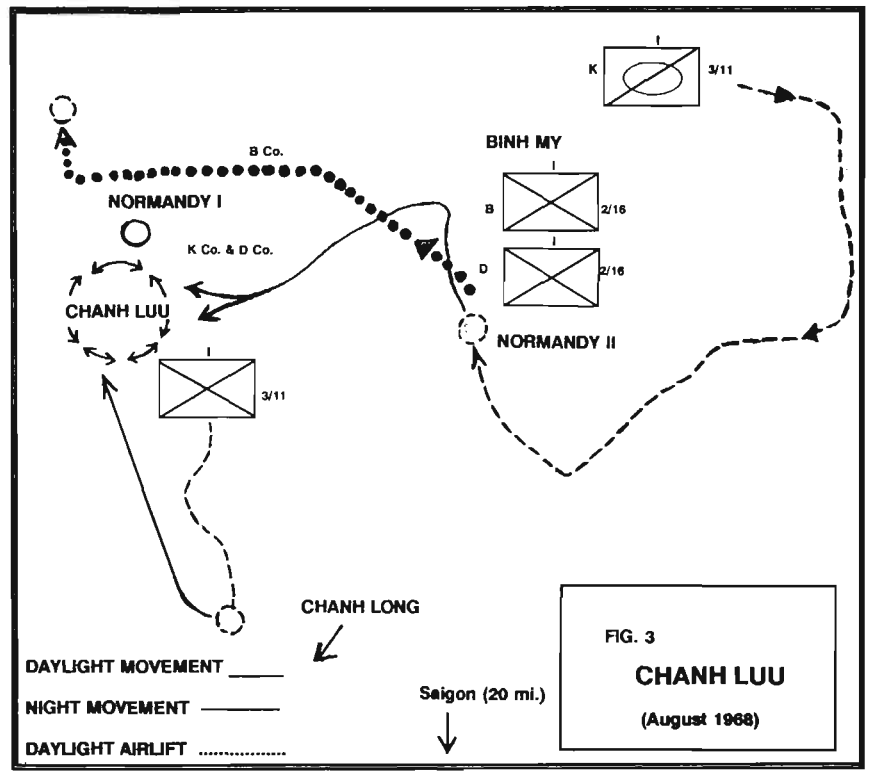


FIG. 3
CHANH LUU
(August 1968)

The functions that the combat arms fulfilled in Vietnam made for inherent strengths and weaknesses in their employment. Helicopter units attempted to find, airmobile infantry attempted to fix (block and encircle), while mechanized units provided their armor-protected firepower to hit. Invariably, artillery and tactical air assets finished or destroyed the enemy. The strengths in this arrangement lie in minimizing American casualties and playing to the U.S. technological advantage.

The weakness in this tactical doctrine was that it often handed the initiative to the enemy. Most of the offensive contacts took the form of meeting engagements. Once contact was made, the maneuver force attempted to fix the enemy while calling in all the available artillery and tactical air assets. In order to safely use these indirect fires, units would, at best, not press the fight, or, at worst, withdraw. The attempt to finish or destroy the enemy by artillery and air often resulted in breaking contact. This is one key reason why the enemy retained the initiative – he could escape. Another problem with using indirect fires to finish the enemy was that of their destructiveness. In LIC, the counterinsurgency force has a vested interest in limiting the destruction in a nation they intend to save. As U.S. forces attempted to restrict the employment of indirect fires, they weakened the system upon which their tactical offensive doctrine was based.

The most effective use of this doctrine was in cordon search operations, in which the devastating fire of artillery was not needed. A classic cordon search that demonstrated the potential function of armor within the combined arms team occurred at Chanh Luu in August 1968. Chanh Luu was a suspected VC supply base, which had been previously searched without result. The 3d Squadron, 11th ACR, drew the mission to conduct a cordon search of the village. The squadron was task-organized with I and K troops; two tank platoons from M Company; B and D Companies, 2d Bn, 16th Infantry; and was further supported by the 5th Division, South Vietnamese Army (ARVN). The plan called for a deception effort, a quick cordon by U.S. units, and a search by ARVN troops. The deception effort aimed at convincing the enemy that a nearby village, Binh My, was the target. False messages and troop movements supported the deception.

On 8 August, K Troop was 25 kilometers from Chanh Luu. Starting its move at 0600, K Troop had, by 1600, moved to Firebase Normandy II and picked up D Company. Mounted in K Troop's M113s, the force moved north in the direction of Binh My. At 1400, B Company was airlifted northwest of Normandy II and also began a sweep away from the real target. I Troop, with the two tank platoons, began a sweep from Firebase Normandy I south, away from Canh Luu. At varying times during the night, all four elements turned back to converge on Chanh Luu. By 2300, the cordon was established.

At 0700, elements of the 5th ARVN division airlanded, advanced

"Organization of combined arms at the lowest level is the best means of applying combat power. For this reason, to the extent armor can contribute to low-intensity warfare, armored cavalry is its best weapon."

on the village, and conducted the search. Sporadic fights erupted, and, later that night, the VC attempted to break through the cordon. The firepower of the mechanized units defeated every attempt, and, by 10 August, the village was declared clear.

The results were impressive: 22 VC killed, including one NVA general, 122 VC prisoners, and a good deal of equipment and supplies captured.[17] In this case, intelligence found the enemy, and the encirclement fixed him. It was a prime example of how mechanized forces can function within the combined arms team to fix, hit, protect, and contribute to the destruction of the enemy in LIC.

Despite the doctrinal problems, mechanized forces were effective in Vietnam. Normally, within the combined arms team, armor functioned to protect U.S. troops and hit the enemy. Its ability to quickly bring tremendous firepower against the enemy is undeniable. Armor's ability to do more to fix and destroy the enemy was not so much the result of terrain, but the product of the functions it served within the doctrine. The tactical doctrine evolved from a number of influences, the desire to save American lives and to avail ourselves of our strengths among them.

The doctrinal lessons are clear. The combined arms team is a winner at all levels of war, but we must find the right balance of functions. Only in this way can the arms truly complement each other and bring to the battlefield the synergistic effect, which is their primary value. There is still little written doctrine on armor operations in LIC. Clearly, this doctrine must stress the utility of combined arms, encirclement, and small unit operations. LIC is a company and battalion commanders' fight. Organization of combined arms at the lowest level is the best means of applying combat power. For this reason, to the extent armor can contribute to low-intensity warfare, armored cavalry is its best weapon.

Following Vietnam, the Soviets began their own experience with armor in LIC, which reaffirmed these lessons.

A later article will examine the Soviet experience with armor in Afghanistan and discuss implications relevant to both U.S. and Soviet experience with armor in low-intensity conflicts.

Notes

[1] The author considers armor to consist of those forces that fight mounted: including tank units, armored cavalry, and mechanized infantry.

[2] General Donn A. Starry, Armored Combat in Vietnam, The Ayr Company, Salem, NH. 1982. p. 55.

[3] A total of 93 ground combat maneuver battalions served in Vietnam. Of that number, 71 were infantry, 10 mechanized infantry, 3 tank battalions, and 9 cavalry squadrons. Shelby L. Stanton. Vietnam Order Of Battle, Galahad Books, New York. 1986. p. 333.

[4] J.F.C. Fuller. "Tactics and Mechanization." Infantry Journal, May 1937. p. 461.

[5] Starry, op cit., p. 56.

[6] Ibid. p. 63.

[7] Ibid. p. 65.

[8] Ibid. p. 57.

[9] Department of the Army, Evaluation of U.S. Army Mechanized and Armor Combat Operations in Vietnam (MACOV). 1967. pp. 1-15.

[10] Starry, op cit., p. 57.

[11] LTC T.S. Riggs. "We Need A Few More Tanks To...." Armor Magazine, May-June 1966.

[12] LTG Bernard W. Rogers. Cedar Falls-Junction City: A Turning Point, Washington. D.C.: Department of the Army. 1974. p 77..

[13] Starry, op cit., p. 95.

[14] Rogers, op cit., p. 121.

[15] Ibid. pp. 139-140.

[16] Ibid. p. 157..

[17] LTC John W. McEnery. "Mainstreet." Armor Magazine, Jan-Feb 1969. pp. 36-39.

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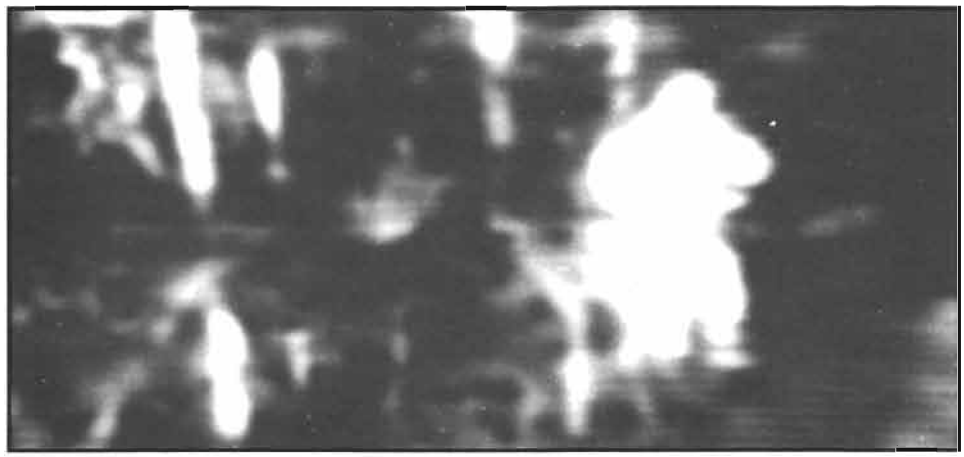
By Night...



...As By Day

by Captain James K. Greer

Thermal viewer scene, above, is identical to daylight scene at left.

Not all armor battalions train adequately for night operations. Some conduct night training only during major field exercises and as a part of gunnery training. Others conduct some night training the year round, but in an unorganized fashion. Few, if any, battalions have as good a night training program as their day training program.

Several unique night operations factors contribute to this situation. One of the most important and difficult to correct is safety. Armor and wheeled vehicles moving quickly in limited visibility are always hazardous to themselves and to dismounted personnel. In each night training exercise, there is the risk that someone will fail to see a dangerous situation developing. Nothing can do more to inspire confidence in a unit's ability to conduct safe night operations than frequent, organized, night training.

Another factor is morale, which we can attribute to fear of the dark. While not actually scared of the dark, many tankers become apprehensive as the sun goes down. The tank commander is continually tense, waiting for the sickening drop as his tank falls off a cliff, which neither he nor his driver saw. The platoon leader is sure that the slope rising ahead is Hill 431...or is it? These worries, and others, contribute to a certain reluctance, usually not admitted, to conduct night training. Also never admitted is the reluctance to conduct night training while in garrison. Unless the soldier perceives night training as valuable and time efficient, he is probably not going to want to leave his home and family on a weeknight and then have to go to work the next morning.

Mechanized units in Germany have the additional problem that much of their training is conducted in Maneuver Rights Areas (MRA) where track vehicle movement at night is prohibited.

As a result, units conduct night training on an infrequent basis. Yet, our analysis of warfare tells us that successful night operations will be critical in the next war, and this has led to new tank thermal sights, passive night driving sights, ground surveillance radar, (GSR), etc. Even so, our current night training practices limit our effectiveness. We do not train to the full potential of our equipment. Nor do we practice the techniques that will maximize our ability to operate at night.

For example, many of our manuals tell us to use ground GSRs during periods of limited visibility to guide advancing units. But how many armor or mechanized infantry companies have practiced with their sup-

porting GSR teams the commands and procedures necessary to successfully employ this technique? Probably not very many. Proficiency in the skills peculiar to night combat, and confidence in our ability to conduct night operations, is missing. If we can achieve the former, it will lead to the latter. If we become accomplished small unit night fighters, brigade-level and higher commanders and staff will be able to plan and execute night operations much as they do by day.

We need to develop a night training program for small units, with emphasis on the performance of tasks by squads, crews, and platoons. It must be a year-round program, incorporating training not only in Major Training Areas (MTAs) training, but also in garrison and Local Training Areas (LTAs). The program must lead to competence in using our night fighting equipment, allowing us to practice the appropriate tactics and techniques. Above all, the result must be to instill confidence in our ability to fight at night.

The training program should begin with a diagnostic phase. This should be conducted in two parts – a tactical exercise without troops (TEWT), and a field test. Both need only be about two hours long to effectively measure the unit's ability to fight at night.

The company commander should first issue the platoon leaders an OPORD late in the afternoon. He should observe their scheme of maneuver; do they recon, plan supporting fires/illumination, and how do they pass the order to their subordinates? After dark, they should go through the operation on the ground. The critique should cover areas of strength/weakness and what training needs to be conducted to sustain strengths and correct weaknesses. An exercise of this type will quickly evaluate the leader's ability to navigate in darkness, his use of the control measures peculiar to night operations, his planning night fire support, and his general understanding of night operations.

One platoon at a time should run the field test. The platoon should move to the test site and arrive after dark. The initial task should be to establish a night defensive position. An "enemy" patrol should attempt to penetrate the platoon position, testing its security. Foot, wheel, and track "enemies" should approach the position to test target acquisition. They should attack the platoon to test its fire control and distribution. Next, the platoon should advance, using all the movement techniques. Radio listening silence, mission-oriented protection posture (MOPP) 4, and buttoning-up should be imposed at various times. Finally, the test should end with a night tactical road march. After the exercise, critique the platoon in general terms to give focus to the training to come.

Follow-up training should center around short exercises designed to train the crew or platoon in one or two tasks.

Careful preplanning and preparation will be necessary to avoid morale problems resulting from wasted time on weeknights. Judicious use of TEWTs and Jcep-Xs for the leader training will avoid lengthy after-operations maintenance on track vehicles. Combine those tasks requiring track vehicles wherever possible. Limit training to two or three hours a night, and give compensatory time the next day. Supervised by the CO or XO, platoon leaders can train their platoons in individual tank and platoon techniques and in the tactics of night fighting. Each platoon should train once every two weeks. Intersperse leader training with platoon training to coordinate and define the actions of the platoons..

Task selection night training is very important. Tank crews and platoons will probably already have ample night gunnery training. Therefore, unless you identify a specific problem, stress other areas. Each crew must be able to perform at night all those tasks they perform during the day. The onset of darkness makes many of these tasks more difficult, requiring that the crew or platoon practice so that there will be no loss of efficiency at night. Some of these specific tasks are: night movement techniques, particularly if the crew is in MOPP or buttoned-up; target acquisition;

use of visual signals; selecting firing positions; camouflaging; installing/retrieving mines; mounting/operating night observation devices (NOD); and small arms firing.

Other techniques specific to night operations, or performed in a significantly different manner at night, include: use of GSR to control movement and/or acquire targets; night control measures; use of remote sensors to detect movement; use of range cards at night; navigation; occupation of a night defensive position; fire support planning; and security.

The above lists are not all-inclusive. Instead, they detail many of the things we will have to be able to do if we are to successfully operate at night. Nor should we limit this training to the line platoons. The scout, mortar, and support platoons must all practice their specific night tasks. The battalion tactical operation center (TOC) should practice setting up and moving at night. The TOC is frequently lax in noise and/or light discipline.

An example of a night training period using the ground surveillance radar (GSR) follows:

When planning training for the quarter, set aside specific nights for night training. During the writing of the training schedules, assign specific tasks to each block of night training based on previously assessed weaknesses. In the case of using GSRs to guide unit movement, coordination is made for the GSR team to link up with the unit at 1300 hours on the training day. The GSR team briefs the unit on the operations and capabilities of

the radar team. Following this, a coordination period works out guide movement signals and commands. The unit practices during daylight, then everyone goes to supper. After the meal, the GSR team, tank platoon leader, and his tank commanders move to the local training area using the company's jeeps, and two jeeps borrowed from the battalion Stinger section. The procedures learned and rehearsed during the day are then exercised so that each tank commander has the opportunity to work with the GSR team and to receive commands via radio and pyrotechnics. At the end of the training, hold a short critique and return the group to garrison. Then conduct post-training operations, and release the unit. Compensatory time already scheduled for the following morning can be based on the time of return that night.

Once the battalion is well into its night training program, it may consider conducting a period of reverse cycle training (RCT). Reverse cycle training occurs when the unit trains at night and is off-duty the next day. This has the double advantage of vastly increasing the amount of night training and of allowing the soldiers' bodies and personal schedules time to adjust to working at night. However, some inherent factors make the conduct of RCT difficult: First, the lowest level at which RCT training is practical is the battalion level. This is because the basic day-to-day communications with other units, higher headquarters, and post/community agencies, (all on day schedule), must continue. The battalion staff can do this by operating split shift – heavy on personnel administration and logistics during the day, and heavy on training at night.

Additionally, any RCT is going to have to be carefully worked into long-range planning calendars to avoid conflicts. This is best done by placing the entire battalion on RCT at one time, which is reflected on both brigade and division calendars. In this manner, both brigade and division can provide their most important support; i.e., managing other commitments and requirements to keep the battalion free of distractions during the day so that it does not end up working around the clock. Other considerations to be taken into account are soldiers' medical, finance, and personnel appointments.

You must make two decisions before planning a RCT. The first is cycle length. Anything less than two weeks will not allow soldiers' bodies and schedules to adapt sufficiently to maximize the training benefits; while anything more than four weeks will probably be too difficult to schedule, may cause family problems, and will accumulate so many small problems from personnel not being available during the day as to be unworkable. The second decision is the hours of training. This will depend on several factors, chief of which is the hours of darkness. For example, in some areas of Germany in summer it is only dark from 2300 to 0500, while in winter it is dark from 1600 to 0900. Other factors affecting choice of duty hours are: training to be ac-

complished, maintenance and preparation time, and whether you desire to have battalion duty hours overlap with community activity or the military unit's normal duty hours. Once you make these decisions, you can conduct planning and preparation in detail.

As an example, a battalion commander takes command soon after his unit returns from the National Training Center (NTC). After-action reviews from the NTC note night fighting as a weakness, with night movement techniques and control of maneuver at company level being especially poor. After some training in individual and crew night fighting tasks, the battalion commander decides the unit needs RCT to gain the required level of platoon and company night maneuver expertise.

There happens to be a two-week block of time open a month before the battalion's ARTEP at Ft. Pickett, VA, so the battalion commander decides to go with that rather than have to wait seven months for a longer block of open time.

At the same time, since this is the first time any battalion in the brigade has conducted RCT, he is concerned about coordination and communication with other units and agencies. Accordingly, he chooses 1500 to 0300 as the duty day during the RCT period, with a typical daily company schedule being:

1500-1700 Preparation for training/maintenance
1700-1800 Dinner
1800-2200 Training
2200-2300 Midnight meal
2300-0300 Training

In this manner, each company gets eight solid hours of night training each day, with some overlap between the battalion's schedule and those agencies/units on normal schedules. In order to have a progressive night training progam that will solve those problems identified at the NTC, the battalion commander designates the first week for platoon training and the second week for company training:

Platoon Week

Monday - Driving techniques, traveling.
Tuesday - Traveling overwatch, bounding overwatch.
Wednesday - Occupy battle position, fight from battle position.
Thursday - Movement to contact, move between battle positions.
Friday - Maintenance.

Company Week

Monday - Bound by platoon, tactical road march
Tuesday - Movement to contact
Wednesday - Night attack
Thursday - Night active defense
Friday - Maintenance

By varying which day each platoon and company conducts maintenance, the training areas required can be minimized.

RCT will be of great benefit in providing night fighting expertise if conducted as outlined above,. However, don't regard it as a cure-all to correct basic weaknesses in night fighting abilities.

You must integrate RCT into an organized, progressive, program designed to achieve proficiency at night operations. This must be the same type of planned, prepared, performance-orientated training that we conduct by day. Then, and only then, will battalions, brigades, and divisions be able to plan and conduct the night operations which will be vital to winning the next war.

"...To correct basic weaknesses in night fighting abilities. RCT must be integrated into an organized, progressive program designed to achieve proficiency...This must be the same type of planned, prepared, performance-orientated training that we conduct by day."

Captain James K. Greer was commissioned from West Point in 1977. He is a graduate of the Ranger course and the AOB. He served as a platoon leader and XO with the 3d Bn, 5-33 Armor, Ft. Knox; as a project officer for the XM1 FSED Test at Ft. Knox, and as XO, D Troop, 10th Cavalry, Ft. Knox. He was chief, M60A3 Mobile Training Team in Egypt, and attended the Amphibious Warfare School at Quantico, VA before being assigned as S3, Special Troops, V Corps, FRG. Later, he was CO, E Troop, 1-10 Cavalry; CO, HHC 1-68 Armor, FRG. Following a tour as an instructor at USMA, he is attending the CGSC at Ft. Leavenworth.

Platoon Defensive Operations

by First Lieutenant Dennis M. Verpoorten

A tank platoon combat trainer at the NTC has the opportunity to evaluate about 28 tank platoons a year as they go through several tactical operations. A common, major problem during defensive operations was that platoon leaders were unable to effectively control platoon fires.

Too often, the OPFOR overran battle positions because defenders lost control. Platoons did not know when to fire, where to fire, and exactly how the platoon was to execute its defense. As a result, personnel were needlessly killed, vehicles destroyed, and the missions ended in failure.

AARs brought out many reasons why missions fail. But in most cases, the platoons lost because they did not fight as teams, and the entire defense was nothing more than a free-for-all. The platoons did not make up range cards, sketch cards, or platoon fire plans, or - if they had made them - they lacked vital information, or were impossible to read or understand.

Unfortunately, units are putting less and less emphasis on platoon fire plans during the preparation for a defensive operation. Our present first-rate tanks, the M1 and the M1A1, give us a definite advantage over any adversary, but this doesn't mean that we are excused from the planning and procedures our tactical doctrine specifies. A platoon leader must develop a defensive fire plan and maintain strong command and control within his platoon if his unit is to engage and destroy an attacker. This is especially true if that attacker has a numerical advantage. At any given time, the platoon leader must be able to distribute and control the fires of all direct and indirect weapons quickly and accurately, maintain that control, and not become too involved in the firing of his own tank.

Before a tank platoon moves into its battle position, the platoon commander and his tank commanders must dismount and conduct a walking reconnaissance of the position, observing it from the planned engagement areas. Then the platoon commander will assign tank positions and sectors of fire for each tank. It is important, when choosing tank positions, to look for sites providing maximum fields of fire while enhancing survivability with adequate cover and concealment. The platoon leader must place his own tank in the position that will best allow him to observe and control his team, keeping in mind his own cover and concealment needs.

He must ensure that fire sectors overlap, and that his platoon sector overlaps those of flanking platoons. If he does this, he will have at least two tanks acquiring targets in overlapping sectors. He will point out to his TCs all avenues of approach, target reference points (TRPs), obstacles, trigger lines, final protective fires (FPF), engagement areas, dead spaces, and key terrain. After this, each TC will move his vehicle into position and begin making range or sketch cards, in addition to the other duties listed in his platoon SOP.

Many tankers mistakenly feel that range or sketch cards are no longer necessary. But they are, and for three important reasons. First, crews that rely totally on the full capability of their primary fire control system are not considering the possibility of equipment failure, or the effects of foul weather. A range or sketch card will provide the TC and gunner with all the needed information to fire in a degraded mode. Combat, unlike gunnery, will not provide you a chance to requalify.

Secondly, a range or sketch card will give the entire crew a better understanding of all the elements (TRPs, obstacles, FPF, etc.) within its sector, reduce confusion, and remind them of actions to take during enemy contact. The more information each crew member has, the better he will fight. In the event of a relief in place, the new crew will need the information on the range or sketch card, especially if the relief takes place during darkness.

A third reason is that the platoon leader will need a copy from each crew, including his own, so that he may draw up his platoon fire plan. It is important that each TC give the platoon leader his copy no later than 30 minutes after he moves into position because his information

may greatly affect the accuracy of the platoon fire plan. He may discover there is more dead space than was originally expected, or that certain crews might not be able to cover certain TRPs or obstacles.

A platoon fire plan is nothing more than a composite of all range or sketch cards with some additional information put in by the commander to help him in fire distribution. Five copies should be made - one for each TC, one for the platoon commander, and one for the company commander who should get his copy no later than 45 minutes after the platoon is in position. Each TC must have a copy so that platoon command may continue if the commander loses commo or dies.

The fire plan will be a simple sketch showing key terrain features and enemy avenues of approach. The information will be everything the platoon leader plans for his defense, and should include the following:

● **Target Reference Points (TRP).** TRPs are easily identifiable terrain features that will help the platoon leader mass his fires, aid in calling for indirect fire, and prevent confusion, within the platoon, about direction of fire during the leader's fire commands. By looking at the plan's tank-to-target list (which tank can engage which TRP), the commander will immediately know which tank can engage which target. The fire plan will list all battalion and company TRPs and indirect fire targets. He can identify and label as targets any key areas within the platoon sector not covered by these TRPs.

● **Obstacles.** The plan should show all obstacles, man-made or natural, and cover each obstacle by direct and indirect fire. Obstacles will stop, delay, and/or canalize the enemy into engagement areas. They will also deny the enemy access to key terrain. It is vital that the platoon leader recognize and use these obstacles by supporting them with massed fires at key locations. The enemy will try to breach obstacles with all his assets. It is at this time that he is most vulnerable.

"Too often, leaders scribble fire plans on the back of 2404s, MRE boxes, paper sacks, a wad of toilet paper, 3-by-5 cards, scratch paper, or on the back of someone's hand. This is probably better than nothing..."

● **Dead Space.** Dead space can provide the enemy a protected area where he can hide and/or maneuver. Defenders must deny these areas. They can cover them with direct fire from another platoon, or with indirect fire and obstacles.

● **Trigger Lines.** Trigger lines or points are easily identifiable areas forward of the platoon's battle position which mark a point of entry into the engagement area. This is the point where the platoon will begin its engagement if the platoon leader is unable to issue a fire command. Showing trigger lines on the range or sketch card prevents confusion about when to fire. The use of trigger lines will prevent the enemy from closing in on the BP unopposed.

● **FPF.** The plan must show a final protective fire line. An FPF is a prearranged wall of direct and indirect fire used as a last resort to slow or stop enemy movement onto your position. Your PFP should be no closer than 1,200 meters.

● **Engagement Area.** An engagement area is the area the platoon leader designates for the concentration of his platoon's fires. A platoon's engagement area is the same as, or is in support of, the company's engagement area.

With all his information at hand, the platoon leader must complete the legend to his range or sketch card. He must show his tank-to-target list and any specific instructions. He must indicate magnetic north, his position ID, unit information, and date/time group. All this information is vital to a relief platoon. The platoon leader should place himself in the position of a relieving commander. Wouldn't he like to have all this information at hand if he was taking over a strange position?

The above information is the *minimum* for a fire plan. However, if the commander desires, or if higher authority requests it, a fire plan can include an M-8 alarm position, OP/LP position, alternate and supplementary positions, forward passage points, and trigger lines for each weapon system. Unit SOPs will dictate additional items of information. You must also remember to make range or sketch cards and fire plans for your alternate and supplementary positions.

Ensure that your fire plan is complete and legibile so that you or anyone else can understand and apply it. Too often, leaders scribble fire plans on the back of 2404s, MRE boxes, paper sacks, a wad of toilet paper, 3-by-5 cards, scratch paper, or on the back of someone's hand. This is probably better than nothing but a printed form is far better. With this form, all vital information is neatly listed and ready for

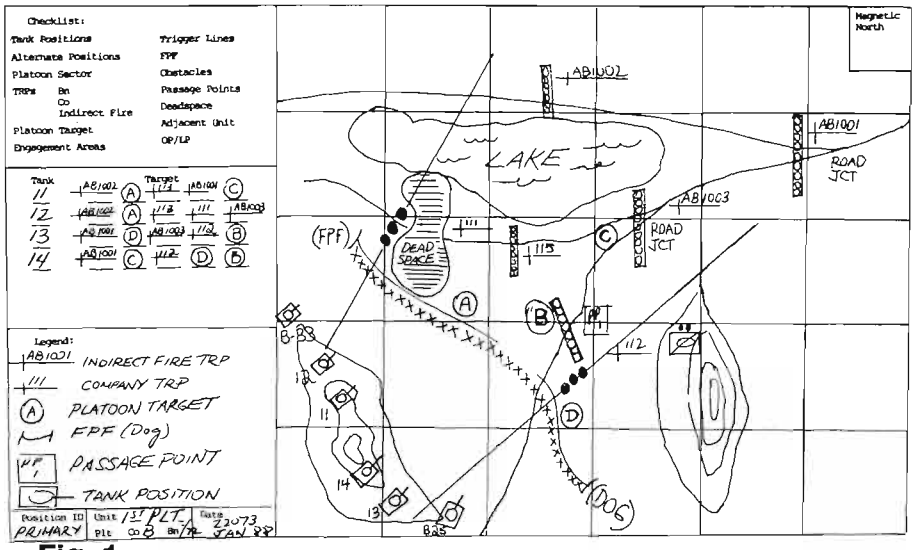


Fig. 1

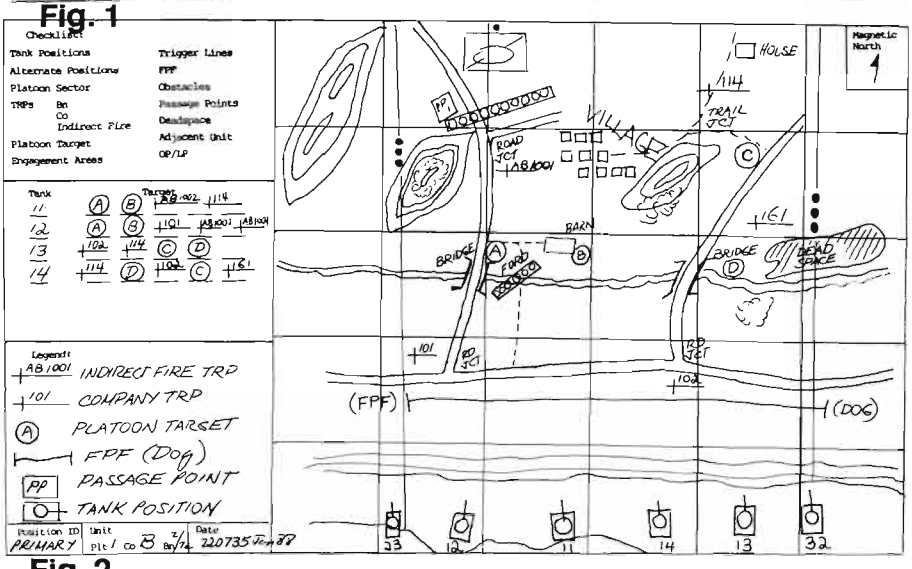


Fig. 2

use by the platoon commander, his TCs, or any relieving commander.

Figures 1 and 2 show two completed platoon fire plans, each with a 1/25,000 grid system. Terrain and area of responsibility will dictate whether the fire plan must be drawn to scale. When completed, the forms will contain all the required information. Following the checklist will ensure this.

When a platoon has a completed and distributed fire plan at hand, it is ready to defend. Now it will fight as a team because each member knows his mission and the platoon's mission. The platoon leader is better able to control his platoon fires because he has all the information in his fire plan.

When the enemy attacks, tank crews will identify the vehicles and send accurate spot reports to the platoon commander. He can then call for accurate indirect fire at long ranges which may cause the enemy command and control to break down. As the enemy advances, spot reports will continue to flow to the platoon leader. When the enemy reaches the obstacles, the platoon leader will be able to quickly distribute his fires by shifting his indirect fires and issuing a platoon fire command. He will know what tanks can engage what targets by looking at his fire plan. The plan will eliminate confusion within the platoon because the firing tanks will know the target type, its direction, the type of ammunition to use, and the number of rounds to fire. Non-firing tanks will be able to assist firing tanks by observing fire, which will result in the faster destruction of the enemy without wasting ammunition.

When the enemy masses to breach the obstacles, the platoon commander can mass his fires at the critical points. Heavy casualties in men and equipment will force the enemy to retreat. This all takes place because the platoon leader is at all times in control because he has adequate range or sketch cards.

Even with sophisticated weapons systems such as the M1 and M1A1, the platoon leader needs a clear, graphic fire plan for a successful defense. For this reason, the platoon SOP should call for making and using range or sketch cards, and platoon training must include this process.

Reactions must be automatic in battle, and command and control must prevail to eliminate confusion. Advanced technology is useless if we cannot apply it.

First Lieutenant Dennis M. Verpoorten, commissioned in Armor in 1984 as a distinguished military graduate of the University of Nebraska, served as a tank platoon and scout platoon leader in the 2-72 Armor. Now serving at the National Training Center, he has been a tank platoon and scout platoon observer-controller.

Fort Knox's Terrain Matches Europe's for OPFOR Training

by SGT Larry W. Redmond

Armor officers will no longer venture untrained into the NTC desert to face Ft. Irwin's legendary OPFOR because they meet and fight Ft. Knox's own OPFOR during the 12-week Armor Officer Basic Course.

The OPFOR training at Ft. Knox comes during a "10-day war" when classroom theory is put to the gritty test of field work and when young officers learn just how hard it is to fight - even with blank ammunition. The crucial need for realistic training was instrumental in acquiring the funds and equipment for the OPFOR unit, said Captain Robert Orsini, who commanded the unit at its inception in July 1983. Troop E, 1st Squadron, 12th Cavalry, has 24 M551 Sheridans and M113s with VISMODs resembling Soviet T-72 tanks and BMP troop carriers. The troops wear Soviet-style uniforms with Soviet rank badges equivalent to their U.S. ranks.

The Fort Knox OPFOR unit has become so expert in its portrayal of Soviet tactics that it has been seconded by the first-place experts - the 32d Guards Motorized Rifle Regiment, the reknowned OPFOR at Fort Irwin, CA. On 10 May, Colonel Bill Wilson, then commander of the 32d Guards MRR,

presented the Fort Knox unit with its OPFOR colors and named it the 6th Motorized Rifle Battalion. He extended an open invitation to the Knox soldiers to come to Fort Irwin at any time and add to the combat luster of the 32d Guards MRR.

The AOB students practice their battle lessons on terrain that closely approximates that of Germany: wooded hills, small streams, gulleys, and some open fields. "You fight like you train," is the maxim, and the AOB and OPFOR units fight determinedly to win on terrain similar to that on which they may someday have to fight to win. The terrain differences between Ft. Knox and Ft. Irwin are not considered crucial because, as one AOB officer remarked, "It's the tactics that count more than the ground."

Prior to the formation of the 6th MRB, students fought mock Soviet-American battles with American equipment and tactics. Now, the students face an OPFOR unit that uses Soviet tactics and vehicles closely resembling the real thing. The differences are marked, and advantageous to the students. "We are not just providing an aggressive force for the AOB students to fight," said Captain Orsini. "We are training them in Soviet tactics."

Time and experience have changed the OPFOR's operations. In the past, the Command and Staff Department called the OPFOR shots. Now, the department only tells the OPFOR what type of battle to fight and lets it fight on its own.

The OPFOR doesn't spend all its time fighting AOB students, it also provides displays for the annual Armor Conference and is on hand to work with the ROTC basic camp during the summer. Also, trainees in the 1st Armored Training Brigade slated to go to Fort Bragg can gain familiarization on the Sheridan.

When engaging the AOB students, the OPFOR runs a variety of offensive and defensive missions, which give the students a definite feel for the speed and force that are basic to Soviet tactics. Captain Stockwell, current commander of the OPFOR, says his troops are not only current in Soviet tactics and maneuvers, they also remain current in their primary MOS skills. This means double training, but the soldiers take it in stride because they see themselves as an elite unit, dedicated to training AOB and senior NCO students at the Armor School.

SGT Redmond is the 1-12 Cav's correspondent to Inside the Turret, the Fort Knox post newspaper.

The Battlefield Development Simulator System (BDSS)

by Captain Robert M. Lynd, Jr.

We can now design and test the equipment and doctrine the U.S. Army will use on the AirLand battlefield of the future on Fort Knox's Battlefield Development Simulator System (previously called SIMNET-D).

The Army sponsored BDSS, and the Defense Advanced Research Projects Agency (DARPA) manages it. The system is a powerful combat development tool to explore materiel, doctrine, and training developments; force design; and manpower and personnel integration (MANPRINT) issues. What makes BDSS different from other combat development tools is that real soldiers operate it, incorporating the user's perspective in the very early stages of concept evaluation and developmental work. Therefore, users can define, test and refine requirements to ensure they meet the user's needs at a cost the Army can afford. BDSS captures the spirit of the President's Blue Ribbon Commission on Defense Management in that it allows the Army to "fly before we buy."

BDSS consists of a set of reconfigurable and nonreconfigurable, full crew, combined arms, interactive simulators. An ETHERNET networking system links the simulators to a suite of powerful data collection and analysis software tools (See Figure 1). Operators can reconfigure or change the simulators in the following manner:

PHYSICALLY: The system designers have avoided "molding" the simulators to represent any particular weapons system or platform. Instead, the rack-mounted parts are movable, and the tester can reconfigure them into any position he requires. For example, he can change an M1 tank simulator into a helicopter, air defense weapon, etc.

VEHICLE OPERATING CHARACTERISTICS: By changing the algorithms, the combat developer can alter the simulators to have the capabilities he wants. Let's say, for example, that the combat developer wants to examine the doctrinal implications of a tank that could travel at 200 miles per hour, fly up to 200 meters at a time, or operate in a stealth mode, undetectable until it is 500 meters away from the enemy. A program change can provide those capabilities.

OPFOR SIZE AND CAPABILITIES: The system can provide a semi-automated OPFOR to fight the friendly-manned simulators. Just as the combat developer can change the characteristics of the "Blue Force" by changing the algorithms, he can give the OPFOR whatever capabilities he needs for the test. He can simulate OPFOR units up to regimental size.

TERRAIN DATA BASE: Presently, the BDSS contains two terrain data bases – 50 square kilometers of Ft. Knox, and the Range 301 complex at Grafenwoehr, FRG. The terrain data base will eventually include the Fulda Gap, the Middle East, and the National Training Center at Ft . Irwin, CA.

The system has a complete tactical operations center (TOC) for command and control, a logistics infrastructure for resupply, and a maneuver control console (MCC) for operating tactical air support, artillery, mortar fire, and other combat support and combat service support functions. Each simulator sends 7.5 data packets per second over the network to each of the other simulators, and to the Data Logger™, which records the packets from all the simulators for analytical use. The data packets contain information about that simulator's activity, its relation to all other activities/simulators on the terrain data base, and the terrain data base. Sample data packet information includes where it is on the terrain data base, vehicle speed, when and where it is hit, fuel and ammunition status when it fires, orientation of the gun tube, and what it can see.

The Plan View Display is an analyst's work station, which gives him a view of the entire battlefield and every vehicle on it. The analyst can, with the touch of a mouse button, "call up" information about any vehicle on the battlefield. The Plan View Display possesses an "out-the-window display," which allows the analyst to look out any vision block of any Blue Force simulator. Additionally, the analyst can "fly out" onto the terrain data base using a stealth vehicle to position himself at any location and altitude he desires in order to see the battlefield. The stealth vehicle sends out no data packets, allowing the analyst to move about the battlefield without the crews in the manned simulators seeing him.

At the completion of an exercise, the system stores the information from the data logger on a disk. The operator can then access, manipulate, and display it using powerful data reduction and analytical tools called DataProbe™ and RS/I™ Dataprobe. The data reduction

program retrieves and collects specific data elements from the stored data packets. RS/I formats the data DataProbe retrieves, the way the analyst wants. For example, RS/I can format data into a chart or graph, which displays vehicle speed over time, rounds fired to target hits, etc. The analyst can specify any of the data elements in the data packet for analysis. He can make changes in the analytical software for each test, as needed. In traditional field testing, tests must be conducted again if the data collected does not adequately address the measure of effectiveness (MOE) or measure of performance (MOP). In BDSS, the analyst can modify the analytical software and use it again with the same data. The possible cost savings are obvious.

BDSS is one of many combat development tools available. It works in concert with other tools, such as Janus™, the Vetronics Crew Display Demonstrator, the Functional Analysis Work Station, and 3-D modeling devices; it does not replace them. The addition of BDSS to the combat developer's toolbox presents a holistic approach to combat developments.

BDSS provides a timely, responsive and relatively inexpensive means to examine and evaluate concepts in a fully combined arms environment. It is an alternative to, or enhancement of, field testing and experimentation, for which costs are high and results are slow in coming.

The developer can use BDSS to:

- Refine a conceptual system before building hardware (requirements definition).
- Pretest a field test to ensure adequacy and completeness of the test plan.
- Supplement a field test for which realistic conditions are impractical or prohibitively expensive.
- Test highly-classified concepts without exposing them in a field environment.

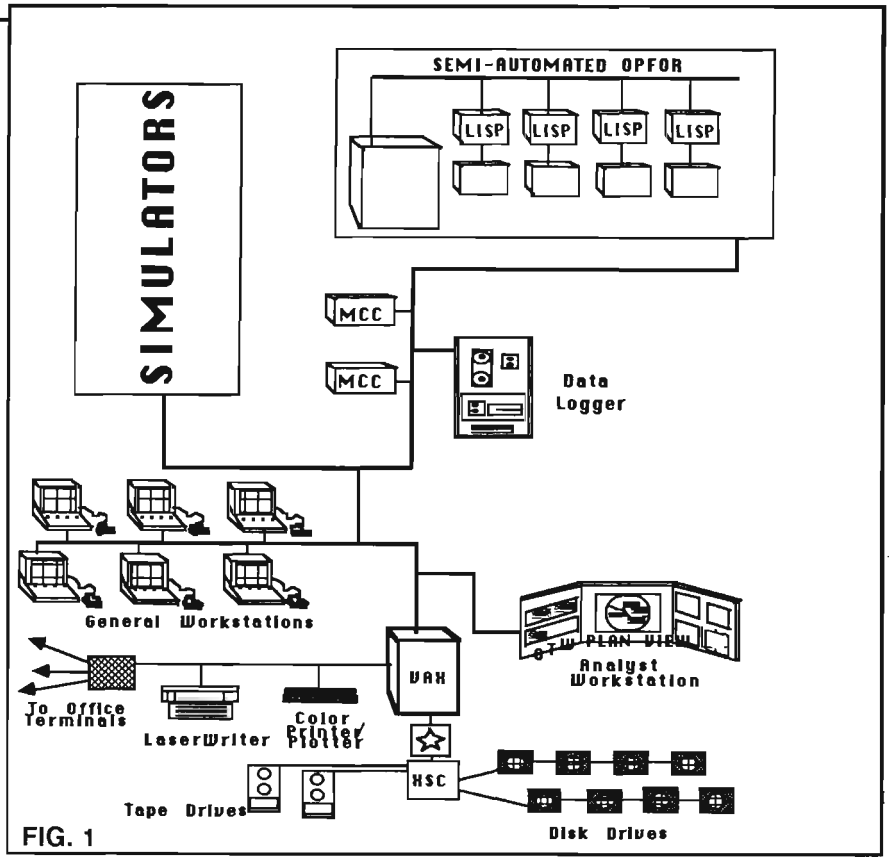


FIG. 1

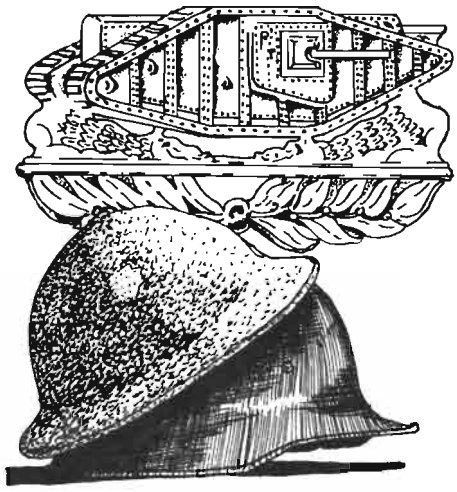
- Test concepts that are unsafe or environmentally prohibited in the field.
- Pretrain personnel before field testing.
- Address gaps in field testing.
- Examine Manpower and Personnel Integration (MANPRINT) and human engineering issues.

Developers should consider the BDSS as a computer-generated test facility and use it like the Combat Developments Experimentation Center at Fort Ord, CA. The advantage of the BDSS is its fully combined arms environment. Additionally, the system is ideal for tests that are too costly, too time consuming, or unsafe for normal field testing.

The BDSS precludes separation of training developments, doctrine developments, and force structure from material developments. Hopefully, the BDSS will be able to assist the development of training strategy, doctrine development, and force structure to maximize the effectiveness of a materiel development. Therefore, as a new system is fielded, the training manuals – such as ARTEPs, TO&Es, and "how-to-fight" manuals – can also be published and fielded.

BDSS will play an important part in providing the Army with the equipment and doctrine it needs to fight and win on the extremely lethal battlefield of the future.

Captain Robert M. Lynd, Jr. is a 1979 Distinguished Military Graduate of The Citadel. He has served as an armored cavalry platoon leader and troop XO with 4th Sqn., 12th Cav., 5th ID(Mech); S1, S2, and troop commander with 2d Sqn, 11th ACR; and BDS project officer at the Directorate of Combat Developments, Fort Knox.



The 304th Tank Brigade

Its Formation and First Two Actions

Seventy years ago, U.S tank units were first committed to combat, at St. Mihiel and the Argonne

by Robert E. Rogge

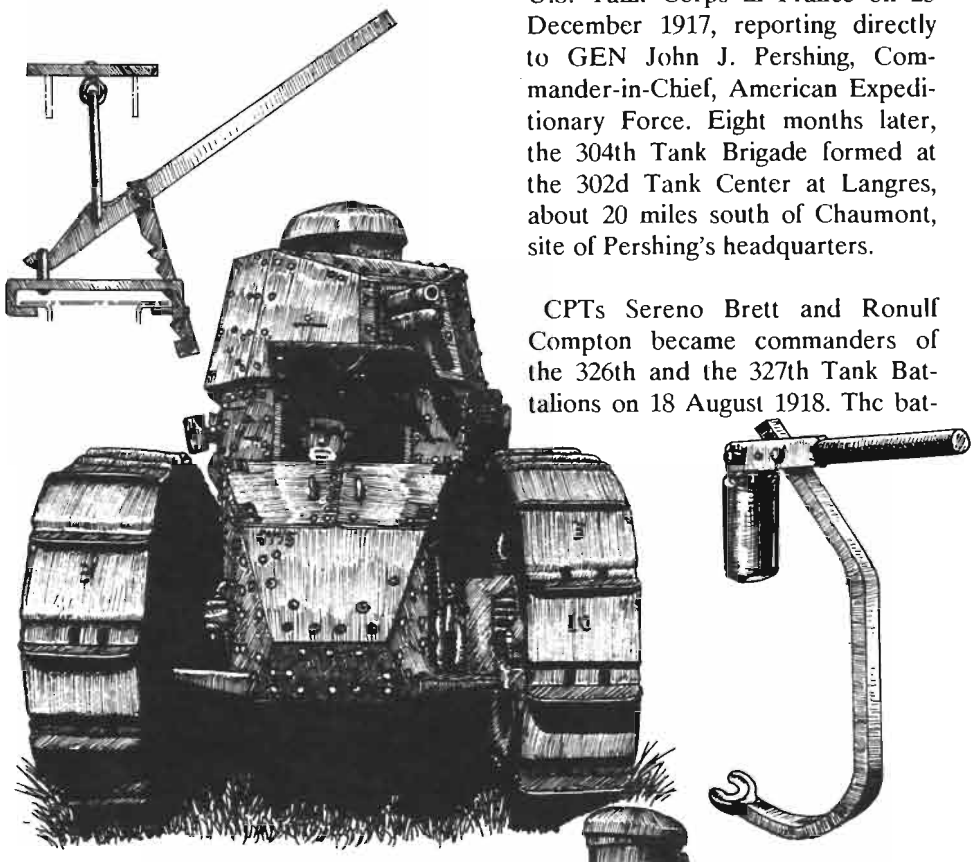
Brigadier General Samuel D. Rockenbach took command of the U.S. Tank Corps in France on 23 December 1917, reporting directly to GEN John J. Pershing, Commander-in-Chief, American Expeditionary Force. Eight months later, the 304th Tank Brigade formed at the 302d Tank Center at Langres, about 20 miles south of Chaumont, site of Pershing's headquarters.

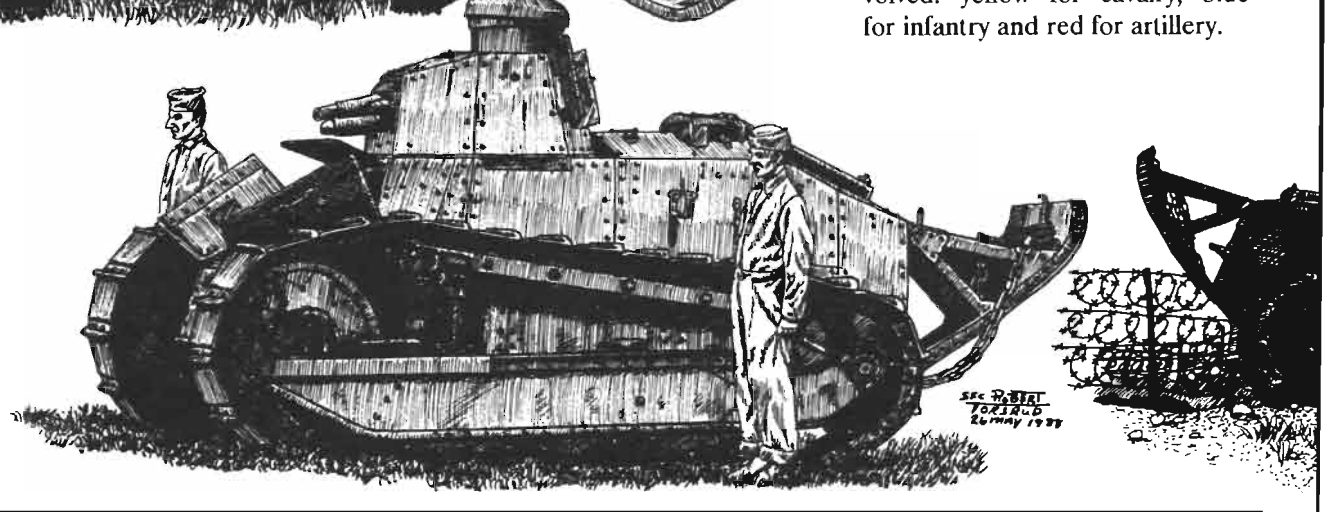
CPTs Sereno Brett and Ronulf Compton became commanders of the 326th and the 327th Tank Battalions on 18 August 1918. Thc battalions lacked tanks, trucks, motorcycles, every kind of equipment needed for armor warfare. They had only the men, all volunteers from other branches.

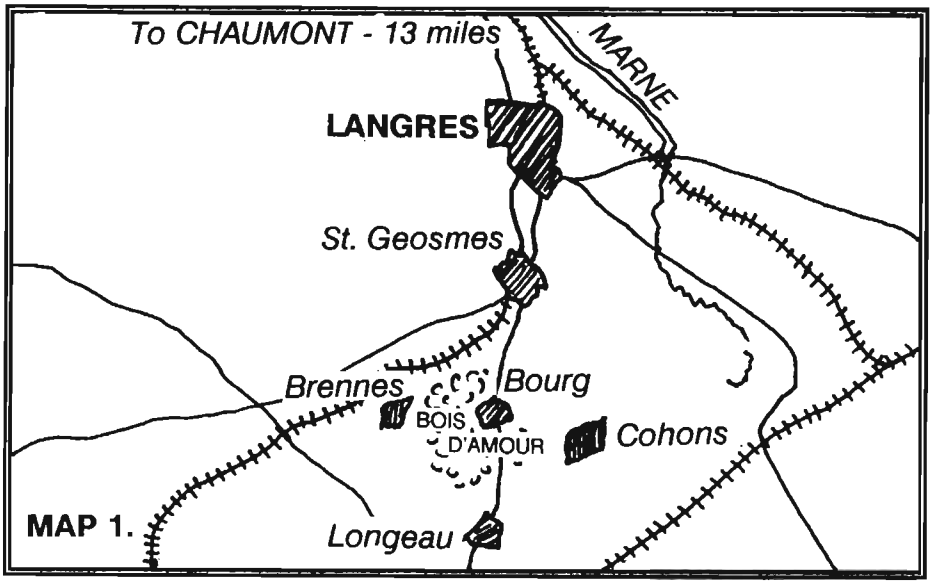
The Langres area was close to ideal for tank training. The town of Langres and the villages of St. Geosmes, Bourg, Cohons, Brennes, and Longeau, and the Bois d'Amour (Wood of Love) (see Map 1) comprised the area. It was on rising ground crowned by woods, and flanked by two good roads and a railroad. Troops were billeted in the nearby villages.

Shortly after its formation, the 304th Tank Brigade redesignated as the 1st Tank Brigade, although it retained its 304th title in the St. Mihiel Offensive.

The first armor shoulder patch appeared at this time. It was an equilateral triangle composed of the three colors of the arms involved: yellow for cavalry, blue for infantry and red for artillery.







MAP 1.

The AEF Tank Corps was a separate and distinct entity from the Tank Corps back in the United States. LTC Dwight D. Eisenhower commanded the main tank training center there, at Camp Colt, PA.

CPT George S. Patton, Jr. became the first commander of the 1st Light Tank Center at Langres on 14 February 1918. Shortly after Patton took command of the 1st, tank training began with French-built Renault tanks. The AEF used French- or British-built field artillery, tanks, and airplanes. No American-built tanks and only a few American-built airplanes saw action in that war.

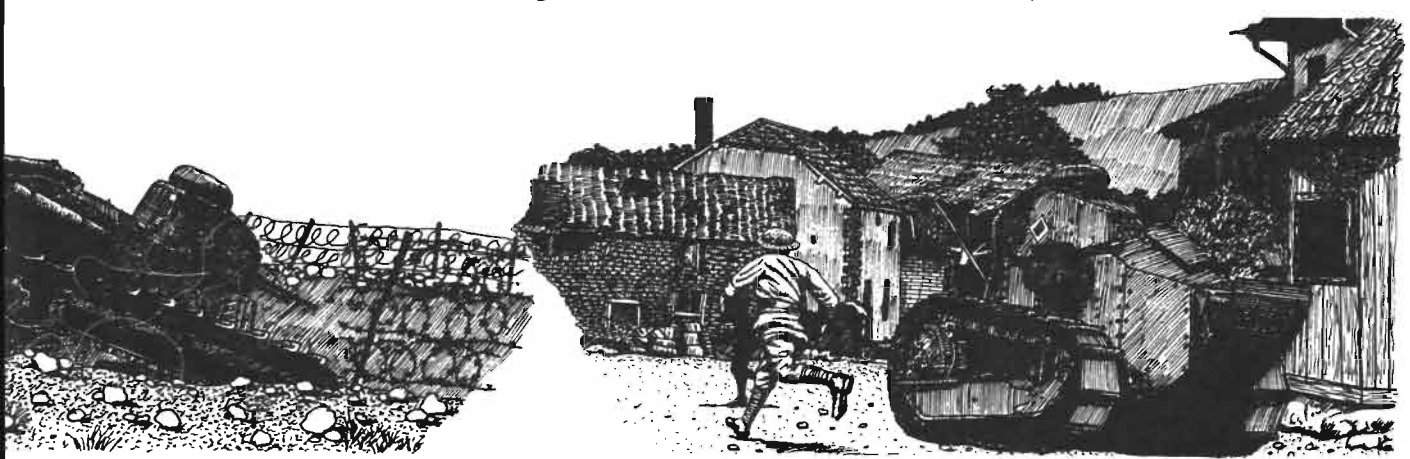
The Renault tank was a two-man machine with a 4-cylinder gasoline, water-cooled, 35-hp engine that drove it at a top speed of not quite 5 mph. Cross-country, the odd-looking little vehicle could manage about 1.5 mph — faster than the infantry could advance, as was proved time and again in battle. The Renault was armed with an 8-mm Hotchkiss machine gun in the turret, and carried 4,800 rounds of ammunition and 26.5 gallons of gas for the engine.

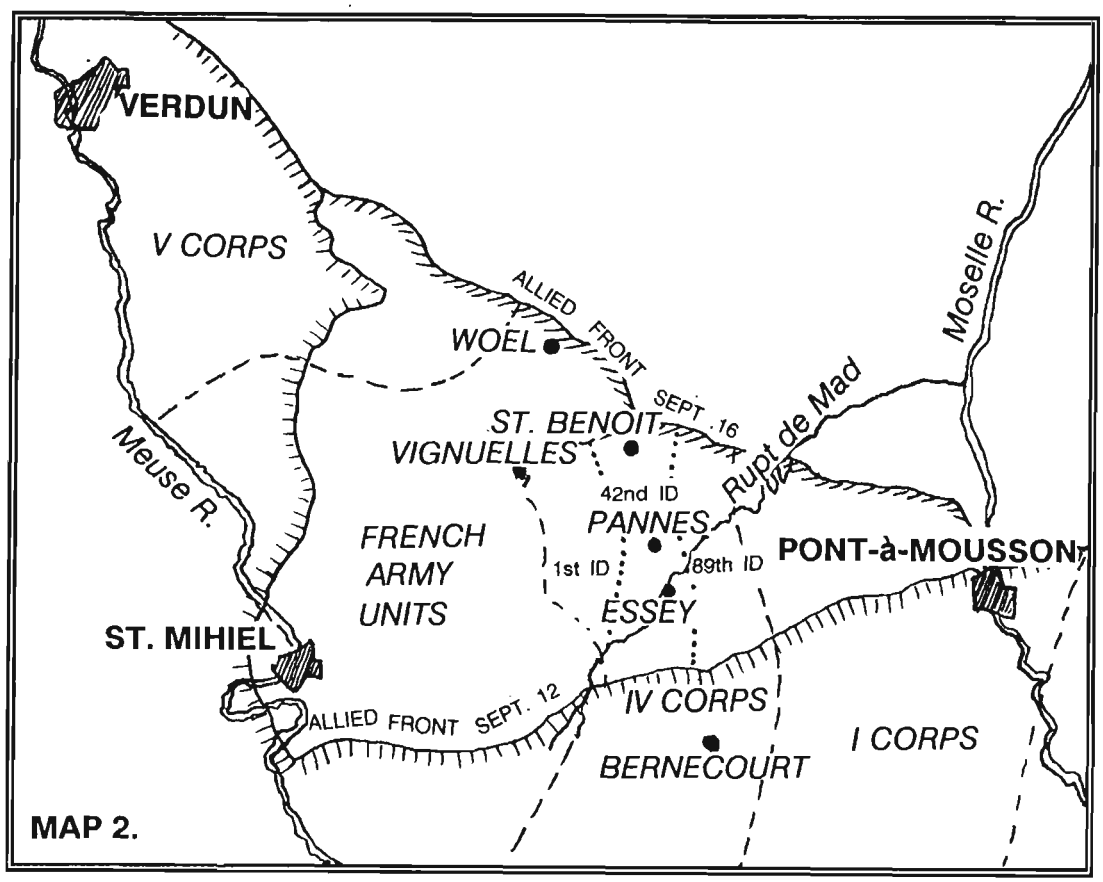
The heaviest armor was only 16-mm thick, proof against machine gun bullets and shell splinters. Combat loaded, the vehicle tipped the scales at not quite 7 tons. The driver was in front, and the commander stood in the turret. Crew communication was by yelling, and kicks from the commander's foot.

There were other American tankers in training with the British in England, but they did not figure in the two great American offensives that closed the war. Those tankers did, however, go into action with the British armies to the north, in Flanders, and served well in the larger and heavier British tanks.

Patton, a stickler for discipline, soon had his raw men whipped into shape as acceptable tanker trainees. He began his preparations for the first great American offensive, the St. Mihiel drive to cut off that great German salient that had bulged deep into French territory since September 1914. The salient had seen no serious fighting since 1916, and the German High Command regarded it as a kind of "rest front" for German troops savaged in Flanders by the British. The French high command saw it in much the same light for the survivors of the Verdun debacle. The American attack would change all that.

The St. Mihiel salient (see Map 2) was some 32 miles across its base and ran 16 miles deep. A "live and let live" atmosphere prevailed along its front, as Patton discovered on a





MAP 2.

night patrol with the French. Patton, a cavalryman, appreciated the benefits of personal reconnaissance, and held to that principle for the rest of his life. In France, he personally viewed the territory that his tanks were to fight over and then, whenever possible, took his tank commanders to see for themselves. Such advance knowledge was to work to his benefit during the final offensive in the Meuse-Argonne campaign.

On the patrol noted above, Patton and the French soldiers were crawling across No Man's Land toward the German barbed wire entanglements. When they reached the wire, Patton was surprised to hear several Germans in the trenches ahead whistle at them. He was even more surprised to hear a couple of Frenchmen return the whistles, and the patrol turned around and crawled back to its own trenches. There, Patton learned that the Germans felt the Frenchmen were quite close enough and had whistled to warn them that any further advance would have to result in some shooting. The experience was typical of the whole salient but, in the event, Patton got a good look at the ground.

The St. Mihiel offensive would be the Americans' first big battle on their own, and GEN Pershing would be in command of three U.S. Corps (I, IV and V), and several French divisions. He moved his headquarters from Neufchateau to Ligny-en-Barrois, about 25 miles southwest of St. Mihiel (not shown on map).

The U.S. deployment for the battle was as follows: IV and I Corps were on the south flank of the salient with Pont-à-Mousson on their right flank. V Corps was on the east flank, near Verdun. The French divisions were between the U.S. V and IV Corps. The battle plan, like all good battle plans, was simple: the U.S. I and IV Corps would drive north and meet the U.S. V Corps driving east. When they met, they would wipe out the salient.

During his several personal reconnaissances of the ground, Patton determined that the soil would support his tanks — if it didn't rain. But all of his careful pre-battle planning and reconnaissances of the battle area were wasted when HQ, First U.S. Army decided that his tanks would operate with IV Corps, rather than with V Corps, as originally planned.

After the change in plans, Patton again went out on patrols to reconnoiter the ground, and again he decided that it would support his tanks, provided the weather held. It didn't, of course. On the night the artillery bombardment began for the attack, the rain came down in sheets. But the tanks went into action as scheduled.

Among the major planning problems that faced Patton was getting sufficient fuel and lubricants for his tanks. He managed to establish a 10,000-gallon gasoline dump, but was unable to secure any oil or lubricants. A fatuous staff officer said that the French mud would lubricate the tanks' tracks. Such was the general caliber of staff planning by officers who had never worked with tanks and who either could not

or would not take into consideration the special needs of the fledgling armored force.

Such asperity did not hold back Patton; he went right on with his planning and his training. He was lucky in one respect, however. The deep mud that his tanks would face in the shell-battered landscape made the installation of track grousers and hull-mounted tow hooks imperative. Patton sent off a telegram to CPT Joseph Viner, commandant of the training school at Langres, for the needed equipment, and Viner sent a thousand sets of grousers to Patton within the week.

GEN Rockenbach saw to it that there would be a good representation of armor in the St. Mihiel offensive. He laid down that three U.S. heavy tank battalions then under training in England would be there with 150 heavy British tanks, along with three French brigades with 225 light (Renault) tanks, the two U.S. tank battalions (326th and 327th) with 144 Renaults, and three French battalions of the French 505th Tank Regiment with heavy tanks, plus 12 additional St. Chamond and 24 Schneider tanks. As noted above, the American tank units in England did not arrive in time for the offensive, and Rockenbach asked the French for an additional heavy tank battalion. He got the 36 additional heavy tanks noted above. The French heavy tanks were truly monsters when compared with the little two-man Renaults. The Schneiders weighed in at 13.5 tons and had a 75-mm cannon and two Hotchkiss machine guns and a 6-man crew. Each had a 70-hp motor and carried a maximum of 11.5-mm armor plate. They had a top speed of nearly four mph, stood nearly eight feet tall, and were almost 19 feet long.

The St. Chamond tanks were equally large and had a nine-man crew. They weighed 23 tons and were armed with a 75-mm gun and four Hotchkiss machine guns. Their armor was 17-mm thick and their 90-hp engines drove them at 5.3 mph. They were almost 26 feet long and nearly eight feet high. However, the great weight and size of these tanks was a hindrance in the gluey mud of the salient, and the lighter Renaults fared much better in the trench fighting.

Rockenbach and Patton hoped to concentrate their untried (except for the French units) armor formations in order to give them more punch and to better support the infantry. The three French battalions, plus six St. Chamond and 12 Schneider tanks, were to fight in the VI Corps area in the immediate support of the 42nd Infantry Division (BG Douglas MacArthur) in the center of the IV Corps' zone, and the 1st Infantry Division on the immediate left. The 327th Tank Battalion (Compton), less 25 Renaults in brigade reserve but augmented by the 18 French heavy tanks, was attached to the 42d Division, and the 326th Tank Battalion (Brett), was attached to the 1st Infantry Division.

The actual tactics were admittedly of the try-and-hope variety, although some study had been made of British tactics. But the Renaults were smaller and lighter than the British behemoths, the attachment of the tank units to the infantry was different from that practiced in the British Army, and there were the French units to be considered as well.

As Patton finally laid it out, Brett, on the left flank, with the support of the Renaults in brigade reserve, was to cross the Rupt de Mal (river) and *lead* the 1st Infantry to its objectives. In the center, the French heavy tanks were to *follow* the infantry. Compton, on the right, would initially *stay behind* the infantry, then *accelerate* and *pass through* them and *lead* them to their objectives, the villages of Essey and Pannes (see Map 2). It didn't quite work that way in battle.

The planning stages were a nightmare of trying to mass men, supplies, equipment, and tanks, and the French railway system compounded Patton's administrative

French Heavy Tanks Used During World War I

The Schneider, weighing 13.5 tons, at left, and the St. Chamond, weighing 23 tons, were heavy tanks in their day. Unlike the tiny Renaults, they were armed with cannon, along with machine guns.

"...His example of standing under fire with BG MacArthur, had a great morale effect on his men, but Patton had violated one of the principal tenets of higher command — stay in contact with your higher headquarters...."

problems as he strove to bring all his tanks together at one detraining point. He finally succeeded, but the last of his Renaults did not leave the flat cars until 0300 on 12 September — D-Day — and the attack was scheduled to begin at 0500.

Among his other paper-war battles, Patton tried in vain to convince the G3 of the 42nd Division that he needed smoke included in the preliminary barrage to protect his tanks from direct-fire AT guns. The G3 refused his request, and the volatile Patton complained bitterly to GEN Rockenbach — and got the smoke laid on.

Other problems faced Patton; the greatest of these was tank-infantry training. Up until this time, only the 1st Infantry Division had had any experience in fighting with tanks, and that had been at the Battle of Cantigny on 28 May. The 1st was eager to learn more, and the 42d was eager to learn anything, but time restrictions prevented more than a few briefings for company commanders and platoon leaders. The troops never got the chance to train with the tanks that were to support them in battle, and this led to many problems.

Another difficulty facing the fledgling tank corps in its first battle was that of communications. Contact with the tanks would be lost when they advanced, except for runners — and pigeons! Patton compounded this vital communications problem when he abandoned his brigade headquarters and went forward with his tanks into the thick of the fight. GEN Rockenbach read him the riot act for this after the battle.

D-Day for the first great American offensive was set back five days to 12 September for a number of reasons, including Patton's difficulties with the railroads. The last tanks to detrain immediately marched eight kilometers to the start line and, although their crews had not slept in two days, went straight into action in heavy rain and high winds. The artillery barrage opened at 0100, and at 0500 the attack began. At once, the lack of training between infantry and tanks showed itself. By 0530, Brett's tanks were beyond Xivray, and by 0930 Compton's tanks had taken Pannes; but an hour later they were recalled because the infantry would not follow up.

Throughout the entire offensive, the tanks consistently outran the infantry and often found themselves fighting alone against determined German machine gunners and infantry. During the following Meuse-Argonne Offensive, tank-infantry cooperation was somewhat better, but not all that much. Perhaps it was only natural that the unprotected infantry soldiers declined to face the machine gun fire that rattled harmlessly off the tank's sides and therefore did not struggle hard enough in the mud to keep up. On the other hand, the tankers, from their noisy, smelly, bullet-hammered machines, should have noticed what was happening to the infantry and should have slowed their own advance.

Irresistably drawn into the vortex of the battle, Patton left his brigade headquarters OP and went forward on foot into the fight. He saw his tanks leading the infantry on both the 1st and 42d Division fronts. At 0915 he got word that Compton's tanks and the infantry were delayed by "bad ground:" interlocking shell holes, gaping trenches — and mud. As he made his torturous way to the spot on foot, Patton passed the French tanks halted in a pass (railway cut) where they were under moderate shellfire. He went straight on to the firing line and stood there and talked with BG MacArthur while a German creeping barrage advanced up to and over them. Patton then went on to Essey where he ordered five of Compton's tanks across the bridge into the town — and he led them on foot. That, and his example of standing under fire with BG MacArthur, had a great morale effect on his men, but Patton had violated one of the principal tenets of higher command — stay in contact with your higher headquarters.

When the groaning, grinding, Renaults began their advance on Pannes, all but one ran out of gas. Patton's supply problems had caught up with him. One tank got into the town with Patton sitting on top, and with a lieutenant and runner on the back plates. When they dismounted hurriedly under machine gun fire, the tank went on, and Patton had to chase it on foot and bring it back.

Five tanks finally assembled in Pannes and went forward in line abreast to Beney to the north. They took the town, along with four field guns and 16 machine guns.

Meanwhile, 25 tanks had taken Nonsard with the loss of four men and two officers, but they were now out of gas. Patton walked back seven miles to get gas for his tanks. That night, gas drawn on sledges by two tanks from Bernecourt refueled the dry Renaults.

Casualties for the first day's action were five men killed, four officers

Tankers of the 326th Bn. repair their tanks near Varennes, on the Meuse, in 1918.

and 15 men wounded, and five tanks, two by direct hits from artillery, and three with engine trouble. Two of the French heavy tanks had stalled with track problems. Forty tanks had been stuck in the trenches and ditches, but all were recovered and ready for action on 13 September. Eighty U.S. and 25 French tanks were on hand for the next day's battle.

The heavy French tanks had great difficulty in crossing the trenches (some of which were eight feet deep and 10-14 feet wide), and they never succeeded in getting ahead of their infantry. U.S. tanks, on the other hand, were recalled because they had often outrun the infantry and were vulnerable to AT guns and counterattacks.

The U.S. tankers, who called themselves the "Treat 'em Rough" boys, had acquitted themselves very well in their first action. The primary difficulties they faced were the lack of fuel and the congested roads in the rear areas that delayed the fuel trucks. Two gas trucks, for instance, took 32 hours to drive 14 kilometers, and Patton quickly saw the need for tracked supply vehicles that could keep up with the armor and avoid the congested roads.

The tanks accomplished little on the 13th, primarily because of the lack of gas. Some of Compton's tanks (327th Tk Bn) were able to drive from Pannes to St. Benoit that morning, and later a few more tanks got that far. About 20 French tanks also reached St. Benoit, but were stopped there by the lack of fuel. When gas for Compton's tanks finally arrived, he rolled through Nonsard and Vigneulles, where 50 tanks assembled that night.

On 14 September, the tanks moved out of Vigneulles toward Woel to the north. Brett's battalion, unable to contact HQ, 1st Division, moved out with 51 tanks toward Woel, hoping to contact Compton's 327th on the Woel-St Benoit road. On the way, just short of Woel, they learned that the Germans had evacuated that town, and that French infantry now held it.

A patrol of three tanks and five infantrymen was sent into Woel with orders to proceed down the Woel-St. Benoit road in hopes that it would contact American troops. They made no contact, but on the return trip, the tanks met a German column with eight machine guns and a battery of 77-mm field guns. Five tanks hastily came forward to assist the three, and the eight tanks, unsupported by infantry, attacked and drove the Germans toward Jonville (not shown, but near Woel), destroying five machine guns and capturing the 77s. An attempt to tow the captured guns was cut short when shrapnel fire wounded two officers and four men. Two mechanically-disabled Renaults got a tow to safety from a third, and all the tanks then withdrew toward St. Maurice.

At 2100, word came to withdraw all the tanks to the Bois de la Hazelle, back near the original start line. By the night of 18 September, traveling at night, all the tanks, except three that were hit by artillery fire, were in the assembly area. The fighting was over for the tanks.

In his after-action report, Patton stated that the enemy's failure to react strongly to the tanks deprived them of any real opportunity to display their fighting powers. However,

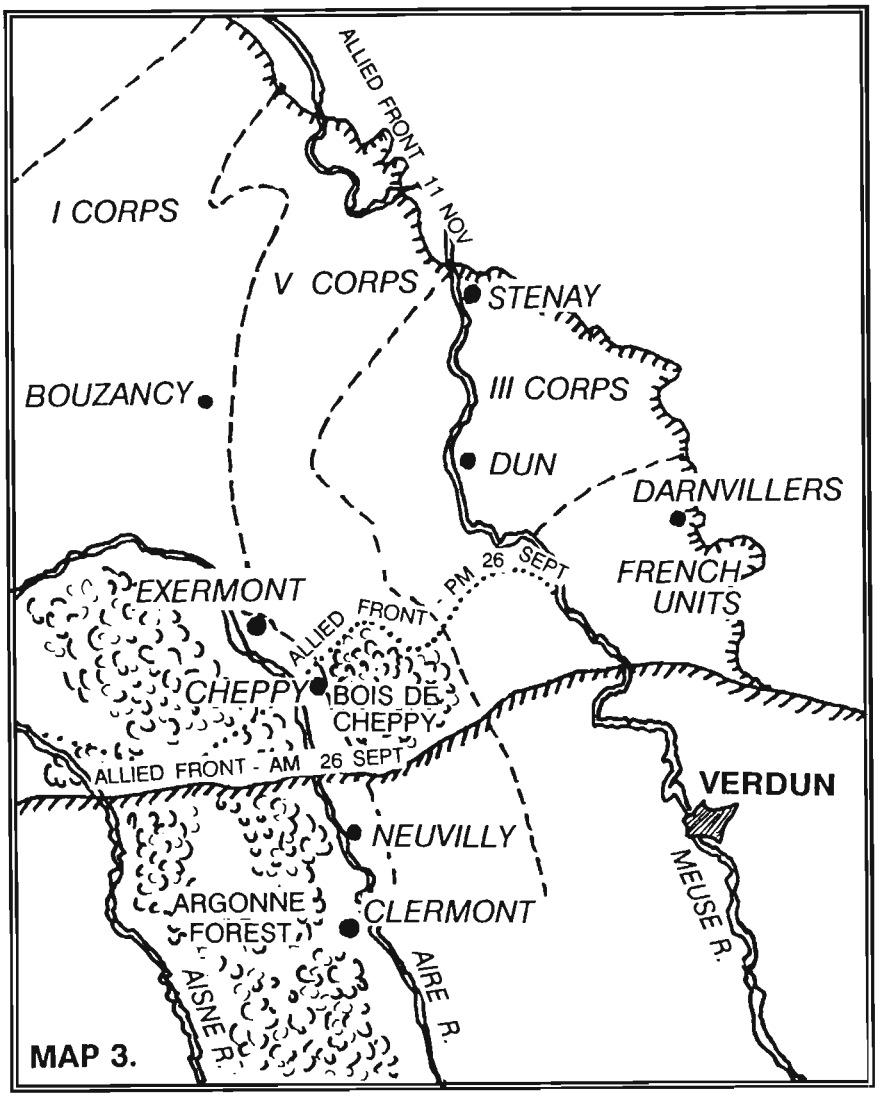
he continued, the tanks had almost always been in position to help the infantry and had, in fact, entered the towns of Nonsard, Pannes, and Benney ahead of the foot soldiers. The tanks had also captured Jonville without infantry support.

GEN Rockenbach laid down the law about brigade commanders who abandoned their posts to go forward into the battle. He said: (1) The five light tanks in a platoon had to work together, had to be kept intact under the leader and not be allowed to split up; (2) When a tank brigade was allotted to a corps, the commander was to remain at the corps headquarters, or be in close telephonic communications with it; and (3) Tank crews are not infantry and are not to fight as infantry if their tank is disabled. If a tank is disabled, the irate general wrote, one man is to stay with it and the other is to get help.

On 16 September, GEN Pershing sent a congratulatory letter to GEN Rockenbach on the successful and important part played by the tanks at St. Mihiel. Plans were already underway for the next American offensive in the Meuse-Argonne sector.

The same tank formations that he had fought at St. Mihiel were to be under Patton's command in the Meuse-Argonne offensive: the U.S. 326th and 327th Tank Battalions, and the French 14th and 17th Groupes. In this battle, however, they would fight with I Corps. Work on movement orders began on 15 September, one day after the St. Mihiel offensive was closed down, and Patton was already poring over maps of the new sector (see Map 3).

The French heavy tanks detrained at Clermont and moved into cover, and on 20 September the American light tanks arrived at Clermont. Brett's battalion was now designated the 334th, and Compton's the 345th.



The Meuse-Argonne Offensive was part of a joint American-French offensive, with the French Army on the left from the Suippes River (not shown on map) to the Aisne River. Here, the Americans took over and extended the front to the Meuse River. The American sector included the Argonne Forest.

Pershing took command of his front on 22 September and placed his three corps in line, right to left, III, V & I. I Corps had three divisions, right to left, 35th, 28th, and 77th. The tanks would fight with the 35th and 28th Divisions on the eastern edge of the Argonne Forest. The 77th Division's sector included the Argonne Forest, impassable for armor. The whole area had been fought over long before and was going to be difficult for tanks. It was liberally laced with old trenches, ditches and dugouts and filled with shell holes.

In his pre-battle planning, Patton envisioned a long-range penetration by his tanks *en masse*, followed by a pursuit — the classic cavalry maneuver. But the terrain forced him to fight otherwise. He would mass his armor in the relatively narrow corridor between the Argonne Forest and the Bois de Cheppy.

Because of terrain features, including the Aire River, Patton proposed committing one tank company with

the 28th and one with the 35th Divisions, even though the 35th's ground would have enabled him to have used two tank companies there. After another look at the terrain, Patton changed his mind and placed Brett's battalion up front with two tank companies with the 35th Division and one with the 28th Division. Compton's battalion would be immediately behind in the same tactical formation, and the French tanks would bring up the rear.

Patton planned for Brett's tanks to *support* the infantry to its first line of objectives, then Compton's tanks would go forward and *lead* the attack to the second line of objectives. Once on higher (and drier) ground, the heavy French tanks would *come through* and *pave the way* to the final objectives.

As in the St. Mihiel campaign, supply problems continued to plague Patton. For instance, he received 100,000 gallons of gasoline in railroad tank cars, but no pumps. On the other hand, based on his St. Mihiel experience, Patton ordered that each of his Renaults was to carry two 2-liter cans of gas on its back plates, regardless of the danger of fire. Four liters of gas wasn't much, but it would keep a tank moving in a difficult situation.

The Renaults marched six miles to the line of departure on the night of 25 September. At 0230 on the 26th, the three-hour preliminary bombardment began, and the attack went in at 0530. Patton had about 140 tanks under his command.

The attack began in a heavy mist, and the tanks with the 28th Division came upon a German minefield, but the warning signs were still in place, and the tanks avoided the trap. By 1000, the mist had risen, German fire became intense and accurate, and some of the infantry panicked.

Patton, furious at Compton for not advancing when he was ordered, went forward himself to sort out the tangle at the front, and was wounded near Cheppy. As he was carried to the rear, he left MAJ Brett in command of the tank brigade. Serious German resistance near Cheppy and Varennes forced the use of all the tanks during the first day's fighting. Tanks fighting with the 28th Division ran into concrete pillboxes for the first time and silenced them by firing straight into the gun slits. Tankers with the 35th Division helped capture a strongpoint at Vauquois and also one at Cheppy. The 304th Brigade lost 43 tanks that day.

On the second day of the battle, 11 tanks went to the Aire River (with the 28th Division) and advanced north along the edge of the Argonne Forest, clearing out machine gun nests. The tanks on the Aire's east bank spent the day answering calls for help from the infantry, which, in effect, seriously degraded their shock potential in the battle. The fighting all along the front was serious, and by the third day, only 83 U.S. tanks were in running order. Even so, the brigade took the town of Apresmont *five times* before the infantry could come up and consolidate the position.

At the end of 26 September, Rockenbach withdrew all his tanks for an intensive repair and maintenance session. The men worked all night and had 55 tanks ready for action the next morning.

After hard fighting with the infantry, the tankers withdrew to reserve positions for several days. Men and machines were worn out, but by 1 October, 89 tanks were back in action, and 59 of them were lost that day.

A U. S. artillery crew prepares to unlimber a truck-drawn field gun as it moves into position in France in 1918.

Patton, at center, looking to the left, and MAJ Sereno Brett, also looking left, prepare to review tankers of Brett's 326th Tk. Bn. Note camouflage on the unit's Renault tanks, lined up in the background.

The survivors were pulled back once more, and on 5 October the 304th Brigade committed its remaining 30 tanks to action and lost 13 of them. Rockenbach pulled back the 17 survivors.

The tanker's final action came on 16 October when a provisional company of 20 tanks with 10 officers and 140 men supported the 28th Division. Ten tanks reached the objective, but again the infantry failed to follow up and consolidate, and the tanks had to withdraw.

On 11 November the war ended.

Shortly after the war, Patton drew up a list of nine major tactical conclusions on the use of tanks in battle. A number of these 1918 conclusions have long since been corrected, but some remain valid. They were:

- Infantry officers lacked understanding and appreciation of tank capabilities, for tanks needed infantry operating with them at all times to be successful (which subtly, probably unconsciously, foreshadowed a shift in doctrine from the use of tanks to support infantry to the contrary conclusion that infantry should be used to support tanks; but this idea would remain obscure until clarified with terrifying suddenness by the German blitzkrieg in WW II.)

- A lack of liaison between tanks and infantry hampered efficient operations.

- Infantry should act as though tanks were not present, and not expect tanks to overcome resistance and wait, expecting tanks to attempt to consolidate a success.

- Tanks were too valuable because of their strengths in firepower and mobility and too weak in mechanical reliability to be dissipated in reconnaissance missions.

- The distance between readiness positions and the line of departure should be reduced for "tanks cannot sustain a prolonged march without being overhauled and put in order."

- A thorough preliminary reconnaissance on foot of the terrain to be used by tanks was *absolutely indispensible.*

- The enemy artillery is the most dangerous adversary of the tanks. Therefore, strong supporting artillery, ready to deliver counter-battery fire, as well as screening smoke, was terribly important to ensure tank success.

- The value of tanks as attacking units and as a fighting arm had been demonstrated.

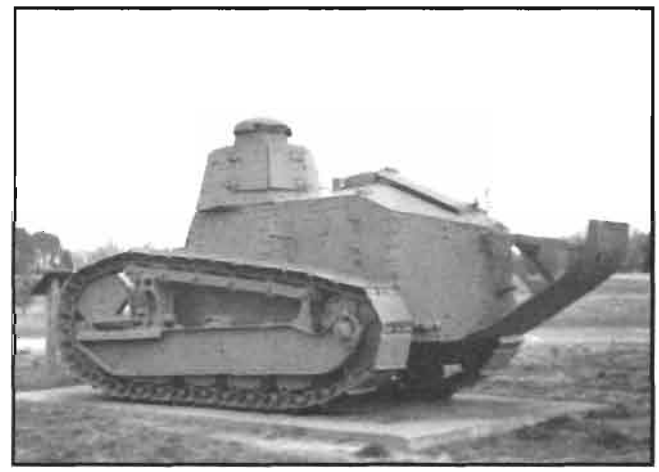
- Some slight changes in tactical employment were necessary: *a better utilization of tanks in mass and in depth.* (Emphasis added.)

Robert E. Rogge is ARMOR's assistant editor.

The Saga Of the Five of Hearts

A World War I Renault, Now Retired at Fort Meade, Fought Bravely and Well in U.S Armor's First Battle

by Major General William R. Kraft, Jr.
U.S. Army Retired



1988 marks the 70th anniversary of the formation in France of the U.S. Tank Corps during WWI. Also in 1918, a six-ton, two-man tank known as the Five of Hearts became famous in the Meuse-Argonne Offensive. After the war, the battle-scarred Five of Hearts traveled to Camp (now Fort) Meade, Maryland, where it has stood ever since – a silent reminder of the fighting spirit of the WWI Tank Corps.

The Five of Hearts, an FT 1917 produced at the Renault Tank plant near Paris, received the serial number 1516. It carried a 37-mm gun and traveled only five miles per hour. Since it was designed to accompany infantry into battle, it didn't need great speed. The FT 1917 was manned by a tank commander/gunner and a driver who were protected by an armor envelope thick enough to deflect small arms rounds and flying shrapnel. The TC/gunner's small turret could rotate 360 degrees and, in addition to vision slits, had a telescopic sight. There was an ample supply (237 rounds) of 37-mm ammunition on board. The tank's main purpose was to engage and neutralize German machine gun nests, for which the 37-mm HE round was well adapted.

Number 1516 was among the 200 or so FT 1917s the French gave to the American Expeditionary Force. Eventually, the tank arrived by rail at the town of Langres, where MAJ George S. Patton, Jr. was organizing and training the first of two U.S. light tank battalions which were to comprise his 304th Tank Brigade.

Patton chose playing card suits for tactical markings on the turrets of his tanks. Each suit identified one of the four platoons in the companies he was organizing. The five tanks in each platoon also received a number. When 1516 arrived, it became part of C Company of the 326th (later 344th) Tank Battalion, and a white heart along with the number 5 was painted on its turret. From that point on it was known as the Five of Hearts.

On 12 September 1918, after a period of intensive training, Patton took his two battalions, the 344th and 345th, into battle at St. Mihiel. This marked the very first time that tanks with American crews were committed to combat. The Five of Hearts was one of the 144 U.S.-manned FT 1917s to participate in the elimination of the St. Mihiel salient, which the Germans had held since 1914.

At the end of this campaign, the 304th Brigade, with its remaining 108 tanks, moved by rail to assembly areas, where several corps of the A.E.F. were preparing to launch an offensive against the formidable Hindenburg Line. This operation, known as the Meuse-Argonne Campaign, jumped off on 26 September but soon became bogged down in front of the Germans' well-sited field fortifications.

Fresh American divisions deployed, and the attack resumed on 4 October. On this date, only 30 tanks of the brigade were still operable. The hearts platoon of C/344th was down to two tanks, the Five of Hearts and one other. When this platoon jumped off at 0530 on the 4th, LT Wood, the platoon leader, and CPL Rogers, the driver, manned the Five of Hearts. SGT Arthur Snyder commanded the other tank. The platoon supported the 16th Infantry of the 1st Division in the attack.

"...The armor plate on those old French Renaults was good, but when you came to close quarters, the splinters from bullets hitting around the vision slits did considerable damage to our personnel. Wood got wounded this way. ..."

In 1937, at Patton's request, Snyder wrote an account of his activities on 4 October. Rogers also submitted a statement which corroborated Snyder's story. They are both in the files of the Army Museum at Fort Meade, next to which the Five of Hearts stands today. An excerpt from Snyder's narrative follows:

Lieutenant Wood was on my right proceeding along a hedgerow from which the Germans were producing a severe machine gun flank fire. My orders were to keep strict liaison with Lieutenant Wood's tank, and when I saw it change direction, I did likewise. If we had had radios, this would not have happened, because Wood was wounded and his driver, Corporal Rogers, was taking him behind the infantry assault line.

Then Rogers, who was only a kid in his teens, under great danger to himself, got out of his tank and crawled beyond the assault wave, endeavoring to signal me to proceed in the attack. Just at this time, a German shell exploded under the right tractor [track] of my tank, severing it in two--like a knife cutting a piece of string. Of course, the tank could then go only in circles. Kelly (Snyder's driver) got it facing our lines. We got out through the driver's door and had a crawling race to the rear of our assault line. Here we found Wood and Rogers and their tank, the Five of Hearts. I took command of it and, using Rogers as my driver, returned to the attack. The enemy machine guns in the hedgerow had been practically silenced, but the infantry could make little progress because of heavy frontal machine gun fire.

As we proceeded in a frontal direction, we suddenly encountered, at close quarters, an extremely large machine gun nest that was well concealed in a big shell crater. The position had undoubtedly been improved by field fortifications, and it contained at least three machine guns, maybe more.

We were fortunate that the position was not supported by an accompanying artillery piece, because in the fog and smoke we were practically on it (the machine gun nest), before observing it. I saw a German raise a potato masher (hand grenade with a handle) to throw at us. If he let it go, it did no harm and we were causing confusion and damage in that nest with our 37-mm fire.

The armor plate on those old French Renaults was good, but when you came to close quarters, the splinters from bullets hitting around the vision slits did considerable damage to our personnel. Wood got wounded this way. As Rogers and I were trying to get around the right flank of that big machine gun nest, he was hit about his eyes with splinters. He fell forward in his driver's seat but, fortunately, did not stall the motor, which was an easy thing to do with those old tanks.

I knelt behind Rogers, cautioning him as to the use of the foot throttle, and, reaching forward to the steering levers, steered the tank back to our lines. The blood from Rogers' wounds was blinding him and when I left him at the dressing station, it was obvious that he was no longer fit for duty. I took his .45 pistol so the Five of Hearts would be sure to have a full complement of weapons and then I looked for another tank mate. I was in the process of trying to get an infantryman, when I saw a runner wearing the Tank Corps arm band (a triangular patch divided into yellow, blue, and red segments, similar to today's Armor patch). I found that he was from the 345th Battalion and had become lost from his organization. He told me that he had graduated from our driver's school at the Tank Center at Langres so I immediately pressed him into service as my third driver for the day.

We at once returned to the attack and found that the big machine gun position had been taken. Some of its personnel were being taken to the rear as prisoners. We proceeded down the Exermont Ravine. At the bottom of this ravine is a stream and, to the west of Exermont, was a stone bridge that spanned it. Orders had been issued not to use this bridge because of its being mined.

My driver and I were just getting ready to reconnoiter for a stream crossing, when I was approached by a captain from the 16th Infantry. He informed me that his company was being held up by machine gun fire from the other side of the ravine. I told him I would support his company as soon as I could find a place to ford the stream. He asked me why didn't I use the stone bridge, and I explained the orders. He mentioned having received similar ones but had discovered that if the bridge had been

Above, Five of Hearts after being painted silver in 1938 by two soldiers, Bennett and Ullman, of the 66th Infantry (Light Tanks).

Right, Five of Hearts, taken on 4 October, 1918 with the battlefield salvage and repair team which recovered it.

mined, it was no longer so. He asked me where my officers were, and I told him about my platoon leader having been wounded early in the morning. I did not know where any of the Tank Corps were as the Five of Hearts was covering a whole company front. I told the infantry officer that I would be glad to cross the bridge under existing circumstances, if so ordered. This he did with a smile and the Five of Hearts crossed the bridge safely.

Upon gaining the heights on the north side of the Exermont Ravine, we immediately contacted the enemy. The outposts gave way rapidly and several machine guns were abandoned. I have little doubt in my own mind that the enthusiasm to follow in pursuit made me go too far ahead of the infantry. The terrain flattened out, and there was little cover available, and though the going was rough, it afforded a rare opportunity to fire at moving targets. I fear that the backs of those Germans with their packs and heavy overcoats were impressing me more than keeping liaison with our infantry. However, the party was not to last long, for when the cover was reached, we met with enemy resistance. Upon being fired on at close range, my driver was shot through the throat, and at the same time our engine stalled. I made many attempts to crank it from the gunner's compartment, but to no avail.

We were in much the same condition as a disabled man-of-war. Our mobility was gone, and with it all chance of maneuver and the ability to seek cover. Our firepower was not far from zero because the 37-mm gun was jammed in the depressed position from bullets fired at close quarters. Several times I had put my entire weight on the breech so as to elevate the piece, but now this had become ineffective. Our projectiles would hit the ground only a few yards from the tank. The turret could not be rotated because it too was jammed with bullets. To our left was a German 77-mm field piece. There was plenty of ammunition beside its trail. The breech-block had been removed when the gun was abandoned, but now the Germans began to reappear. It was a local counterattack.

My wounded driver kept filling pistol clips and I produced as much fire as possible with our pistols and the crippled 37-mm. I paid more attention to the volume of fire than its accuracy, for I feared the enemy would close in if the volume diminished. Three machine guns were set up at very close range, but just out of range of our piece with its limited elevation. The fragmentation of our shells did afford some protection, but I could not train this fire on the German field piece.

The constant hammering of these machine guns at close range was terrific. The hinges on the doors could not stand up under it for long, but it was the mushroom ventilator on top of the turret that gave way.

I was hit in the back of my head with fragments of it and bullet splinters. The Germans made no at-

tempt to close in; on the contrary, they began to give way and then fled.

I have seen many marvelous sights of troops in action, and on parade, but I have never seen, or ever expect to see, a more glorious sight than our infantry advancing toward us at the high port (rifles held chest high, bayonets up).

The Five of Hearts and her crew had done their job, and our colors were not struck until relief came to us.

Because of his head wound, Snyder was evacuated and did not return to the 344th. The Five of Hearts was found on the battlefield late on the 4th by a salvage and repair team of the brigade. A Signal Corps cameraman who happened to be present photographed the crippled tank. That photo is now in the National Archives in Washington, D.C. The caption states that the tank had "almost a hundred holes in it and the interior was splattered with blood. The whereabouts of the crew is unknown."

In 1919, Camp Meade became the home of the U.S. Tank Corps. Assembled there were Patton's 304th Brigade and other light tank units, which had been formed too late to see action. Included were those from Dwight Eisenhower's tank training center at Gettysburg. Also, from France came the 305th Brigade with its two heavy battalions, one of which, the 301st, had participated in late September and October, 1918, in the Somme Offensive with British Mark V tanks.

To the disappointment of Patton and Eisenhower, the National Defense Act of 1920 abolished the Tank Corps as a separate arm. Its units were incorporated into the Infantry. Those which had seen combat in 1918 were organized into the 1st Tank Group in 1921. In 1929, the Group became the 1st Tank Regiment which, in turn, was redesignated the 66th Infantry (Light Tanks) in 1932.

The Five of Hearts, with its prominent battle scars, occupied a place of honor at Fort Meade in front of the headquarters of all these units, serving as a symbol of the distinguished combat record of the WWI Tank Corps. Two members of the Corps had received the Medal of Honor, and 42 the Distinguished Service Cross.

In 1938, to mark the 20th anniversary of its first combat action, two soldiers of the 66th Infantry (Light Tanks) painted the Five of Hearts silver and then had their picture taken in front of it. The following year, the 66th was host to a reunion of Tank Corps veterans. For this occasion, the Five of Hearts was restored to its camouflage colors of 1918, and Arthur Snyder was invited as a guest of honor. The 1 October issue of the *Baltimore Sun* reported his emotional reunion with the Five of Hearts. Although Snyder had not seen the tank since 4 October 1918, he had no trouble recognizing it by the chipped mushroom ventilator and other familiar features.

As the United States prepared for participation in WW II, the 66th Infantry moved in 1940 to Fort Benning, Georgia, where it became the 66th Armored Regiment in the newly-activated 2nd Armored Division. The Five of Hearts remained at Fort Meade. After the war, the 11th, 6th, and 3rd Armored Cavalry Regiments temporarily adopted the Five of Hearts during their short stays at Meade. Because of these frequent changes in sponsorship, identity of this famous tank became confused. In the early 1950s, its tactical markings long obliterated by many coats of paint, the tank was thought to be the Ace of Hearts, another well-known tank of WW I, and its driver to have been Corporal Roberts, one of the two Medal of Honor recipients of the 1918 Tank Corps. Since the tank had stood for a long time on Roberts Avenue at Meade, this mistake was understandable. In a letter to the Post Commander in 1954, Snyder cleared up this confusion and correctly identified the tank and its driver. In his letter, Snyder also stated that he "fought tanks again in WW II and served under Patton in Sicily."

This almost forgotten tank, sitting on a concrete pad adjacent to the Army Museum at Fort Meade, has no current armored unit sponsor to keep alive its history and significance. It properly belongs to the 1st Battalion, 66th Armored Regiment at Fort Hood, Texas, the lineage of which goes directly back to C Company, 344th Tank Battalion, with which it fought in 1918.

Major General William R. Kraft, Jr., was commissioned at West Point in 1942 and served with the 15th Cavalry Regiment, Mechanized, in WW II. He commanded the 66th Tank Battalion in 1952-53, the 1st Brigade, 3d Armored Division in 1963-64, and was commanding general of 3d Armored Division from 1971 to 1973. He retired in 1977, and in 1987 was named Honorary Colonel of the 66th Tank Regiment.

The Combat Service Support Situational Training Exercise

by Major Glenn W. Davis

It seems the infantry can always go another mile, or so many of its commanders seem to believe. However, a tank without fuel or ammunition is a useless hulk of metal, and the lack of spare parts for a machine gun can turn a death-dealing combat weapon into a mere unwieldy encumbrance. The supplies required to keep men and machines going neither grow on trees nor appear magically. Out of the struggle to sustain victory or deny defeat comes the combat service support "order of business:" "*Be there with what I need, when I need it!*"

Commanders usually give bold orders, such as these, to combat service support element leaders. But to the specialty platoon leaders and maintenance supervisors, these questions surface: How do I make that work? My men know their job, but all too often the unforeseen takes these elements and seems to swallow them up for hours. How do I train my crew to react, survive, and possibly operate alone at times?

Combat service support elements regularly deploy and train with their organic task force, but rarely train in the techniques of action and reaction. Often, the need for independent thought and action can make the difference between a company/team receiving its scheduled LOGPAC, or losing momentum, or a soldier surviving or dying from a critical wound as precious moments tick away. If CSS elements cannot guarantee their proficiency in sustaining combat forces, then the success of any operation is questionable.

The key to insuring that CSS elements can complete their mission despite adversity is to train individual crews to achieve proficiency in independent, reaction skills. A situational training exercise, tailored to the potential hazards that a recovery vehicle (or any other support element) may encounter, can do this. One can develop many situations or exercises, but they should train soldiers in the context of a CSS crew's battlefield mission. We tested the following tasks (Figure 1) during our battalion's last two CSS STXs.

GENERAL TASKS

- Defend against air attack.
- Process prisoners and/or captured documents.
- Evaluate a casualty.
- Apply dressing to wounded soldier.
- React to indirect fire.
- React to direct fire.
- Locate friendly units.
- MOPP gear exchange.
- Cross contaminated area.
- Identify and bypass minefields or obstacles.

SPECIFIC TASKS

- MOS-specific under timed or adverse conditions.

Fig. 1

The battalion-level STX has three purposes. First, it provides challenging, standardized training to CSS crews. Second, it evaluates crews on their reactions to selected day and night situations. Third, it provides specialty platoon leaders and supervisors an opportunity to observe and gain feedback on a crew's abilities. A course road (Figure 2) replicates the distance a crew may have to travel to accomplish its mission (i.e., battlefield recovery of a forward element under fire, a 25-km. round trip). We give crews mission-type orders and supporting graphics, and they move along a predetermined course. They encounter several stations or situations (See Fig. 1) during movement, each providing an appropriate stimulus for reaction. Crew evaluators (CEs) follow each crew along the course, assessing its response and the effect on completing the crew's overall assigned task. The CEs, usually line company XOs and operations officers, tape radio transmissions (if appropriate) and comment during debriefing and in their after-action review. You can develop many other scenarios with different tasks. Standards for evaluations are from ARTEP 71-2, FC 17-16-2 (*Company Maintenance Team ARTEP Mission Training Plan*), and FC 71-7 (*LOG STX*). We adopted standards listed in FC 17-16-2 to other evaluated CSS elements (Figure 3).

It is important that situation test sites look like the real situation, not like a CTT or old MIL STAKES site where participants received an initial briefing on the task, condition, and standard. Crews negotiate the course under a initial predetermined scenario (mission briefing)

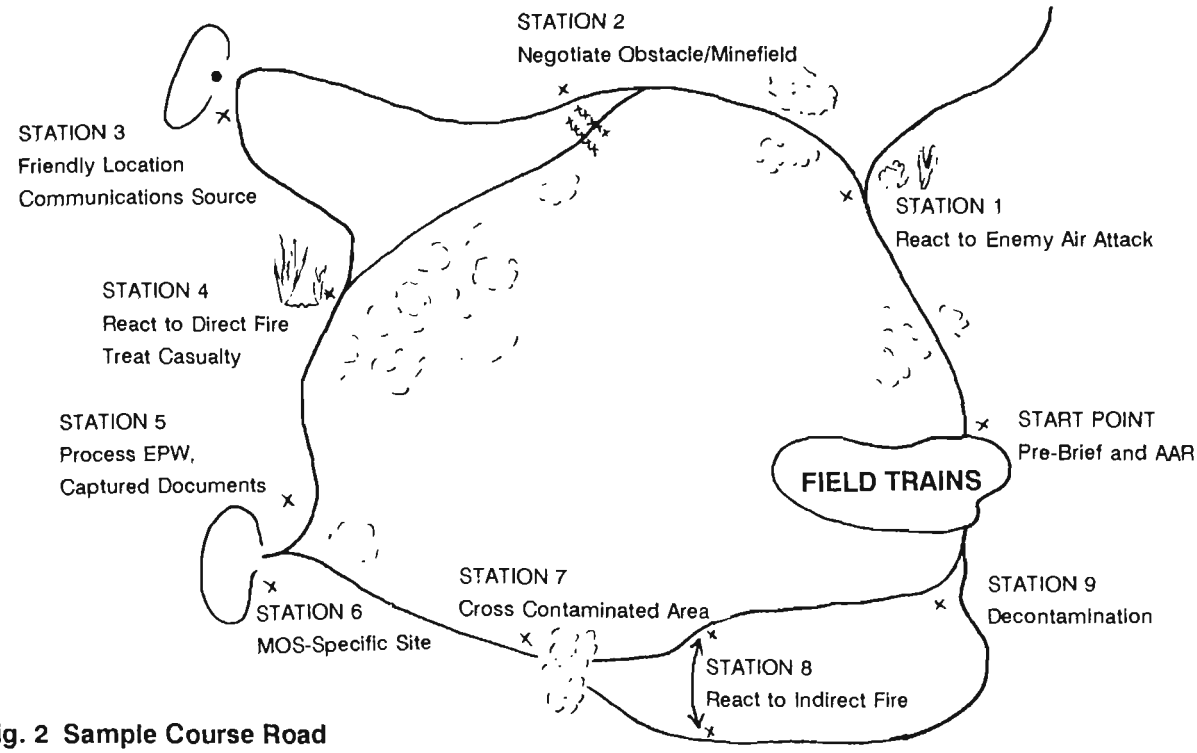


Fig. 2 Sample Course Road
CSS Situational Training Exercise

such as "*Move forward to (grid location), vicinity BP 1 to (task) evacuate a casualty. HIND helicopters have been operating in the task force sector. Forward elements report small enemy patrols penetrating the FLOT. The enemy is employing chemical weapons and is expected to continue their use. SOPs are in effect. Here are your graphics and callsign information. You must reach your destination before EENT.*"

With that, the crews (or combination of support vehicles) move out along the designated MSR/ASR. We use low-cost training support aids, such as HIND silhouettes mounted on a SAAB device, with hostile fire devices, actual and simulated enemy troops (targets), decontamination markers, obstacle/barrier material, as well as pyrotechnics and blanks for simulating artillery, signals, and direct-fire weapons.

The end result of this process is an assessment of a CSS crew's training proficiency in battlefield survival and mission accomplishment. The crew and its platoon leader/supervisor can use results to schedule future training activities, strengthen marginal areas, and correct weaknesses before task force operations resume, and CSS elements disperse across the sector. With proper training, CSS crews can meet the constant challenge to provide daily support, regardless of adversity. They alone cannot win battles, but they can prevent defeat.

COURSE PARTICIPANTS

- Commo Section - Trans Section (Support Plt)
- Company Supply - Fuel Section (Support Plt)
- Company Maintenance Sections
- Battalion Recovery Section
- Medical Platoon
- Mess Teams

Fig. 3

Major Glenn W. Davis, an Infantry officer, is S2, 4th Battalion, 64th Armor at Ft. Stewart, GA, where he also served as a headquarters company commander. He has also served with the 25th Infantry Division in Hawaii and the 2d Infantry Division in Korea. He graduated in 1974 from Northeast Missouri State University.

Cross-Attached In The Defense

by 1st Lieutenant Thomas A. Kelley

"Does he understand tanks?" my platoon sergeant asked, referring to the infantry company commander. I had just come with a warning order that our tank platoon would cross-attach with a mechanized infantry company at 0800 the next day for a deliberate defense in the Great Sandy Wash.

"He seems to, from what I've seen back at Fort Knox," I said. "But if not, we do."

After a warning order to my tank commanders, a review of the RED-CON, wake-up, and stand-to instructions, I went back to my tank and reviewed my defensive planning and preparation check list, preset the mechanized infantry frequencies, and did a map recon. I decided to leave at 0630 and use the "slo-go" right flank terrain to find mounted approaches into the tentative battle position.

In the morning, before we left, my platoon sergeant and I submitted a LOGPAC wish list to the first sergeant who was making an aid station run to pick up our reconstituted losses from the previous day's battle. We had hoped to get our LOGPAC and missing personnel back early in the preparation phase.

The right flank was slow, but was accessible by RPG teams, BRDMs, BMPs and tanks, if necessary. We linked up with the infantry commander, and after discussing the relative merits of fighting by section on the flanks or as a platoon in the center, we opted for the center. We had a tank ditch 1,200 meters to the front, a wire and minefield obstacle 1,700 meters out, TRPs at 2,000 meters, a trigger point at 2,500 meters, and grid locations to good artillery targets, both inside the direct fire engagement area and just beyond our trigger point. My platoon sergeant, tank commanders, and I had just finished selecting good natural primary and alternate fighting positions, with lateral displacement routes, and were ready to drive the engagement area, put out the physical TRP markers, complete range cards, and confirm boresight, when the infantry commander pulled up with the words, "C'mon board my track, there are a few positions farther up on the right I need to show you."

I climbed on board, thinking it's going to take an Act of God or a direct order for me to give up the positions we had just found. I scanned ahead for possible tank fighting positions; then we started to climb a small knoll in front of a larger hill to what looked like a former dug-in ITV position. At the top, I saw the 006 track, the mechanized task force commander was there, and I knew before he said it, he wanted a tank up there. Yes, it certainly did have great fields of view and fire, a route in and out, possible left and right alternates, and stand-off potential, if fought wisely. I could make it work. The 006 wanted it to work.

"Yes, sir, we can put a tank up here, and a tank farther over to the right front too, if you like. We'll just need some real good flank coverage over on the far right," I said.

I received all the proper assurances that Dragon teams would cover the flank, and the engineers would also move to that flank when they finished with the tank ditch and obstacle belt.

How often can you get a clearer understanding of the commander's intent than to stand on a dominant terrain feature and have him explain it to you?

Mission: Block enemy access to the Great Sandy Wash and push the main body south.

Execution: Tank platoon in the defense, combined with a good obstacle and indirect fire plan, ITV box-shaped engagement area where the mechanized infantry engagement area ends, and priority of indirect fires.

I understood the commander's intent, and for a while it eased the feeling of sticking out like a sore thumb on top of that knoll.

I returned and got my platoon sergeant and his wingman to show them their new positions. "Are they going to put some infantry on the right to cover that flank?" asked the sergeant. I repeated the assurances about flank security and allocated a dozer and two scoops to improve the survivability of the two tanks. Only in hindsight did it occur to me that I had accepted and designated fighting positions from which I would not have felt entirely confident fighting.

We sighted in the enagement area, received and issued OPORDS, proofed positions, established NBC monitoring, determined security rotation, completed boresighting and range cards, distributed platoon fire plans, completed platoon movement and direct fire rehearsals, located subsequent positions, and requested indirect fire targets. Yes, technically, those infantry positions were to the left of our primary

orientation. However, they were 400 meters forward of the tanks and right below my alternate orientation. I wouldn't trust 18 inches of overhead cover to protect me from sabot petals or main gun concussion. Neither the infantry digging in, nor their chain of command, seemed overly concerned, because, after all, it was MILES not Sabot, and we wouldn't do it this way in a real war. Tankers echo the phrase, "Death before dismount," in such situations.

We managed to police up our personnel from the previous day's battle, and completed our LOGPAC operations. After driving the main avenue of approach to confirm indirect fire trigger points, I reconned routes into the flank and then MILES-killed my platoon sergeant and his wingman to increase their attention to the flank threat. The Dragon teams never positioned on our flanks. The next morning, my platoon sergeant and his wingman had the opportunity to call a couple of spot reports on the main enemy body before the dismounted OPFOR infantry sliced through the engineers and killed my tanks without warning.

Many other examples exist of loose seams in the cross-attached defense. However, a couple rules of leadership apply that could forestall these seams from pulling the defense apart: courage and initiative.

We display courage not only in the face of the enemy. It takes courage to stick by your guns and say, "Hey, sir, I really think the other positions are better. They can do what you need us to do, and they have a more natural defensibility." It takes courage to disagree with your commander and it takes initiative to offer an alternate solution. It takes courage to keep complaining about flank and rear security, or LOGPAC, or to get timely action, not just assurances.

It takes initiative to not only advise the infantry to which you are attached that their positions are dangerous from a "fight as you train" view, but also to work out alternatives with the chain of command.

Leaders must go beyond their area of direct responsibility to make the overall team effort work. Hound that FIST for target numbers and the overlay. Insist on a full-blown rehearsal. Train our soldiers and ourselves as we'd expect to fight.

First Lieutenant Thomas A. Kelley is assigned to D Troop, 10th Cavalry, at Fort Knox, KY.

The Change of Command Transition

by Captain Mark W. Maiers

OK, so you've received the guidon and you've muddled through some comments to the company. The first sergeant has just taken charge of the formation. It wasn't too bad; nobody went spastic; and you're on your way into the first minutes of your first day in command. You'll be "the old man" for the next eighteen months, a mentor to subordinates, a coach, a leader. Now what?

Just about every soldier in that formation has the same question. What kind of a commander will you be? Are you going to be hardcore...or laid back? They're looking for your "leadership style," whatever it may be. "What's this character going to be like?"

There are some assumptions that you have to make about that transition period as the company endures its change in leadership. Now, why do I say, "endure"? I say that because that transition period can really be a pain in the butt, as everybody is running around trying to guess what the boss wants or expects. First of all, the troops have probably watched you pretty closely during the change of command inventory, but basically you're an unknown quantity.

Probably some of the information flying around in the company's informal circles is inaccurate and mostly conjecture or guessing. Army Regulation 710-2 says you're supposed to have thirty days for the "change of command," but that doesn't always happen. Usually there is little time available for sorting out the problems and projects your predecessor left behind. Usually you're going to have some leadership style differences in comparison to the old commander. So what should you do about it?

What you have to do is start building a team. The challenge is orienting your first string – the platoon sergeants, platoon leaders, the first sergeant, the XO, and you – on some common goals. With the pace of today's Army, you can't afford any benchwarmers.

One of the first things you need to do to get the team started in the right direction is to hold a transition meeting. You've got to realize the disadvantage you're at when you first take over a company. You don't know the current team's priorities or problems. Each

platoon or section is sure to have unperceived strengths and weaknesses. Just like you and your predecessor, each of the team members will be somewhat different in personality and leadership. Finally, unless you ask, you might not realize the team's expectations of you.

Ideally, you should hold this transition meeting within a week of assuming command. Your assessment should have started as soon as you arrived in the unit, or learned you were taking over the company. Starting with the outgoing commander, and down the chain of command, these are some questions you should ask:

"What is working well in the company? What is not working well and everyone knows it? What looks good, but actually is not going well?

Along with the announcement of the date, time, and location of the transition meeting, you should provide some particular questions to the chain of command. You should ask early enough to allow them time to prepare their thoughts and comments. Make sure they understand you expect candid, thoughtful, answers, and that no one will "get shot" for expressing an opinion.

Some questions you may want to ask are: What are my platoon/section strengths? How can I improve my platoon/section? What programs or policies are ongoing in the organization that I should continue or leave alone? What programs or policies should I stop or change? What are the three most significant issues facing the organization right now? What's broken and needs immediate fixing? What would they like to know about the new boss/commander?

Subordinates will have a lot of questions about you. They will want to know your position on the unit's duty environment, your leadership philosophy, how you operate under pressure, and what type of conduct you expect both on and off duty. The following items are keys to guide you through these issues. You can write them in a letter to your leaders, or simply cover them as part of the meeting.

"You should ask early enough to allow them time to prepare their thoughts and comments. Make sure they understand you expect candid, thoughtful, answers, and that no one will "get shot" for expressing an opinion."

Duty Environment

Duty Hours: Do you plan to change them? Do you expect subordinates to work the same hours that you do? Should they be in before you arrive, and stay after you leave? Should they wait for you when at a late meeting? What is your position on moonlighting?

Time Off: Do you grant compensatory time off? Do you grant/recommend passes? Under what circumstances? Is time off during the day allowed for personal business?

Access to You: How do your men get to see you? Who controls your calendar? How often do you want to see or talk to your "team"? When is something important enough to call you at home?

Philosophy on Leave: How far in advance must leave be programmed and submitted? Sign-in, sign-out procedures? Philosophy on negative or excessive leave balances?

Relationship to Soldiers: How formal do you want relationships to be (military courtesy)? Do you want your subordinates to tell you if there is a problem? Should they make recommendations before you ask them? What is your philosophy on discipline? Do you require counseling statements before a request for disciplinary action? How will you decide nonjudicial punishment, and how will you conduct those sessions?

Leadership Philosophy: OERS, EERS: What is your philosophy and understanding of the system? (Include your role in monitoring submissions by subordinates.) How will you resolve discrepancies/variances? Timeliness?

Competition within the company: Do you promote or discourage it? What is your philosophy on physical training? What about the company sports program?

Decision Making: Do you want your subordinates to let you know when they think you are making a mistake? How can they know when you want adverse feedback and when you might consider it disloyal?

Values: What is your understanding of loyalty to unit (company vs battalion). What about loyalty to the institution...the Army as a profession? What do you expect of your leaders if they observe or suspect unethical behavior or actions?

Information: What is your philosophy on your desire to be kept informed versus over-informed? Where do you stand regarding communications of problems versus communication of

problems with recommendations? Do you prefer information orally or in writing?

Supervision: How will subordinates know if you are dissatisfied? How will they know when you think something is important? Will you be clear when failure is acceptable? Do you inspect? Why? Announced or unannounced? How often?

Off-duty Conduct: What is your philosophy on membership in the officers' and NCO clubs? How do you feel about platoon and company functions at which alcohol may be present? What about parties and alcohol in the barracks? Conduct and behavior off-duty and in civilian establishments? Fraternization?

Education and Professional Development Training: What are your views regarding on-duty education? What about special schools: NBC, Small Arms, etc.? Can anyone attend one? What about NCODP and OPD?

Rewards, Awards and Discipline: What are your views on who initiates these actions? When do you want to be involved? What are your standards for different awards and punishment?

Officer Role: What is your philosophy?

NCO Role: What is your philosophy? What is your understanding of "NCO business"?

Autonomy: What decisions or actions must you approve? How closely will you supervise your "team"?

Goals: What are your goals for the company? What do you expect of your "team" to help accomplish your goals?

Personal Appraisal

Temper: Do you have one? How should your "team" handle it if you lose your temper?

Pressure: How will you handle pressure? What do you want from your "team" when you are under pressure?

Sarcasm: Will you communicate with sarcasm? Are your soldiers likely to misunderstand? How will the "team" know when you are being serious?

Provocations: What are your pet peeves? What really makes you angry? How do you act when you get mad?

Idiosyncrasies: Do you have any and, if so, how should your "team" deal with them?

Social Conduct: How should subordinates address your spouse? How should your subordinates' spouses address her? What is your belief concerning the role of your wife and other wives in supporting the "informal support chain?"

You: How should your subordinates and their spouses address you?

Command Performances: Do you visualize there being some? How will your subordinates know that you feel a company event is a social event (family-oriented), and what type of participation do you require?

Well, you plowed through the meeting and you even remembered some of the rules of conducting a meeting, such as ensuring that you start on time and stick to an agenda. Be careful that your "transition meeting" doesn't turn into a "bitch session", which accomplishes little more than venting personal grievances. As you and the team progress, remember that a good follow-up is an important part of the transition process. Here's a list of questions you might ask yourself to check on the success of your change of command transition:

Did you know the company's priorities when you took over? Does the company know your priorities now? What are the strengths and weaknesses of each platoon or section? What improvements, if any, have been made? What are the personalities of the company's leadership? What impact does this have on the company? What major problems did the chain of command face? Do these still exist?

These questions are not all inclusive, nor do they fit every situation. For the majority of you lucky enough to command soldiers, these thoughts can aid you during your transition into the job of building a cohesive and effective fighting team.

Later on, when it's raining, or you are all complaining about the cold and lack of sleep, or too many taskings and not enough training time, you will know that you are on the right track when you ask for assistance or maybe even volunteers, and the whole "team" answers up with a "Yes, sir!" because they know they are all working for each other and the unit, and that you are working for all of them. Good luck, Company Commander!

Captain Mark W. Maiers is currently assigned to the 11th Armored Cavalry Regiment in FRG. His prior assignments include instructor in the Leadership Branch of the Command and Staff Department, USAARMS, and commander of a combat support company and a tank company in the 3d Brigade, 8th Infantry Division.

Some Thoughts Concerning Reducing Tank Crew Size

by Larry Vowels

Introduction

The issue of reducing tank crew size comes up with increasing frequency. A number of factors are responsible for this increased interest. Technology maturation, especially in the area of autoloaders, is one of the real driving factors. Technological advances have made a simple, dependable, and rapid autoloader a reality. The idea of a robot doing the job of a man on an assembly line is causing the Army to investigate tasks that robotics technology can do instead. Force structure constraints make the replacement of people with machines a viable option. U.S. demographics predict decreasing manpower availability for the military. The U.S. Army is investigating the use of technology to replace that increasingly scarce resource – manpower.

The decision to reduce the number of crewmen in a tank should be based on rationale more substantial than the availability of mechanical and electronic devices that replace the physical functions of a soldier. There is a significant difference between "robot welders" in a repetitive task automotive assembly line and the performance required of a soldier in a chaotic battlefield environment. The real problem is in accurately defining and assessing the roles of tank crewmen without unrealistically portraying them as simple operators of machines. It is the fighting man in the vehicle, rather than the machine, who will ultimately determine the outcome of the battle. Human beings are truly the scarcest resource on the battlefield, but at the same time, among the most capable in terms of defeating the enemy.

Background

Currently, most free-world main battle tanks have four-man crews. This statement should not imply that four is an optimum number, or that more or less might not be better. It implies only that the tanks were designed to be fought by four crewmen. The present configuration of the four-man crew includes the positions of commander, gunner, loader, and driver. All crew members have multiple responsibilities in the maintenance of the tank as well as target acquisition and security.

The most frequently mentioned crew reduction option is to replace the human loader with an automatic loader and reassign the loader's other duties to the remaining crew members. The primary support for this configuration is the advanced development of autoloader technology and the number of fielded main battle tanks using this concept. The chances are remote for developing and fielding efficient and reliable alternatives to this concept in the 1990s. Thus, the technological risk is much lower for replacing the loader than any other crew position.

Probably, few tankers remember that the U.S. Armor Force suffered through the crew reduction process before. Prior to the fielding of the M48 tank (May 1953), nearly all U.S. tanks had five-man crews. Tank design improvements and changes in the philosophy of tank employment forced the decision to reduce the tank crew size.

Currently, the United States and other Western nations are involved in developing new main battle tanks. The United States with its Armored Family of Vehicles, West Germany with its LEOPARD III, France with the LeClerc, Israel with the Merkava, and Britain with its next main battle tank, are confronting the difficult issue of what configuration the future tank will take. Technology is pushing us collectively to consider crew reduction when looking for the best configuration.

The U.S., British, French, and West German armor forces are all investigating reductions in tank crew size. The British and West German investigations have progressed further than the French effort at this time. The reasons these nations give for these investigations are the same as those expressed by the United States All of the investigations thus far have compared four-man to three-man crews. Crews of fewer than three men have received little examination.

Preliminary results of the three-man versus four-man crew investigations all lead to these same basic conclusions:

- The three-man crew tank with additional equipment and proper crew repositioning within the vehicle can maintain system perfor-

mance during 72 hours of combat (very little resupply or crew maintenance takes place during this period) without being significantly degraded over the performance level of the four-man crew tank.

- Additional equipment, over and above the autoloader, will be required in order for the three-man crew to maintain the four-man level of system performance.

° Position/location land navigation system
° Maintenance diagnostic or prognostic module
° Camouflage – easily stowed and deployed
° Technological assistance with radio watch and guard (including NBC)

- Manpower support in excess of the three crewmen, resupply, and maintenance personnel will be required during logistical resupply and maintenance operations.

- Three-man crew tanks, in general, will be more vulnerable to battle stress, less able to cover for individual casualties, and have an unacceptable workload in the event of tank casualties and repairs compared to its four-man crew counterparts. This is especially true during continuous operations.

Decision Factors

The reduction in crew size will influence a number of factors, such as survivability, force structure, combat effectiveness, personnel and logistics requirements, crew performance, costs, and vehicle reconfiguration.

- Reduced crew size will allow the vehicle's armor protected space, the armor envelope, to be reduced and still provide increased survivability for the vehicle. Reducing the armor envelope could increase survivability by reducing the vehicle height or profile, hence reducing exposed area. Survivability could also be enhanced by allowing additional armor protection to be added within the same volume. Historically, the reduction in crew members has not resulted in smaller, more compact vehicles. The U.S. movement from a five-man crew in the M47 to a four-man crew in the M48 resulted in increased ammunition and fuel storage capacity. The Soviet tank evolution from a four-man crew in the T-62 to a three-man crew in the T-64 did not result in a smaller tank, but a tank with more armor protection. Historically, the space savings realized by reducing crew positions has been offset by increasing the protected stowage within the armor envelope.

Replacement of any crew member will require that an electromechanical device take over his functions. It is not clear that any such device would occupy less volume than the human being. For instance, an autoloader may not generate any space savings compared to the space occupied by the human loader. However, the machine can be designed to fit the armor-protected space more easily than the space needed for a crewman can.

- Another factor favoring the three-man crew is the savings in manpower that allows flexibility in force structure decisions. The implementation of three-man crews would free many force structure positions. While an autoloader would perform the task of loading the main gun, it cannot perform any other vital loader functions, such as maintenance and security. The armor unit may have to retain some of the replaced crew to perform the tasks of crew maintenance, recovery, security, combat vehicle resupply, and decontamination that the fourth crew member currently performs on the tank. This topic will require further study before an accurate determination can be made concerning the number and disposition of force structure positions.

But, the move from four- to three-man crews will have an adverse effect upon the armor enlisted career management field. The reduction would erode the present base of the career progression pyramid. Presently, three enlisted crew members support the NCO who commands the tank and the senior NCOs in the unit. They are also the unit's future NCOs. If the crew is reduced to three men, it becomes more difficult to furnish the required number of trained NCOs required in armor units. The normal causes of attrition in the armor personnel field will also be magnified by reducing the trained, experienced, manpower pool.

- Most analyses which have investigated the tank crew reduction issue agree that crew reduction must not come at the expense of the combat effectiveness of either the vehicle or its parent unit. Most studies verify that the combat effectiveness of the vehicle isn't significantly degraded by a reduction to three-man crew, if combat effectiveness is defined as fighting the vehicle for a short time (e.g., 72 hours or less). This seemingly favorable result originates in studies of crew task redistribution of the "in battle" or warfighting tasks of the loader. By and large, most studies have inadequately addressed the redistribution of the "out of battle" tasks of rearming, maintenance, recovery, security, and decontamination. These tasks, vitally important

to the outcome of the battle, are the very ones that three-man crews will be least likely to complete unless the tank was originally designed to be operated by a three-man crew.

- Studies on continuous operations, operations in excess of 72 hours, indicate that crew performance may suffer, if the unit operates with reduced tank crews. This unfavorable factor is magnified if a reduced crew suffers a casualty (either battle or non-battle). The tank will become ineffective until the crewman is replaced. The smaller crew has trouble maintaining combat effectiveness due to increased crew stress (individually as well as crew). Previous wars have been fought only in daytime. Now that we doctrinally plan to fight - and have the equipment to fight - at night, crew fatigue and stress may become extremely important. Degradation in the supporting tasks of rearming, refueling, vehicle maintenance, vehicle security, communication monitoring, and dismounted reconnaissance and surveillance duties will be commonplace with the three-man crew. Command vehicles are especially vulnerable, due to the requirement for the commander to be away from his vehicle in the execution of leader duties.

A possible solution is to aggregate the vehicles for rest cycles. This would allow the required "out of battle" duties to be spread over a large pool of men. If the operations are truly continuous, this option may not be available.

- A crew size reduction could have a favorable impact on personnel replacement and logistics resupply. If combat effectiveness levels are maintained, the number of required replacement crewmen should be lowered if the individual tank crew size is reduced. This personnel reduction would reduce unit requirements for ration and water resupply and decrease the amount of organic medical support required. If the crew size reduction results in less Class III and V stocks being stowed aboard the vehicle, the amount of supplies required in these two classes by the unit will be affected accordingly.

- The cost savings in reducing tank crew size are often pointed out as a favorable factor. Personnel costs are the largest segment of operating and support costs for the tank, and a crew reduction would reduce the personnel, recruitment, and travel costs for the tank crew.

A crew size reduction will, however, cause the tank's purchase price to increase due to the additional amount and sophistication of equipment that would have to be installed. Therefore, the decreased personnel costs would be partially offset by increased research, development, acquisition, operating, and sustaining costs for the additional equipment.

- The last factor is the technical risk involved in reconfiguring the vehicle for the three-man crew. The main area of concern should be the fightability of the three-man vehicle. The technical risk of installing an autoloader is very small. Where this device is placed in the vehicle, and which of the remaining crew positions must be altered to maintain the fightability of the vehicle (e.g., commander and gunner side-by-side in the turret, in hull, etc.) are questions which must be satisfactorily answered in order to reduce the risk associated with a crew size reduction. A tank designed for a three-man crew to operate, maintain, and resupply (e.g., the Swedish S-tank), offers considerably less risk than a tank originally designed for a four-man crew reconfigured for a three-man crew.

Conclusions

The issue of reducing the tank crew size must be viewed from all aspects, but especially from the combat effectiveness, personnel savings, and cost savings aspects. We must give prime consideration to the effect of a crew size reduction on combat effectiveness. A reduction in combat effectiveness of the tank, or its parent unit, is unacceptable.

Manpower savings, while substantial, are unlikely to provide one crewman from each vehicle for placement outside the armor unit. Additional manpower support will be required in the unit for preparation of battle positions, logistical resupply, maintenance, security, and decontamination. Not all cost savings attributed to reduction in crew size will be realized due to the increased investment costs for the additional sophisticated equipment.

The decision to reduce the number of crewmen in a tank is not one to be taken lightly, or in a cavalier manner. The decision of whether or not a tank's crew is reduced should not be tied directly to the availability of autoloader technology.

To modify the tank for operation by fewer crewmen than it was originally designed leads to problems in maintenance, security, and resupply. The better way is to design the tank around a specific crew size.

(Mr. Larry Vowels is an operational research analyst at the Concepts and Studies Division, Directorate of Combat Developments, Fort Knox, KY. —Ed.)

Two USAREUR Teams Win and Place In Boeselager Recon Test

1st Squadron, 1st Cavalry, 1st Armored Division, racked up 5,415 points in this year's Bundeswehr-sponsored Boeselager Cup competition and beat out last year's outright winner, the 1st Squadron, 11th Armored Cavalry Regiment, which scored 5,270 points, good for second place in the eight-event competition. The international contest tests a unit's reconnaissance and scouting skills under field conditions.

3-69th Armor's Co. B Wins Draper Award

CPT Bruce Ahlbran, commander of Co. B, 3d Bn., 69th Armor received the Army's most prestigious award for small unit leadership, the Draper Award. The award recognizes the unit's general excellence in unit training and dates to 1924, when the first cavalry tests for small unit leadership were held at Ft. Riley, KS.

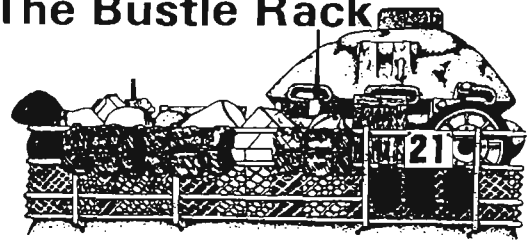
31st Armored Brigade Gets M60A3TTSs

As part of the Active Army/Reserve Component Modernization Program, the 31st Armored Brigade, Alabama Army National Guard, recently received 16 M60A3TTS. Anniston Army Depot overhauled the tanks as part of a 250-tank program to upgrade National Guard armor units.

AOPD Guide Now Available

The 1988 Armor Officer Professional Development Guide is now on its way to all armor and cavalry units. Among other important items, the guide addresses the re-emergence of the branch detail program and the new emphasis on joint-duty assignments. Copies may be obtained from: Commander, USAARMC and Fort Knox, ATTN: ATZK-DPT-NRT-AWTS, Fort Knox, KY, 40121-5000.

The Bustle Rack



Scout Crewman Competency Test

Copies of the Scout Crewman Competency Test - Level I (SCCT-I) have recently gone to each scout platoon and cavalry troop. Three manuals, developed to evaluate M113, M901, M3, and HMMWV commanders, are being fielded simultaneously.

With few exceptions, these tests are hands-on, technically oriented, and reflect the minimum skills necessary to be a cavalry vehicle commander.

The SCCT-I consists of two parts: a common task section appropriate for all 19D scouts, and a vehicle-specific section covering the type of vehicle used in the unit. It is written for field use and is designed to take no more than one day for a battalion or squadron to administer.

Systems proficiency is an intrinsic part of the Excellence-in-Armor (EIA) Program. The EIA program provides a means of ensuring that our Armor warfighting systems will be skillfully and competently employed up through the cavalry vehicle commander and into the supervisory grades.

These tests provide the unit commander a standardized means for assessing the proficiency of his cavalry soldiers.

For more information, contact: Commander, US Army Armor Center and Fort Knox, ATTN: ATZK-AR-P, Fort Knox, KY 40121-5187, AV: 464-5155/3188.

Master Gunner Survey

CG, TRADOC directed the Armor School to integrate the tasks taught in our master gunner courses into the NCOES. A survey is currently in the field to identify and validate critical tasks for the master gunner.

This initiative represents the first comprehensive survey for master gunners since 1982. Complete task lists were developed from the CMF 19 master task list and from discussions with senior master gunners, both in the Armor School and in the field. These tasks were sent to the Soldier Support Center to be developed into a field survey.

Every commander and supervisor of master gunners should ensure that they give adequate time and attention to this effort. The survey will result in the identification and refinement of critical master gunner tasks by the soldiers in the field, and who must perform those tasks.

The survey will also support decisions on whether the task training should be in the basic or advanced NCO courses or as part of unit training. (ARNEWS).

Functional Areas For Year Group 1982 Officers

The Total Army Personnal Agency (TAPA) has sent letters on the functional area designation process to officers commissioned in 1982. The letters provide information to help year group 82 officers decide on their functional area preferences. Local personnel service centers provided marksense forms and additional instructions in June.

"Designation of functional areas plays a key role in establishing career patterns," said Major Charles R. Walker, TAPA's Functional Area Management Division. Every combat arms officer must have a functional area, and these officers need to indicate four preferences, in order, on the marksense forms.

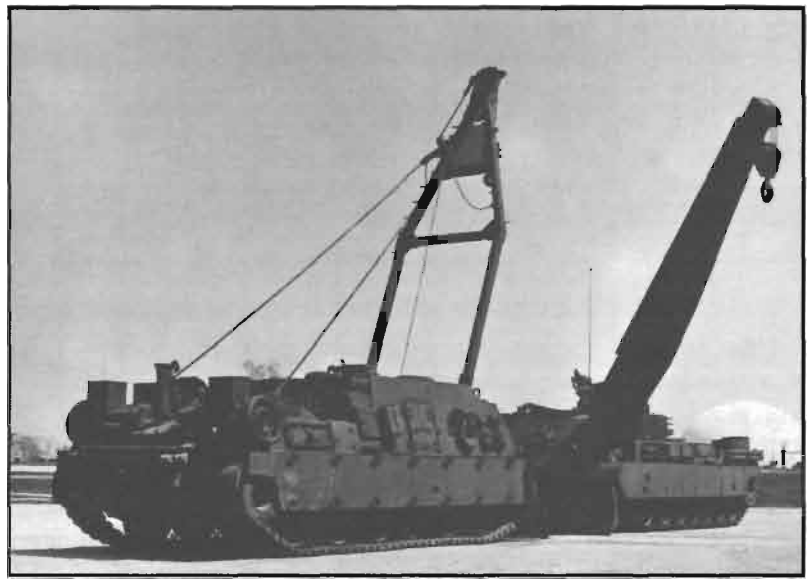
The Army's functional areas are: Psychological Operations/Civil Affairs; Personnel Management; Comptroller; Public Affairs; Foreign Area Officer; Operations Research/System Analysis; Force Development; Research and Development; Nuclear Weapons; Systems Automation Officer; Operations, Plans and Training; and Procurement.

The marksense forms must be returned to the appropriate personnel service center or company by the date set by that PSC. Any year group 1982 officer who has not received the letter with instructions and marksense forms by 27 June should contact his personnel service center.

Armor NCOs Sought As Army Recruiters

An update of current Total Army Personnel Agency (TAPA) policy makes 19E, 19K, as well as 19D soldiers eligible to perform duties as recruiters (MOS OOR). If you are an NCO who wants a challenging tour as an Army representative in a civilian environment, you must meet the following prerequisites:

- Must be a E5, E6, or E7.
- Must have a minimum GT score of 110 (Can be waived to 100, if ST score is 100).
- Must be a high school diploma graduate or, if GED, you must have one year of college credit (not CLEP or DANTES).
- Must have no more than two dependents if you are a E5, three if an E5(P), and 4 for E6 and E7s (waiverable). Sole parents are not acceptable.
- Must be between 21 and 35 years of age (waiverable).
- Must have a minimum physical profile of 232221 (waiverable).
- Must meet height and weight standards in accordance with AR 600-9.
- Must be a United States citizen by birth or naturalization.
- If reclassified, must have completed one year since reclassification in accordance with AR 600-200.
- Must have no lost time on current enlistment and no more than five days lost time on all previous enlistments.
- Must not be currently assigned to MEPCOM.
- Must have 26 months or more of service remaining on current enlistment upon completion of the recruiter training course, or you must extend or reenlist in accordance with Chapter 3, AR 601-280.
- Must hold a military and state driver's license, or hold a valid state driver's license and be qualified to obtain a military driver's license.
- Must have completed 24 months TOS prior to PCS for recruiter duty.
- Must not be currently enrolled in the Army's Drug and Alcohol Abuse Program, nor been enrolled in the past 12 months.
- Must have a favorable civilian and military disciplinary record, including a good driving record.
- Must have no marital, emotional, or medical problems (including



Aberdeen Proving Ground is testing two candidates for the Army's new recovery vehicle. At left is the modified M88A1E1, built by BMY, manufacturer of the current M88 series. At right is the General Dynamics entry, based on the M1 tank chassis.

40th Armor Activated in Berlin

General William A. Knowlton, Honorary Colonel of the 40th Armor Regiment, stands atop M60A3 in Berlin.

The 40th Armor Regiment (By Force and Valor) was formally activated on 25 March 1988 in Berlin, and General William A. Knowlton, USA, Ret., shown standing on an M60A3 tank, at right, was named Honorary Colonel.

The 40th Armor Regiment was constituted on 13 January 1941 at Camp Beauregard, LA, and fought with distinction in WW II in Europe. The 40th Tank Battalion saw heavy action at St. Vith during the Battle of the Bulge, and the 709th Tank Battalion won the Presidential Unit Citation for its actions at Hurtgen Forest and on the Brandenburg Bergstein Ridge.

The 40th returned to the States in July 1945 and was inactivated on 22 February 1946 at Camp Kilmer, NJ. It was reactivated on 25 June 1948 and assigned to the 40th Infantry Division, at Fort Ord, CA.

Subsequently, it served at Fort Benning, GA, Fort Knox, KY, and in Alaska. Company F, 40th Armor Regiment, was assigned to the U.S. Army in Berlin in May 1958 and is the only American armor unit east of the Elbe River.

It is the Army's largest independent tank company in service today.

Attending the ceremonies were, among others, General Knowlton; Brigadier General C.G. Marsh, commander of the Berlin Brigade; and Major Emerson J. Wolfe, USA, Ret., a distinguished member of the regiment.

BUSTLE RACK (Continued from page 49)

immediate family) that could hamper your performance on recruiting duty.

- Must have excellent military bearing and no obvious distracting physical abnormalities or mannerisms.

If you meet these prerequisites and wish to volunteer for recruiting duty, submit a DA Form 4187 (Personnel Action) together with current DA Form 2 and 2-1. A lieutenant colonel or higher in the chain of command must endorse the request to verify that you are a good reflection on the NCO Corps, that you are able to represent the Army in a civilian environment, and that you meet the criteria of AR 601-1. Forward the request through command channels to: Commander, USTAPA (Prov), ATTN: DAPC-EPM-A, 2461 Eisenhower Ave, Alexandria, VA 22331.

Suggestions for Soldiers

Recently, it has come to the attention of Infantry/Armor Branch, U.S. Total Army Personnel Agency (TAPA), that some soldiers are not aware that assignments are not made in the Pentagon, but at TAPA, Hoffman Building No. 1, 2461 Eisenhower Ave., Alexandria, VA 22331-0452.

Enlisted soldiers coming to TAPA to speak with their respective professional development NCOs should check in with the security guard in Hoffman regarding appropriate parking spaces and report to room 212, Hoffman Building No. 1. Sometimes, problems can be solved on the telephone without the soldier having to use time and money to come to TAPA.

Many calls come in from soldiers collect. TAPA cannot accept collect calls; however, there is a toll-free line for soldiers stationed in CONUS - the number is 1-800-ALL-ARMY (1-800-255-2769, except for calls from Virginia.) When these calls come in, they go to the branch which handles the soldier's MOS. That branch will reply directly to the soldier.

Location of Official Military Personnel Files For Enlisted Soldiers

The Official Military Personnel Files (OMPF) for all active duty enlisted Army personnel are maintained at Fort Benjamin Harrison, IN, not at the Enlisted Personnel Management Directorate (EPMD), United States Total Army Personnel Agency (TAPA), Alexandria, Virginia.

TAPA receives numerous letters and telephone calls daily request-

ing information and microfiches from active Army soldiers. These soldiers should write to Commander, USA Enlisted Records and Evaluation Center, ATTN:PCRE-FRS, Ft. Benjamin Harrison, IN 46249.

Ensure that your name, grade, Social Security Number, and organization of assignment are provided. Additionally, sign your requests.

The Enlisted Career Management Individual Files (CMIF), which the branches of EPMD, TAPA, maintain are used strictly for assignment and professional development purposes.

Career Progression

We are often asked what types of duty positions are key for promotion. The most important ones are leadership positions within your primary military occupational skill, especially if you can work in a position requiring higher than your present rank. For example, one of the best for an E7 is to work as a first sergeant for a period long enough to receive a Non-Commissioned Officer's Evaluation Report and be awarded a Special Qualification Identifier of "M" (first sergeant).

Another type of duty position with tough acceptance requirements is Army recruiter. Those NCOs who serve successfully in the role as an Army recruiter, combined with good performance while in leadership positions, present to the promotion board that they are a multi-talented noncommissioned officer.

What Is a CMIF?

The Career Management Information File (CMIF) is a tool used by the career branches of the U.S. Army Total Army Personnel Agency to make assignments and professional development decisions of SSGs, SFCs, and MSGs.

The file contains a copy of the Official Military Personnel File, efficiency reports, and DA Forms 2A and 2-1. The information in the CMIF is forwarded to TAPA after being processed at the Enlisted Records and Evaluation Center, Ft. Benjamin Harrison, IN, with the exception of the OMPF, which is sent upon request.

DA Forms 2A and 2-1, which are required to be attached to many personnel actions, are used when making decisions about your assignments and schooling. It is important that the information be current and correct. Servicing PSCs are required to send copies whenever the forms are being remade or upon completion of a full audit.

Information kept on file is accumulated from assignments, applications, and requests received, letters written to or prepared within the branch, and general correspondence that has an impact on assignment status.

DA centralized selection boards do not use the CMIF in any way for promotions, school assignments, or QMP.

Recognition Quiz Answers

1. COBRA APC (Belgium). Crew, 3 + 9 infantry; combat weight, 6,500 kg; max. road speed, 80 km/hr; max. water speed, 7 km/hr; max. road range, 600 km; armament, 1 x 12.7-mm machine gun, 2 x 101-mm rocket launchers, 2 x 7.62-mm machine guns in bow.

2. Jagpanzer Kanone (JPZ 4-5) (FRG). Crew, 4; combat weight, 27,500 kg; max. road speed, 70 km/hr; max. road range, 400 km; armament, 1 x 90-mm main gun, 1 x 7.62-mm coaxial machine gun, 1 x 7.62-mm AA machine gun.

3. 2S3 152-mm SP Gun (USSR). Crew, 6; combat weight, 23,000 kg; max. road speed, 55 km/hr; max. road range, 300 km; armament, 1 x 152.4-mm main gun, 1 x 7.62-mm AA machine gun.

4. BMP-1 (USSR). Crew, 3 + 8 infantry; combat weight, 13,500 kg; max. road speed, 80 km/hr; max. road range, 500 km; armament, 1 x 73-mm main gun, 1 x 7.62-mm coaxial machine gun, 1 rail launcher for Sagger ATGW.

5. 2S1 122-mm SP Gun (USSR). Crew, 4; combat weight, 16,000 kg; max. road speed, 70 km/hr; max. road range 500 km; armament, 1 x 122-mm main gun.

6. BRDM (USSR). Crew, 2-3; combat weight, 7,000 kg; max. road speed, 100 km/hr; max. road range, 750 km; armament, 1 x 14.5-mm machine gun, 1 x 7.62-mm coaxial machine gun, 6 Sagger ATGWs. Shown with 5 AT-5 missiles.

New Book Outlines Britain's Sad History Of Tank Development Before and During WWII

British troops recover a damaged Crusader following a battle in Libya.

Rude Mechanicals: An Account of Tank Maturity During The Second World War, by A.J. Smithers. Hippocrene Books, New York, 1987. $39.95. 207 pages.

This is the incredible account of the equally incredible obtuseness and sheer incompetency that mitigated the desperately-needed growth and production of British tanks during WWII. It is the fitting sequel to A New Excalibur by the same author. If you haven't read that one, you should.

"Rude mechanicals must know their place in a horsey army," is the succinct root of the entire sorry history of interwar British tank (non-) development. The cavalry generals fought to the last bit, and when they were unhorsed, carried on with acrimony, bitterness, and blind obstinacy in the face of the brilliantly successful panzers in Poland.

In his introduction, Smithers puts it down in black and white: "The failure to produce any tank fit to fight the German after more than five years of war and with all the manufacturing capacity of the USA, well out of bomber range, is a disgrace." The hows and whys and wherefores of that disgrace are clearly and often brutally brought forth in a style that is not only easily and cleary understood, but which also stands as a prime example of "learning from history."

A.J. Smithers, an author of note, does not hesitate to lay blame on the right doorstep. His works include, among others, The Kaffir Wars, 1719-1887, The Man Who Disobeyed, in addition tot A New Excalibur.

British military history thrives on tales of "muddling through" and "losing every battle save the last," and this book is filled with similar fulminations and downright obstinacy. At the end of WWI, Britain led the world in tank design, production, and tactics. At the start of WWII, she trailed the world in all categories, and never reached parity with the Germans, not even with the full U.S. production behind her.

The few officers and ex-officers who knew tanks and who envisioned new and innovative tactics were either shunted aside as bothersome old fools or, if they were persistent enough to catch the eye and ear of a high governmental personage, found themselves still tightly wrapped in bureaucratic red tape. Such officers as Lieutenant General Sir Gifford le Quesne Martel, Major General J.F.C. Fuller, (an outspoken Fascist), Captain Sir Basil Liddell-Hart, and Major General Sir Percy Hobart, all geniuses in their own right, fought as many paper and pen battles with the entrenched bureaucracy and the "Don't speak to me of tanks when they have taken away my horse" red-capped military hierarchy as their tanks ever fought with bullet and shell.

"...British military history thrives on tales of 'muddling through' and 'losing every battle save the last,' and this book is filled with similar fulminations and downright obstinacy...."

Not even the ancillary, but eminently critical, field of antitank mine warfare was given more than passing note until the massive German minefields in North Africa reaped their grim harvests.

As for the tanks themselves, General Sir John Hackett says in the foreword: "...the Cavalier tank (with little to commend it), the Cromwell, ("even worse than the Crusader"), the Centaur ("inadequate"), until the American Sherman appears... The latter he classifies as "a decent cruiser tank," but one pitifully inadequate until the 17-pounder-armed Firefly made its battlefield debut, and only about fifty of them saw action.

The principal British tank armament, the 2-pounder (40-mm) gun, remained in full production despite the superiority of the available 6-pounder, even then approaching obsolescence. The reason: It is better to have a large number of inferior weapons than but a few better ones! Shades of the American Civil War and the repeating Spencer carbine vs. the muzzle-loading Springfield rifle!

The same principle of quantity over quality ruled on the tank production lines as Valentine tanks that had proven useful in the early desert battles, but became "dismal coffins" in latter affrays, continued to roll out until more than 8,000 had been built. Only the mass-production of the American Sherman, an admittedly inadequate tank, eventually smothered the Panthers and the Tigers.

The searing directness of Smithers' writing is leveled not only at the awesome failure of British bureaucrats and saddle-sore generals to produce a truly battleworthy tank, but stings as well some of the generals who fought tanks – notably Montgomery. "Montgomery, whatever head dress he affected, was not really a tank man," says Smithers. General Martel, who had returned from Russia and had seen Red armor in action, saw his voluminous report shunted aside by an indifferent Monty because, "he really wanted no advice on how to use armoured forces."

The one bright spot in all this sad history is that of the development of special-

ized armored vehicles for the invasion of France. These were the "Funnies," the Crabs, the Crocodiles, the Bobbins, and the swimming DD tanks. Hobart, a tank officer of some repute in WWI, had retired in disgust into near ignominy. When WWII broke out, he enlisted in the Home Guard as a lance corporal and from there was snatched up by a desperate government and quickly rose to the equivalent of American two-star rank. Hobart was the man who saw the "Funnies" through conception, birth, and battlefield maturity.

Rude Mechanicals is excellent, a thorough airing of the inadequacies, the bull-headedness, and the pomposity that all but destroyed Britain's armored force aborning. It is interesting (dry British humor stalks its pages), informative (the facts chill one's spine 60 years later), and provocative (what would The Old Gang (TOG) have made of their 70-ton TOG-2 had they been given the green light?. But, above all, it rehones the fact that British tankers fight to win, regardless of the inadequacy of the weapon system given them by a mulish government.

If the price of the book seems steep, consider it a worthwhile investment in the history of how things should not be done.

ARMOR Staff

Ten Essays on Vietnam And Why We Lost

The American War In Vietnam, edited by Lawrence E. Grinter & Peter M. Dunn. Greenwood Press, Inc., Westport, CT. 165 pages. $37.95.

The lessons, legacies, and implications for future conflicts are the purpose of this collection of work on The American War In Vietnam. This is an assemblage of ten superb papers which outline why America failed in Vietnam. In varying degrees, the writings provide insight into four factors that bore on U.S. conduct in Vietnam: how the war was perceived; how it was fought; whether different strategies would have succeeded; and what the war's legacy is for future U.S. conflict performance. This is not a complete history of the war; rather, it is a compilation of the personal views of nine authors (scholars, soldiers, and airmen) on different aspects of the war. Military readers will find the section on "How the War Was Fought" especially interesting in that the authors suggest that had we pursued a more exhaustive air campaign against the North early in the war, then it could have been won. I found the arguments favoring extensive strategic bombing of North Vietnam especially appealing. A deeper question might be asked concerning the U.S. not using nuclear weapons.

A major shortfall by the authors is the lack of discussion of the significance of air mobility development. It appears that this lesson has also been lost on U.S. Army leadership as the helicopter force and officer expertise continue to decline. The Vietnam War was a war of air assault and air cavalry; unique tactical mobility of the time. In spite of that small oversight, the book accomplished what it set out to do, providing a solid contribution to better understanding of the war. The fact that war was never declared against North Vietnam, and that this nation was never committed to defeating the North Vietnamese, does not detract from the fact that we as a nation failed. If you can overlook the fact that America failed in Korea and only won "half a peace," then Vietnam could be listed as the first major military commitment where the U.S. failed. This book is for serious students of the Vietnam War, for historians looking for a complete picture. It has a superb bibliography, and the authors have outstanding credentials.

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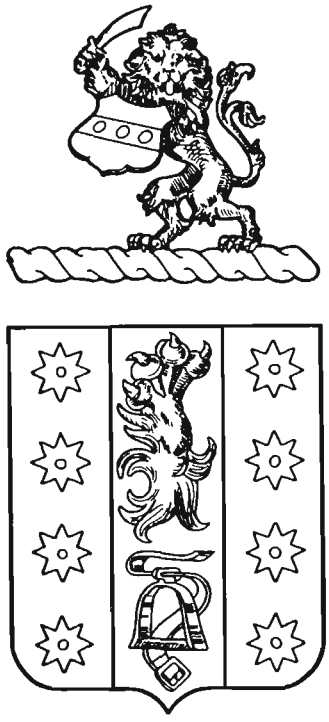
Yorktown, VA.



Motto

No Mission Impossible

Symbolism

Yellow is the color used for Cavalry. The numerous campaigns in which elements of the Regiment have participated are represented by the blue stars pierced to simulate spur rowels. The raised lion's paw implies reaching out (investigation) and readiness to attack and symbolizes the basic reconnaissance mission of the organization. The stirrup in the base refers to the Light Horse of the City of Philadelphia, organized in 1774.

Distinctive Insignia

On a scroll two elevated wings surmounted by two crossed horsemen's spears, in chief a replica of the Liberty Bell and in base a horseshoe, all gold and modelled.

Decorations

None

104th Cavalry

No Mission Impossible

Lineage

Constituted 20 May 1959 in the Pennsylvania Army National Guard as 1st Reconnaissance Squadron, 103d Armor, an element of the 28th Infantry Division. Organized 1 June 1959 from existing units:

Battery B, 166th Field Artillery Battalion Organized 4 June 1898 as 2d Troop Philadelphia City Cavalry; assigned to Squadron A, 15 May 1910. Mustered into Federal service 15 July 1917...demobilized 30 November 1917 and personnel transferred to Batteries C and D, 108th Field Artillery and Headquarters Company, 53d Field Artillery Brigade...demobilized in May 1919...redesignated 18 June 1939 as Troop B, 104th Cavalry; redesignated 23 September 1940 as Battery B, 166th Field Artillery; inducted into Federal service 13 January 1941... redesignated 7 March 1943 as Battery B, 938th Field Artillery Battalion...reorganized 24 March 1947, Battery C, 166th Field Artillery Battalion...redesignated 24 May 1946 as Service Battery, 166th Field Artillery Battalion; reorganized and Federally recognized 11 February 1947.

28th Reconnaissance Company. Organized 17 November 1774 as Light Horse of the City of Philadelphia and redesignated First Troop Philadelphia City Cavalry in 1784; mustered into Federal service 27 August 1814 and mustered out 12 December 1814...accepted into Active State service 19 June 1863 and released from Militia emergency service 30 June 1863; reorganized 18 May 1867 as part of 1st Division, Pennsylvania Militia...redesignated Headquarters Troop, 103d Engineers, 30 October 1917 and further redesignated 103d Trench Mortar Battery, 9 December 1917; demobilized 3 April 1919...inducted into Federal service 17 February 1941; redesignated 1 January 1944 as Troop A, 104th Cavalry Reconnaissance Squadron, Mechanized...organized and Federally recognized 21 April 1947; redesignated 1 December 1948 as 28th Reconnaissance Company.

Tank Company, 110th Infantry. Organized 5 May 1892 as Company D, 10th Regiment, Pennsylvania Infantry; redesignated Company D, 10th Pennsylvania Volunteers and mustered into Federal service 11 May 1898, mustered out 22 August 1898; mustered into Federal service 2 July 1916, mustered out 25 October 1916; mustered into Federal service 15 July 1917; redesignated Company D, 110th Infantry, 11 October 1917; demobilized 24 May 1919...ordered into active Military service 1 September 1950 and reverted to state control 15 June 1954.

Company G, 110th Infantry. Organized 2 July 1898 as Company F, 21st Regiment, Pennsylvania Infantry; redesignated 15 November 1899 as Company C, 5th Regiment, Pennsylvania Infantry; redesignated 1 January 1910 as Company G, 10th Regiment, Pennsylvania Infantry; mustered into Federal service 2 July 1916, mustered out 25 October 1916; mustered into Federal service 15 July 1917; redesignated 11 October 1917 as Company G, 110th Infantry; demobilized 24 May 1919...inducted into Federal service 17 February 1941; inactivated 25 October 1945...reorganized and redesignated 1 April 1963 as 223d Cavalry, a parent regiment under the Combat Arms Regimental System, to consist of the 1st Squadron at Philadelphia, an element of the 28th Infantry Division. (Troops B and D, 1st Squadron, allotted to the Maryland Army National Guard 21 January 1968; Troop C, 1st Squadron, allotted to the Virginia Army National Guard, 1 February 1968. Redesignated 1 April 1975 as 104th Cavalry, a parent regiment under the Combat Arms Regimental System, to consist of the 1st Squadron at Philadelphia, an element of the 28th Infantry Division. (Unit History edited for space.)

Campaign Participation Credit

Civil War
Peninsula
Manassas
Antietam
Fredericksburg
Wilderness
Spotsylvania
Virginia 1863

World War I
Oise-Marne
Ypres-Lys
Meuse-Argonne
Champagne 1918
Lorraine 1918

World War II
Central Europe

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